

**Cypriot elementary school teachers' knowledge, attitudes and in-service training (INSET) regarding children with Attention Deficit Hyperactivity Disorder (ADHD)**

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Submitted in accordance with the requirements for the degree of  
Doctor of Philosophy

The University of Leeds  
School of Education

October, 2014

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*To*

*My beloved parents, grandparents, sister and brother*

*...for their unconditional love and support*

## Acknowledgements

*First of all I would like to express my deepest gratitude to my dear supervisors, Dr Mary Chambers, Dr Paula Clarke and Dr Phil Jones for their exceptional guidance and constant support. The stimulating discussions I had with them were undoubtedly the highlights of my PhD study. In the past four years, they have indeed inspired me both on professional and personal levels. I would also like to gratefully acknowledge all the Cypriot elementary school teachers who kindly agreed to take part in this study. Without their valuable contribution, this thesis could not be made.*

*I am also grateful to my beloved family and friends in Cyprus. Although 2234 miles away from home, they continued to show their love and support, making this seemingly long and tough journey bearable. The biggest thanks should be given to my parents, Savvas and Georgia, who have always been supportive, who placed a particular emphasis on education and have instilled in me their work ethic and determination to succeed in life. I love them and I am truly grateful for their endless love, all the emotional and financial support that made this PhD feasible. Special thanks to my beloved sister and brother, Panagiota, and Michalis, for being my best friends and supporters in life. I will always keep inside my heart my lovely grandparents, Michalis, Panagiota, Andreas and Marika, who have always been so loving, encouraging and proud of me.*

## Abstract

**Background** - ADHD is one of the most common and controversial lifelong disorders. It is a heterogeneous disorder (hyperactivity, impulsivity and inattention) with multiple presentations and levels of severity. The prevalence of school-age children with ADHD is approximately 5.0%. Considering the pivotal role of elementary school teachers in the diagnostic and intervention procedure, holding positive attitudes and having a clear understanding of the disorder is of critical importance.

**Aims** - The present study had as a purpose to broaden and add to the research base on ADHD by investigating Cypriot elementary school teachers' knowledge of the disorder and their attitudes towards the instruction of children with ADHD. The study also aimed to explore teachers' prior INSET experiences and their expectations and recommendations for future INSET.

**Design and method** - An explanatory mixed methods design of two sequential phases was used. In the first phase, primarily quantitative data were collected through questionnaires (n = 191) while in the second phase qualitative data were obtained through semi-structured interviews (n = 23) and focus groups (n = 4).

**Results** - On average, Cypriot elementary school teachers correctly responded to 43.3% of the 35 knowledge items. Substantial knowledge gaps and misconceptions were found in all three subscales (symptoms/diagnosis, treatment, general information). The majority of teachers did not have absolute attitudes regarding children with ADHD. Characteristics such as the nature of ADHD-related behaviours and the severity informed their feelings, beliefs and predispositions to act in certain ways. Although 65.9% had taught at least one student with ADHD during their teaching career, only 15.0% reported experience with relevant formal INSET. The lack of INSET and consequently the limited knowledge in managing ADHD-related behaviours was the most commonly reported reason for interviewees' disagreement with the presence of children with ADHD in mainstream classrooms and their negative predisposition to undertake their education.

**Conclusion** - Considering the overall findings, it could be argued that with the provision of extensive INSET and support, teachers' knowledge of ADHD has potential to increase while their attitudes towards the instruction of this group of children are likely to become more favourable. Based on the identified knowledge gaps, the rationale behind teacher attitudes and the recommendations for future INSET, several practical implications are provided for the administrators of the MoEC and policy-makers.

## Table of Contents

<b>Acknowledgements</b> .....	<b>iii</b>
<b>Abstract</b> .....	<b>iv</b>
<b>List of Tables</b> .....	<b>xii</b>
<b>List of Figures</b> .....	<b>xiii</b>
<b>List of Abbreviations</b> .....	<b>xiv</b>
<b>Chapter 1 - The beginning of the research journey</b> .....	<b>1</b>
1.1 Inspiration for this study .....	1
1.2 Research questions – Methodological approach .....	4
1.3 Introducing the key terminology of the thesis.....	4
1.4 The structure of the thesis .....	6
<b>Chapter 2 – ADHD: Recognition- Assessment- Diagnosis</b> .....	<b>8</b>
2.1 History of ADHD – Definitions.....	9
2.2 Assessment.....	11
2.3 Diagnostic Criteria .....	13
2.4 Overview – Conclusion.....	15
<b>Chapter 3 – Behavioural, academic, social and emotional implications of ADHD</b> .....	<b>18</b>
3.1 Primary ADHD-related behaviours.....	18
3.2 Academic, social and emotional functioning .....	21
3.3 Overview – Conclusion.....	27
<b>Chapter 4 – The aetiology of ADHD</b> .....	<b>29</b>
4.1 The genetic/neurobiological basis for ADHD.....	30
4.1.1 Twin/Adoption studies .....	30
4.1.2 Molecular genetic studies .....	31
4.1.3 Neuroimaging studies.....	31
4.2 The cognitive basis for ADHD .....	34
4.3 The environmental basis of ADHD.....	38
4.4 ADHD as a social construct .....	40
4.5 Overview – Conclusion.....	41
<b>Chapter 5 - Approaches to intervention</b> .....	<b>43</b>
5.1 Pharmacological interventions .....	43
5.2 Non-pharmacological interventions .....	51

5.2.1 Physical/Instructional/Antecedent-based behavioural interventions.....	52
5.2.2 Consequent-based behavioural interventions .....	58
5.3 Overview – Conclusion.....	63
<b>Chapter 6 - The socio-political, historical, cultural and educational context of Cyprus .....</b>	<b>65</b>
6.1 The role of socio-political – historical – cultural context in education .....	65
6.2 The major legislative reforms- From segregation to integration .....	68
6.3 The Education and Training of Children with Special Needs Law of 1999 (113(I)/1999).....	69
6.4 The current INSET provision.....	76
6.5 Overview – Conclusion.....	79
<b>Chapter 7 - Teachers’ knowledge and attitudes of ADHD.....</b>	<b>80</b>
7.1 Practicing teachers’ knowledge of ADHD.....	81
7.2 Practicing teachers’ attitudes towards ADHD .....	89
7.3 INSET on ADHD .....	92
7.4 Overview – Conclusion.....	93
<b>Chapter 8 – Methodology .....</b>	<b>95</b>
8.1 Research Purposes – Contribution .....	95
8.2 Research Questions .....	97
8.3 Research design – Rationale for a mixed methods paradigm .....	97
8.4 Data Collection Procedure .....	98
8.4.1 Questionnaire.....	99
8.4.2 Semi-structured interviews and focus groups with teachers .....	101
8.4.3 Semi-structured interviews with stakeholders.....	102
8.5 Pilot Study – Reflection .....	102
8.5.1 Questionnaire.....	102
8.5.2 Focus Group .....	104
8.6 Recruitment and sampling processes .....	106
8.6.1 Teachers.....	106
8.6.2 Stakeholders .....	108
8.7 Addressing ethical issues .....	108
8.7.1 The importance of research for the advancement of knowledge.....	109
8.7.2 Obtaining informed consent from participants.....	109

8.7.2.1 Questionnaire .....	109
8.7.2.2 Semi-structured interviews and focus groups with teachers.....	110
8.7.2.3 Semi-structured interviews with stakeholders .....	110
8.7.3 Data Protection .....	110
8.7.4 Integrity-honesty-openness-conflict of interests .....	111
8.7.5 Risks and benefits.....	111
8.7.6 Treatment of participants.....	112
8.7.6.1 Health and safety of participants .....	112
8.7.6.2 Psychological well-being and dignity of participants.....	112
8.8 Overview – Conclusion.....	112
<b>Chapter 9 – Methodology of Analysis .....</b>	<b>113</b>
9.1 Quantitative data – Questionnaire.....	113
9.2 Qualitative Data – Interviews and Focus Groups .....	114
9.2.1 Pre-Coding Phase .....	115
9.2.2 The decision to retain transcripts in Greek language .....	116
9.2.3 Coding Phase.....	117
9.2.3.1 Coding using Microsoft Word .....	118
9.2.3.2 Coding using NVivo 10 .....	119
9.2.4 Searching for themes .....	120
9.2.5 Three levels of analysis - Writing the results .....	120
9.3 Overview - Conclusion .....	121
<b>Chapter 10 – INSET in the educational context of Cyprus: Stakeholders’ perspective .....</b>	<b>123</b>
10.1 Current INSET – Recommendations for future INSET.....	123
10.1.1 INSET offered by the ADD-ADHD CYPRUS .....	123
10.1.2 INSET offered by the CPI.....	125
10.1.3 INSET offered by a clinical psychologist .....	126
10.1.3.1 Privately .....	126
10.1.3.2 In cooperation with the MoEC.....	127
10.1.4 INSET offered by the MoEC.....	128
10.2 Overview – Conclusion.....	130
<b>Chapter 11 – Questionnaire Results.....</b>	<b>131</b>
11.1 Demographic information .....	131
11.2 Prior experiences with ADHD .....	132

11.3	Knowledge of ADHD: Descriptive statistics .....	132
11.3.1	Knowledge regarding the nature of ADHD.....	137
11.3.2	Knowledge regarding the causation of ADHD .....	137
11.3.3	Knowledge regarding secondary effects - outcomes.....	138
11.3.4	Knowledge regarding symptoms/diagnosis.....	138
11.3.5	Knowledge regarding pharmacological/non-pharmacological interventions.	139
11.4	Knowledge scores calculation and inferential statistics.....	140
11.4.1	Knowledge scores calculation .....	140
11.4.2	Normality and reliability checks .....	142
11.4.3	Correlational analysis – Teachers’ knowledge of ADHD and background characteristics .....	143
11.4.4	One-way ANOVA – Teachers’ knowledge and qualifications .....	146
11.4.5	Repeated measures ANOVA – Comparison of subscale scores .....	146
11.4.6	Independent samples t- tests.....	146
11.5	Self-efficacy to teach students with ADHD.....	149
11.6	Attitudes towards the instruction of students with ADHD .....	149
11.7	Chi-square tests of association (Pearson’s chi-square tests).....	157
11.8	Previous INSET experiences (formal and informal).....	162
11.9	Expectations and recommendations for future INSET .....	164
11.9.1	Expectations .....	165
11.9.2	Recommendations .....	166
11.10	Overview - Conclusion .....	171
	<b>Qualitative data analysis – Overview of the main themes (Personal Interviews and Focus Groups).....</b>	<b>173</b>
	<b>Chapter 12 - Personal Interview Results .....</b>	<b>177</b>
12.1	Experiences with ADHD in the mainstream classroom.....	177
12.1.1	Hyperactivity / Impulsivity – Challenges (discipline/safety).....	178
12.1.1.1	Priority to classroom peers’ education.....	181
12.1.1.2	Priority to safety issues .....	182
12.1.1.3	Classroom peers’ parents – Worries/Complaints.....	183
12.1.1.4	Relationship with classroom peers – Tense / Unfriendly .....	184
12.1.2	Attention Deficits – A “personal problem” .....	186
12.2	Teachers’ attitudes towards the validity of ADHD.....	188
12.2.1	Questioning the validity of diagnostic conclusions.....	189

12.2.2	Origins of ADHD .....	190
12.3	Experiences with previous INSET .....	194
12.3.1	No experience with INSET .....	194
12.3.2	Experience with previous INSET .....	196
12.4	Teachers' predisposition to choose classrooms including children with ADHD .....	198
12.5	Teachers' attitudes towards the appropriate educational setting.....	202
12.5.1	Companions .....	206
12.6	Teachers' recommendations for future INSET .....	209
12.6.1	Preferable time .....	209
12.6.2	Preferable place and type.....	209
12.6.3	Preferable legal framework .....	213
12.7	Overview - Conclusion .....	214
	<b>Chapter 13 - Focus Group Results .....</b>	<b>217</b>
13.1	Focus Group 1 .....	218
13.1.1	Vignette .....	218
13.1.2	Experiences with ADHD – Challenges – Medication.....	218
13.1.3	Appropriate educational setting – Companions .....	220
13.1.4	Experiences with previous INSET .....	222
13.1.5	Predisposition to choose classrooms including children with ADHD .....	222
13.1.6	Attitudes towards the validity/origins of ADHD .....	222
13.1.7	Recommendations for future INSET.....	224
13.2	Focus Group 2.....	226
13.2.1	Vignette .....	226
13.2.2	Experiences with ADHD – Challenges (Discipline / Safety / Relationships with peers / Parents' complaints) .....	227
13.2.3	Appropriate educational setting.....	228
13.2.4	Experiences with previous INSET .....	229
13.2.5	Predisposition to choose classrooms including children with ADHD .....	229
13.2.6	Attitudes towards the validity/origins of ADHD .....	230
13.2.7	Recommendations for future INSET.....	231
13.3	Focus Group 3 .....	232
13.3.1	Vignette .....	232
13.3.2	Experiences with ADHD – Challenges – Medication.....	233

13.3.3 Appropriate educational setting – Companions .....	234
13.3.4 Experiences with previous INSET .....	235
13.3.5 Predisposition to choose classrooms including children with ADHD .....	235
13.3.6 Attitudes towards the validity/origins of ADHD – Parents and Misdiagnosis .....	236
13.3.7 Recommendations for future INSET.....	237
13.4 Focus Group 4 .....	238
13.4.1 Vignette .....	238
13.4.2 Experiences with ADHD – Challenges (Discipline / Safety / Relationships with peers) .....	239
13.4.3 Appropriate educational setting – Companions .....	240
13.4.4 Experiences with previous INSET .....	240
13.4.5 Predisposition to choose classrooms including children with ADHD .....	241
13.4.6 Attitudes towards the validity/origins of ADHD – Parents and Misdiagnosis .....	242
13.4.7 Recommendations for future INSET.....	243
13.5 Overview – Conclusion.....	245
<b>Chapter 14 – Summary, Discussion and Conclusions .....</b>	<b>247</b>
14.1 Cypriot teachers’ knowledge of ADHD.....	247
14.2 Cypriot teachers’ attitudes towards the instruction of children with ADHD.....	254
14.3 Current INSET provision .....	261
14.4 Implications for future INSET .....	263
14.5 Limitations and Recommendations for future research .....	266
14.6 Dissemination Plans .....	270
14.7 Overview – Conclusion.....	274
<b>References .....</b>	<b>277</b>
<b>Appendices .....</b>	<b>303</b>
Appendix 1 - Introductory cover letter for teachers.....	303
Appendix 2 - Information sheet for teachers.....	304
Appendix 3 - Statement of the second phase of the research.....	306
Appendix 4 - Information sheet for teacher interviews .....	307
Appendix 5 - Information sheet for teacher focus groups.....	308
Appendix 6 - Informed consent form for teacher interviews.....	309
Appendix 7 - Informed consent form for focus groups.....	310

Appendix 8- Information sheet for stakeholder interviews.....	311
Appendix 9 - Informed consent form for stakeholder interviews .....	312
Appendix 10 - Questionnaire .....	313
Appendix 11 - Protocol for teacher interviews/focus groups.....	319
Appendix 12 - Training, workshops, conferences attended.....	320
Appendix 13 – Approval from the AREA Faculty Research Ethics Committee.....	322
Appendix 14 - Predetermined codes .....	323
Appendix 15 - Coding system (initial and emergent).....	324

## List of Tables

<b>Table 1</b> - <i>Studies that examined teachers' knowledge of ADHD using a True/False response format</i> .....	82
<b>Table 2</b> - <i>Studies that examined teachers' knowledge of ADHD using a True/False/Don't Know response format</i> .....	85
<b>Table 3</b> - <i>Distribution of respondents by their answers in PART 3 - Knowledge of ADHD</i> .....	133
<b>Table 4</b> - <i>Distribution of respondents by their answers in PART 4 - Self-efficacy to teach students with ADHD</i> .....	150
<b>Table 5</b> - <i>Distribution of respondents by their answers in PART 5 - Attitudes towards the instruction of students with ADHD</i> .....	151
<b>Table 6</b> - <i>Attitude items 4.2 - 4.4 and 5.1 - 5.17 - Means and SDs</i> .....	156
<b>Table 7</b> - <i>Participants' responses depending on their prior personal experience with ADHD (family members/friends) - Items 4.2 to 4.4</i> .....	159
<b>Table 8</b> - <i>Participants' responses depending on their prior experience with students having an ADHD diagnosis - Items 4.2 to 4.4</i> .....	160
<b>Table 9</b> - <i>Participants' responses depending on their prior experience with relevant INSET - Items 4.2 to 4.4</i> .....	161
<b>Table 10</b> - <i>Distribution of respondents by the preferable time for INSET</i> .....	166
<b>Table 11</b> - <i>Distribution of respondents by the preferable place for INSET</i> .....	167
<b>Table 12</b> - <i>Distribution of respondents by the preferable legal framework</i> .....	168
<b>Table 13</b> - <i>Distribution of respondents by the preferable form of INSET</i> .....	169

## List of Figures

<b>Figure 1</b> - <i>The ABC model of attitudes</i> .....	89
<b>Figure 2</b> – <i>Data collection procedure</i> .....	98
<b>Figure 3</b> - <i>Scatterplot of total knowledge scores and treatment subscale scores</i> .....	141
<b>Figure 4</b> - <i>Scatterplot of total knowledge scores and symptoms/diagnosis subscale scores</i> .....	141
<b>Figure 5</b> - <i>Scatterplot of total knowledge scores and general information subscale scores</i> .....	142
<b>Figure 6</b> - <i>Normal P-P plot of knowledge scores</i> .....	143
<b>Figure 7</b> - <i>Scatterplot of knowledge scores and age (<math>r = -.03</math>, <math>N = 180</math>, <math>p = .66</math>)</i> .....	144
<b>Figure 8</b> - <i>Scatterplot of knowledge scores and teaching experience (<math>r = -.04</math>, <math>N = 184</math>, <math>p = .54</math>)</i> .....	144
<b>Figure 9</b> - <i>Scatterplot of knowledge scores and number of students taught with ADHD (<math>r = .02</math>, <math>N = 115</math>, <math>p = .76</math>)</i> .....	145
<b>Figure 10</b> - <i>Scatterplot of knowledge scores and hours of formal INSET (<math>r = -.22</math>, <math>N = 24</math>, <math>p = .30</math>)</i> .....	145
<b>Figure 11</b> - <i>Bar chart of average knowledge scores and SDs by prior personal experience with ADHD</i> .....	147
<b>Figure 12</b> - <i>Bar chart of average knowledge scores and SDs by prior experience with INSET</i> .....	148
<b>Figure 13</b> - <i>Bar chart of average knowledge scores and SDs by prior teaching of students with ADHD</i> .....	148
<b>Figure 14</b> - <i>Dissemination Plan</i> .....	272

**List of Abbreviations**

ADHD	Attention Deficit Hyperactivity Disorder
INSET	In-service training
MoEC	Cyprus Ministry of Education and Culture
CERE	Cyprus Centre of Educational Research and Evaluation
CPI	Cyprus Pedagogical Institute
ADD-ADHD CYPRUS	Cyprus Organisation of ADHD
DSM	Diagnostic and Statistical Manual of Mental Disorders
APA	American Psychiatric Association
TRA	Theory of Reasoned Action
TPB	Theory of Planned Behaviour
NICE	National Institute for Health & Clinical Excellence
DRC	Daily Report Cards
CNS	Central Nervous System
ICD	International Classification of Diseases

## Chapter 1 - The beginning of the research journey

### 1.1 Inspiration for this study

You are the naughtiest student I ever had. Honestly; if you continue misbehaving, you will return to the special unit for the rest of the year (sic).

I came across this phrase five years ago, when I had the final teaching placement of my undergraduate studies. It immediately stuck in my mind and turned my attention to the student. The first week of that placement was an “adaptive period”, when trainee teachers had the opportunity to attend the teaching procedure and familiarise themselves with the rules and routines of the classroom, the students and their educational needs. Since the beginning of the first day, I noticed a boy that was extremely restless and noisy, albeit the constant remarks of the teacher who was continuously interrupting the lesson to manage his behaviour. When that was not possible, the boy was sent to the special unit of the school. He actually spent most of the teaching time outside the mainstream classroom. At the end of the first day, the teacher explained that the child had been recently diagnosed with Attention Deficit Hyperactivity Disorder (ADHD). That was the first time I had heard about the disorder. I asked about the accommodations that were needed to manage the behaviour and support the learning of that child. The answer was quite disappointing.

I don't know. None of his teachers knows. It's a very difficult boy. We usually send him to the special unit to do the lesson without problems. So, don't worry. When you have your evaluation, he will not be in the classroom (sic).

I did not comment on this and I passed the first week, observing his behaviour and reading about the nature of the disorder and the available classroom-based interventions. The more I was reading, the more I was interested to undertake the management and teaching of this student. Although difficult, teaching a student with ADHD was one of the most challenging and interesting experiences I had as a trainee teacher and constituted the starting point of this research journey. First, it became a strong motivation to examine ADHD in the MA Critical Study (Doukanari, 2010). For the purposes of that qualitative study, Cypriot elementary school teachers' perceptions

about the disorder, the instruction of children with ADHD, the administration of medication and the use of classroom-based interventions, were explored. The results revealed insufficient knowledge and negative attitudes on the part of participants as well as various deficiencies of the current in-service training (INSET) system (Doukanari, 2010). The interesting findings and the encouraging feedback of my supervisor informed my decision to pursue a doctoral degree in this area.

ADHD is one of the most common and at the same time controversial lifelong disorders. According to the fifth edition of the DSM criteria (APA, 2013), the prevalence of school-age children with ADHD is approximately 5.0%. This suggests that in each typical classroom of around 20 children one child is diagnosed with ADHD (Ohan et al., 2011; Farrar, 2011). Therefore, the likelihood of teachers having a diagnosed or undiagnosed child in their classroom is high (Anderson et al., 2012). The accurate diagnosis and effective management of ADHD require the composition of a multi-disciplinary evaluation and intervention team of professionals and non-professionals. Necessary members of this team are teachers who are invited to play a pivotal role in identifying undiagnosed children with ADHD, in evaluating their behavioural, educational and social functioning and creating an inviting learning environment for them and their classroom peers (Perold et al., 2010).

Given that behaviours related to hyperactivity/impulsivity and inattention are easily noticeable in highly structured and demanding settings, as a mainstream classroom is, it is not surprising that elementary school teachers are usually the first to notice atypical behaviour and make referrals for an ADHD diagnosis (Anderson et al., 2012; Sayal, 2007; Kos et al., 2006; Snider et al., 2003; Scitutto et al., 2000). In parallel with their indirect informational role (referrals for evaluation), teachers constitute a primary source of information during the assessment procedure and they have a central role in advising parents, in implementing classroom-based interventions and in supporting their students academically and socially (Barkley, 2013; Anderson et al., 2012; Weyandt et al., 2009; Vereb and DiPerna, 2004; West et al., 2005).

Considering the involvement of teachers in the diagnostic and intervention procedure, holding positive attitudes towards children with ADHD and having a clear understanding of the disorder is highly important. During the last two decades,

researchers from all over the world have carried out investigations to assess the accuracy of educators' knowledge and identify areas that need further development (Jerome et al., 1994; Scitutto et al., 2000; Bekle, 2004; Kos et al., 2004; West et al., 2005; Ghanizadeh et al., 2006; Ohan et al., 2008; Perold et al., 2010; Anderson et al., 2012). In contrast to teachers' knowledge, their attitudes towards children with ADHD have not been widely and distinctly investigated in the past. The majority of practicing teachers, who participated in relevant studies, reported that they had received little or no formal pre-service and in-serving training on ADHD (Jerome et al., 1994; Barbaresi and Olsen, 1998; Bussing et al., 2002; Bekle, 2004; West et al., 2005).

The key role of INSET in enhancing teachers' knowledge of ADHD, the acceptability and implementation of interventions (e.g. behaviour modification interventions) has been corroborated in several studies (Jerome et al., 1994; Barbaresi and Olsen, 1998; Vereb and DiPerna, 2004; West et al., 2005; Jones and Chronis-Tuscano, 2008; Syed and Hussein, 2010; Perold et al., 2010). The development of an INSET scheme that responds to educators' needs however presupposes the prior assessment of these needs. Failure to identify the needs of a specific population can undermine the relevance and effectiveness of INSET (Symeonidou and Phtiaka, 2009; Rycus and Hughes, 2000). Trainers, for example, will be more likely to address knowledge gaps if they are aware of the insufficient knowledge and misconceptions of the target population. Similarly, if trainers are aware of educators' attitudes towards children with ADHD and the rationale behind their feelings, beliefs and predispositions to act in certain ways, then they will be more likely to focus on these factors and help them alter possible negative attitudes.

The present study had as a purpose to broaden and add to the research base on ADHD by investigating Cypriot elementary school teachers' knowledge of the disorder and their attitudes towards the instruction of children with ADHD. The study also aimed to explore teachers' prior INSET experiences and their expectations and recommendations for future INSET.

## **1.2 Research questions – Methodological approach**

Two research questions were considered in the study:

1. What is the knowledge of Cypriot elementary school teachers with regard to: a) the symptoms/diagnosis of ADHD, b) the treatment and c) general information regarding the nature of the disorder, the causes and the outcomes?
2. What are the attitudes of Cypriot elementary school teachers with regard to: a) the instruction of students with ADHD, b) their self-efficacy in teaching students with ADHD, c) the current and future INSET scheme?

In addressing these research questions, primary research involving Cypriot elementary school teachers from twenty public schools was conducted. Data collection commenced in January 2012 and was completed in May of the same year. For the purposes of this study, an explanatory mixed methods design of two sequential phases was adopted. In the first phase, primarily quantitative data were collected through questionnaires while in the second phase qualitative data were generated through semi-structured interviews and focus groups. Cypriot teachers' knowledge of ADHD was explored in the first phase of the research using a 35-item knowledge scale. The attitudes towards the instruction of children with ADHD were quantitatively explored in the first phase of the research and in more depth in the second one. The purpose was not only to capture teachers' attitudes but also to get an insight into the rationale behind their feelings, beliefs and predispositions to act in certain ways. Teachers' attitudes towards the current INSET system, their expectations and recommendations for future INSET were explored both in the first and second phase of the research. Quantitative data were coded and entered into SPSS 20 (Statistical Package for Social Sciences) for analysis. The management and analysis of qualitative data were facilitated with the use of NVivo 10 software.

## **1.3 Introducing the key terminology of the thesis**

The terms “disabled children” and “children with special needs” are used interchangeably across contexts and the distinction between them is unclear. Within the

context of Cyprus, the term “children with special needs” is widely used in daily communication, media discourses (Symeonidou, 2005) and legal documents to describe the group of children that according to “The Education and Training of Children with Special Needs Law of 1999 (113(I)/1999)” (MoEC, 1999) are entitled to special accommodations and extra educational provision. This term refers to children with learning and specific learning difficulties (e.g. dyslexia, dyspraxia and dyscalculia), genetic, developmental, emotional and behavioural disorders (e.g. Down syndrome, ADHD, Autism spectrum disorders, language disorders, Oppositional Defiant/Conduct disorders), sensory impairments (e.g. hearing and visual) and physical disabilities (e.g. mobility difficulties) (MoEC, 1999). The term “disabled children” is used for a specific group of children with special needs, those who present mobility difficulties. This concept is applied in legal documents, such as “The streets and buildings Law regarding the use of buildings by disabled people”, established by the Design Bureau for the Accessibility of Persons with Disability (Ministry of Communications and Works, 2011). The provisions of the Law refer to the term “disabled” as the person that due to physical reasons faces a permanent or temporary difficulty accessing buildings and streets (Ministry of Communications and Works, 2011). Symeonidou (2005, p.1) critically examined the cases when the term “disabled” is broadly adopted and explained that,

In Greek language, there is no direct distinction made between impairment and disability, and thus the distinctions between the medical and the social elements represented by each term have not been made...Thus, the term *anapiria* is used, which is translated to disability, but it actually carries the concept of impairment.

Given the negative predisposition that the term “disabled” has in the context where this PhD study was conducted and the wide adoption of the term “special needs”, the latter term will be used for the purposes of the thesis.

The term “mainstream school teachers” refers to elementary school educators that are employed in mainstream schooling. These educators have not been qualified for the education of children with special needs in their undergraduate studies. The term “special teachers” refers to educators with a bachelor or/and a master’s degree on special education issues. Special teachers work either in special or mainstream schools. Those who work in mainstream schools provide either one-to-one support to children

with special needs or support in small groups of children that attend special units. “Special units” refer to classes that function within mainstream schools and usually accommodate five children, categorised with special needs (Angelides and Michailidou, 2007). These children have an individual programme that is formed based on their educational needs and they receive support by professionals (e.g. special teachers, psychologists, speech therapists) and paraprofessionals (“companions” who provide constant individual support). Children can attend a special unit either on a part-time or full-time basis. In the mainstream classroom, they usually attend non-academic lessons (e.g. art, music and physical education) and occasionally lessons such as geography and religion (Angelides and Michailidou, 2007).

## 1.4 The structure of the thesis

The thesis is divided into fourteen chapters. Chapters 2 to 7 orientate the reader towards the disorder under investigation. More specifically, **Chapter 2** focuses on the recognition, assessment and diagnosis of ADHD. **Chapter 3** provides an overview of ADHD-related behaviours, the difficulties children with ADHD may experience in everyday life and the impact on academic, social and emotional functioning. **Chapter 4** focuses on the aetiology of the disorder and reviews the factors (genetic/neurobiological, cognitive and environmental) that have been either correlated with, or considered potential risks for ADHD. **Chapter 5** considers the available approaches to intervention. In the first part of the chapter, the current pharmacological interventions, their benefits and possible side-effects are discussed. Given the population of interest in the study, the second part primarily focuses on school-based interventions that can be implemented by mainstream school teachers in classroom settings (physical, instructional and behavioural accommodations - in cooperation with parents).

**Chapter 6** immerses the reader in the context of Cyprus, raising a better understanding of the rationale and significance of the study. The purpose of this chapter is twofold. The first purpose is to provide contextual information about the broader socio-political, historical, cultural and ideological framework of the country. The second is to give a summary of the major legislative reforms regarding the education of children with special needs – specific literature on students with ADHD has not been found. The

educational context after the introduction of The Education and Training of Children with Special Needs Law of 1999 (113(I)/1999) (MoEC, 1999) is critically discussed and emphasis is placed on the current INSET opportunities, available to Cypriot elementary school educators. In **Chapter 7**, the literature on practicing teachers' knowledge of, and attitudes towards ADHD, is reviewed. **Chapter 8** provides an overview of the methodology, the instruments and the ethical issues considered and addressed in the present study. The approaches used to analyse quantitative and qualitative data, the coding procedures and software tools (SPSS 20 and NVivo 10) that facilitated data management and analysis are detailed in **Chapter 9**.

**Chapter 10** focuses on INSET opportunities available to Cypriot elementary school teachers, as these were discussed by specialists (clinical psychologists) and representatives of organisations responsible for the provision of relevant INSET, either governmentally or privately. Although stakeholder interviews were not directly associated with the research questions, they were particularly informative; they set the scene regarding INSET and filled the gap that existed in the literature. These interviews simultaneously allowed the identification of possible discrepancies between stakeholders and teachers who extensively discussed and evaluated INSET in questionnaires, personal interviews and focus groups. **Chapter 11** details questionnaire results. Descriptive statistics were used to summarise the data and inferential statistics to investigate relationships between variables and proceed to comparison between groups of respondents. **Chapters 12 and 13** focus on personal interview (23) and focus group (4) results. In the final chapter of the thesis, **Chapter 14**, the findings are discussed in relation to each research question with reference to the existing literature. Final conclusions, practical implications, limitations and recommendations for future research are included in this last chapter.

## Chapter 2 – ADHD: Recognition- Assessment- Diagnosis

The following chapter, which is divided into three parts, focuses on the recognition, assessment and diagnosis of ADHD. The first part starts with a historical overview and concludes with various terms and definitions of the disorder. A review of the multi-dimensional assessment procedure needed for the diagnosis is provided in the second part of the chapter. The third part describes the diagnostic criteria for ADHD as they are determined by the American Psychiatric Association (APA, 2013). Diagnostic issues that raise a number of controversies over the validity of diagnosis are discussed in this part, considering whether and how these have been addressed in the newly published edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5). The decision to adopt the term “ADHD” and the DSM criteria was not accidental. In contrast to the alternative term “hyperkinetic disorder”, prescribed by the tenth revised edition of International Classification of Diseases (ICD-10), the term “ADHD” is broader. The APA terminology and criteria recognise several presentations and levels of severity and they are widely used to frame the disorder (Young et al., 2013). It was therefore considered reasonable to develop the document in consistency with the terms and framework found in the literature.

ADHD is one of the most common and at the same time complex and controversial lifelong disorders (O’Regan, 2005; Brock et al., 2009). It occurs more frequently in males than in females (3:1-9:1) (Hulme and Snowling, 2009) and it has “at least 7,056 possible combinations of 12 out of 18 symptoms that could result in a diagnosis of ADHD-CT” (ADHD-Combined Type) (DuPaul and Stoner, 2003, p.8). In contrast to the DSM-IV-TR criteria, where ADHD was listed along with Conduct Disorder and Oppositional Defiant Disorder under the heading of Disruptive Behavior Disorders (APA, 2000), the newly published edition classifies ADHD under Neurodevelopmental Disorders (APA, 2013). Although this term has been associated with childhood disorders for decades, follow-up studies support that ADHD is in the majority of cases a chronic disorder, with behavioural modifications through the years (Asherson, 2013; NHMRC, 2012; NICE, 2008). In worldwide epidemiological studies, the prevalence of adults with ADHD ranged from 2.5% to 4.4% (Simon et al., 2009; Fayyad et al., 2007; Kessler et al., 2006). According to the European Consensus Statement on adult ADHD, in many European countries the disorder still remains undiagnosed and mistreated with

adverse outcomes for both adults with ADHD and society (Kooij et al., 2010). These findings have been considered in the latest edition of the DSM criteria (DSM-5), where the persistence of ADHD in adulthood is legitimised and particular attention is paid to the diagnosis beyond childhood (APA, 2013).

## **2.1 History of ADHD – Definitions**

ADHD does not constitute a recent phenomenon. Difficulties related to hyperactivity/impulsivity and inattention have been clinically observed and documented for over a century. A particular language and context to engage with this phenomenon was described in 1902 by Still, a British paediatrician (Kooij, 2013). At that period of time, children with such behavioural characteristics were considered to have a “defect in moral control” (Kooij, 2013; Brock et al., 2009, p.3). ADHD-related behaviours were connected to brain damage when a massive number of children had been affected by encephalitis (1917-18) (Barkley, 2006). The fact that encephalitis caused damages in certain regions of the brain, in combination with the presence of hyperactivity, impulsiveness and inattentiveness, had as a result the introduction of the first official term; “post-encephalitic disorder” (Cacace and McFarland, 2006, p.42). Throughout the years ADHD has obtained a number of different terms such as “defect in moral control”, “brain-injured child syndrome”, “minimal brain damage” “minimal brain dysfunction”, “hyperkinetic impulse disorder”, “hyperactive child syndrome” and “hyperkinetic reaction of childhood” (Kooij, 2013; Barkley, 2005, p.4; Cacace and McFarland, 2006, p.42; Detweiler et al., 1999, p.43).

In 1980, the American Psychiatric Association published the Diagnostic and Statistical Manual of Mental Disorders III (DSM-III), introducing the term Attention Deficit Disorder (ADD) and two subtypes (ADD-H and ADD+H) (Brock et al., 2009). This classification system resulted in controversies among European and American scholars. In contrast to the International Classification of Diseases (ICD-9) that considered hyperactivity a necessary criterion, American scholars perceived inattention as the fundamental behavioural feature of the disorder (Brown, 2009; O’ Regan, 2005; Barkley, 1998). Since 1980, the DSM criteria have been revised several times in an attempt to become more accurate and descriptive and acknowledge all the different forms that may exist. A revision in 1987 introduced the well-known term Attention

Deficit Hyperactivity Disorder (ADHD) which co-existed with ADD (Selikowitz, 2004). At that point, the criteria were divided into three distinct categories, representing the three primary behavioural features (Barkley, 1998).

Nowadays, two classification systems and terms validly predominate the disorder; “Attention Deficit Hyperactivity Disorder (ADHD)” as it is denominated in the fifth edition of the DSM diagnostic criteria (American Psychiatric Association, APA) and “hyperkinetic disorder” as it is prescribed by the tenth revised edition of the International Classification of Diseases (ICD-10) (World Health Organisation, WHO) (APA, 2013; Kooij, 2013; NICE, 2009). While the term ADHD recognises multiple presentations and levels of severity, hyperkinetic disorder concerns exclusively more severe cases (NICE, 2009). According to the ICD-10 diagnostic scheme, both hyperactivity/impulsivity and inattention must be present for the diagnosis (Taylor, 2007). Hyperkinetic disorder “can be conceptualized as a subtype of the broader attention deficit hyperactivity disorder (ADHD)” (Sayal, 2007, p.53) and specifically as a severe form of the combined subtype (NICE, 2009). For the purposes of this PhD thesis, attention will be on the term ADHD and the DSM set of criteria.

A formal definition of ADHD was not found in the literature. This gap resulted in the adoption of various definitions according to the theoretical perspective of each scholar. Scholars who advocate the neurobiological basis of the disorder consider ADHD “a brain-based disorder that arises out of differences in the central nervous system (CNS)- both in structural and neurochemical areas” (Rief, 2003, p.3) and “an internationally recognised medical condition of brain dysfunction” (Kewley, 2005, p.11). Those who support the cognitive basis suggest that ADHD is “a developmental disorder of self-control” (Barkley, 2013, p.19) and “the extreme end of the normal range of impairments in executive function” (Brown, 2006, p.40). Adherents of a bio-psychosocial approach perceive ADHD as “a neurologically based but environmentally driven condition” (Goldstein, 2006, p.463). Regardless of the multiple definitions, there is a consistency in the diagnostic criteria that are used for an ADHD diagnosis.

## 2.2 Assessment

An ADHD diagnosis cannot be verified using single medical or psychological diagnostic tests (Barkley, 2013; NICE, 2009; Sayal, 2007; Brown, 2006; Timimi and Taylor, 2004). As Duesenberg (2006, p.190) explains, "...there is no quick laboratory test, neuroimaging study, computer evaluation, or other biologically based examination that can make the diagnosis." A time-consuming, systematic and multidimensional assessment procedure is required to verify that the observed behaviours are not due to family reasons (e.g. a divorce, abuse, family stress) or other conditions with similar behavioural characteristics, such as hearing or visual impairments, sleep deprivation, epilepsy, anaemia and Tourette's syndrome (Chandler, 2010; NICE, 2009). As Hulme and Snowling (2009, p.247) highlight, "the key to diagnosis is not whether a child can pass a given test in a structured situation but how well they can regulate their behavior during everyday activities over extended periods of time." The cooperation of professionals and non-professionals (e.g. parents/carers, teachers, special educational needs coordinators, doctors and other health care professionals, social workers, clinical/educational psychologists and candidate children) is therefore needed to evaluate children's behavioural profiles across settings and conclude a diagnosis for ADHD (Chandler, 2010; NICE, 2009).

Since there is no specific test for ADHD, a number of assessment instruments have been recommended to collect the information required. Parent, child and teacher interviews, observations, rating scales for clinicians, parents and teachers, neuropsychological tests as well as mental health, vision, hearing and physical examination are usually part of the assessment procedure (Barkley, 2013; NHMRC, 2012; NICE, 2009; Hulme and Snowling, 2009; Cooper, 2006; Duesenberg, 2006; Montague and Castro, 2005; Train, 2005). The multimodal assessment provides two kinds of information. First, a large database regarding the behavioural profile of the child, the severity and frequency of observed behaviours across settings is created. At the same time, information about the child and family medical history, the living conditions and the parental style is provided for consideration (Barkley, 2013; Cooper and Bilton, 2002). Co-existing conditions and possible difficulties in academic or/and social functioning are also evaluated during the assessment procedure (Barkley, 2013). The American Academy of Pediatrics (AAP,

2011) refers to physical, developmental, emotional and behavioural comorbid conditions that need to be considered during the diagnostic and intervention procedure.

The interaction with parents (visits, interviews) gives an indication of the socioeconomic, educational, marital and cultural background of the family as well as parents' willingness and competence to cooperate and implement home-based interventions (Barkley, 2013; Sayal, 2007). The fact that they are in position to provide information since birth renders parents the most valuable and ecologically valid source of information (Barkley, 2013). Parents are invited to give a comprehensive description of their child's behaviour across settings, the age of onset and possible modifications throughout the years. Intervention practices (at school and home) that have been applied so far as well as school history (preschool to present) are also reviewed and taken into account (NICE, 2009). School history provides evidence of the child's behaviour in structured environments, the academic performance over the years and the potential to create and maintain friendships; areas that may be affected by ADHD (Barkley, 2013). Parents are also invited to talk about pregnancy and birth history, possible accidents, injuries, other medical conditions, previous and current administration of medication. Family history is also important given the strong evidence that ADHD can be inherited (NICE, 2009; Sayal, 2007; Duesenberg, 2006; Cooper and Bilton, 2002).

Teachers have a key role in the assessment procedure since they can clarify the nature, the frequency and severity of related behaviours, as observed in a structured and demanding setting (Barkley, 2013). Information about the child's behaviour inside and outside the classroom, the academic performance and the social relationships with peers can be obtained through interviews, open-ended questionnaires and rating scales (Barkley, 2013; NICE, 2009; Sayal, 2007; Train, 2005; Kewley, 2001). Two different types of rating scales can be administered to parents and teachers; broad-band and narrow-band scales (Barkley, 2013; NICE, 2009; Sharkey and Fitzgerald, 2007; Sayal, 2007). Broad-band scales are used to identify a number of conditions including ADHD, such as anxiety, depression, conduct disorder and oppositional defiant disorder. Broad-band scales can indicate possible co-morbid conditions or lead to a totally differential diagnosis. On the contrary, narrow-band scales exclusively examine the presentation and severity of ADHD-related behaviours. Notwithstanding their wide applicability, these instruments are "no substitute for a thorough clinical assessment" (Sharkey and

Fitzgerald, 2007, p.25). Therefore, they should be used in conjunction with other evaluation methods. Given the severity of behaviours, direct observation may also be required (NICE, 2009).

The validity of diagnostic conclusions has been challenged by Timimi and Leo (2009), Timimi (2005), Gualtieri and Johnson (2005). These scholars suggest that interviews and rating scales can only approximate rather than accurately describe children's behaviour. In their opinion, the mediation of assessors' personal beliefs in the interpretation and assessment of observed behaviours renders these measures subjective and the data collected unreliable. Subjectivity is also the fundamental reason for criticism in qualitative research (Johnson and Christensen, 2004). The use of multiple instruments and sources to generate data for the same phenomenon (triangulation) is one of the most popular methods qualitative researchers use to address validity and reliability issues (Flick, 2002; Robson, 1993). Bloor (1997, p.38) explains that "Validity is claimed because replication of the findings by different methods minimizes the possibility that the findings may be the result of particular measurement biases." Given this, it could be argued that the multimodal assessment procedure, followed to identify whether a child meets the DSM criteria, decreases biases, increases the reliability of data and leads to valid diagnostic conclusions.

## **2.3 Diagnostic Criteria**

The following section focuses on the diagnostic criteria for ADHD as they are determined by the American Psychiatric Association (APA, 2013). Diagnostic issues that raise a number of controversies over the validity of diagnosis are also discussed. In the light of the newly published DSM-5 (APA, 2013), changes in criteria are taken into account and noted in comparison to the DSM-IV-TR. First, the recommended subtypes (ADHD-Predominantly Inattentive Type, ADHD-Predominantly Hyperactive-Impulsive Type and ADHD-Combined Type) have been replaced. The DSM-5 introduces four labels that directly link to the previous subtypes; Combined Presentation, Predominantly Inattentive Presentation, Inattentive Presentation (Restrictive) and Predominantly Hyperactive/Impulsive Presentation (APA, 2013). Similarly to the DSM-IV-TR, the DSM-5 requires the extended presence of at least six behavioural features related to

inattention or/and hyperactivity/impulsivity to a degree that is inconsistent with the chronological age of a child (APA, 2013).

The presence of related behaviours is a necessary but not sufficient criterion for an ADHD diagnosis (APA, 2013). The criteria of “persistence, time of onset, pervasiveness, and severity” are indispensable to confirm that the observed behaviours are the outcome of ADHD and not another condition that looks like ADHD (Montague and Castro, 2005, p.400). As in the DSM-IV-TR, candidates with ADHD must present related behaviours for at least six months and at least in two settings (APA, 2013). For children, these settings are usually their home and school. The DSM-IV-TR diagnostic criteria had received multiple negative critiques. Although they had been considered “the most rigorous and most empirically derived criteria ever available in the history of clinical diagnosis for this disorder” (Barkley, 2003, p.79), a number of problematic issues rendered re-assessment essential.

Given that the DSM-IV-TR “criteria were developed for and tested on children aged 4-16” (Kooij, 2013, p.10), their appropriateness to evaluate individuals under four and above sixteen years of age was questioned. According to Barkley (2003), misdiagnosis is possible since the majority of children under the age of four meet the criteria. This, however, cannot justify an ADHD diagnosis. Behaviours that look like ADHD are predictable and part of the typical development of a child. Taking also into account that the observed behaviours may be evidence for another early behavioural disorder, Barkley (2003) recommended the age of three as a reasonable starting point for the diagnostic procedure. In the earlier edition of criteria, behaviours related to hyperactivity (running, jumping, climbing to objects) could not meet the actual behaviour of an adult with ADHD (Kooij, 2013). In the newly published edition, the presentation of ADHD in adulthood has been considered and multiple real examples have been introduced for both childhood/adolescence and adulthood (APA, 2013). The ambiguity that existed regarding the number of symptoms that needs to be present for an adult ADHD diagnosis has also been clarified. According to the DSM-5, adults should meet five out of nine symptoms of inattention or/and hyperactivity/impulsivity (APA, 2013). The diagnosis of ADHD in the preschool age still remains vague since distinct criteria and examples for early childhood are not provided.

The idea that individuals with ADHD should typically present ADHD-related behaviours before seven years of age (APA, 2000) has been challenged. Brown (2009, p.39) supported that, “For some affected individuals, impairments of ADHD may not be noticeable until they are challenged with increased demands for self-management typically not presented until late adolescence or early adulthood.” This finding principally concerned inattentive behaviours. Barkley (1998) suggested that inattentive behaviours become obvious when children start struggling at school in contrast to hyperactivity and impulsivity that are present since early childhood. The age of onset has been re-evaluated in the latest edition of the DSM criteria. The onset criterion has been revised from seven (APA, 2000) to twelve years of age (APA, 2013).

Barkley (2003) supported that the DSM-IV-TR criteria could only meet the behaviours of males with ADHD and considered gender modifications essential. Taylor (2007, p.14) talked about “different forms of disorder in males and females”; “with girls being more likely to have problems with inattention and learning, and boys problems with overactivity and impulsiveness” (Sayal, 2007, p.54). A redefinition of criteria in proportion to the gender was not implemented in the fifth edition of DSM. The presence of ADHD-related behaviours in at least two settings of an individual’s life is a criterion that did not change. Given that the demands across settings (school and home) vary and the assessment is based on the subjective judgement of assessors (parents, teachers), disagreements are possible (Barkley, 2003; Taylor, 2007). For an accurate diagnosis, the reasons that may lead to disagreements need to be identified and taken into consideration. Specialists should therefore consider the possibility ADHD-related behaviours to be present but not obvious in all settings. In the case of inattentiveness, for example, parents cannot easily recognise related behaviours at home (Taylor, 2007). Overall, the criteria for ADHD have been re-evaluated and revised several times over the years. Diagnostic issues related to the onset criterion and adult ADHD have been addressed in DSM-5. The presentation of ADHD in early childhood and gender differences still remain vague and should be considered in future editions.

## **2.4 Overview – Conclusion**

This chapter has shown that ADHD is a heterogeneous disorder with three fundamental behavioural features (hyperactivity - impulsivity - inattention), several presentations and

levels of severity. Although the term has been associated with childhood disorders for decades, follow-up studies suggest that ADHD is in the majority of cases a chronic disorder with behavioural modifications through the years. The possible persistence of the disorder into adolescence and adulthood should be clearly communicated not only to elementary/high school educators but also parents and inform the procedure of diagnosis and support (diagnosis beyond childhood and setting/application of long-term intervention plans).

The literature indicates that ADHD occurs more frequently in boys than in girls and the overall prevalence of school-age children is approximately 5.0%. This suggests that in each typical classroom of around 20 children one child is diagnosed with ADHD. Therefore, the likelihood of teachers having a diagnosed or undiagnosed child in their classroom is high. Considering the overall contribution of teachers in the diagnostic and intervention procedure, a clear understanding of the disorder, the needs of children with ADHD and the empirically validated interventions is imperative for the early identification, the accurate diagnosis and the effective management of ADHD-related behaviours. This should be taken into account by policy-makers and administrators and be promoted through multiple pre-service and in-service training opportunities.

As indicated in the chapter, an ADHD diagnosis cannot be verified using single diagnostic tests (e.g. medical, psychological). It requires cooperation between professionals and non-professionals and a number of assessment instruments to be used (e.g. parent, child and teacher interviews, observations, rating scales, neuropsychological tests, mental health, vision, hearing and physical examination). A time-consuming and multidimensional assessment is needed since the presence of ADHD-related behaviours is necessary but not sufficient for a diagnosis. The criteria of persistence, number of settings and time of onset, for example, should also be met to conclude that the observed behaviours are attributable to ADHD and not to another condition that looks like ADHD. The time-consuming nature of the diagnostic procedure means that children with ADHD attend the classroom for at least six months without an official diagnosis. The gap between the referral for evaluation and the diagnostic outcome should be carefully considered and the necessary information and support should be provided to mainstream school educators.

Given the direct (primary source of information) and indirect informational role (referrals for evaluation) that teachers and parents are invited to take, it is important that future training opportunities enhance coverage of information about the diagnostic procedure and criteria and address knowledge gaps and misconceptions in the area. Other medical and behavioural conditions with similar characteristics (e.g. hearing or visual impairments, sleep deprivation, epilepsy, anaemia and Tourette's syndrome) also need to be clearly defined to those involved in the procedure of diagnosis while school-home communication and cooperation should constitute high priority issues. The previous edition of DSM criteria had received multiple negative critiques. In the newly published DSM-5, the subtypes have been replaced and diagnostic issues related to the age of onset and adult ADHD have been addressed. The parallel introduction of multiple real examples, as these will be thoroughly discussed in Chapter 3, should make it easier for educators to see the applicability of symptom criteria. This, in turn, can support the identification and diagnosis of children with ADHD and contribute to the effective application and evaluation of interventions.

## **Chapter 3 – Behavioural, academic, social and emotional implications of ADHD**

ADHD-related behaviours significantly affect children's functioning in various domains of life, inside and outside the school. The structured environment of a mainstream classroom, the rules, the academic demands, the required mental effort and the need to remain seated, quiet and concentrated, render this setting one of the most challenging for children with ADHD (Kos et al., 2006). This chapter, which is divided into two parts, provides an overview of the behaviours related to hyperactivity/impulsivity and inattention, the difficulties children with ADHD may experience in everyday life and the impact on the academic, social and emotional functioning.

### **3.1 Primary ADHD-related behaviours**

ADHD often causes serious difficulties in sustaining attention, even if the activities are chosen on the child's initiative (APA, 2013; Cooper and Bilton, 2002). Auditory attention is more affected than visual attention and distractibility more intense in group situations and settings with various stimuli, such as supermarkets and museums (Selikowitz, 2009). Although the majority of children with ADHD are able to concentrate on highly stimulating and exciting activities, such as video-games, they find it extremely hard to concentrate on tasks that require mental effort, such as schoolwork and homework (Kutscher, 2008; Farrar, 2011). To explain this phenomenon, Rutledge (2008, p.11) suggested that possibly "the minds of children diagnosed with ADD/ADHD move at the same speed as a fast-action video game and rock video", sustaining their attention. In severe cases, remaining focused, even on enjoyable activities and games, is difficult and requires huge effort (Selikowitz, 2009). The difficulty concentrating on a task for a long time in conjunction with the distractibility by other stimuli can explain why children with ADHD are often unable to complete tasks and they move from one to another (Farrar, 2011; Wender, 2000). Poor organisation skills and forgetfulness are also common behavioural features of children with inattention (APA, 2013). Usually, these result in forgetting or losing possessions as well as in failure to organise tasks, to implement time management techniques and meet deadlines (Farrar, 2011; Kutscher, 2008). Children with inattention also have a

difficulty remembering rules and routines and they behave as they have never heard about these before (Ashley, 2005).

Inattentiveness can also create extensive difficulties in listening, understanding and following instructions (APA, 2013). Especially in multi-stage instructions, children with ADHD are usually distracted by other stimuli and they hear only the first part (Selikowitz, 2009; Train, 2005). They consequently get confused and they find it hard to complete classroom activities and homework (Montague and Castro, 2005). Inattentive children usually miss parts of the lesson and disregard explanations about tests, assignments and homework (Rutledge, 2008). Daydreaming and non-listening, even in cases teachers or parents speak to them directly, are often characteristics of children with this disorder (APA, 2013; Farrar, 2011). Selikowitz (2009, p.6) highlights that children with ADHD “have such difficulty listening that they can appear to have a hearing problem”. Children with attention deficits often appear unable to segregate the significant from the unimportant hearing stimuli; thereby “the teacher’s voice is not easily differentiated from the birds singing in the tree” (Kewley, 2001, p.34). Finally, the difficulty in paying attention to details often results in inaccurate schoolwork and careless mistakes (APA, 2013).

In contrast to inattentiveness that can remain unnoticed for years, hyperactivity is easily detectable from infancy (Ashley, 2005; Wender, 2000). The diagnosis of a child as hyperactive should not be based on behaviours that occur in a playground but in structured “situations such as the classroom, family visits, or mealtimes – when children can ordinary modulate their activity to a calmer level-” (Taylor, 2007, p.6). As the term implies, children with ADHD (Predominantly Hyperactive/Impulsive and Combined Presentations) are very energetic; they appear reluctant to accept any kind of restriction and they find it difficult to remain seated for a long time (APA, 2013; Cooper and Bilton, 2002; Train, 2005). They often run, jump and climb to objects (APA, 2013; Selikowitz, 2009; Ashley, 2005). Even when managing to remain seated, they often squirm or fidget with their fingers, hands and feet (APA, 2013). The tendency to run and the difficulty in recognising potential dangers make children with ADHD prone to accidents and injuries and therefore, “...much more likely than non-ADHD children to be seen in emergency rooms” (Wender, 2000, p.13). Children with ADHD are often overly talkative (“verbal hyperactivity”) and they find it hard to work quietly when this

is necessary (APA, 2013; Cooper and Bilton, 2002, p.11; Kewley, 2001, p.36). According to Selikowitz (2009), the noisiness during games and school activities may be attributable to children's attempts to eliminate distracting environmental stimuli, using self-talk. Verbal hyperactivity, excessive and loud talking are more common behavioural features in girls rather than in boys, who are more likely to present physical hyperactivity (Grskovic and Zentall, 2010).

Impulsive behaviours, as those related to hyperactivity, raise a number of challenges to children with ADHD and the people around them. An impulsive child "acts, speaks or has an excessive emotional reaction without thinking" (physical, verbal and emotional impulsiveness) (Kewley, 2001, p.37). Unnecessary risk-taking is a frequent characteristic of children with impulsiveness (Chandler, 2010; Strong and Flanagan, 2005). The combination of physical impulsiveness and hyperactivity often causes accidental cuts, poisoning, burning, fractures and bruises (Kewley, 2001; Wender, 2000). Beyond the "lack of foresight" that makes impulsive children less able to think and predict the consequences of their behaviour, "poor hindsight" may also be present, minimising their ability to learn from their mistakes and avoid similar behaviours in the future (Kutscher, 2008, pp.25-26).

Impulsiveness in general and specifically the tendency to touch and play with everything makes parents reluctant to be accompanied by their children in supermarkets, museums and friends' houses, since the likelihood to accidentally destroy something is high (Farrar, 2011; Selikowitz, 2009). Children with emotional impulsiveness often externalise their emotions "without restraint" (Farrar, 2011, p.22). They may present unpredictable mood changes and outbursts of temper (Selikowitz, 2009; Kewley, 2001) and react aggressively towards family members, teachers and peers (Paul, 2008). Children with ADHD are often described as having intense impatience and greater difficulties in controlling immediate desires and temptations (APA, 2013). Thereby, they are less likely than typically developing children to wait for their turn to take part in an activity or a game; they usually interrupt the other children's conversations and blurt out responses without taking permission (APA, 2013). Finally, they are often unable to wait for directions or think carefully before starting a task which may result in them making careless mistakes (APA, 2013).

### **3.2 Academic, social and emotional functioning**

ADHD significantly affects various domains of children's lives, including academic, social and emotional functioning. Overall poor academic performance and lower scores in reading and mathematics standardised tests have been traditionally associated with an ADHD diagnosis (Montague and Castro, 2005; Strine et al., 2006; Barkley, 2006; Duesenberg, 2006; Loe and Feldman, 2007; NICE, 2009). Children with ADHD tend to “achieve academically at a lower level than would be predicted given their intellectual abilities” (Barry et al., 2002, p.259) even when the disorder does not co-exist with specific learning difficulties, such as dyslexia, dyspraxia and dyscalculia (Wender, 2000). Students with ADHD were found significantly less able to achieve their potential in a follow-up longitudinal study that compared the academic experience of 326 adolescents with ADHD and 213 typically developing males (Kent et al., 2011). Data that were generated yearly from school records, teachers and parents revealed that participants with ADHD had significantly lower grades and higher percentages of unreturned assignments (poor organisational skills), course failure and dropout rates (Kent et al., 2011).

An ADHD diagnosis is not necessarily associated with difficulties in the academic sector. The subtype and the severity index have been found critical for the academic functioning of children with ADHD. A study that investigated academic underachievement of 33 children with ADHD and 33 typically developing counterparts found that “the more severe the behavioural symptomatology of children with ADHD is, the more negatively impacted their school performance may be” (Barry et al., 2002, p.259). In this study, the severity of ADHD-related behaviours that was defined based on parents' evaluations (use of behavioural rating scales) predicted underachievement in three academic domains; mathematics, reading and writing (use of the Mini-Battery of Achievement test) (Barry et al., 2002). Given the small number of participants and the use of a self-report measure to define the severity index, the predictive power of this factor should be re-evaluated. Significant differences in academic achievement among subtypes have been repeatedly documented in the literature. Children with ADHD-Predominantly Inattentive Type (ADHD-I) were found to present more learning difficulties compared to the other subtypes and participate more frequently in relevant

intervention programmes and special classrooms (Hulme and Snowling, 2009; Tannock, 2007; Montague and Castro, 2005; Du Paul and Stoner, 2003).

Overall, studies that compared the academic functioning of students with different ADHD subtypes concluded that academic difficulties were attributable to behaviours related to inattention (Masseti et al., 2008; Rabiner et al., 2004; Wolraich et al., 2003; Schmitz et al., 2002; Rabiner et al., 2000; Baumgaertel et al., 1995). Consequently, children with only hyperactive/impulsive behaviours did not academically differ from their typically developing classmates with comparable intellectual abilities (Masseti et al., 2008; Schmitz et al., 2002; Baumgaertel et al., 1995). A large-scale survey by Baumgaertel et al. (1995) investigated the relationship between ADHD subtypes and academic performance, involving 1077 German elementary school children. Data that were collected using teacher rating scales suggested that children with ADHD-I were more likely to be viewed as below average or failing (64.0%) than children with ADHD-Combined Type (ADHD-C) (50.0%) and ADHD-Predominantly Hyperactive-Impulsive Type (ADHD-HI) (12.0%). In the case of ADHD-HI, no child was rated as failing whereas 38.0% were above average academically. The fact that data were only derived from teacher ratings rendered re-evaluation in future research essential.

A longitudinal study, conducted by Rabiner et al. (2000), explored whether early attention problems predict the presence of reading difficulties later in life. In this study, 387 children were followed from kindergarten to grade five. Data were collected multiple times over the five years using standardised measures of reading achievement and inattention; the Woodcock-Johnson tests of reading achievement and the Child Attention Problems Scale. Data related to attention problems were derived from teachers. In parallel with inattentive behaviours, the predictive strength of other variables, such as hyperactivity/impulsivity, was assessed. The analysis of data indicated no predictive relationship between hyperactivity/impulsivity and reading achievement. Attention deficits were the only variable that predicted participants' reading achievement when factors, such as intelligence, parental involvement and prior reading performance, were controlled (Rabiner et al., 2000). Given that a non-experimental research design was followed, a causal relationship between early attention problems and reading difficulties cannot be established. The fact also that the

sample did not have an official diagnosis of ADHD or reading disabilities renders the generalisation of findings problematic.

More recently, a longitudinal study evaluated the academic achievement in 125 children that met symptom criteria for ADHD-I, ADHD-HI and ADHD-C at the age of 4 to 6 and 130 typically developing children (Massetti et al., 2008). Data that were generated seven times over an eight-year period replicated the association of inattentive behaviours, and not those related to hyperactivity/impulsivity, with lower academic achievement in various subject-matters; mathematics, reading and spelling (Massetti et al., 2008). The academic achievement of participants was assessed using subtests derived from the Woodcock–Johnson Psychoeducational Battery. These tests focused on alphabet knowledge, reading, spelling, writing, arithmetic and basic mathematics skills. When components, such as intelligence, were controlled, children with ADHD-I presented significantly more academic difficulties in mathematics, reading and spelling compared to control participants. This was not the case for participants in the ADHD-HI and ADHD-C groups who did not exhibit lower achievement scores than control children over the years (Massetti et al., 2008).

To explain the discrepancy in academic achievement among ADHD-I and ADHD-C subtypes, the research team suggested that children with ADHD-I possibly experience more severe attention deficits compared to those with ADHD-C (Massetti et al., 2008). Alternatively, they proposed that children with ADHD-I may have learning disabilities, which the ADHD-C group does not have, that undermine their ability to learn and result in inattentive behaviours (Massetti et al., 2008). According to the second explanation, children present inattentive behaviours because they cannot learn and not vice versa. The reason why the ADHD-I and ADHD-C groups had different academic profiles is not clear and requires further investigation. The overall findings require further empirical support, given the small number of children in the ADHD-I group and the assessment of only basic academic skills. Complex skills, such as mathematics reasoning and comprehension, were not included. The use of standardised measures to assess academic achievement possibly failed to identify academic difficulties that children experience in real classroom settings. Future research should therefore explore how well children diagnosed with different ADHD subtypes function academically in

real conditions (e.g. academic productivity, task completion, organisational and planning skills).

It is generally acknowledged that there is no association between ADHD and IQ (Paul, 2008; Kewley, 2001; Wender, 2000; Borrill, 2000). Consequently, poor academic performance cannot be associated with low intelligence. Characteristics such as daydreaming, forgetfulness, poor concentration, organisational and time management skills, failure to complete schoolwork and homework and a tendency to hurry are likely contributors to poor academic performance (APA, 2013; Paul, 2008; Montague and Castro, 2005; Du Paul and Stoner, 2003; Rief, 2003). Selikowitz (2009) endeavoured to identify and categorise the factors that possibly affect the academic performance of children with ADHD. According to this scholar, poor concentration is the first factor that causes difficulties in learning. The difficulty remaining focused undermines children's ability to attend the lesson, to understand the instructions provided and accurately complete classroom activities and homework (Selikowitz, 2009; Wender, 2000).

Impulsivity also lessens children's ability to think carefully before starting writing assignments and tests while the difficulty in paying attention to details usually results in careless mistakes (APA, 2013). As Selikowitz (2009) supported, poor working memory can also have adverse effects on children's competence to meet the academic demands of school. Tannock (2007, p.1) defines working memory as a "mental workspace" that enables people "to momentarily hold and manipulate information in the face of ongoing processing and/or distraction". Consequently, poor working memory subverts children's ability to remember a sequence of information and leads "to difficulties in understanding texts, in carrying out multipart instructions, in planning written work, and in solving mathematical problems that require logical thinking" (Selikowitz, 2004, p.46). Finally, academic underachievement can be attributed to other conditions, such as auditory processing, spelling and handwriting difficulties that may co-exist with ADHD (Selikowitz, 2009).

While ADHD-I has been mainly associated with poor academic performance, ADHD-C and ADHD-HI have been more commonly associated with behavioural problems, difficulties in creating and maintaining friendships, social isolation and peer rejection

(NICE, 2009; Mrug et al., 2009; Strine et al., 2006; Montague and Castro, 2005; Wolraich et al., 2003; Caub and Carlson, 1997; Baumgaertel et al., 1995). Mrug et al. (2001) suggest that social difficulties are so prominent that they should be incorporated in future diagnostic criteria for ADHD. Social underachievement was challenged in a study by Heiman (2005) that examined social competence and friendship qualities from children's perspective. For the purposes of this study, two measures were administered; Friendship Quality Questionnaire and Loneliness Questionnaire (child and adult versions). The self-reports of 39 elementary school children with ADHD indicated that these children had a healthy social life with many friendships, high levels of acceptance by peers and low levels of loneliness. The comparable data collected by parents and teachers revealed a different view regarding the social status of these children, with high levels of loneliness and peer rejection (Heiman, 2005). Teachers, for example, reported that many children with ADHD were excluded from games, companies and social activities such as birthday parties. Children's perceptions about their social status should be considered with caution given that the reciprocity of friendship was not assessed in the study. Consequently, the peers that children with ADHD listed as friends possibly did not share the same perceptions about the nature of their relationship.

This methodological limitation has been considered and addressed in later studies. The difficulty of children with ADHD in understanding peers' intentions and feelings towards them was corroborated in a study that involved 165 students with ADHD and their 1298 peers (Mrug et al., 2009). Positive and negative nominations as well as ratings of liking indicated that participants with ADHD overestimated social acceptance; they could not reciprocate the rejecting attitudes of their classmates and they liked them more than their classmates did (Mrug et al., 2009). More recently, Ohan and Johnston's study (2011) explored the social competence of 42 girls with ADHD and 40 typically developing girls, aged 9-12. For the purposes of this study, child, mother, teacher ratings and the results of a social laboratory task were compared. The comparison replicated the tendency of girls with ADHD to overestimate their social competence and "present themselves in an unduly positive, self-protective light" (Ohan and Johnston, 2011, p.527).

Given the results of the above studies, it can be argued that the term "unsociable" cannot well describe children with ADHD. These children need the presence of people

around them and they try to develop and maintain friendships. However, characteristics such as aggressiveness, egocentricity, dominance over others, continual touching and teasing, difficulty obeying the rules and cooperating, and a tendency to be over-talkative make children with ADHD unpopular (Normand et al., 2011; NICE, 2009; Selikowitz, 2004; Du Paul and Stoner, 2003; Blachman and Hinshaw, 2002; Kewley, 2001; Borrill, 2000). Difficulty holding in mind conversations, putting themselves in the position of others, recognising and following social rules, reading facial expressions and understanding the implied messages in conversations also undermines the communication with peers and the creation of friendships (Selikowitz, 2004; Kewley, 2001). The fact that these kinds of behaviours are common and acceptable in younger groups of children makes the company with younger children a common phenomenon (Duesenberg, 2006).

The overall emotional functioning of children with ADHD can also be affected (Wehmeier et al., 2010; Strine et al., 2006; Becker et al., 2006; Barkley, 2006). Children with ADHD usually have greater difficulty than typically developing children in regulating their emotions and coping with frustration (Farrar, 2011; Barkley, 2006). They often present excessive emotional reactions (emotional impulsiveness), outbursts of temper, aggression, and lower levels of empathy compared to children without ADHD (Selikowitz, 2009; Barkley, 2006). ADHD has also been associated with poor self-esteem in groups of children, adolescents and young adults (Wehmeier et al., 2010; Shaw-Zirt et al., 2005; Cooper and Bilton, 2002). Although a causal relationship has not been established, low self-esteem is likely to develop when children experience rejection by significant others (e.g. peers) and when they are continuously reprimanded by parents and teachers (Duesenberg, 2006; Kewley, 2001). As Emler (2001, p.6) explains, “When relations are bad -when one is rejected, excluded, despised- then self-esteem will be low”. Consequently, feelings of non-acceptance by peers are likely to be internalised and lower children’s self-esteem. Poor academic performance, negative feedback and feelings of personal failure can also negatively affect self-esteem (Kewley, 2001; Wender, 2000). This, in turn, can influence the academic expectations and motivations and lead to a performance that becomes steadily worse (Wender, 2000; Emler, 2001). To protect themselves from experiencing failure, children with ADHD tend to avoid participation in classroom activities and games (Selikowitz, 2009). Even in cases they take the risk to participate in these activities and games, they withdraw

when they feel they cannot cope with the challenge effectively (Selikowitz, 2009; Kewley, 2001). When the knowledge gaps increase and the learning experience becomes harder, children's self-esteem further decreases and the attempt to avoid school becomes a daily phenomenon (Selikowitz, 2009).

### **3.3 Overview – Conclusion**

This chapter provided an overview of behaviours related to inattention, hyperactivity and impulsivity as these are documented in the DSM set of criteria. The difficulties that children with ADHD may experience, especially in a classroom setting, were discussed and particular emphasis was placed on their academic, social and emotional functioning. Children with inattentive behaviours find it hard to concentrate on tasks that require mental effort, such as schoolwork and homework. They have a tendency to move from one activity to another, to forget or lose possessions and they struggle to organise tasks, to implement time management techniques and meet deadlines. They often have difficulty understanding and remembering a sequence of information, instructions, rules and routines. All these make the learning experience of children stressful and undermine their competence to meet the academic demands of school. Inattention has been repeatedly associated with poor academic performance while hyperactivity and impulsivity with behavioural and social difficulties.

Children with physical hyperactivity find it difficult to remain seated; they often run, jump and climb to objects, squirm or fidget with their fingers, hands and feet. Physical hyperactivity is more common in boys whereas verbal hyperactivity, excessive and loud talking are more common behavioural features in girls. Children with ADHD can present three types of impulsiveness; physical, verbal and emotional. The combination of physical impulsiveness and hyperactivity often causes accidental cuts, poisoning, burning, fractures and bruises. Children with impulsiveness usually have intense impatience and greater difficulty controlling immediate desires and temptations. The overall behavioural profile of children with ADHD hinders not only their learning but also the creation and maintenance of friendships. The management of ADHD-related behaviours is therefore crucial for children's academic and social achievement.

Children with predominantly hyperactive/impulsive behaviours are usually seen as more challenging and demanding for educators' daily practice than children with primarily inattentive behaviours. Hyperactivity/impulsivity can affect not only children with ADHD but also their classroom peers who often find it difficult to remain concentrated, to cooperate and develop friendships with them. Typically developing children struggle to accept and understand the reasons why their classmates with ADHD behave in this way. They find the behaviour of these children incompatible with their chronological age and they tend to avoid and exclude them from companies and social gatherings. When taking responsibility for the education of hyperactive/impulsive children, teachers should be in position not only to manage related behaviours but also to address challenges relating to the functioning of the learning procedure and the safety of students with ADHD and their classroom peers. They are also invited to normalise possible tense relationships between students with and without ADHD, supporting in this way the creation of friendships.

Teachers should therefore have a clear understanding of the severity and the nature of observed behaviours and implement in cooperation with specialists, parents and teaching assistant personnel, intervention plans that respond to the individual needs of each child with ADHD and create an inviting and safe learning environment for these children and their classroom peers. In order for teachers to understand the behavioural profile of their students with ADHD and intervene accordingly, it is necessary to consider the aetiology of the disorder. Such consideration would be particularly helpful since according to Morton's three-level causal modelling approach (Morton, 2004, p.39), the behaviour of individuals with developmental disorders, including ADHD, is caused "by abnormalities at the cognitive level; these, in turn, have biological precursors." This diagrammatic causal model suggests that cognitive factors act as a link between biological and behavioural levels whereas environmental risk factors intervene to biological and cognitive levels to determine the form of behavioural outcomes (Morton, 2004).

## Chapter 4 – The aetiology of ADHD

Despite the massive amount of research into the area, the exact aetiology of ADHD still remains vague and controversial (Thapar et al., 2013; Curatolo et al., 2010; Eubig et al., 2010). Over the years, several inherited and non-inherited factors have been either correlated with, or considered potential risks for ADHD (Thapar et al., 2013; Ficks et al., 2009). Empirical work of the last few decades has mostly examined the effects of these factors separately (Nikolas et al., 2010). Given the multiple likely contributors and the lack of universality in research findings, a more holistic approach, which views ADHD as a complex disorder with multiple aetiological pathways, has been increasingly adopted. The polarisation between environmental and genetic/neurobiological risk factors has been considered unhelpful to understand the origins of ADHD and the interplay of putative risks has been the scientific interest of recent empirical studies (Thapar et al., 2013; 2005; Larsson et al., 2012; Nikolas et al., 2010; Nigg et al., 2010; Martel et al., 2010; Ficks and Waldman, 2009; Visser and Jehan, 2009; Cooper, 2006; Biederman and Faraone, 2005).

Morton (2004) developed a diagrammatic causal model, delineating in a causal nexus the interplay of risk factors responsible for developmental disorders. Morton's three-level causal approach disregards the adherence to single factors and suggests the examination of causal relationships among biological, cognitive and behavioural levels. As Morton (2004, p.39) advocates, in developmental disorders "observed behavioural abnormalities are caused by abnormalities at the cognitive level; these, in turn, have biological precursors." Cognitive factors act as a link between biological and behavioural levels. The role of environment is also considered crucial. Environmental risk factors intervene to biological and cognitive levels and determine the form of behavioural outcomes (Morton, 2004). Coghill et al. (2005, p.111) highlight the importance of causal models and explain that they can "provide the basis for identifying different psychopathophysiological subtypes of ADHD associated with different causal pathways." The following chapter provides a review of putative risk factors with emphasis on the most replicated genetic, neurobiological, cognitive and environmental risks associated with the disorder.

## **4.1 The genetic/neurobiological basis for ADHD**

The genetic/neurobiological contributors to ADHD risk have consistently been corroborated by twin, adoption, neuroimaging and molecular genetic studies (Thapar et al., 2013; Cubillo et al., 2012; Curatolo et al., 2010; Furman, 2009; Rommelse et al., 2008; Cooper, 2006; Montague and Castro, 2005).

### **4.1.1 Twin/Adoption studies**

In contrast to family studies, adoption and twin studies allow researchers to disentangle postnatal environmental from inherited sources of transmission (Thapar et al. 2013; Faraone and Mick, 2010). Adoption studies, for example, can determine the contribution of genes to ADHD risk, by examining the concordance degree between children with ADHD, their biologically related and adoptive relatives (Faraone et al., 2005). All five adoption studies that have been published the last forty years consistently indicated a strong inherited contribution (Morrison and Stewart, 1973; Cantwell, 1975; Cunningham et al., 1975; Alberts-Corush et al., 1986; Sprich et al., 2000). In these studies, biologically related relatives of children with ADHD were at greater risk for ADHD compared to adoptive relatives. The risk for ADHD among adoptive relatives did not differ from the risk in control children's relatives.

Studies with monozygotic (100% common genetic material) and dizygotic twins (50% common genetic material) have been considered a more direct method to examine the role of heritability in the development of ADHD (Faraone et al., 2005). Twin studies allow estimation of heritability, by examining the degree to which monozygotic twins are more concordant, compared to dizygotic twins, for ADHD (Faraone and Mick, 2010). Pooled results from twenty twin studies, carried out in the European Union, the United States, Scandinavia and Australia during a 32-year period (1971-2003), indicated high heritability rates throughout the years and across countries; the mean estimate of heritability was 76.0% (Faraone et al., 2005). Heritability rates of 71.0% (inattention) and 73.0% (hyperactivity) were identified more recently in a meta-analysis of twin and adoption studies that examined the influence of genes and environment on ADHD and specifically on inattention and hyperactivity (Nikolas and Burt, 2010).

### **4.1.2 Molecular genetic studies**

Molecular genetic studies have implicated various genes in the aetiology of ADHD. The lack of universality in research findings indicates that the genetic architecture of the disorder is complex and “genes with moderately large effects are unlikely to exist” (Biederman and Faraone, 2005, p.239; Faraone et al., 2005; NICE, 2009; Faraone and Mick, 2010; Thapar et al., 2013). A meta-analytic review of all published European and Asian genetic studies up to 2005 strongly implicated dopaminergic genes and specifically dopamine D4 and D5 receptors (DRD4 and DRD5) in the genetic susceptibility of the disorder (Li et al., 2006). To identify genes with a significant association with ADHD, Bobb et al. (2006) reviewed all molecular genetic studies, conducted from 1991 to 2004. The review of more than 100 studies replicated the significant association of ADHD with DRD4, DRD5, dopamine transporter (DAT1) and serotonin transporter genes (5-HTT) (Bobb et al., 2006). Overall, genes having the most consistent evidence for association with ADHD in pooled analyses and meta-analyses are those related to dopamine pathways, such as DRD4, DAT1, DRD5 and DBH (dopamine beta-hydroxylase), serotonergic genes such as HTR1B (serotonin 1B receptor) and 5-HTT and others such as SNAP-25 (synaptosomal-associated protein 25 gene) (Faraone et al., 2005; Li et al., 2006; Yang et al., 2007; Gizer et al., 2009; Smith, 2010; Faraone and Mick, 2010).

### **4.1.3 Neuroimaging studies**

Neuroimaging studies have consistently implicated several structural and functional differences, especially in frontal brain regions and networks (e.g. fronto-striatal and fronto-cerebellar), as likely contributors to ADHD risk (reviews by Cubillo et al., 2012; Curatolo et al., 2010; Emond et al., 2009). Given the evidence regarding the involvement of dopamine transporter (DAT) in ADHD (genetic, treatment, imaging studies), DAT has received particular attention in neuroimaging studies (Spencer et al., 2007). The findings of these studies have been inconsistent, however. Spencer et al. (2005) reviewed eight neuroimaging studies that examined DAT binding in individuals with ADHD (children, adolescents and adults) and typically developing control participants. The studies used either SPECT (Single Photon Emission Computed Tomography) or PET (Positron Emission Tomography) scanning techniques. The

review indicated DAT binding dysregulation in six out of eight groups of participants with ADHD. This inconsistency in findings should be considered with caution given the small sample sizes and the use of SPECT technology in most of them. SPECT has been a less precise brain scanning technique in relation to PET (Spencer et al., 2005). In addition, the majority of these studies had not considered factors such as comorbidity, smoking and previous treatment that could have also resulted in DAT binding dysregulation. Significantly increased DAT binding in participants with ADHD was also observed in a PET imaging study by Spencer et al. (2007). This study included non-comorbid, non-smoking and treatment-naïve adults with ADHD and control participants. More recently, a longitudinal study (2001- 2009) compared specific binding levels of dopamine transporters and receptors in ADHD (53 participants) and typically developing adults (44 participants). This study concluded that the ADHD group presented atypical binding in the left side of the brain and specifically in regions related to the dopamine reward pathway (Volkow et al., 2009). Overall, the role that dopamine dysregulation plays in the neurobiology of ADHD has been widely supported by genetic, neuroimaging and pharmacological models (Curatolo et al., 2010).

Structural imaging studies have reported significant volumetric reductions in cerebrum (total cerebral volume, the basal ganglia, the prefrontal cortex, the corpus callosum and the dorsal anterior cingulate cortex) and cerebellum of children with ADHD (Nakao et al., 2011; Emond et al., 2009; Seidman et al., 2005; Mostofsky et al., 2002; Castellanos et al., 2002). These structural differences in several regions of the brain have been considered likely contributors to the development of ADHD (Curatolo et al., 2010). A review of fourteen structural imaging studies, for example, that compared a total number of 378 children with and 295 without ADHD, using Magnetic Resonance Imaging (MRI) technology, indicated localised volumetric differences in various brain regions of participants with ADHD, including prefrontal cortex, corpus callosum and basal ganglia (Tannock, 1998). A study by Mostofsky et al. (2002), which examined volumetric differences in 24 boys (12 with and 12 without ADHD), found smaller total cerebral volumes in participants with ADHD (8.3%). The fact that significant reductions in grey and white matter volumes were only observed in the frontal lobes strengthened the association of ADHD with volumetric differences in frontal regions of the brain. The observed reduction in the frontal lobe was almost half of the overall cerebral volume reduction (48.0%) (Mostofsky et al., 2002).

To identify whether the regional brain volumes of individuals with and without ADHD are modified throughout the years, Castellanos et al. (2002) carried out a large longitudinal investigation with 152 children and adolescents with ADHD and 139 control participants. The initial scans revealed significant volumetric reductions in total cerebrum (3.2%), the four major lobes (parietal, frontal, occipital and temporal), caudate nucleus and cerebellum of participants with ADHD. These reductions persisted over the years in all cases but the caudate nucleus that presented a significant volumetric reduction during adolescence in both ADHD and non-ADHD groups (Castellanos et al., 2002). Longitudinal imaging studies, such as those by Castellanos et al. (2002) and Shaw et al. (2007), have suggested that structural differences in children with ADHD may be attributable to a delay in brain maturation. The peak of cortical thickness maturation in children with ADHD was found to be three years later compared to typically developing children; prefrontal regions, related to motor planning and attention, had the most prominent delay (Shaw et al., 2006; Shaw et al., 2007). Smaller volumes and reduced cortical thickness in several frontal regions, the basal ganglia, the cerebellum, posterior cingulate (PCC) and the corpus callosum have been replicated in other structural imaging studies (Mackie et al., 2007; Carmona et al., 2009; Narr et al., 2009; Konrad et al., 2009; Batty et al., 2010).

Functional magnetic resonance imaging (fMRI) studies have measured brain activation in response to the performance of a given task. Significant reduced activation in several regions of the brain and specifically in the prefrontal cortex of participants with ADHD has been observed in task-based fMRI studies that measured inhibition and sustained attention (Christakou et al., 2013; Cubillo et al., 2012; Rubia et al., 2009; 2009; 2008). A recently published fMRI study by Christakou et al. (2013), for example, measured brain activation in twenty medication-naïve boys with ADHD, twenty IQ and age matched autistic and twenty typically developing boys during a modulated vigilance task that required progressively increasing sustained attention. Both ADHD and autistic groups presented significantly reduced activation compared to control participants in left dorsolateral prefrontal cortex (DLPFC), bilateral striato-thalamic regions and superior parietal cortex (Christakou et al., 2013). Under activation in DLPFC, which was associated with poorer task performance, was significantly more pronounced in the ADHD group. Diminished coherence between the posterior cingulate cortex and

prefrontal cortex in participants with ADHD as well as alterations in functional connectivity between several brain regions have also been observed in resting-state functional connectivity MRI studies (Fair et al., 2010; Castellanos et al., 2009).

## **4.2 The cognitive basis for ADHD**

Researchers and scholars, who advocate the cognitive basis of the disorder, view ADHD as “a developmental impairment of executive function (EFs), the self-management system of the brain” (Brown, 2009, p.37; Barkley, 1997). EFs have been defined as a range of cognitive abilities and processes, such as planning, attention, problem solving, reasoning and behavioural inhibition, that enable individuals to engage in goal-directed, independent, self-serving and flexible behaviour (Cubillo et al., 2012; Semrud-Clikeman et al., 2010; Castellanos et al., 2006). EFs are primarily located in the prefrontal regions of the frontal lobe but connected with neurones to other brain regions; the involvement of other regions is therefore necessary to execute these functions (Alvarez and Emory, 2006). Even though cognitive models, such as those of Barkley (1997) and Brown (2006), and causal models, such as that of Morton (2004), implicated executive dysfunction in the aetiology of the disorder, a causal relationship has not yet been established (Rommelse, 2010). The nature of EFs, the way these should be assessed and their relationship with ADHD still remain vague and controversial. This has resulted in two conflicting views (Brown, 2006). The supporters of the first view argue that ADHD is a cognitive disorder and therefore all individuals who meet the DSM diagnostic criteria present significant EF deficits (Brown, 2006; 2009; Barkley, 1997; 2006). The alternative view suggests that only a subgroup of individuals with ADHD has deficits in EFs (Willcutt et al., 2005; Nigg et al., 2005).

Barkley (1997), an ardent adherent of the first view, proposed a model to clarify the way cognitive deficits are associated with ADHD. This model consists of five EFs: behavioural inhibition, working memory, internalisation of speech, self-regulation of affect/motivation/arousal and reconstitution. Behavioural inhibition is seen as the fundamental EF that co-ordinates the operation of the other EFs. Behavioural inhibition refers to cognitive processes that enable individuals to inhibit or stop an ongoing response and control interference. These, in turn, allow them to control motor and verbal impulses (Barkley, 1997). For Barkley, a primary deficiency in behavioural

inhibition is the key cause of the disorder. Working memory enables individuals to hold in mind, organise and recall past information and experience (hindsight) to inform future action (planning and forethought). Self-directed, internalised speech is a means for self-questioning and reflection that contributes to greater self-guidance and self-restraint and enhances the ability to solve problems, to formulate plans and rules (Barkley, 1997). Working memory and internalisation of speech are linked to reading comprehension and moral reasoning (Spencer et al., 2002). The fourth EF allows individuals to self-regulate their emotions, motivations and arousal. This, in turn, enhances communication and social skills as well as the ability to consider situations objectively (Barkley, 1997). Difficulty controlling emotions usually results in excessive emotional reactions and socially unacceptable behaviours (Farrar, 2011). Reconstitution, the last EF, enables individuals to analyse prior experiences in order to synthesise new behaviours that will help them achieve a given goal (Barkley, 1997). Barkley's model suggests that behavioural inhibition dysfunction negatively affects the performance of the other four EFs and undermines the abilities, psychological and social, associated with them (Barkley, 1997).

Barkley's (1997) and Brown's models (2006) (presented below) are not based on the outcomes of standardised neuropsychological tests that, in their opinion, are inadequate to encompass the complexity of these functions and identify difficulties that children experience in real-life settings. Their work is based on other researchers on executive functioning, such as Rabbit (1997) and Burgess (1997), who also reject simplistic conceptualisations of EFs. These researchers support that the central assumption of the complex interactive nature of EFs is violated in traditional neuropsychological tests that break them down and measure them independently. According to Barkley (1997), these tests cannot predict real-life ability and they are less sensitive, compared to measures collected over longer periods of time, to identify the disorder and the associated cognitive deficits. Given the limitations of neuropsychological assessment batteries, Barkley (1997) and Brown (2009; 2006) highlight the need for a comprehensive assessment approach. This consists of clinical interviews, observations and rating scales that evaluate individuals' performance on various complex and self-managed daily activities (e.g. academic and social functioning).

Brown's model (2006) is similar but non identical to that of Barkley (1997). Similarly to Barkley (1997), Brown (2006) advocates the cognitive basis of the disorder and suggests that ADHD-related behaviours originate from EF deficits. However, Brown disagrees with the primary role behavioural inhibition plays upon the development and functioning of other EFs (Brown, 2006). Brown's model consists of six clusters of cognitive functions: activation, focus, effort, emotion, memory and action (Brown, 2009). Dysfunction in the first cluster makes children with ADHD less capable to organise, prioritise, initiate activities and effectively apply time management techniques. "Focus" deficits cause difficulties in sustaining attention, ignoring internal and external distractions, while "effort" dysfunction makes it difficult sustaining effort for extended periods of time and completing long-term tasks. Moreover, deficits in the "emotion" cluster make children with ADHD less able to manipulate their emotions/frustration while "working memory" dysfunction undermines their ability to hold in mind and recall recent oral and written information (e.g. instructions and conversations). Finally, "action" deficits make individuals with ADHD less able to control and regulate their actions (Brown, 2009).

Barkley's (1997) and Brown's (2006) beliefs about the assessment of EFs and their relationship with ADHD have been challenged by a number of researchers who consider standardised neuropsychological tests accurate measures of executive functioning (Willcutt et al., 2005; Nigg et. al, 2005; Gualtieri and Johnson, 2005). Given that clinical interview and rating scale data originate from the subjective opinions of assessors, the preference for standardised measures is based on their capacity to provide systematic, objective and quantifiable data about children's cognitive processes (Gualtieri and Johnson, 2005). To evaluate the cognitive basis of the disorder, Willcutt et al. (2005) conducted a meta-analysis of 83 studies that administered neuropsychological tests to assess executive functioning in 3734 children and adolescents with ADHD and 2969 control participants. EF measures concerned response inhibition, planning, vigilance, verbal and spatial working memory (Willcutt et al., 2005). The meta-analysis indicated that the minority of children and adolescents with ADHD, approximately 30.0%, performed poorly on neuropsychological tests. Considering the results, the research team suggested that EF deficits constitute one of the multiple causal factors but "...are neither necessary nor sufficient to cause all cases of ADHD" (Willcutt et al., 2005, p.1336).

Similarly to Willcutt et al.' (2005) conclusions, a pooled analysis of data from three different samples (287 children with and 600 without ADHD) found less than half of participants with ADHD to have EF deficits (Nigg et al., 2005). The research team suggested that future research and theory should consider the possibility that only a subgroup presents EF deficits and determine whether executive dysfunction forms one of the multiple etiological pathways of ADHD. They also recommended the introduction of a new subtype, called "executive deficit type", in case a causal relationship between EF deficits and ADHD would be established (Nigg et al., 2005, p.1224). Taking into account that less than 50.0% of children with ADHD present EF deficits, Lambek et al. (2010) carried out an investigation to identify possible differences between the two neuropsychological subtypes. Data that were generated from the comparison of 22 Danish children without and 26 with EF deficits indicated a substantial variation in IQ; the latter group of participants had significantly lower intelligence scores (Lambek et al., 2010).

The notion that individuals with ADHD present deficits in all the aspects of executive functioning has also been challenged. Studies have suggested that EF deficits are salient in a subset of children with ADHD and present variability and different levels of severity. Sonuga-Barke et al. (2010) and Nigg et al. (2005), for example, concluded that only the minority of participants with EF deficits presented a general dysfunction. Studies, such as those by Schmitz et al. (2002) and Semrud-Clikeman et al. (2010), reported important differences in the executive functioning of each ADHD subtype. Schmitz et al. (2002), for example, found that participants with ADHD-I and ADHD-C had significantly lower performance in neuropsychological measures than control participants. In contrast, participants with ADHD-HI did not (Schmitz et al., 2002). The ADHD-C group in the study by Semrud-Clikeman et al. (2010) also experienced more difficulties in behavioural regulation, emotional control, inhibition and shifting compared to ADHD-I group.

Overall, the inconsistent findings in neuropsychological, neuroimaging, twin, adoption and molecular genetic studies suggest that the nature of ADHD is complex and the aetiological pathways varied (Thapar et al., 2013; Ficks and Waldman, 2009). Given that genetic, neurobiological and cognitive factors cannot adequately explain the

aetiology of ADHD, growing research also intensifies interest in prenatal, perinatal and postnatal factors that may contribute to ADHD risk. The most commonly reported environmental risks are discussed in the following section.

### **4.3 The environmental basis of ADHD**

A number of prenatal (e.g. maternal smoking and stress, exposure to alcohol and other illegal substances), perinatal (e.g. premature delivery and low birth weight) and postnatal factors (e.g. exposure to environmental toxins, dietary factors/deficiencies, family reasons) have been either correlated with, or considered risks to ADHD (Thapar et al., 2013; Boucher et al., 2012; Glover, 2011; Eubig et al., 2010; Ficks et al., 2009; Nigg et al., 2008; McCann et al., 2007; Neuman et al., 2007; Eigenmann and Haenggeli, 2004). Given the insufficient evidence to establish a causal relationship, researchers conclude that exposure to these factors cannot form the aetiology of ADHD; they only play a role when there is a genetic/neurobiological susceptibility to the disorder (Thapar et al., 2013; Neuman et al., 2007). In this case, “the particular form of a gene that predisposes to ADHD may be different depending upon environmental risk factors” (Neuman et al., 2007, p.1326). The simultaneous examination of inherited and non-inherited factors is therefore more likely to provide the evidence needed to clarify the complex architecture of the disorder.

In pooled analyses, prenatal exposure to smoking has been one of the most commonly found risks associated with greater rates of ADHD (Langley et al., 2005; Thapar et al., 2013). Prenatal exposure to alcohol and illicit substances has been associated with ADHD less frequently (Coffin et al., 2005; D’Onofrio et al., 2007; Sen and Swaminathan, 2007; Thapar et al., 2013). Acknowledging that ADHD is not solely attributed to genetic factors and that nicotine suspends the typical cell replication, Neuman et al. (2007) examined the relationship between dopaminergic genes, prenatal exposure to substances (smoking, alcohol) and ADHD. For the purposes of this study, pairs of twin children and adolescents participated (7 to 18 years of age). The results indicated that the risk for ADHD was significantly higher in the case of prenatal exposure to smoking, but not to alcohol. More specifically, prenatal exposure to smoking was associated with ADHD-C when participants had a genetic predisposition to the disorder (Neuman et al., 2007). This outcome was replicated in a review of

relevant studies one year later (Rodriguez, 2008). This review provided “preliminary evidence suggesting that nicotine exposure together with genes in the dopaminergic system confer risk for ADHD” (Rodriguez, 2008, p.516). Prenatal maternal stress has also been reported as a risk factor (Thapar et al., 2013; Glover, 2011; Grizenko et al., 2008).

Examples of perinatal risk factors associated with ADHD are premature delivery, low birth weight and birth complications (Thapar et al., 2013; Taylor and Rogers, 2005; Bhutta et al., 2002). These risk factors were replicated in a longitudinal study with 95 twin pairs, suggesting that low birth weight, delayed physical and motor development are significant markers of the disorder (Lehn et al., 2007). More recently, a study by Lindstrom et al. (2011) revealed that the risk of developing ADHD is greater not only in cases of extremely immature birth but also in cases of moderately pre-term delivery. However, the role of preterm birth and low weight has been challenged since only the minority of people with ADHD present these characteristics (Thapar et al. 2013).

Prenatal and postnatal exposure to environmental toxins, such as pesticides, toxic industrial products and lead, has also been associated with greater risk of ADHD (Thapar et al., 2013). A large cross-sectional study, for example, that included 1139 American children and adolescents (8 to 15 years of age) indicated that participants with higher urinary levels of organophosphate pesticides were at higher risk for ADHD (Bouchard et al., 2010). However, further research is needed to determine whether a causal relationship between organophosphate exposure and ADHD exists. A review of human and animal studies suggested that exposure to various environmental contaminants, such as polychlorinated biphenyls (PCBs) and lead, is associated with deficits in attention and executive functioning (Eubig et al., 2010). These, in turn, increase the risk for ADHD (Eubig et al., 2010). An association was also found between prenatal tobacco/postnatal lead exposures and ADHD (Froehlich et al., 2009). In this study, 2588 American children and adolescents participated. Those who had been exposed to both prenatal tobacco and postnatal lead were at higher risk of ADHD compared to those who had been exposed to only one risk factor (Froehlich et al., 2009). Considering the results, the research team concluded that reduction of these exposures “may be an important avenue for ADHD prevention” (Froehlich et al., 2009, p.1054). More recently, previously reported associations between postnatal exposure to

lead and ADHD were replicated in a longitudinal Canadian study that involved 279 children (Boucher et al., 2012). This study found that ADHD was also associated with prenatal exposure to methylmercury. Given the outcomes, the authors recommended the introduction of local intervention programmes for reducing prenatal and postnatal exposures to lead and other contaminants (Boucher et al., 2012).

Malnutrition, iron and nutritional deficiencies (polyunsaturated fatty acids, magnesium and zinc), sugar, artificial food colourings, additives and preservatives have been correlated with ADHD (Thapar et al., 2013; Juneja et al., 2010; Raz and Gabis, 2009; Spahis et al., 2008; McCann et al., 2007; Arnold and DiSilvestro, 2005). However, there is no sufficient evidence to consider these factors as risks for ADHD (Thapar et al., 2013). Recently, the association between iron deficiency (serum ferritin) and ADHD was challenged by the largest controlled study that compared serum ferritin levels of 101 children with ADHD and 93 control counterparts (Donfrancesco et al., 2013). The comparison revealed no significant differences in serum ferritin levels of the two groups. Postnatal factors such as family adversity, low income, family conflicts and parent-child hostility have been correlated with ADHD (Thapar et al., 2013; Pheula et al., 2011; Taylor and Sonuga-Barke, 2008; Rutter et al., 2007). Specific parenting practices, such as paternal and maternal inconsistent discipline as well as paternal low involvement, have also been correlated with the disorder (Ellis and Nigg, 2009). Maternal practices have been correlated with all ADHD-related behaviours whereas paternal ones with attention deficits and disorganisation (Ellis and Nigg, 2009).

#### **4.4 ADHD as a social construct**

The biogenetic nature of the disorder and the appropriateness of pharmacological interventions have been challenged by a number of scholars who consider ADHD a socially constructed label for behaviours that do not meet social norms (Timimi and 33 Co-endorsers, 2004; Timimi, 2005; Timimi, 2007; Timimi and Leo, 2009; Parens and Johnston, 2009; Mather, 2012). The lack of objective medical diagnostic tests and the involvement of local values and interpretations in the assessment procedure enhance the perspective of a socially constructed pseudo-medical condition (Timimi and Taylor, 2004; Parens and Johnston, 2009). Timimi (2005, p.120), one of the most ardent adherents of this perspective, views ADHD as “a cultural construct” that “has generated

huge profits for the pharmaceutical industry against a background of poor-quality research, publication bias and payments to some of the top academics in this field” (Timimi and Taylor, 2004, p.8). According to Timimi (2005), medicalization of these behaviours is a clever way of promoting the financial interests of those involved in the procedure of diagnosis and treatment, as well as those who participate in the development of knowledge, such as researchers, doctors and pharmaceutical companies.

Timimi (2005) attributed ADHD-related behaviours to the modern way of life, the exaggerated demands and expectations of the current society. Timimi (2005) referred to various social stressors, such as single parent families, feelings of fear and insecurity, the wide spread use of drugs, the development of insecure attachment between parents and children, prenatal and postnatal complications, as candidate reasons for ADHD-related behaviours. The contemporary nutritional habits in combination with the new ways of entertainment, which minimise physical movement, can also increase hyperactivity and impulsivity levels at school (Timimi, 2005). Parens and Johnston (2009) elaborate that in the competitive and demanding educational systems of Western societies, ADHD-related behaviours are more likely to be considered problematic and be categorised as symptoms of a disorder.

## **4.5 Overview – Conclusion**

Even though several inherited and non-inherited factors have been either correlated with, or considered risks for ADHD, the aetiology of the disorder still remains vague. Research has shown that individuals with a genetic or neurobiological predisposition do not necessarily have ADHD. Similarly, from those exposed to environmental risk factors, only a minority develops ADHD-related behaviours (Nigg et al., 2010; Thapar et al., 2005). The inconsistency in research findings suggests that single causal factors are unlikely to exist. ADHD can be better explained as “a complex, multifactoral disorder caused by the confluence of many different types of risk factors (ie, genetic, biological, environmental, psychosocial), with every type having a small effect” (Biederman and Faraone, 2005, p.243). This ascertainment has resulted in the adoption of a more holistic bio-psychosocial approach to examine and understand ADHD, where particular emphasis is placed on the complex interplay of internal and external risk factors.

The complex nature of the disorder, the multiple aetiological pathways and the co-existing difficulties (academic, social, emotional) suggest that the polarisation between pharmacological and non-pharmacological interventions is unhelpful to manage ADHD-related behaviours and support individuals with ADHD in the long-term. School-home cooperation in setting and implementing multi-modal intervention plans (as these will be discussed in the next chapter), adapted to the nature of observed behaviours, the severity and needs of each child, is likely the most appropriate and effective approach to manage the disorder and optimise the school success of children with ADHD.

## Chapter 5 - Approaches to intervention

ADHD is a chronic, complex and multifactorial disorder. As indicated in Chapter 4, several inherited and non-inherited factors have been either correlated with, or considered potential risks for ADHD. Given the complexity of the disorder and the co-existing difficulties (academic, social, emotional), it is generally accepted that a multi-modal intervention plan, adapted to the nature of observed behaviours, the severity and needs of each child, is the most appropriate and effective approach to manage related behaviours and optimise the school success of children with ADHD (ADD-ADHD CYPRUS, 2013; Graham et al., 2011; Ryan-Krause, 2011; DuPaul et al., 2011; NICE, 2009). The intervention approaches that have been recommended for the management of ADHD-related behaviours can be classified into two main categories; pharmacological and non-pharmacological (NICE, 2009). Scholars who perceive ADHD as a social construct express their reservations about the appropriateness and safety of pharmacological approach (Timimi, 2005; 2007; Timimi and 33 Co-endorsers, 2004). Non-pharmacological interventions can be implemented in various settings (e.g. school, home) by parents, guardians, educators and specialists (DuPaul et al., 2011; NICE, 2009; Barkley, 2006). These include a number of psychological interventions, such as behavioural and cognitive interventions, social skills and parent training (Ryan-Krause, 2011; NICE, 2009; Cooper and Bilton, 2002). The following chapter consists of two parts. In the first part, the current pharmacological interventions, their benefits and possible side-effects are discussed. Given the population of interest in the study, the second part primarily focuses on school-based interventions that can be implemented by mainstream school teachers in classroom settings (physical, instructional and behavioural accommodations - in cooperation with parents).

### 5.1 Pharmacological interventions

Central Nervous System (CNS) stimulants, such as methylphenidate (e.g. Ritalin, Concerta), amphetamine (e.g. Adderall), d-amphetamine (e.g. Dexedrine) and d-methylphenidate (e.g. Focalin), are the most widely used medicines for children with ADHD (Swanson et al., 2011; Graham et al., 2011; Ryan et al., 2011; Ryan-Krause, 2011; Golden, 2009; Findling, 2008; Paul, 2008; Scheffler et al., 2007). Stimulants are

used as a first-line pharmacological intervention since they are highly effective in managing ADHD-related behaviours, by enhancing dopamine and norepinephrine neurotransmission (Vaughan et al., 2009; Advokat, 2009; Golden, 2009; Biederman et al., 2009). In the global market, a range of stimulants in various forms (tablets, chewable tablets, capsules, beaded capsules) and durations of action (short, intermediate and long acting - 3 to 12 hours duration) are available for individuals over six years of age (Faraone and Buitelaar, 2010; NICE, 2009; Vaughan et al., 2009; Scheffler et al., 2007). In Cyprus, three stimulants are currently prescribed for children with ADHD; Ritalin, Concerta and Adderall (ADD-ADHD CYPRUS, 2013). Overall, stimulant medication has been highly effective to manage behaviours related to hyperactivity, impulsivity and inattention in approximately 80.0% of children with ADHD (Ryan et al., 2011; Faraone and Buitelaar, 2010; Vaughan et al., 2009; Pliszka, 2007). A small percentage, 10.0%-30.0%, do not benefit from this type of medication either because they experience intolerable side-effects or because they do not respond to it - ADHD-related behaviours persist after the administration of stimulant medication (NICE; 2009; Pliszka, 2007; Banaschewski et al., 2004).

When children do not respond to stimulants or experience intense side-effects, alternative non-stimulant medicines, such as atomoxetine (Strattera), clonidine and antidepressants, have been shown effective to manage ADHD-related behaviours (Ryan et al., 2011; Vaughan et al., 2009; Wood et al., 2007; Banaschewski et al., 2004). The combination of stimulants and non-stimulants, such as clonidine tablets, has also been suggested as an effective and safe option for children that do not benefit from pure stimulant medication (Kollins et al., 2011). Albeit the positive effects, the management of ADHD-related behaviours lasts for as long as the child is on medication (NICE, 2009). As the Cyprus Organisation of ADHD reports, medication is “more like eyeglasses that help improve vision only during the time the eyeglasses are actually worn” (ADD-ADHD CYPRUS, 2013, p.2). Therefore, it should not be considered as a substitute for psychological interventions but as part of a multimodal approach that will enhance the long-term management of inattention, hyperactivity and impulsivity (ADD-ADHD CYPRUS, 2013; Graham et al., 2011; NICE, 2009).

Stimulant medication has been successfully used for decades to enhance children’s attention and academic productivity in the short term (Advokat, 2009; Loe and

Feldman, 2007; Swanson et al., 2007). Findings related to the long-term effects of stimulant medication on children's academic functioning have been inconsistent, however. A number of studies have reported significant long-term academic benefits associated with stimulant medication (e.g. better academic outcomes, improvement in reading achievement, decreased absenteeism and grade repetition) (Biederman et al., 2009; Powers et al., 2008; Barbaresi et al., 2007) while others have found long-term educational attainment to be unaffected (Loe and Feldman, 2007; Swanson et al., 2007).

To estimate the association between medication use and elementary school children's achievement in standardised reading and mathematics tests, Scheffler et al. (2009) compared the scores of 594 medicated and un-medicated American children with ADHD over a five-year period (from kindergarten to the fifth grade). Data for reading and mathematics scores were derived from the Early Childhood Longitudinal Study—Kindergarten Class of 1998–1999 (ECLS-K). The comparison indicated a positive association between medication use and children's performance in both mathematics and reading tests. In the case of reading, medication use was associated with significantly higher scores only when children had been on medication for two or more years. The reason why this difference in mathematics and reading was observed is unclear and requires further investigation. The research team presumes that this may be attributable to differences in the processes of knowledge acquisition involved in the two subject areas (Scheffler et al., 2009).

In all cases, the scores of medicated children did not reach those of typically developing peers; the discrepancy in scores remained significant, even after the administration of medication (Scheffler et al., 2009). Given that the positive association found between test scores and medication use does not equal causality, relationships must be interpreted with caution and other factors that could have influenced children's academic achievement should be considered alongside medical status (e.g. severity index, ADHD presentation, comorbid conditions, educational accommodations, differences in school, parent and teacher inputs over the years, medication dosage). In this study, for example, the association between reading scores and medication was lower for children with an individualised education programme (Scheffler et al., 2009). All possible bias should therefore be controlled in future studies that examine the long-term effects of medication on academic achievement.

The effects of stimulant medication use on time management, organisational and planning skills at school and at home were evaluated in a study by Abikoff et al. (2009) that involved 19 medication-naïve children with ADHD, aged 8 to 13. Children with comorbid conditions such as autism, substance abuse, depression, panic disorder, posttraumatic stress disorder, tic disorders and learning disabilities were excluded from the study. To evaluate the effects of medication, a double-blind, placebo-controlled, crossover design was used and data regarding children's skills were collected from parents and teachers using the Children's Organizational Skills Scale. Even though the administration of stimulant medication significantly improved time management, organisational and planning skills, 61.0% of participants continued to experience significant difficulties in these specific domains. Given the results, the research team highlighted the need for complementary psychosocial interventions that will target the improvement of these skills (Abikoff et al., 2009). The reason for this inconsistency in findings is unclear and requires additional investigation. It may be due to differences in the nature and the severity of ADHD behaviours that were not controlled in the study. Overall, research findings should be considered in the light of methodological limitations that need to be addressed in future studies. The small sample size, for example, does not allow either generalisation or identification of differences between children who continued to experience significant difficulties and those who did not.

A survey that was conducted in a local education authority, involving 151 schools and 413 children with an ADHD diagnosis, indicated that the majority of these children (75.0%) were on medication and specifically on methylphenidate (Ritalin or Concerta - 88.0%) (Wheeler et al., 2008). Based on teachers' reports, 70.0% of medicated children presented positive behaviour changes; they were less aggressive, calmer, less fidgety and more able to remain concentrated (Wheeler et al., 2008). 10.0% of children presented either little or no difference after the administration of medication whereas for the remaining 20.0% details of changes were not provided. Comments relating to the presence of atypically detached and unresponsive behaviours were reported by a small number of teachers (Wheeler et al., 2008). Consistent evidence about the positive and adverse effects of medication was provided in qualitative studies across countries, such as those by Einarsdottir (2008) and Lee (2008) that investigated teachers' experiences with, and perceptions of children with ADHD.

For the purposes of the first study (Einarsdottir, 2008), interview data were collected from 16 Icelandic teachers; 8 playschool and 8 first-grade teachers. Living in the country with “the highest prescription rates for methylphenidate in the world” (Einarsdottir, 2008, p.375), all but two participants, who considered ADHD as a result of various dietary and family factors, favoured medication for at least a group of children with ADHD. These teachers, who indicated experience with medicated children, focused on the positive effects relating to the management of ADHD behaviours and explained that their students were more able to meet the academic and behavioural expectations of school. As in the study by Wheeler et al. (2008), three playschool teachers reported experiences with medicated children that were excessively unresponsive, introvert and depressed. Although recognising the positive effects, Icelandic teachers highlighted the need for constant observation and re-evaluation of medicated children’s behaviour so as possible adverse effects to be considered and immediately addressed.

Similar experiences with, and perceptions of medication use were reported in a study by Lee (2008) that explored the views of 10 American early childhood teachers using in-depth interviews. In this study, all but one participant had taught children with ADHD that were on medication. Even though hesitant to administer medication to pre-kindergarten, kindergarten and early elementary school children, all participants supported the effectiveness of pharmacological interventions to manage ADHD-related behaviours. Similarly to British (Wheeler et al., 2008) and Icelandic teachers (Einarsdottir, 2008), American teachers placed emphasis on the positive effects of medication. In their opinion, medicated children were calmer, more able to remain seated and concentrated, to control disruptive behaviours, to complete schoolwork and manipulate negative feelings (e.g. anger). Only three participants briefly touched on adverse effects, such as appetite loss and augmented drowsiness (Lee, 2008).

Overall, the positive effects of ADHD medication are usually accompanied with a number of side-effects. The most common side-effects are reduced appetite and insomnia (Vaughan et al., 2009). Medicated children may also experience several neurological, psychiatric and gastroenterological adverse effects such as sleep and mood disturbances, anxiety, mania, psychotic and depressive symptoms, dizziness, fatigue,

headaches, abdominal pain, vomiting and lethargy (Graham et al., 2011; Ryan et al., 2011; Ryan-Krause, 2011; NICE, 2009; Vaughan et al., 2009). Vaughan et al. (2009) explain that these adverse effects can be addressed either with small arrangements in dosing or medication alteration.

The effects of pharmacological interventions have also been examined from the child's point of view. Thorell and Dahlstrom (2009) considered the views of 79 Swedish children with ADHD (78.0% boys) on the effects of stimulant medication and their willingness to discontinue this kind of treatment. The average age of participants was 13 years. Questionnaire data were generated from children and one of their parents (94.0% mothers). Children's questionnaire consisted of 18 items with a Likert-type scale response format that focused on positive effects related to the management of ADHD behaviours, academics, aggression and social relationships and negative effects related to appetite loss, difficulty falling asleep, headaches and stomach-aches. Comparable data were provided by parents. Data analysis suggested that the majority of children had positive experiences with medication, especially in relation to the management of primary behaviours and academics. More specifically, large positive effects on their ability to concentrate, to sit still and complete schoolwork were reported by 83.0%, 73.0% and 76.0% of children respectively. 57.0% of children also found their social relations with peers to be significantly improved as a result of medication use. Negative effects were reported by the minority of children. Stomach-aches, headaches, poor appetite and sleep disturbances were experienced by 3.0%, 8.0%, 27.0% and 19.0% of children respectively (Thorell and Dahlstrom, 2009).

In this study, parental views on positive effects of medication were highly comparable to those of their children (Thorell and Dahlstrom, 2009). Significant differences between children's and parents' views were found in relation to the negative effects of medication; children reported lower levels of negative effects than their parents did. Of 79 children, only 20.0% expressed a willingness to discontinue their medication. This willingness was not positively related to any somatic negative effect but to a sense of "not feeling like oneself when on medication" (Thorell and Dahlstrom, 2009, p.464). Given that the study was solely based on self-reports, the objectivity of data and accuracy of findings should be considered with caution. Alongside self-report data, future studies could also include teachers' views on the effects of medication and

extensive observational data across settings. The combination of several sources and methods to collect data about the same phenomenon would enhance the trustworthiness of research findings.

Similar positive effects were reported in a study by Singh et al. (2010) that examined the experiences of 16 UK children and adolescents (14 boys), aged 9 to 14, with stimulant medication. This study was commissioned by the NICE ADHD Guideline Group to provide evidence and fill the gap that existed regarding young people's experiences with ADHD medication and specifically stimulants. For the purposes of this study, in-depth qualitative data were collected with the use of one to one interviews and focus groups. The coding and analysis of participants' answers revealed a number of areas in which stimulant medication had a positive impact, including concentration, impulsiveness, hyperactivity, aggression, social relationships with peers, teachers, parents, homework and schoolwork. In this study, young participants primarily discussed the positive effects of medication on social and disruptive behaviour (physical and verbal) and secondarily on academic functioning. In general, they did not express feelings of anxiety and they felt positive about taking stimulant medication; in their opinion it was a safe, familiar and relatively easy way to manage ADHD-related behaviours and improve their social relationships. Young participants considered medication as the most effective intervention and expressed an unwillingness to experiment with alternative approaches (Singh et al., 2010). Even though important preliminary evidence on medicated children's experiences, research findings require further empirical support since the qualitative nature of the study and the small sample size do not allow inferences about the target population.

Studies that examined the association between ADHD medication and substance use/substance use disorders (SUD) risk later in life have resulted in contradictory findings. Some studies found medication use to increase the risk (e.g. Lambert et al., 2006; Lambert, 2005; Lambert and Hartsough, 1998) and some others to protect from later substance use/SUD (e.g. Mannuzza et al., 2008; Wilens et al., 2008; 2003; Biederman et al., 1999). No association between medication and SUD has also been found in several studies (e.g. Biederman et al., 2008; Molina et al., 2007; Barkley et al., 2003). The latest relevant study was conducted by Molina et al. (2013). This study investigated the long-term effects of ADHD medication on substance use and SUD later

in life (alcohol, tobacco, marijuana and other drugs) by following and assessing the participants of the Multimodal Treatment Study of Attention-Deficit/Hyperactivity Disorder (ADHD) (MTA) for eight years (579 participants, 9 to 17 years of age). A control group of 289 typically developing children from the same schools, the same level of academic performance and sex proportions was also included for comparative reasons. The results of this study indicated no association between the two variables and corroborated previous findings that medication neither prevents, nor increases the risk for substance use/SUD by adolescence. Given that all participants in the MTA had an ADHD-Combined type, the outcomes of the study cannot be generalised for other subtypes. Further empirical support is also needed to clarify the inconsistency in research findings and the underlying factors that could have influenced the association of medication and SUD in different groups of children with ADHD.

Exposure to stimulants has also been found to minimally increase heart rate and blood pressure (Samuels et al., 2006; Kratochvil et al., 2006; Findling et al., 2005; Wilens et al., 2004). Similarly to SUD, the findings of studies that evaluated the association of ADHD medication with more severe cardiovascular events and sudden deaths have been inconsistent. A retrospective cohort study by Winterstein et al. (2007) that used data for 55 383 youth with ADHD found the exposure to stimulant medication to be associated with a 20.0% increased risk of visiting emergency departments because of cardiac symptoms. To examine the association between medication use and sudden death in childhood and adolescence, Gould et al. (2009) carried out a matched case-control study using mortality data from 1985 to 1996 (7 to 19 years of age). Overall, 564 cases of sudden unexplained death were identified and compared to 564 matched children and adolescents who died in motor vehicle traffic accidents. The comparison provided support for a significant association between stimulant medication use and sudden death (Gould et al., 2009).

In contrast, a large retrospective cohort study, involving data for 1,200,438 children and young adults (2 to 24 years of age), found that individuals exposed to ADHD medication had no greater risk of presenting severe cardiovascular events, such as strokes, myocardial infarction or sudden cardiac death (Cooper et al., 2011). These findings were corroborated in another large cohort study by Schelleman et al. (2011) that used data from two databases for children and adolescents (3 to 17 years of age).

Medical record comparisons indicated no significantly higher rates of sudden deaths, strokes and myocardial infarctions to children and adolescents medicated with methylphenidate, amphetamine or atomoxetine (Schelleman et al., 2011). Given the inconsistent findings, definite conclusions about the association of ADHD medication with severe cardiovascular events cannot be provided. Further research is therefore needed to clarify this association and inform clinical practice.

For the vast majority of children, pharmacological interventions have been proved highly effective in managing ADHD-related behaviours. However, several limitations such as the short-term positive effects render the simultaneous implementation of non-pharmacological interventions necessary (DuPaul et al., 2011; Ryan-Krause, 2011; NICE, 2009; Chronis et al., 2006). Results of the Multimodal Treatment Study of Children with ADHD (MTA Cooperative Group, 1999a), the largest randomised-controlled trial that will be discussed later in the chapter, indicated that only a combination of behavioural and pharmacological interventions improved children's social skills and parent-child relationships. Non-pharmacological interventions are also necessary for children that either do not respond to medication or experience severe adverse effects (NICE, 2009; Chronis et al., 2006).

Ethical considerations about the appropriateness of administering medication to children and concerns about possible long-term harms make pharmacological interventions controversial, especially in some countries (NICE, 2009). In Denmark and Korea, for example, the prescription of medication is uncommon for children with ADHD-related behaviours (Hong, 2008; Holst, 2008). The fact that the Korean community has not officially established ADHD as a disorder makes parents and teachers hesitant to administer medication for these kinds of behaviours (Hong, 2008). In these cases, teachers apply alternative interventions to manage ADHD behaviours and support their students academically. Classroom-based interventions that can be applied by mainstream school teachers will be discussed in the following section.

## **5.2 Non-pharmacological interventions**

Given the target population of the thesis, this section primarily focuses on simple instructional (e.g. well-planned lessons, dominance of creative and motor activities),

physical (e.g. seating assignment) and behavioural accommodations that every mainstream school teacher can easily apply to manage ADHD-related behaviours (MoEC, 2013; ADD-ADHD CYPRUS, 2013; Ryan-Krause, 2011; Schultz et al., 2011; Pelham and Fabiano, 2008; Kewley and Latham, 2008; Paul, 2008). Behavioural interventions consist of a number of antecedent and consequent-based strategies that can be concurrently implemented for the best result (DuPaul and Weyandt, 2006). In the first case, educators apply in advance strategies to prevent unwanted behaviours from happening (e.g. choice-making, adaptations in the amount of work and the size of tasks assigned, active learning of classroom rules and routines) while in the latter case, they intervene immediately after the performance of a positive or negative behaviour (e.g. token reinforcement and response-cost approaches, consistent and immediate reprimands) (Pfiffner et al., 2013; DuPaul et al., 2011; Schultz et al., 2011; Ryan-Krause, 2011; Fabiano et al., 2009; NICE, 2009; Barkley, 2008; Jurbergs et al., 2007; McGoey and DuPaul, 2000).

### **5.2.1 Physical/Instructional/Antecedent-based behavioural interventions**

Several physical accommodations have been recommended to facilitate the management of ADHD-related behaviours and optimise the academic productivity of children with ADHD (MoEC, 2013; ADD-ADHD CYPRUS, 2013; NICE, 2009; Kewley and Latham, 2008; Rief, 2003). A classroom environment with limited visual/auditory stimuli and low-distraction areas for quiet study and testing time has been recommended to enhance inattentive children's concentration and ability to complete schoolwork (ADD-ADHD CYPRUS, 2013). To minimise distractions, the ADD-ADHD CYPRUS (2013) suggests keeping the classroom decoration as simple as possible, covering open shelves and removing unnecessary furniture and items (e.g. distracting posters unrelated to the lesson). A seating assignment in the centre of the classroom, away from windows, heaters, air conditioners and doors can also lessen outdoor noise and visual distractions (MoEC, 2013). At the same time, a carpeted classroom can minimise indoor sounds from chairs, desks and peers' movements (MoEC, 2013; Paul, 2008; Rief, 2003).

According to Rief (2003), Kewley and Latham (2008), group seating is better to be avoided since it increases visual/auditory distractions and encourages off-task, inattentive and challenging behaviour. Given the challenges that may arise from group seating, the MoEC (2013) suggests the use of rows as they provide a more structured learning environment, they allow eye contact and discourage non-productive talk and off-task behaviour. As DuPaul and Stoner (2003, p.17) explain, when “independent work is closely supervised, children with ADHD are able to produce a greater quantity and higher quality of output relative to minimal supervision situation”. The MoEC (2013) also encourages the placement of children with ADHD in the front of the classroom. This seating arrangement is recommended since it can lessen distractions from classmates’ movements and give opportunities for teachers to monitor and reinforce on-task behaviours, to provide follow-up instructions and explanations as necessary (MoEC, 2013; ADD-ADHD CYPRUS, 2013; DuPaul and Stoner, 2003).

Alongside the advantages relating to children’s concentration and classroom control, this traditional form of seating setup has a number of drawbacks that teachers should consider and address for the academic, social and emotional development of children with ADHD and their classmates. First, rows promote a teacher-centred teaching style that emphasises independent work; they limit student interaction and lessen the opportunities to discuss the lesson, to work together for a given goal and learn from each other’s knowledge and experience (Ebert II et al., 2011). This seating assignment can therefore be disadvantageous to the development of communication, listening, cooperative and social skills (Ebert II et al., 2011). Rows may also provide an intimidating environment for children with ADHD, especially those with poor self-esteem, to participate in the lesson, to share knowledge and voice their opinion. In contrast, small group seating arrangements can be more appropriate to corroborate feelings of belonging and encourage participation. In the researcher’s knowledge, studies that simultaneously examined the effects of seating arrangement on behavioural, emotional, academic and social aspects of children with ADHD have not been conducted. Given the general advantages and disadvantages of each seating setup, it can be argued that a combination of rows and groups would be useful to compensate for the weaknesses of each one. Teachers, for example, can retain rows for academic subject matters and testing that require quietness and high concentration levels and assign

students in groups for non-academic activities and subject matters (e.g. music, art, home economics, designing and technology).

Considering the multiple ADHD presentations and the unique needs of each child, teachers should experiment with seat location to find the most appropriate one for their student. A seating arrangement at the back of the room, for example, may work better for students with hyperactivity. In this place, teachers can ignore all the little movements, fidgeting and squirming that cannot be ignored in the front places and allow children to have regular motor breaks without disrupting the teaching procedure. Overall, environmental manipulation interventions have been widely recommended without a significant evidence base (NICE, 2009). Given the poor empirical support, it is difficult to judge the degree to which they contribute to the management of ADHD-related behaviours (NICE, 2009). Future research should therefore examine how important seating and physical accommodations are in practice and whether their effects are differentiated in terms of the severity, the nature of observed behaviours, the administration of medication and the presence of comorbid conditions.

Decrease of long sedentary activities and introduction of tasks that involve physical movement have also been recommended to redirect excessive motor activity in acceptable and less disruptive situations (MoEC, 2013; Paul, 2008). Ryan-Krause (2011) suggests redirection of overflow motor activity with the use of several objects, such as stress balls and play dough. Preferential seating, particularly at the end of task performance, flexibility in the work position and permission for squirming and fidgeting can also lessen children's need to leave the seat during the lesson procedure (Ryan-Krause, 2011; Rief, 2003). The MoEC (2013) encourages the alternation of sedentary tasks with motor ones, the introduction of regular motor breaks and awards and the allocation of roles that promote physical movement, such as collecting and distributing books, cleaning the blackboard, arranging the chairs, the desks and the books in the library. The benefits of providing opportunities to leave the seat during the lesson were reported in a qualitative study that involved 16 Icelandic early childhood teachers (described above) (Einarsdottir, 2008).

According to Rief (2005), children with ADHD have a greater need, compared to their classmates, to "know precisely what the expectations are from the minute they enter the

room until the time they are dismissed at the end of the day” (p.97). Therefore, they can benefit when educational (scheduled activities, required materials, books) and behavioural expectations (rules/routines) are clearly defined and when the learning procedure is highly structured and predictable (ADD-ADHD CYPRUS, 2013; Wheeler et al., 2009; Einarsdottir, 2008). Based on their experiences teaching students with ADHD, Icelandic early childhood teachers emphasised the positive effects of predictability and consistency and highlighted the need of cooperation among staff members so as everyone to act within the same framework (Einarsdottir, 2008). The MoEC (2013) encourages Cypriot teachers to preview and post the daily schedule on the classroom notice board and inform children with ADHD about possible changes in routine in advance (MoEC, 2013).

Active and regular teaching of simply-worded rules and routines is an important antecedent-based behavioural intervention (DuPaul et al., 2011; DuPaul and Weyandt, 2006). Children with ADHD are more likely to present positive behaviours when rules and routines are provided in a simple, positive and brief way, accompanied with practical examples and demonstration of expected behaviours (DuPaul and Stoner, 2003; McGoey and DuPaul, 2000). During transitions (from one activity or class to another), teachers may find it helpful to spend some time rehearsing forthcoming rules and routines, rewards and negative consequences (ADD-ADHD CYPRUS, 2013; Barkley, 2008). Display of rules/routines on posters, especially at the beginning of the school year, has also been suggested as an effective non-verbal way to remind students of expected behaviour (MoEC, 2013; DuPaul et al., 2011; Barkley, 2008).

In parallel with the active teaching of rules and routines, DuPaul et al. (2011) recommend another two easily applied antecedent-based strategies; choice-making and adaptations in the size of tasks assigned. In the first case, teachers provide a variety of academic tasks and let children choose and complete one of them within a given timeline. In this way, teachers retain overall control but they also give children a sense of control over which task to complete. This strategy has been found to maintain children’s concentration, to increase task engagement and reduce excess motor activity (DuPaul and Weyandt, 2006; Powell and Nelson, 1997; Dunlap et al., 1994).

Given that “quality is of higher importance than quantity” (MoEC, 2013, p.11), modifications in tasks, especially those require extensive writing, have been recommended to reduce off-task behaviours and increase the likelihood for successful assignment completion (Ryan-Krause, 2011; DuPaul and Weyandt, 2006). These modifications concern either overall reductions in assignment length or divisions into smaller manageable parts with brief breaks, clear deadlines and immediate feedback for each one (Ryan-Krause, 2011; DuPaul and Stoner, 2003). Similar modifications can be applied in the amount and length of homework assignments, considering the needs, the pace of work and the potential of a child to successfully complete them (ADD-ADHD CYPRUS, 2013).

Reductions in the length of tests and provision of additional time to complete them can also help children meet their potential and experience success (Ryan-Krause, 2011). The dominance of creative activities over academic ones was reported by Icelandic teachers as an effective way to lessen off-task rates and enhance concentration (Einarsdottir, 2008). The MoEC (2013) also encourages the implementation of academic subject-matters in the first school hours, when ADHD behaviours are less prominent and children less tired. Even though widely recommended, in the researcher’s knowledge the effects of task and instructional modifications have not been tested in randomised controlled trials. Future research should therefore focus on these kinds of interventions and use standardised measures to evaluate their effectiveness.

Inattentive children usually have a greater difficulty remaining focused when lots of information is simultaneously presented (APA, 2013; Selikowitz, 2009; Train, 2005). Given this, children would benefit if complicated concepts and multi-stage instructions were broken into smaller units and presented systematically; using simple language, straightforward explanations, multiple verbal and non-verbal examples (ADD-ADHD CYPRUS, 2013; MoEC, 2013; Kewley and Latham, 2008; DuPaul and Stoner, 2003; Cooper and Bilton, 2002). If needed, oral instructions can be followed by individualised guidance and written instructions on the blackboard (ADD-ADHD CYPRUS, 2013). The transition from one activity to another may be challenging for children with ADHD (ADD-ADHD CYPRUS, 2013). In these cases, short breaks between activities as well as introduction of various auditory and visual reminders can facilitate transitions and bring children’s concentration back to the new task (Ryan-Krause, 2011).

Wheeler et al. (2009) explored the variability of ADHD-related behaviours across contexts, following an elementary school boy that had been diagnosed with ADHD in Year 2 and had been prescribed stimulant medication; Ritalin (Year 2 to Year 5) and the slow-release version of Concerta (Year 5 to Year 6). The final purpose of the study was to support teachers by identifying curricular and contextual settings that contribute to the management of ADHD-related behaviours. For the purposes of this in-depth case study, a mixed-method approach was adopted to collect data over a two-year period (Year 5 and Year 6). Two classroom observation schedules that incorporated the DSM-IV diagnostic criteria were prepared and two structured observational techniques (Fixed Interval Sampling (FIS) and Instantaneous Time Sampling (ITS)) were used to gather quantitative data about the behavioural profile of the child and the time spent in displaying ADHD-related behaviours across contexts (Wheeler et al., 2009) .

Field notes and informal interviews with school staff were also used to collect complementary qualitative data (Wheeler et al., 2009). Field notes were taken to record data during informal or unstructured observation, to add background and contextual information immediately after structured observation and note details during informal interviews with the teaching staff (behaviour, associated difficulties, medication effects and classroom interventions). The analysis of observational data over time and across curricular settings (descriptive statistics) indicated lower levels of ADHD-related behaviours when the lesson procedure had been highly structured and included pictorial representations, structured motor activity, short, creative, enjoyable and computer-based activities, kinaesthetic teaching and active experimentation. Permanent and explicit rules and routines, individual support, pairing with a role-model peer, opportunities for displaying ideas and abilities to classmates, use of praise and awards were also found to be associated with lower levels of hyperactive, impulsive and inattentive behaviours (Wheeler et al., 2009). Given the nature of the study, the findings cannot be generalised. However, the systematic observation schedules that had been successfully used to identify curricular and contextual settings that either increase or reduce ADHD behaviours can also be used in future studies with larger sample sizes.

## 5.2.2 Consequent-based behavioural interventions

Schultz et al. (2011) provide an overview of classroom-based behavioural strategies that teachers find easy to implement and research has corroborated their effectiveness in reducing disruptive and off-task behaviours of children with ADHD. These strategies include prompts, specific instructions, explicit rules/routines (described above) and praise for positive behaviour (Schultz et al., 2011). In cases when general behaviour modification techniques are partially effective (e.g. when increases in on-task behaviour are not consistent across settings and time), a more personalised consequent-based behavioural strategy can also be applied. These include Daily Report Cards that promote school-home communication (DRC) (or home-school notes), response-cost, token economy systems and effective reprimands (Pfiffner et al., 2013; DuPaul et al., 2011; Schultz et al., 2011; Jurbergs et al., 2007; DuPaul and Weyandt, 2006).

DRC is a very simple, cost-effective home-based reinforcement technique that rewards positive behaviour in cooperation with parents (Schultz et al., 2011). Frafjord-Jacobson et al. (2013, p.462) define this technique as “a vehicle to transport information regarding specific target behaviors that a student needs to work on, or to include the parent as much as possible in the student’s academic life”. More specifically, DRC requires teachers to identify areas that need development (e.g. waiting for turn, raising hand, completing schoolwork, remaining seated, focused and quiet), to set a number of behavioural goals and evaluate them on a daily basis. The child receives immediate feedback while the written quantitative rating notes (e.g. from 1 to 5) are consigned to parents, who provide home-based privileges when behavioural expectations are met (Schultz et al., 2011; Jurbergs et al., 2007; DuPaul and Weyandt, 2006). DRC can be a highly effective technique since it allows parents to provide high-value reinforcers for their children (e.g. access to favourite television programmes, video games and snacks) that are not available in classroom settings (Frafjord-Jacobson et al., 2013; Jurbergs et al., 2007). Even though a simple and easily applied reinforcement technique, a number of critical issues should be considered prior to the implementation of a DRC system. First, the home-based nature of DRC presupposes the active involvement of parents. If for any reason parents do not wish to cooperate with school, then such programmes cannot be implemented. The parental style and parent-child relationships should also be carefully considered and determine whether parental involvement will be beneficial. In

cases, for example, of abusive parents that may punish or act aggressively towards their children, home-based interventions should be avoided for safety reasons.

Positive behaviour can also be reinforced with the use of classroom-based token economy and/or response-cost programmes. In the first case, specific target behaviour (e.g. rule adherence, completion of schoolwork) is immediately rewarded with tokens, tangible objects such as stickers, which are redeemed at the end of a school day or a week for special privileges (e.g. access to enjoyable activities and preferred games) (Schultz et al., 2011; DuPaul et al., 2011; NICE, 2009; Barkley, 2008; McGoey and DuPaul, 2000). Response-cost programmes, which are often implemented alongside token economy systems, discourage the presence of negative behaviour by removing previously earned tokens (DuPaul et al., 2011; Schultz et al., 2011, p.256). Based on studies that had examined the features of effective reprimands, DuPaul and Weyandt (2006) encourage teachers to use prudent, immediate, mild, personalised and brief reprimands, accompanied with explanations and corrective statements.

To compare the effectiveness of a DRC system with and without response cost, Jurbergs et al. (2007) carried out a small-scale study with six medicated-naïve African American elementary school children with ADHD, six to eight years of age. For the purposes of the study, a withdrawal design with alternating interventions, randomly assigned across days, was used. Direct structured observations during baseline (behavioural coding every 15 seconds for 30 minutes per day) indicated that participants were off-task in more than 50.0% of the teaching time. They also presented average scores on Math Fluency, Calculation, Applied Problems, Reading Fluency, Spelling and Letter-Word Identification subtests of the Woodcock-Johnson Test of Achievement battery. Follow-up observations and testing suggested that home-based contingencies, under both conditions, were equally effective in increasing academic productivity and on-task behaviour in all six children. Nevertheless, parents and teachers indicated a preference to the condition with the response-cost component. Overall, participants found the programme easy to apply and highly effective in all but one case (moderate improvement). They all expressed their satisfaction with the increased communication between school and home, their intention to recommend the programme to a friend or a colleague who had a child or a student with these behavioural characteristics and their willingness to continue using the intervention. Given the small sample size and the

background characteristics of participants (minority children, low-income families), the results cannot be generalised. Future studies should therefore use group designs to evaluate the effectiveness of this intervention for larger sample groups of children from various socioeconomic and ethnic backgrounds in comparison with medication and combination of interventions (DRC and medication).

More recently, the educational outcomes of a school-home behavioural intervention for elementary school children (Collaborative Life Skills Program [CLS]), which among others included a DRC system, were evaluated in a study by Pfiffner et al. (2013). For the purposes of this study, 57 boys and girls with ADHD (Grade 2 to Grade 5) from diverse ethnic backgrounds participated. The programme that was implemented by school-based mental health professionals over 12 weeks included three components: classroom behavioural intervention (a DRC system, a homework plan, classroom accommodations – preferential seating, target use of prompts and praise), group behavioural parent training (effective use of rewards, commands and discipline, strategies to manage difficulties relating to homework time, daily routines, social skills) and a child social and independence skills group (self-control, dealing with teasing, problem solving, friendship making, homework skills, following routines).

For comparative reasons, parent and teacher ratings of ADHD-related behaviours, homework problems, organisational skills, teacher-rated academic skills, academic achievement (objective measures for reading, comprehension, math fluency and calculation) and student engagement (structured classroom observations) were measured prior and after the completion of the programme (Pfiffner et al., 2013). Data analysis indicated significant pre-post improvement in all measures; both ratings and objective ones. More specifically, large effect sizes were found for ADHD-related behaviours, homework problems and organisational skills and medium to large effect sizes for academic achievement, teacher-rated academic skills and student engagement. The positive impact of CLS, as it was assessed via effect sizes, was in line with the impact found in a meta-analysis of behavioural interventions by Fabiano et al. (2009) (presented below). Given that the majority of parents in the study by Pfiffner et al. (2013) were Caucasian and college-educated, further research is needed to determine whether the high rates of parental involvement and adherence to the programme as well

as the observed improvement persist across various educational levels and ethnic backgrounds.

The Multimodal Treatment Study of Children with ADHD (MTA Cooperative Group, 1999) has been the largest randomised controlled trial that compared behavioural interventions to stimulant medication and a combination of these two approaches. The study included 579 elementary school children with an ADHD-Combined Type (aged 7 to 9 years). Children were randomly assigned to one of the four intervention groups for 14 months: 1) Medication Management (stimulant or non-stimulant medication delivered three times per day); 2) Behavioural Treatment; 3) Community Comparison Control (support from a community provider); and 4) Combined Behavioural Treatment and Medication Management. Standardised measures and parent/teacher rating scales were used to measure participants' ADHD symptoms, oppositional/aggressive symptoms, social skills, internalising symptoms (anxiety and depression), parent-child relations and academic achievement (reading, spelling and math) at baseline, at several points during the study and at the end point (MTA Cooperative Group, 1999).

Behavioural Treatment included child-focused treatment (a summer treatment programme – STP), a school-based intervention and parent training (MTA Cooperative Group, 1999). STP, an intensive eight-week programme, was implemented in group-based recreational settings and employed evidence-based behavioural interventions such as positive reinforcement, token economy techniques, response-cost, point systems tied to rewards, modelling, group problem-solving, time out and social skills training. STP continued in the classroom alongside teacher consultation on classroom behaviour management and home-school communication using a DRC system. Data analysis indicated marked ADHD symptom reductions in all four MTA groups. The degree of symptom reductions between groups presented significant differences, however. More specifically, Medication Management and Combined Treatment were found to be equally effective in reducing ADHD-related behaviours but statistically and clinically superior compared to Behavioural Treatment and community care (MTA Cooperative Group, 1999).

Overall, no significant differences were found between medication management and combined treatments. A multimodal intervention was superior to medication only in

reducing internalising, oppositional/aggressive symptoms and improving parent-child relations, teacher-rated social skills and reading achievement (MTA Cooperative Group, 1999). Nevertheless, the research team highlighted the effectiveness of behavioural interventions, reporting that 75.0% of children in the Behavioural Treatment group were successfully maintained throughout the study without medication. Given the sample composition, MTA findings cannot be generalised beyond the ADHD-Combined type. Additional subgroup analysis is also needed to identify possible differences in the effectiveness of each treatment condition for specific groups of children with ADHD, such as those with comorbid conditions and fewer family resources.

To address the controversy regarding the effectiveness of behaviour modification interventions for children with ADHD, Fabiano et al. (2009) conducted a large-scale meta-analysis of 174 between group, pre-post, within-subject and single-subject behavioural treatment studies. Both published and unpublished treatment-outcome studies, with participants under 18 years of age and IQ scores above 80, were reviewed (1967-2006). These participants either had a diagnosis of ADHD or presented ADHD-related behaviours (e.g. hyperactivity) that could not be explained by another documented biological cause, such as brain trauma. To be included, between-groups studies should have at least a primarily behavioural intervention group (e.g. parent training on behaviour modification techniques, behavioural classroom-based interventions). Similarly, the primary treatment in single subject and within-group studies should be behavioural in nature. Another important inclusion criterion was the provision of adequate information that would allow researchers to calculate effect sizes. Effect sizes in all four study designs indicated that behavioural interventions had consistently been viable and highly effective in managing ADHD-related behaviours across a variety of settings (e.g. school and home), measures and populations with diverse characteristics. Given the robust impact of behavioural interventions over the years, the research team suggested reconsidering the current professional guidelines that emphasise the use of pharmacological interventions and de-emphasise the importance of behaviour modification approaches (Fabiano et al., 2009). Overall, the results of this synthesis disregard the debate about the effectiveness of behavioural interventions for children with ADHD and highlight the need to enhance and improve the use of these interventions across settings.

### 5.3 Overview – Conclusion

This chapter presented and critically discussed empirically validated pharmacological and non-pharmacological interventions that can be implemented either independently or concurrently for the management of ADHD-related behaviours. At the moment, CNS stimulants in various forms and durations of action are the most widely used medicines for children over six years of age. This kind of medication has been highly effective to manage behaviours related to hyperactivity, impulsivity and inattention in approximately 80.0% of children with ADHD. Non-stimulant medication is also available to children that either do not respond to stimulant medication or experience intense side-effects. Even though highly effective in managing ADHD-related behaviours and enhancing academic productivity in the short term, findings related to the long-term effects of stimulant medication on children's academic functioning have been inconsistent. Further research is therefore needed to clarify the long-term effects of pharmacological interventions and identify factors that influence either in a positive or a negative way children's academic achievement (e.g. severity index, ADHD presentation, comorbid conditions, educational accommodations, medication dosage).

Overall, the review of the literature suggests that the management of ADHD-related behaviours lasts for as long as the child is on medication. Given this, pharmacological interventions should not be considered substitute for psychological and educational interventions but part of a multimodal approach that will enhance the long-term management of inattention, hyperactivity/impulsivity and promote the academic productivity and social skills of children with ADHD. It is therefore critical that the contribution of mainstream school educators to the implementation and evaluation of non-pharmacological interventions is clearly communicated and supported via relevant pre-service and in-service training opportunities.

The recommended non-pharmacological interventions include classroom-based accommodations (e.g. physical, instructional) and several antecedent/consequent-based behavioural interventions that can be implemented exclusively by teachers or in cooperation with parents (e.g. DRC home-based reinforcement technique). In contrast to behavioural interventions, which have been designated as empirically validated, environmental manipulation interventions have been widely recommended without a

significant evidence base (NICE, 2009). Given the poor empirical support, it is difficult to judge the degree to which they contribute to the management of ADHD-related behaviours (NICE, 2009). Future research should therefore examine how important seating and physical accommodations are in practice and whether their effects are differentiated in terms of the severity, the nature of observed behaviours, the administration of medication and the presence of comorbid conditions.

Considering the heterogeneous and chronic nature of the disorder, the implementation of long-term multimodal intervention plans across settings is likely the most appropriate approach to manage ADHD behaviours and optimise children's success in various domains of life. This presupposes the training of mainstream school educators, parents and teaching assistant personnel and their cooperation in the long-term. It is important, for example, that the teachers of children with ADHD receive reports and have meetings with the teachers of the previous year and all the involved parties so as to get an insight into the behavioural profile of their students and the interventions applied so far.

## **Chapter 6 - The socio-political, historical, cultural and educational context of Cyprus**

To frame the rationale and significance of the thesis, it is critical to get an insight into the context where the research has been conducted. Educational policies and practice can be only understood by considering the diachronic and contemporary contextual dynamics (socio-political, historical, cultural and ideological) within which policy-making is framed and implemented (Liasidou, 2008; Gale, 1999). This is important since “Policy documents are discursive embodiments of the balance of these dynamics as they underlie social relations at particular points of time” (Olssen et al., 2004, p.2). Given the impact of the wider context on the educational context, the purpose of this chapter is twofold. The first purpose is to provide contextual information about the broader socio-political, historical, cultural and ideological framework of the country. The second is to give a summary of the major legislative reforms regarding the education of children with special needs – specific literature on students with ADHD has not been found. The educational context after the introduction of The Education and Training of Children with Special Needs Law of 1999 (113(I)/1999) (MoEC, 1999) is critically discussed and emphasis is placed on the current INSET opportunities, available to Cypriot elementary school educators.

### **6.1 The role of socio-political – historical – cultural context in education**

The Republic of Cyprus, an island situated in the Mediterranean Sea, was officially established in 1960 after independence from the United Kingdom (Karagiorgi and Nicolaidou, 2010). Historically, the strategic geographic position of the island resulted in continual invasions and occupations by Arabs, Franks, Romans, Ottomans, British and Turkish (Spilling and Spilling, 2010). The independence of 1960 lasted for less than fifteen years. In the summer of 1974, the island was invaded by the Turkish army and one third of the country was occupied (Press and Information Office - PIO, 2010). Since 1974, the island has been divided into two parts and Turkish proceeded to the establishment of a separate, although non-recognised, state (Turkish Republic of Northern Cyprus) (PIO, 2010). The prolonged presence of foreigners in the island, who

endeavoured to alter the Greek/Orthodox identity, as well as the current unresolved political problem have influenced the ideological views of Cypriots. The termination of the war in 1974 and its dire consequences (approximately 200 000 refugees, 1619 lost and thousands of dead people) rendered political issues as the most important, if not the only, concern of the government. The education of children with special needs was an issue of secondary importance during that period of time (Liasidou, 2008).

Under the political turbulence of the last century, education has been considered the most powerful means to safeguard the Hellenic identity and national ideals (Liasidou, 2008). In this vein, both the official and hidden curricula have been oriented towards the development of a strong ethnocentric ideology through an over-emphasis on the Greek language and the Christian Orthodox religion (Symeonidou, 2005; 2007). Ethnocentricity and supremacy have been fostered, based on the fact that the Greek-Cypriot population originates from “the ancients Greeks, the creators of a civilization that the whole world admired and which had become the foundation of modern European civilization” (Persianis, 2003, p.354). The adherence to the national ideals and their ideological implications has resulted in a society fraught with negative feelings towards foreign cultures and diversity (Liasidou, 2008). According to Phtiaka (2003, p.147), “Current social attitudes towards disability are the most extreme form of racism prevalent in our society”. Inevitably, the way Cypriots regard diversity is echoed in the educational system and the way the government addresses educational equality and human right matters of children with special needs (Liasidou, 2008; Angelides et al., 2003).

In front of the national destruction and the financial degradation of the post-1974 era, the government focused on the economic resurgence of the country and the acquisition of ascendancy amongst other powerful countries (Liasidou, 2008). Presuming education as the most profitable investment and the only way to compete with powerful countries, the government encouraged the education of all citizens, regardless of their social and economic background (Persianis, 2000). Over the years, the educational orientation of the government in conjunction with the emergent desire of the population to be educated have resulted in a highly competitive and materialistic educational system, where theoretical knowledge is perceived superior to the learning of practical skills (a perception that dominates in the ancient Greek tradition) (Liasidou, 2008; Phtiaka,

2003). Within an extremely competitive educational environment that considers memorisation as the only criterion of success, children that do not meet the predefined academic standards, such as those with special needs and those whose Greek is not the first language, are excluded or marginalised from the learning procedure (Liasidou, 2008).

Apart from the political and historical circumstances, charitable ideologies and feelings of compassion, directly interrelated with the Christian Orthodox religion, dominate and subvert the inclusion of children with special needs in society and mainstream schooling (Symeonidou and Phtiaka, 2009; Liasidou, 2008; Phtiaka, 2006; Symeonidou, 2005). These ideologies are constantly reflected in media discourse, consolidating the status quo. The former first lady of Cyprus, for example, promoted the greatest annual charity event (Radio-Marathon), calling Cypriots “to remember their social commitment towards the *less lucky* people who confront the life with militancy, will and passion” (Parpas, 2010, my emphasis). The phrase “less lucky” was repeated when the mass contribution of Cypriots was rewarded: “Each October, Cypriots open the arms to offer warmth to this group of children, this group of adults that have been *less lucky* in life” (Parpas, 2010, my emphasis). The picture that accompanied that specific newspaper article -an unhappy child, sitting on a wheelchair- depicts children with special needs as powerless and evokes feelings of regret and compassion.

As it has been noted, the charitable philosophy is corroborated each year by Radio-Marathon, a fund-raising event that takes place on private initiative and has as a purpose to sensitise Cypriots and financially support children with special needs and their families. Although financial contribution is needed, the belief that children with special needs only require compassion and money has adverse consequences (Symeonidou, 2005). Newspaper articles promote financial support as the only necessary provision: “More than *33 million* from Radio-marathon the last two decades” (Sofroniou, 2010, my emphasis); “Economic crisis does not affect Radio-marathon: significant *increase of incomings*, approximately 30.0%” (Parpas, 2010, my emphasis). During Radio-marathon week, newspaper discourse focuses on the financial contribution of different organisations: “The association of motor vehicle importers supports Radio-marathon”; “OPAP Cyprus: Supporting Radio-marathon” (Philelefttheros, 2010). The fact that Radio-marathon financially supports “*special foundations, associations and special*

*schools*” (Parpas, 2010, my emphasis) enhances segregation and gives the impression that children with special needs cannot be included in society.

It would be unavailing to believe that school culture would remain unaffected by the wider social context. At the moment, charitable values and actions form the hidden curriculum of Cypriot schools and make typically developing children presume themselves superior compared to their peers with special needs (Symeonidou, 2005). Teachers welcome Radio-marathon as a great opportunity to inform typically developing children about diversity and promote the role of society in the financial and emotional support of children with special needs (Symeonidou, 2005). They often take initiatives for donations and they visit special schools in order to offer what these children need; money, compassion, love and presents (Symeonidou and Phtiaka, 2009). The charitable ethos that is cultivated in schools enhances segregation and acts as a barrier towards the inclusion of children with special needs in mainstream schooling (Symeonidou, 2005).

## **6.2 The major legislative reforms- From segregation to integration**

Before 1929, Cyprus did not provide any educational opportunity, either governmental or private, to children with special needs. In 1929, the establishment of the School for the Blind constituted the onset of special education (Phtiaka, 2000). The first special school, a charitable initiative of the British governor’s wife, was followed by a high number of special schools across Cyprus (Liasidou, 2007; 2008). These schools operated on an independent basis, without any form of cooperation in the setting of policies and teaching practices. The charitable and incoherence character of special schools was modified at the end of the 1970s with the 47/79 Special Education Law of 1979 (MoEC, 1979). Despite the diametrically segregative philosophy that enhanced the domination of special schools, the legislation of 1979 was of high importance since it legitimised the education of children with special needs as a governmental responsibility. Nevertheless, the provisions of the 47/79 Special Education Law of 1979 had ephemeral application and they were considered out of date in less than a decade (Phtiaka, 2000).

Influenced by an avalanche of foreign ideas, which proclaimed children's right to be educated in mainstream schools along with their typically developing counterparts, the MoEC has been oriented towards a more integrative philosophy. In an attempt to align with the integrative trends of other countries, the MoEC proceeded to unofficial and sporadic placements of some children from special to mainstream schools (Liasidou, 2008). This uncritical borrowing process, whereby "fix ideas or principles are borrowed from one society and transferred to another without thinking through the consequences" (Watson, 2001, p.12), did not have positive results. The preliminary integrative attempts were completely unsuccessful since they had been implemented in an entirely unprepared and hostile educational context, without proper planning, support, material infrastructure, knowledge and skills on the part of educators (Nicolaidou et al., 2006; Koutrouba et al., 2006; Angelides et al., 2004).

The incoherence between the in force law and practice led, in 1988, to an official declaration in the Special Education Bulletin of the MoEC that firstly introduced the term "integration" (MoEC, 1988). This term was officially recommended in 1992 through the Constantinides Report (Constantinides, 1992). The integrative orientation of the government was finally legitimised by the House of Parliament seven years later with the introduction of the Education and Training of Children with Special Needs Law of 1999 (113(I)/1999) (MoEC, 1999). This Law recognised the right of children with special needs to be educated in the nearest mainstream school along with their typically developing age-mates (MoEC, 1999).

### **6.3 The Education and Training of Children with Special Needs Law of 1999 (113(I)/1999)**

The integrative Law of 1999, which was officially implemented two years later, has been criticised as another theoretical document with only "cosmetic effect" on mainstream schools (Phtiaka, 2006, p.184). The fact that Cyprus introduced the Law in an entirely unprepared educational context rendered the progress towards inclusion disappointing (Nicolaidou et al., 2006). The implementation of inclusive practices presupposes time and continual efforts so as the existing segregative educational system and school culture to be revised and provide equal educational opportunities for all (Angelides et al., 2010; Symeonidou and Phtiaka, 2009; Liasidou, 2007). For Cypriot

schools to welcome diversity and abolish prejudices, radical modifications are necessary (Angelides, 2008; Liasidou, 2008; Phtiaka, 2006; Symeonidou, 2005). Accessible buildings, flexible curriculum, mandatory differentiation of the teaching and assessment procedures, ideological preparation as well as well-trained educators are the fundamental prerequisites of inclusive education (Symeonidou and Phtiaka, 2009; Nicolaidou et al., 2006). Notwithstanding the rhetorical proclamations for educational change, children with special needs are still not treated equally; they are marginalised and experience an “exclusionary inclusion” in the mainstream setting (Liasidou, 2008, p.233). This happens because in reality “inclusive practices are not yet established in Cyprus and the transition from integration to inclusion is expected to be a long process” (Symeonidou and Phtiaka, 2009, p.544).

The educational system of the country is still highly conservative, bureaucratic and nationally controlled by the MoEC (Pashiardis and Pashiardis, 2011; Karagiorgi and Symeou, 2007). Schools have restricted autonomy and little power over decision-making and practices whereas the MoEC has the sole responsibility for educational planning and policies (Karagiorgi and Nicolaidou, 2010). Local boards do not exist and schools follow the same syllabus, teaching material and textbooks determined in advance by the MoEC, irrespective of the needs of their students (Pashiardis and Pashiardis, 2011; Karagiorgi and Nicolaidou, 2010; Symeonidou, 2005). Overall, teachers have limited flexibility to differentiate the lesson and diverge from the official curriculum and goals emphasised by the MoEC (Pashiardis and Pashiardis, 2011; Phtiaka, 2006).

According to Phtiaka (2006), the strict and inflexible curriculum, its mono-dimensional philosophy, the educational purposes, its length and quality have the main responsibility for the challenges children with special needs face in mainstream schooling. The chapter that specifically refers to the education of children with special needs has in essence a medical character and proclaims a segregative philosophy (Symeonidou, 2005). Phtiaka (2006), Karagiorgi and Nicolaidou (2010) highlight that the strict evaluation system, steady since 1976, makes teachers hesitant to undertake the education of children with special needs and apply unfamiliar to them practices that may place their career at risk. Besides this, the educational system is graded; the curriculum and textbooks are designed based on the chronological age of children and

not their needs (Papadopoulos, 2002). When a child cannot meet the academic standards set for a grade level, then grade repetition is a common alternative (Papadopoulos, 2002). All these factors make the educational experience of children with special needs in mainstream schooling challenging and stressful (Karagiorgi and Nicolaidou, 2010).

Parental views on the implementation of the Law of 1999 were explored in the course of a large project about the integration of children with special needs in mainstream schools (Phtiaka, 2006). Interview data that were derived from parents of 47 children with special needs revealed that their preliminary expectations were not confirmed (Phtiaka, 2006). Even though diverse in experience, ability and socioeconomic status, all parents supported that the educational system overall, mainstream school teachers and typically developing children were not prepared to accept the change and welcome children with special needs. Consequently, the attendance in mainstream schools raised a number of problems in the academic and social development of children with special needs, some of which were not dissimilar to those having prior to the passing of the Law (Phtiaka, 2006). In the opinion of parents, the inflexible curriculum, the insufficient material infrastructure and the lack of ideological and practical preparation on the part of teachers were the most problematic aspects of integration. Participants expressed a general dissatisfaction with the behaviour of mainstream school teachers who had a tendency to avoid classrooms with integrated children, to ignore and undervalue their students with special needs (Phtiaka, 2006). They also reported that mainstream schools did not proceed to accommodations that would facilitate the education of their children. The Education and Training of Children with Special Needs Law of 1999 (113(I)/1999), for example, states the participation of fewer students in classrooms with integrated children (MoEC, 1999). According to parents, this provision was not implemented due to financial reasons (Phtiaka, 2006). Given their experiences, parents concluded that mainstream schools were not in a position to implement the provisions of the Law, enhancing marginalisation and subverting children's educational development (Phtiaka, 2006).

Acknowledging that the language used in each document consciously or unconsciously reflects the ideological background of the producers, Jones (2008) highlights the importance of examining the way children's identity is perceived and constructed in various policy documents. As Jones (2008, p.55) explains, "the attitude may be less

explicit, but, by examining the way a government talks about what it is going to do we can see attitudes or pictures that are behind its actions, the image of children it has". Although a milestone towards inclusive education, the Education and Training of Children with Special Needs Law of 1999 (113(I)/1999) has received multiple negative critiques. Liasidou (2008), for example, argues that segregative perceptions are reflected and perpetuated through the current legislative document, consolidating the status quo. This "failure" in policy-making has been attributed to policy-makers who "are not qualified enough for implementing inclusive education and they carry traditional ideas, stunting inclusive education" (Angelides, 2004, p.419). To reveal the ideological background that saturates the in force Law, Liasidou (2008) applied Critical Discourse Analysis (CDA). Given that CDA is interested "in analysing opaque as well as transparent structural relationships of dominance, discrimination, power and control as manifested in language" (Wodak and Meyer, 2009, p.10), this kind of analysis can disclose possible hidden intentions, meanings and ideologies of the MoEC. The following section, which is based on Liasidou's work, critically examines the basic provisions of the Law and the way the identity of children with special needs is framed.

The Law defines mainstream school as "any communal, public or private school, other than the school for special education and training" (Article 2.1, p.3) and special school as a public or private school responsible for providing "special education and training to children with special needs" (Article 2.1, p.4). Notwithstanding the purpose of the document, the definition of the term "child with special needs" has in essence a medical character and enhances traditional segregative ideologies. It focuses on the presumed "deficiencies" of the child, the inability to benefit from the educational facilities of mainstream schooling and the need for special education and training that, according to the above definitions, is provided in special schools. A child with special needs, as it is defined in Article 2.1 (p.2), is that "having a serious learning or special learning, functioning or adjusting difficulty, *caused by physical (including sensory), mental or other gnostic or psychological deficiencies* and having need of special education and training" (my emphasis). This difficulty, in turn, "*excludes or hinders him* from using the educational means of the sort the schools for children of the same age generally provide" (Article 2.1, p.3, my emphasis). Liasidou (2008, p.491) views Cypriot schools as "the Procrustean bed of the Greek mythology", whereby all children, irrespective of diversity, are forced to adapt to the system and not vice versa. Overall, the linguistic

choices in these definitions highlight the difficulties that arise from within-child factors and silence those that originate from the inflexible and mono-dimensional educational system.

On the one hand, the Law proclaims the right of children with special needs to be educated and equally treated in the mainstream school of their neighbourhood. On the other hand, the education envisioned for them is differentiated and traditional considerations regarding their potential are perpetuated. According to Article 2.1 (p.4), special education and training includes “teaching of abilities for the *everyday self-care, personal hygiene, transportation, improvement of talking and communication*” (my emphasis). In this definition, children are depicted as persons unable to take care of themselves and have a typical life, whereas this is not the case for the vast majority of children with special needs (Liasidou, 2008). Children with ADHD, for example, do not require support in any of the aforementioned domains. According to Article 3.1 (p.5),

A child with special needs regarding which special education and training has been determined shall attend the classes of an ordinary school, having the appropriate infrastructure, *except in extraordinary cases*, regarding which, under the provisions of this Law, a different arrangement shall be determined (my emphasis).

As indicated in the above excerpt, the education in a mainstream classroom is not an unconditional right for all children with special needs. The nature of the special need and the severity index are evaluated by the members of the District Committee and determine whether and to what extent a child can be accommodated in a mainstream classroom (Koutrouba et al., 2006). In Article 3.1, the government legalises the fact that some children with special needs do not meet the preconditions for being educated in mainstream schooling. Simultaneously, a lack of disposition to revise the educational system in a way to meet the needs of all children is denoted. Consequently, only a group of children with special needs is considered eligible to attend a mainstream classroom on a full-time basis. For the rest of the children, there are three alternatives. Given the severity, some children are educated either on a part-time or full-time basis in special units (MoEC, 2012; Angelides and Michailidou, 2007; Koutrouba et al., 2006). Special units have been criticised as a new type of exclusion in mainstream school settings (Angelides and Michailidou, 2007; Liasidou, 2007). In “extraordinary cases” (Article 3.1, p.5), a special school is decided as the most appropriate educational setting. This is

the case for children whose the severity of condition, as considered by the District Committee, does not allow their accommodation in mainstream schooling (Koutrouba et al., 2006). Although inconsistent with the purposes of the Law, half of the document focuses on the function of special schools and legitimises their importance. Nowadays, nine special schools including the Schools for the Blind and Deaf operate in Cyprus (MoEC, 2012). Inclusive endeavours are therefore frustrated by the available alternatives that reintroduce the education in segregative settings either directly (special schools) or indirectly (special units) (Liasidou, 2008).

The MoEC encourages the nomination of professionals (e.g. special teachers) with the aim to facilitate the education of children with special needs within mainstream school settings (Angelides et al., 2006). In parallel, paraprofessionals (companions as they are denominated in the context of Cyprus) are appointed to support children on an individual basis (Angelides et al., 2009). Due to the ascendancy of companions, special teachers and other scientific personnel, children with special needs often experience a different form of exclusion and marginalisation in an ostensibly inclusive-oriented educational setting (Phtiaka, 2006). Liasidou (2007, p.335) argues that the current educational reality composes “the resurgence of segregating education in disguise” and undermines radical reconstructions towards inclusive education.

The role of companions in the educational context of Cyprus was explored in a qualitative study by Angelides et al. (2009). The study was carried out in two schools, a pre-elementary and an elementary school in Nicosia, in which six companions were employed. Data were collected over one academic year using participant observation, document collection, research diary and semi-structured interviews. Semi-structured interviews were conducted with companions, mainstream school teachers who had companions in the classroom, parents whose children were accompanied and typically developing children. Data analysis suggested that the contribution of companions was contradicting and their role not clearly defined. In some cases, they promoted inclusion by increasing children’s participation in the learning procedure (by enhancing concentration, by repeating directions and providing further explanations when necessary), by improving their behaviour and encouraging socialisation with peers (Angelides et al., 2009).

In other cases, companions' actions, even well-intentioned, were found disadvantageous for the academic and social development of accompanied children (Angelides et al., 2009). Continual interventions and refinements in classroom tasks and assignments, provision of excessive support and completion of activities on behalf of the children concealed their level of learning and educational needs. Consequently, the support that was needed to cover possible learning gaps was not provided by mainstream school teachers. Companions also created a relationship of dependence with the children they accompanied. The strict surveillance, even during break time, reduced the interaction with classmates and teachers and increased social isolation (Angelides et al., 2009). Even though the academic criterion for being employed in this position is a high-school graduation certificate and the official duties are limited to safety, transfer and escorting issues (social worker role), companions' role was not clearly defined and well-understood in these schools (Angelides et al., 2009). The general confusion over companions' role had as a result to undertake pedagogic, beyond social worker duties, without having the necessary educational background (Angelides et al., 2009). Given the qualitative nature of the study and the limited sample size, research findings cannot be generalised for companions across Cyprus. Further empirical support is therefore needed to better understand the contribution of companions to integrated children's academic and social development.

At the moment, children with special needs share their learning time between special units, individual supportive teaching and mainstream classrooms (Angelides et al., 2009). As Phtiaka (2006, p.181) explains, the lack of cooperation between mainstream school teachers, professionals and paraprofessionals has resulted in the child with special needs to be treated as "somebody else's responsibility, somebody else's child" which often means "nobody's responsibility, nobody's child". Cypriot scholars conclude that the current social and educational conditions, including dominance of charitable and medical ideologies, infrastructural insufficiency, ascendancy of professionals in mainstream schooling, operation of special units, feelings of inadequacy, lack of practical and ideological preparation on the part of mainstream school teachers, render the progress towards inclusive education disappointing (Symeonidou and Phtiaka, 2009; Angelides and Michailidou, 2007; Liasidou, 2007; 2008; Nicolaidou et al., 2006; Phtiaka, 2006; Koutrouba et al., 2006).

## 6.4 The current INSET provision

The integration of children with special needs in mainstream schools has constructed a new educational reality and generated a number of new expectations and responsibilities on the part of mainstream school teachers. In order for teachers be able to fulfil the expectations of their new role, it is of paramount importance to be supported by specialists through systematic INSET (Symeonidou and Phtiaka, 2012; 2009; Angelides et al., 2006). A study by Koutrouba et al. (2006), which examined the factors that influence Cypriot high school teachers' attitudes towards inclusion distributing questionnaires (245 participants), indicated that the majority of them (64.5%) had not attended INSET on the education of children with special needs. 39.8% of those who responded positively had attended only one seminar (Koutrouba at al., 2006). The fact that the Law of 1999 was not supported with teacher INSET was corroborated in a study that surveyed elementary school teachers from 87 schools across Cyprus (Symeonidou and Phtiaka, 2009). In this study, which explored teachers' attitudes towards the integration of children with special needs, 521 out of 1255 questionnaires were returned, yielding a response rate of 41.5%. Descriptive statistics revealed that approximately 80.0% of participants had not attended INSET after the introduction of the Law, neither from the Cyprus Pedagogical Institute (CPI – 80.6%) nor from the Ministry of Education and Culture (MoEC – 83.3%) (Symeonidou and Phtiaka, 2009).

The CPI and the MoEC are at the moment the two governmental organisations responsible for teacher INSET (Symeonidou and Phtiaka, 2009; Karagiorgi and Symeou, 2007). The CPI has the primary responsibility while the MoEC supports teachers occasionally (Karagiorgi and Symeou, 2007). INSET regarding the education of children with special needs is non-compulsory. The available CPI seminar sessions, which have remained unchanged after the passing of the Law of 1999, are delivered to a limited number of participants (Symeonidou and Phtiaka, 2009). These seminars promote deficit and medical ideologies; the principles of inclusive education are overridden and emphasis is placed on the individual pathology of children with special needs (e.g. seminars about dyslexia, ADHD) (Symeonidou and Phtiaka, 2009). As it has been noted, the contribution of the MoEC is limited. The offered opportunities are not systematic and they primarily focus on special teachers' INSET (Symeonidou and Phtiaka, 2009). In the researcher's knowledge, the only annual governmental INSET

opportunity relating to ADHD is delivered by the CPI. For the school year 2012-2013, a five-session seminar was available to 25 participants from all educational levels (pre-elementary, elementary and high school levels) (CPI, 2013). Specific information about the form, the content and the effectiveness of current INSET opportunities, governmental or private, was not available. To set the scene regarding INSET and fill the gap in the literature, the conduct of interviews with specialists (clinical psychologists) and representatives of organisations that deliver relevant INSET, such as the MoEC, the CPI and the ADD-ADHD CYPRUS, was considered necessary.

Studies on Cypriot teachers' knowledge of, and attitudes towards specific groups of children with special needs, such as those with ADHD, have not previously been conducted. However, two studies by Koutrouba et al. (2006) and Symeonidou and Phtiaka (2009) (described above) explored Cypriot teachers' attitudes towards the education of children with special needs in mainstream schools after the passing of the in force Law. The elementary school teachers that participated in the study by Symeonidou and Phtiaka (2009) adopted medical and charitable ideologies. They felt incompetent to teach children with special needs and favoured segregative educational settings (special schools) for at least some categories of special needs. The notion of integration co-existed alongside special schooling and participants had a tendency to "focus on the impairment and consider specialists' skills as superior compared to their own pedagogical skills" (Symeonidou and Phtiaka, 2009, p.548). They supported charitable initiatives, such as Radio-marathon, and they strongly believed that socialisation is the main reason why children with special needs should be integrated in mainstream schooling. Similar beliefs were expressed in the study by Koutrouba et al. (2006). 67.8% of high school teachers considered the legislation of 1999 important for the social integration of children with special needs.

In the study by Symeonidou and Phtiaka (2009), participants expressed an overall dissatisfaction with their undergraduate education on integration and the inadequate INSET opportunities. Simultaneously, they highlighted the critical role of INSET so that they can be involved in the education of children with special needs. When they were asked to prioritise four given thematic areas of future INSET, they all indicated a preference for practical aspects of integration. Learning about the characteristics and educational needs of different categories of children with special needs, practical

strategies to cope with them and ways to differentiate the lesson accordingly were the most commonly reported answers. Thematic areas that concerned theoretical aspects, such as the principles of the in force legislation and the theoretical background of integration, were not among the preferences of participants, although important to address possible stereotypes, medical and charitable ideologies and conceptualise more inclusive ones (Symeonidou and Phtiaka, 2009).

Whereas 67.8% in the study by Koutrouba et al. (2006) approved of the in force legislation primarily because it facilitated socialisation, 32.2% expressed their disapproval and considered special schools the most appropriate educational settings for children with special needs. In their opinion, special schools have the material infrastructure and supportive equipment needed (e.g. ramps and lifts, Braille machines, closed-circuit television systems, headphones, special microphones) as well as well-trained professionals to cope with, and teach children effectively. At the same time, 54.7% of participants agreed that the presence of children with special needs in mainstream classrooms negatively affects the functioning of the teaching procedure and the academic performance of children with and without special needs. The type of the special need and the severity index were, according to 72.7%, the two factors that should be considered and determine whether a child can be integrated in mainstream schooling. Participants' prior experiences also influenced their stance towards integration. When they had negative experiences from teaching children with special needs, they held less favourable attitudes towards integration and vice versa. In this study, the lack of relevant INSET was the most important factor that evoked doubts, mistrust and feelings of insecurity when Cypriot teachers were invited to teach children with special needs (Koutrouba et al., 2006).

Liasidou (2007, p.341) considers these feelings reasonable given that "no substantial support and in-service training are provided to teachers and other professionals appointed in mainstream schools in order to understand and, thereby, to implement inclusion." Consequently, the systematic provision of well-designed INSET opportunities is an urgent need (Symeonidou and Phtiaka, 2012; 2009; Koutrouba et al., 2006; Nicolaidou et al., 2006). Beyond the acquisition of practical knowledge and skills, INSET is vital for immersing teachers to the philosophy of inclusive education and deconstructing the current segregative culture where negative, charitable and

medical attitudes dominate (Symeonidou and Phtiaka, 2012; 2009; Koutrouba et al., 2006; Symeonidou, 2005). As Forlin (2010, p.649) sustains,

...in addition to gaining formal and practical knowledge during their training, teachers need to have developed positive values, supportive ideas, high moral principles and strong ethical understandings regarding accepting responsibility for the education of all children regardless of the diversity of their needs.

Although difficult, the development of positive attitudes towards inclusive education is decisive and should receive particular attention in future teacher INSET (Symeonidou and Phtiaka, 2012; 2009; Forlin, 2010; Koutrouba et al., 2006).

## **6.5 Overview – Conclusion**

The education of children with special needs has been radically changed over the past century. Before 1929, Cyprus did not provide any educational opportunity to children with special needs. In 1929, the establishment of the School for the Blind constituted the onset of special education and the operation of several special schools across Cyprus. Despite its diametrically segregative philosophy, the 47/79 Special Education Law of 1979 was of critical importance since it legitimised the education of children with special needs as a governmental responsibility. The Law of 1979 was considered out of date in less than a decade since the MoEC, influenced by an avalanche of foreign ideas, has been oriented towards a more integrative philosophy.

The integrative orientation of the government was officially legitimised by the House of Parliament with the introduction of the Education and Training of Children with Special Needs Law of 1999 (113(I)/1999). The fact that the Law was introduced in an entirely unprepared educational context had as a result the integration to be challenging and stressful for both mainstream school teachers and children with special needs. Nowadays, children with special needs are still not treated equally; they are marginalised and experience an “exclusionary inclusion” in mainstream settings (special units, individual supportive teaching). Overall, the current social and educational conditions render the progress towards inclusive education disappointing.

## Chapter 7 - Teachers' knowledge and attitudes of ADHD

According to the fifth edition of DSM (APA, 2013), the prevalence of school-age children with ADHD is approximately 5.0%. This suggests that in each typical classroom of around 20 children one child is diagnosed with ADHD (Ohan et al., 2011; Farrar, 2011). Therefore, the likelihood of teachers having a diagnosed or undiagnosed child in their classroom is high (Anderson et al., 2012). As indicated in previous chapters, the accurate diagnosis and effective management of ADHD require the composition of a multi-disciplinary evaluation and intervention team of professionals and non-professionals. Necessary members of this team are teachers who are invited to play a pivotal role in identifying undiagnosed children with ADHD, in evaluating their behavioural, educational and social functioning and creating an inviting learning environment for them and their classroom peers (Perold et al., 2010).

Given that behaviours related to hyperactivity/impulsivity and inattention are easily noticeable in highly structured and demanding settings, as a mainstream classroom is, it is not surprising that elementary school teachers are usually the first to notice atypical behaviour and make referrals for an ADHD diagnosis (Anderson et al., 2012; Sayal, 2007; Kos et al., 2006; Snider et al., 2003; Sciotto et al., 2000). In parallel with their indirect informational role (referrals for evaluation), teachers constitute a primary source of information during the assessment procedure and they have a central role in advising parents, in implementing classroom-based interventions (e.g. behavioural, physical, instructional) and observing the effects of pharmacological interventions (Barkley, 2013; Anderson et al., 2012; Weyandt et al., 2009; Vereb and DiPerna, 2004; West et al., 2005).

Considering the involvement of teachers in the diagnostic and intervention procedure, holding positive attitudes towards children with ADHD and having a clear understanding of the disorder is highly important. Accurate knowledge can enhance the accuracy of referrals and enable teachers to develop realistic expectations, to adapt the teaching procedure accordingly and apply empirically validated interventions (Millstein et al., 1997; Sciotto et al., 2000; DuPaul and Stoner, 2003; Ohan et al., 2008; Perold et al., 2010; Anderson et al., 2012). Acknowledging the critical role of knowledge, researchers from all over the world have carried out investigations to assess educators'

knowledge of ADHD and identify areas that need further development (Jerome et al., 1994; Sciutto et al., 2000; Bekle, 2004; Kos et al., 2004; West et al., 2005; Ghanizadeh et al., 2006; Ohan et al., 2008; Perold et al., 2010; Anderson et al., 2012). In contrast, teachers' attitudes towards children with ADHD have not been widely and distinctly investigated in the past. Existing research in the area has primarily explored teacher attitudes towards the idea of inclusion in general and not towards specific categories of children with special needs (Cassady, 2011).

Previous research indicated that the majority of practicing teachers had received little or no formal pre-service and in-serving training on ADHD (Jerome et al., 1994; Barbaresi and Olsen, 1998; Bussing et al., 2002; Bekle, 2004; West et al., 2005). The following chapter consists of three parts. The key findings of studies that examined educators' knowledge of ADHD are summarised and presented in the first part. The second part begins with various definitions of attitudes and the relationship, albeit complicated, between attitudes and behaviour formation (Theory of Reasoned Action – Theory of Planned Behaviour). Few studies that explored educators' attitudes towards ADHD and the effects of INSET programmes, primarily on teachers' knowledge, are reviewed at the end of the second and third part.

## **7.1 Practicing teachers' knowledge of ADHD**

American scholars first investigated teachers' knowledge of ADHD and published the primary papers in the field (Jerome et al., 1994; Barbaresi and Olsen, 1998; Sciutto et al., 2000). Since 2000, scholars from all over the world have carried out relevant studies, particularly involving elementary school educators (Bekle, 2004; Kos et al., 2004; West et al., 2005; Ghanizadeh et al., 2006; Ohan et al., 2008; Perold et al., 2010; Anderson et al., 2012). The knowledge scales developed by Jerome et al. (1994) and Sciutto et al. (2000) have been influential for the following surveys that either adopted or adapted their structure (response format) and knowledge items. The mixed average knowledge scores across studies (42.6% to 82.4%) should be considered in the light of methodological differences that will be reported below. In the study by Jerome et al. (1994), participants were invited to read twenty items on ADHD myths, causal factors (biological/non-biological) and interventions (pharmacological/non-pharmacological) and choose one of the two response options; "True" or "False". Barbaresi and Olsen

(1998), Bekle (2004) and Ohan et al. (2008) were among the researchers that adopted the two-choice response format and scale items by Jerome et al. (1994). Details about these studies and teacher average knowledge scores are summarised in Table 1.

**Table 1** - *Studies that examined teachers' knowledge of ADHD using a True/False response format*

<b>Studies with a True/False Response Format</b>	<b>Sample Size</b>	<b>Country</b>	<b>Average Knowledge Score</b>
Jerome et al. (1994)	1289 elementary school teachers	U.S.A / Canada	77.5%
Barbarese and Olsen (1998)	44 elementary school teachers	U.S.A	77.0%
Bekle (2004)	30 elementary school teachers	Australia	82.4%
Ohan et al. (2008)	140 elementary school teachers	Australia	76.3%

The True/False response format had been criticised and modified by Sciutto et al. (2000) who incorporated the response option “Don’t Know”. As the research team explained, this insertion has a two-fold purpose. On the one hand, participants have the opportunity to choose the response option “Don’t Know” and avoid guessing the correct answer. This, in turn, can result in more accurate estimates of educators’ knowledge. On the other hand, the True/False/Don’t Know response format allows researchers to identify what teachers believe incorrectly and what they actually do not know. Sciutto et al. (2000) found this distinction critical since teachers’ actions may differ in cases they have lack of knowledge or hold misconceptions about an issue. For example, teachers who do not know about the role of diet in the management of ADHD-related behaviours are more likely compared to colleagues, who incorrectly believe that reduction of sugar intake is an effective intervention, to look for further information before recommending modifications in children’s diet (DiBattista and Shepherd, 1993). Details about studies that adopted a three choice response format are summarised in Table 2.

To evaluate educators' knowledge of ADHD, Sciutto et al. (2000) developed the Knowledge of Attention Deficit Disorders Scale (KADDS). This 36-item scale consisted of three subscales that assessed educators' knowledge in three distinct areas: symptoms/diagnosis, interventions and general information regarding the nature of the disorder, the causes and the outcomes (Sciutto et al., 2000). For the purposes of this study, 400 surveys were distributed to elementary school educators in New York. Of them, 149 were completed and returned, yielding a response rate of 37.0% (Sciutto et al., 2000). Statistical analysis suggested that, on average, participants correctly responded to 47.8% of the knowledge items. In this study, teachers' average knowledge scores on the symptoms/diagnosis subscale (62.8%) were significantly higher than their scores on the treatment (42.8%) and general information (42.9%) subscales. More recently, a study by Perold et al. (2010) that administered the KADDS to a large South African sample of 552 elementary school teachers employed in public schools of the Cape Town Metropole (67.0% response rate) concluded to an overall knowledge score of 42.6%. Similarly to the American sample of Sciutto et al. (2000), South African teachers were most knowledgeable about symptoms/diagnosis and less knowledgeable about interventions and general information.

A higher average knowledge score of 60.7% was reported in a study by Kos et al. (2004). This study assessed the knowledge of 120 Australian elementary school teachers, using a True/False/Don't Know response format and 27 items that were derived from the scales by Jerome et al. (1994) and Sciutto et al. (2000). Although higher than the average knowledge scores found in studies with a True/False/Don't Know response format, it is still lower than those based on Jerome et al.'s methodology. The score discrepancy between the studies by Sciutto et al. (2000), Perold et al. (2010) and Kos et al. (2004) is likely due to sampling bias. In the studies by Sciutto et al. (2000) and Perold et al. (2010), data were collected from teachers employed in public elementary schools. In contrast, the sample in the study by Kos et al. (2004) consisted of educators employed either in Catholic or private schools. As Ohan et al. (2008, p.437) explain, this sample composition "may not be representative of public school teachers or teachers overall." Given this, the average knowledge score in the study by Kos et al. (2004) might have been formed differently if public school educators participated. The findings should therefore be interpreted with caution and factors that could have positively influenced Catholic and private school teachers' knowledge (e.g.

greater INSET opportunities, support) should be considered and controlled in future studies.

West et al. (2005) extended the KADDS to 67 items. Similarly to Sciutto et al.'s version, the knowledge scale by West et al. (2005) consisted of three subscales: 1) Causes, 2) Characteristics and 3) Treatment. For the purposes of this study, data were collected from 256 elementary and secondary school educators from 25 public schools located in Perth, Western Australia (51.2% response rate). Statistical analysis indicated an average knowledge score of 57.3% and significant differences between subscale scores. Australian participants scored significantly higher on items related to causes (65.2%) and lower on characteristics (59.8%) and treatment (47.8%) items. Although unclear, the observed average score discrepancy between the American sample of Sciutto et al. (2000) and the Australian sample of West et al. (2005) could be attributable to cultural (e.g. differences in knowledge of ADHD) or/and other unmeasured factors related to the difficulty of each scale. Given the findings of another Australian-based study by Anderson et al. (2012), these assumptions seem credible. Using a shorter version of West et al.'s scale (33 items; 11 in each subscale), Anderson et al. (2012) measured the knowledge of 127 elementary and secondary school educators, employed in public schools of New South Wales, and concluded to an overall knowledge score of 60.2%. Statistical analysis suggested that the average knowledge scores of participants differed significantly across subscales. Similarly to West et al.'s (2005) sample, the Australian sample of Anderson et al. (2012) scored lower on the treatment subscale (42.1%) and better on characteristics (73.0%) and causes subscales (65.5%).

Overall, the available studies indicated that the majority of teachers across countries were aware of the major behavioural features related to hyperactivity/impulsivity and inattention (Jerome et al., 1994; Sciutto et al., 2000; Bekle, 2004; Ohan et al. 2008; Perold et al., 2010; Anderson et al., 2012). Regardless of their prior experience with students having an ADHD diagnosis, teachers could understand that a hyperactive/inattentive child cannot remain still/concentrated and correctly responded to items such as: "Children with ADHD often fidget or squirm in their seats" (89.3% correct responses in the study by Sciutto et al., 2000, p.119); "Children with ADHD are frequently distracted by extraneous stimuli" (88.6% correct responses in the study by

**Table 2 - Studies that examined teachers' knowledge of ADHD using a True/False/Don't Know response format**

Studies with a True/False/Don't Know Response Format	Sample Size	Country	Average Knowledge Score	Significantly higher score	Significantly lower score
Sciutto et al. (2000)	149 elementary school teachers	U.S.A.	47.8%	Symptoms/ Diagnosis	Treatment/Gen Information
Kos et al. (2004)	120 elementary school teachers	Australia	60.7%	No subscales	No subscales
West et al. (2005)	256 elementary and secondary school teachers	Australia	57.3%	Causes	Treatment
Perold et al. (2010)	552 elementary school teachers	South Africa	42.6%	Symptoms/ Diagnosis	Treatment/Gen Information
Anderson et al. (2012)	127 elementary and secondary school teachers	Australia	60.2%	Characteristics	Treatment

Sciutto et al., 2000, p.119); “Current diagnosis of ADHD identifies two clusters of symptoms: inattention and hyperactivity/impulsivity” (80.5% correct responses in the study by Sciutto et al., 2000, p.119); “Children diagnosed with an Attention Deficit Disorder tend to have poor concentration” (95.0% correct responses in the study by West et al., 2005, p.201); “Children diagnosed with an Attention Deficit Disorder tend to be inattentive” (93.0% correct responses in the study by West et al., 2005, p.201); “Most children diagnosed with an Attention Deficit Disorder act impulsively (they do things without thinking) (86.0% correct responses in the study by West et al., 2005, p.201).

Regardless of the mixed average knowledge scores (42.6% to 82.4%), substantial knowledge gaps and misconceptions have been replicated across studies. One of the most commonly found misconceptions concerns the role of diet in the development and management of ADHD-related behaviours. One-third out of 196 Iranian elementary school educators that participated in a study by Ghanizadeh et al. (2006) attributed ADHD to high consumption of sugar. Higher percentages of incorrect responses were displayed in studies by Jerome et al. (1994), Bekle (2004) and Ohan et al. (2008). 66.0%, 52.0% and 73.0% respectively considered ADHD as a result of dietary factors (sugar, food additives, colourings and preservatives). Similarly, the percentages of teachers who incorrectly believed that special diets can effectively manage ADHD-related behaviours were estimated at 65.2%, 87.0%, 77.0%, 45.8%, 42.3% and 34.0% in studies by Perold et al. (2010), Ohan et al. (2008), Bekle (2004), Kos et al. (2004), Sciutto et al. (2000) and West et al. (2005). Given that studies with a True/False response format reported greater percentages of incorrect responses than studies with a three choice response format, the variability in findings should be considered in the light of methodological differences.

In studies with a three choice (True/False/Don't Know) response format, items related to dietary and other non-empirically validated intervention methods, such as electroconvulsive therapy, were among those with the highest proportion of “Don't Know” responses. Of 256 Australian teachers, 66.0%, 63.0%, 86.0% and 67.0% respectively did not know whether dietary supplements (e.g. fish oil), electroconvulsive therapy, biofeedback and homeopathic remedies can effectively manage ADHD (West et al., 2005). Similarly, 75.8% of American teachers did not know about the validity of

electroconvulsive therapy (Sciutto et al., 2000). The percentages of participants that attributed ADHD to non-empirically validated causal risk factors, such as poor parenting practices and chaotic/dysfunctional family environments, have been inconsistent across studies. The attribution of ADHD to poor parenting practices/parental spoiling was, for example, a common misconception among Iranian (53.1%) and American teachers (41.0%) in the studies by Ghanizadeh et al. (2006) and Barbaresi and Olsen (1998). The majority of participants in the studies by Ohan et al. (2008) and Bekle (2004), 85.5% and 73.0% respectively, knew that ADHD is not the result of a dysfunctional family life. Similarly, 70.0% (Bekle, 2004) and 78.8% (Ohan et al., 2008) did not believe that poor parenting practices can cause ADHD. In line with these findings, 87.5% in the study by Kos et al. (2004) did not attribute ADHD to single-parenting.

Teachers' tendency to overestimate the prevalence of ADHD among school-age children was one of the most common misconceptions in the study by Sciutto et al. (2000). In this study, 38.0% reported that ADHD occurs in 15.0% of the student population. The corresponding percentage of incorrect responses in the South African study by Perold et al. (2010) was estimated at 31.2%. In studies by Sciutto et al. (2000), Kos et al. (2004), West et al. (2005) and Perold et al. (2010), the percentages of teachers that did not know about the prevalence of ADHD were 57.4%, 55.0%, 67.0% and 59.6%. Considering hyperactivity as a necessary criterion for the disorder, a group of teachers indicated a difficulty in recognising as ADHD children with pure attention deficits. In the studies by Kos et al. (2004) and Ohan et al. (2008), the percentages of teachers that either did not know or incorrectly believed that a child without hyperactivity cannot be diagnosed as ADHD were estimated at 40.0% and 20.2%.

The percentages of teachers that considered ADHD a childhood disorder have also been inconsistent across studies (Jerome et al., 1994; Bekle, 2004; Ghanizadeh et al., 2006; Ohan et al., 2008). In the study by Perold et al. (2010), for example, only 26.6% knew about the possible persistence of ADHD in adulthood. The corresponding percentages were higher in the Australian-based studies by Ohan et al. (2008) and Bekle (2004); 57.3% and 70.0% respectively knew about the future course of the disorder. Similar percentages were reported by Jerome et al. (1994). 50.0% of American and 59.0% of Canadian participants responded that ADHD is not outgrown by adolescence. The

higher percentages of correct responses found in these studies, in relation to that by Perold et al. (2010), should be considered with caution because of the True/False response format and the likelihood of guessing the correct response. Given that Ghanizadeh et al. (2006) used a True/False response format, methodological factors cannot explain the high percentage of Iranian teachers (91.3%) who considered ADHD a childhood disorder. Although unclear, Iranian teachers' misconceptions about the future trajectory of the disorder are likely due to cultural differences in knowledge of ADHD.

Mixed findings have also been reported with regard to the impact of teaching experience on teachers' overall knowledge scores. Jerome et al. (1994), Sciutto et al. (2000), Bekle (2004) and Anderson et al. (2012) found that educators with more years of teaching experience scored significantly higher compared to their colleagues who had reported less years of teaching experience. This was not the case for the Australian sample of Kos et al. (2004), the United States sample of Jerome et al. (1994) and the South African sample of Perold et al. (2010). Although unclear, the inconsistent association found between teaching experience and knowledge scores across studies could have been due to differences in INSET opportunities and support available to each target population. Information to support these assumptions was not available, however. Several studies, such as those by Sciutto et al. (2000), Kos et al. (2004) and Perold et al. (2010) also reported a positive association between the exposure to students with ADHD and overall knowledge scores. These studies indicated that educators who had taught students with ADHD during their teaching career had a greater understanding of the disorder and significantly higher knowledge scores. Indeed, Sciutto et al. (2000) found that teachers' knowledge was positively associated with the degree of such exposure (the number of students taught).

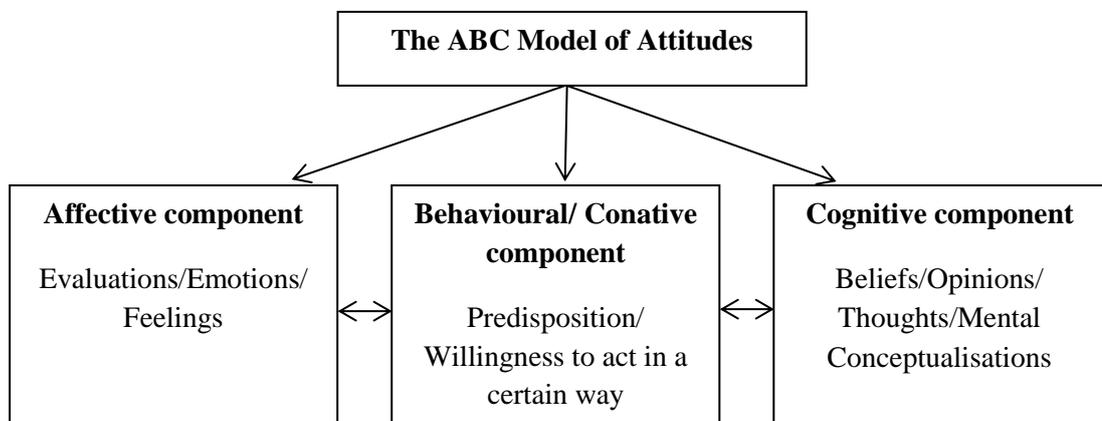
Lack of knowledge or misinformation about the diagnostic criteria, the nature of the disorder and empirically-validated interventions can hinder the early identification, the accurate diagnosis, the effective application and evaluation of interventions (Arcia et al., 2000; Sciutto et al., 2000). If, for example, hyperactivity is perceived a required criterion, then children with primarily inattentive behaviours are likely to remain unnoticed and undiagnosed (Ohan et al., 2008). Reversely, in cases when the prevalence of ADHD is overestimated, educators are more likely to proceed to a high number of

inaccurate referrals (Livingston, 1997). Misconceptions about ADHD causation and interventions may lead to the provision of misplace information to parents and the application of non-empirically validated interventions, such as diet modifications, vitamin and mineral supplements, homeopathic treatments and yoga (Weyandt, 2007; DiBattista and Shepherd, 1993). Considering the overall contribution of teachers to the diagnostic and intervention procedure, the acquisition of accurate knowledge should be fostered in undergraduate and in-service training programmes.

## 7.2 Practicing teachers' attitudes towards ADHD

Over the years, several definitions have been proposed to conceptualise the nature of attitudes (Rao, 2004). An internationally accepted definition has not been established however (Findler et al., 2007). Brehm et al. (2002) and Eagly and Chaiken (1993) were among the scholars who introduced single-component conceptualisations of attitudes. Brehm et al. (2002, p.179) defined an attitude as “a positive, negative, or mixed reaction to a person, object or idea” while Eagly and Chaiken (1993, p.1) as “a psychological tendency that is expressed by evaluating a particular entity with some degree of favor or disfavor.” Acknowledging the complexity of this construct, a group of scholars has adopted a multi-dimensional model to define and examine attitudes, known as the ABC Model of Attitudes (Antonak and Livneh, 2000). This model (see Figure 1) views attitudes as the interplay of three components: affective, behavioural and cognitive (Olson and Zanna, 1993; Fishbein and Ajzen, 1975).

**Figure 1** - *The ABC model of attitudes*



At the beginning of the 1970s, Triandis (1971, p.2) conceptualised an attitude as “an idea [cognitive] charged with emotion [affective] which predisposes [conative] a class of actions [behavioural] to a particular class of social situations”. More recently, it was defined as “a relatively enduring organisation of beliefs, feelings, and behavioural tendencies towards socially significant objects, groups, events or symbols” (Hogg and Vaughan, 2005, p.150). According to Fishbein and Ajzen (1975), the affective component refers to an individual’s evaluation of, and emotional response (positive/negative feelings) towards an attitude object. The behavioural or conative component, as it is alternatively reported, refers to the tendency, willingness, or predisposition of an individual to act or behave in a certain way in the presence of an attitude object (Cook, 1992). Finally, the cognitive aspect involves an individual’s beliefs, mental conceptualisations, opinions, thoughts, and ideas about an attitude object (Vilchinsky et al., 2010; Findler et al., 2007; Fishbein and Ajzen, 1975).

The significance of attitudes examination is attributed to their association with behaviour formation (Tait and Purdie, 2000). The Theory of Reasoned Action (TRA) and the Theory of Planned Behaviour (TPB), an extension of the TRA, are two social psychological theoretical models that were designed and widely used in research to explain the complex relationship of attitudes and behaviour (Ajzen, 1985; 1991; Fishbein, 1967; Ajzen and Fishbein, 1980; Fishbein and Ajzen, 1975). The TRA suggests that human behaviour is driven by three fundamental components; intention, subjective norm and attitude. According to this theoretical framework, behaviour is directly caused by intention, not by attitude. Intention is defined as an indicator of individuals’ willingness and desire to exert the effort required in order to perform a specific behaviour. In cases when the intention is strong, the likelihood of performing such behaviour is high (Fishbein and Ajzen, 1975).

In turn, an individual’s intention to perform a specific behaviour is directly linked to the other two constructs of the model; attitude and subjective norm (social pressures to engage or not in a given behaviour). Considering that people are influenced by important others’ views, the TRA suggests that they are more likely to engage in behaviours that are positively regarded by others. Consequently, if an individual feels that the people around him negatively consider a particular behaviour, the possibilities to perform such behaviour will decrease. Overall, the theory concludes that people

intend and finally engage in behaviours that are considered positively by them (attitude) and important others, such as family, friends and colleagues (subjective norm). Fishbein and Ajzen (1975) argue that all the other factors that can influence human behaviour are mediated through, and form attitudes and subjective norms. Similarly, factors such as gender, prior experiences, behaviours and culture do not have direct impact on behaviour formation but they are mediated through these two constructs.

Acknowledging the difficulty of the TRA predicting behaviours that do not exclusively depend on internal, self-directed factors (e.g. losing weight), Ajzen (1985) extended the TRA to the TPB by including an additional exogenous variable, called perceived behavioural control. Perceived behavioural control is the result of an individual's prior experiences with a given behaviour and the obstacles perceived to hinder its performance (Ajzen, 1991). According to this model, an individual's perceptions regarding the degree of control (ease or difficulty) over the performance of a specific behaviour affect this behaviour either directly or indirectly through the intention variable. Perceived behavioural control can directly influence behaviour in cases when the perceived control resembles the actual one. However, coincidence of perceived and actual control is not always the case, especially when a person "has little information about the behaviour, when requirements or available resources have changed, or when new and unfamiliar elements have entered into the situation" (Ajzen, 1991, p.134). Overall, a given behaviour is more likely to be performed when an individual perceives that he has control over such behaviour. Similarly to the TRA, the impact of attitude and subjective norm variables on behaviour remains indirect. The role of the newly inserted variable is decisive since a person with positive attitudes and subjective norms but weak perceptions of control is unlikely to form strong intentions and engage in a specific behaviour (Ajzen, 1991).

In contrast to educators' knowledge of ADHD, their attitudes towards children with the disorder have not been widely and distinctly investigated in the past, with studies either misusing the term "attitudes" or using single items to assess them. The title of the large survey by Jerome et al. (1994), for example, proclaims that both knowledge of, and attitudes towards ADHD were evaluated. However, a definite distinction between knowledge and attitude measures was never made and the items that had been included in the scale merely evaluated participants' knowledge of ADHD (facts and myths), not

their attitudes. Similar methodological limitations were evident in other surveys that adopted Jerome et al.'s scale (e.g. Barbaresi et al., 1998). In an attempt to distinguish between knowledge and attitude measures, Bekle (2004, p.154) used Jerome et al.'s scale to investigate teachers' knowledge and a single item (7-point scale) to evaluate their attitudes ("What is your attitude towards ADHD in children?"). This study suggested that educators with greater knowledge scores had a more positive general attitude towards ADHD. However, the single-component measure used did not enable a spherical assessment of teachers' attitudes (e.g. feelings, predispositions to act in certain ways, beliefs about the appropriate educational setting for children with ADHD).

Ghanizadeh et al. (2006) also distinguished between the two constructs and extended the number of attitude items. This research team assessed educators' attitudes towards the appropriate educational setting (special/mainstream), the role of mainstream school teachers in the education of students with ADHD, discipline and homework issues (Ghanizadeh et al., 2006). Similarly to Bekle's results, Ghanizadeh et al.'s study indicated that the more knowledgeable educators were, the more favourable attitudes they had. Using ten vignettes of children with hyperactive/impulsive/inattentive behaviours and nine questions with nine-point Likert scales, Ohan et al. (2008) assessed specific aspects of teachers' attitudes, such as their behavioural responses (e.g. likelihood of looking for assessment) and beliefs (e.g. perceived effectiveness of various intervention methods). Given that participants' behavioural responses were found to be favourable and beliefs unfavourable, the study suggested that teachers' attitudes should be considered and examined as a multi-dimensional construct (Ohan et al., 2008).

### **7.3 INSET on ADHD**

The key role of teacher INSET in improving knowledge of ADHD has been corroborated in studies that examined teacher knowledge in relation to previous INSET. A study by Vereb and DiPerna (2004), for example, found that educators who had participated in relevant INSET had greater knowledge of ADHD and interventions (pharmacological and behavioural) compared to their colleagues without prior INSET experience. This finding was consistent with those reported in studies by Jerome et al. (1994), West et al. (2005) and Perold et al. (2010). Given that teacher knowledge was positively correlated with the acceptability of medication and behaviour management

strategies, Vereb and DiPerna (2004) suggested that the amount of knowledge a teacher has regarding a specific intervention can affect the ratings of acceptability and the likelihood of implementing such intervention.

A limited number of studies implemented INSET intervention programmes and evaluated their impact on teachers' knowledge of ADHD. Rolling out an already-developed INSET programme, Barbaresi and Olsen (1998) evaluated the effects on teachers' knowledge and stress levels. Data collected before and after the implementation of the programme indicated a significant enhancement of teachers' knowledge and decrease of stress scores. However, the results should be considered with caution given the small sample size (44 elementary school teachers) and the absence of a control group.

The positive effects of INSET were replicated in a study by Jones and Chronis-Tuscano (2008). To assess the effectiveness of a relevant INSET programme, the research team randomly selected 142 participants from six elementary schools in Washington. Consistent with Barbaresi and Olsen's study, teachers' knowledge was evaluated before and after the intervention. The findings suggested that participation in the programme had resulted in not only the improvement of educators' knowledge, but also the more frequent use of behaviour modification interventions. This finding is in line with the positive correlation between teachers' knowledge and acceptability of behavioural interventions found in the study by Vereb and DiPerna (2004). More recently, Syed and Hussein (2010) developed and evaluated a 10-hour INSET programme that was administered to 49 Pakistani educators. Participants' knowledge was evaluated prior and after the programme using Jerome et al.'s scale. In consistency with previous studies, the results indicated a significant improvement of knowledge that remained significant after a six-month period of time.

## **7.4 Overview – Conclusion**

This chapter reviewed the literature on educators' knowledge of, and attitudes towards ADHD. Considering the key role that educators are invited to take in the diagnostic and intervention procedure, researchers from all over the world have carried out investigations to assess the accuracy of educators' knowledge and identify areas that

need further development. The mixed average knowledge scores across studies (42.6% to 82.4%) should be considered in the light of methodological differences discussed earlier in the chapter. Regardless of the knowledge score variation, the results of these studies replicated several knowledge gaps and misconceptions about the nature of the disorder, the causes and the effective intervention practices. Mixed results across studies were also found in terms of the impact that teaching experience and prior exposure to students with ADHD have on educators' knowledge scores. The multiple conceptualisations of attitudes and their complex relationship with behaviour formation were also detailed in the chapter. Particular emphasis was placed on two social psychological theoretical models that were developed and widely used in research to explain such relationship (TRA and TPB). Educators' attitudes towards the inclusion of children with special needs have also been widely explored over the past few decades. However, focus has been on the idea of inclusion in general and not on specific categories of children with special needs. As a result, teacher attitudes towards children with ADHD have not been widely and distinctly investigated in the past. Consequently, the need to explore and understand teacher attitudes and levels of acceptance children with ADHD have in mainstream classrooms further exists.

## Chapter 8 – Methodology

The following chapter, which is divided into seven parts, provides an overview of the methodology, the instruments and the ethical issues considered and addressed in the present study. The first two parts focus on the research purposes and questions, the significance and contribution of the study to the research base on ADHD and the development of local teacher INSET programmes. The third part refers to the research design and the rationale for a mixed methods research paradigm while the fourth one details the data collection procedure. Each of the measures used in the study are described in the fourth part and details about the pilot study (participants, procedure, findings, reflection) are provided in the fifth one. The sixth part considers the recruitment and sampling processes and the final part provides an overview of the ethical issues and the measures taken to be addressed.

### 8.1 Research Purposes – Contribution

Given the high prevalence of the disorder among school-age children, the likelihood of teachers having a diagnosed or undiagnosed child with ADHD in their classroom is high (Anderson et al., 2012). As indicated in earlier chapters, mainstream school teachers are invited to play a pivotal role in identifying undiagnosed children with ADHD, in evaluating their behavioural, educational and social functioning, in advising parents, in implementing non-pharmacological interventions and observing the effects of medication. A clear understanding of the disorder, the needs of children with ADHD and the empirically validated interventions is therefore imperative for the early identification, the accurate diagnosis and the effective management of ADHD-related behaviours. Acknowledging the critical role of knowledge, researchers from all over the world have indicated particular interest in assessing educators' knowledge of ADHD and identifying areas that need further development (Jerome et al., 1994; Sciutto et al., 2000; Bekle, 2004; Kos et al., 2004; West et al., 2005; Ohan et al., 2008; Perold et al., 2010; Anderson et al., 2012). This kind of investigation had not previously been conducted in the educational context of Cyprus. Consequently, empirical evidence about the knowledge background of Cypriot elementary school teachers was not available.

In contrast to educators' knowledge of the disorder, their attitudes towards children with ADHD have not been widely and distinctly investigated in the past. Existing studies across countries have primarily explored teacher attitudes towards the idea of inclusion in general and not towards specific categories of children with special needs (Cassady, 2011). These studies have suggested that the attitudes of the school personnel play a key role in the implementation and success of inclusive initiatives (Woodcock, 2013; Cassady, 2011; Fields, 2006; Avramidis et al., 2000a; Hastings and Oakford, 2003; Siegel and More, 1994; Center and Ward, 1987; Jamieson, 1984). For inclusive education to succeed, it is critical that educators possess positive attitudes and they are willing to accommodate children with special needs in their classrooms (Woodcock, 2013; Cassady, 2011; Angelidis, 2008; Winter, 2006). In an opposite case, they are more likely to resist individualising lesson plans and shift responsibility for the education of these children to specialists (Fields, 2006; Avramidis et al., 2000). Given the association of attitudes with behaviour formation, it is highly important that research studies explore teacher attitudes and raise an understanding of the acceptance levels children with ADHD have in mainstream classrooms.

The present study had as a purpose to broaden and add to the research base on ADHD by investigating Cypriot elementary school teachers' knowledge of the disorder and their attitudes towards the instruction of children with ADHD. The study also aimed to explore teachers' prior INSET experiences and their expectations and recommendations for future INSET. Given that information about the availability, the form, the content and the effectiveness of current INSET opportunities was not found, interviews with specialists and representatives of organisations that deliver relevant INSET (e.g. the MoEC, the CPI and the ADD-ADHD CYPRUS) were considered necessary. Although not directly linked to the research questions of the thesis, these interviews were particularly informative; they set the scene regarding teacher INSET and filled the gap that existed in the literature. Overall, the study will contribute to the international literature on teachers' knowledge of, and attitudes towards ADHD and offer several practical implications, primarily relating to teacher INSET provision. A number of presentations and articles that aim to benefit children with ADHD and their educators will also be developed based on the findings of the study.

## **8.2 Research Questions**

Two research questions were considered in the study:

1. What is the knowledge of Cypriot elementary school teachers with regard to: a) the symptoms/diagnosis of ADHD, b) the treatment and c) general information regarding the nature of the disorder, the causes and the outcomes?
2. What are the attitudes of Cypriot elementary school teachers with regard to: a) the instruction of students with ADHD, b) their self-efficacy in teaching students with ADHD, c) the current and future INSET scheme?

## **8.3 Research design – Rationale for a mixed methods paradigm**

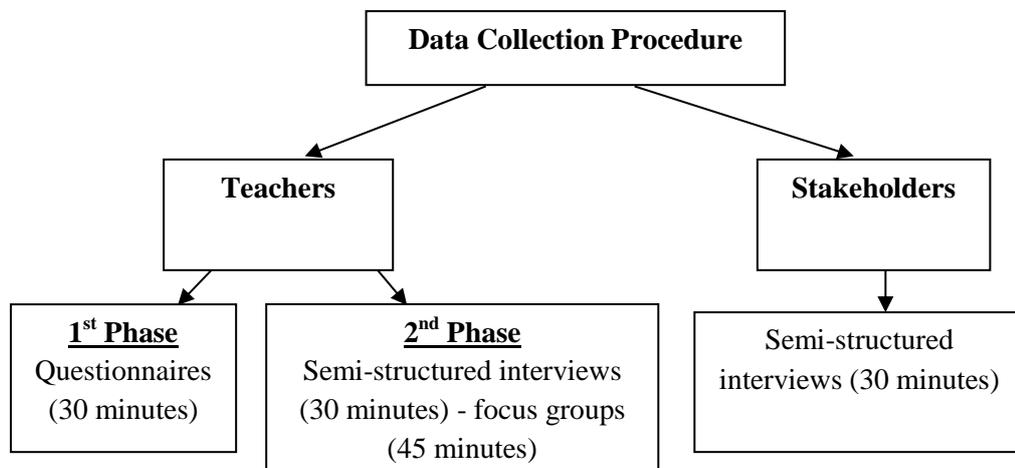
The debate between the advocates of quantitative and qualitative research paradigms was intense during the 1980s (Johnson and Christensen, 2004). Over the years, the importance of both paradigms has been acknowledged and the polarisation between quantitative and qualitative research designs has been considered unhelpful to thoroughly examine and fully understand complex and multi-dimensional social phenomena (Cohen et al., 2011; Shank and Brown, 2007). This has resulted in the development of a mixed methods research paradigm and the concurrent use of quantitative and qualitative methods to collect data about the same phenomenon (Johnson and Christensen, 2004). According to Punch (2009, p.290), the “fundamental rationale behind mixed methods research is that we can learn more about our research topic if we can combine the strengths of qualitative research with the strengths of quantitative research while compensating at the same time for the weaknesses of each method.” Traditionally, quantitative methods of data collection (e.g. survey) have been applied to address “what” questions and qualitative methods (e.g. interview, participant observation) to answer “how” and “why” questions. The mixed methods research paradigm has the power to provide data for both types of questions (Cohen et al., 2011).

In addressing the research questions of the thesis, an explanatory mixed methods design was adopted. This design consisted of two sequential phases. In the first phase, primarily quantitative data were collected through the administration of a questionnaire while in the second phase qualitative data were generated through semi-structured interviews and focus groups. Cypriot teachers' knowledge of ADHD was explored in the first phase of the research using a 35-item knowledge scale. The attitudes towards the instruction of children with ADHD were quantitatively investigated in the first phase of the research and in more depth in the second one. The purpose was not only to capture teachers' attitudes but also to get an insight into the rationale behind their feelings, beliefs and predispositions to act in certain ways. Teachers' attitudes towards the current INSET system, their expectations and recommendations for future INSET were explored both in the first and second phase of the research.

#### 8.4 Data Collection Procedure

The data collection procedure involving Cypriot elementary school teachers was conducted in two sequential phases, as indicated in the following diagram (January to May 2012). Semi-structured interviews with specialists and representatives of organisations responsible for the design and delivery of relevant INSET programmes were conducted immediately after the completion of the first and second phase of the research (May 2012).

**Figure 2** – *Data collection procedure*



### 8.4.1 Questionnaire

The questionnaire was designed specifically for the purposes of this PhD study and consisted of seven parts (see Appendix 10). It contained both highly structured questions with pre-defined response categories and open-ended questions that allowed participants to express their views and develop the answers in their own words. The first part (PART 1) generated demographic information about participants, including gender, age, years of teaching experience and qualifications obtained. Teachers were invited to note their answers, by placing a check in the appropriate box (gender and qualifications) or by writing in the space provided (age and years of teaching experience). After completing PART 1, teachers were asked to specify whether they had ever heard about ADHD. Those who selected the answer “YES” were instructed to turn to PART 2. The rest of the respondents were asked to return the questionnaire. PART 2 collected data regarding teachers’ prior experiences with ADHD. In this part, participants were invited to record whether they had personal experience with children diagnosed with ADHD (family members/ friends) and whether they had taught students with an ADHD diagnosis during their teaching career (YES/NO response format). Participants who had taught students with ADHD were invited to specify the number of these students by writing their answer in the space provided. Participants were also asked to report the number of students they had taught whom they thought met the criteria for ADHD but did not have an official diagnosis.

PART 3 consisted of 35 items that were designed to assess teachers’ knowledge of ADHD. The knowledge items were structured after a thorough review of the literature on ADHD and parallel studies (e.g. Jerome et al., 1994; Sciutto et al., 2000; West et al., 2005). Similarly to Sciutto et al.’s scale, the knowledge scale used in the present study had a three choice response format (True/False/Don’t Know) and measured Cypriot elementary school teachers’ knowledge in three distinct domains: a) symptoms/diagnosis b) treatment and c) general information regarding the nature of the disorder, the causes and the outcomes. In this section, teachers were invited to read each of the 35 knowledge items and circle T (True) if they believed that an item was correct, F (False) if they believed that it was incorrect and DK (Don’t Know) if they were not sure. In the latter case, participants were instructed to avoid guessing.

Teachers' attitudes towards the instruction of children with ADHD and their self-efficacy in teaching this group of children were considered in PART 4 and PART 5. In these parts, five-point likert scales (Strongly Disagree to Strongly Agree) were used and teachers were invited to circle the representative for their answers. Items were designed to assess affective, behavioural and cognitive aspects of attitudes:

- Self-efficacy in teaching children with ADHD
- Emotional response towards the instruction of children with ADHD
- Beliefs about the appropriate educational setting for children with ADHD
- Beliefs about the effects that the presence of children with ADHD in a mainstream classroom may have
- Predispositions to act in certain ways when teaching children with ADHD

PART 6 was designed to explore participants' prior experiences with relevant INSET. In this part, teachers were invited to record whether there was adequate information about ADHD (5-point likert scale response format) and whether they had attended relevant formal INSET during their teaching career (YES/NO response format). Those who selected the answer "YES" were instructed to specify the number of hours they had attended and the organisation or person that had the responsibility for that INSET opportunity. Additionally, they were asked to evaluate whether the formal INSET they had received was adequate for effectively teaching students with ADHD and whether further INSET was needed (5-point likert scale response format). Participants who selected the answer "NO" were asked to report the reason why they had not attended any relevant INSET opportunity.

The last part of the questionnaire (PART 7) consisted of two open-ended questions relating to the prior INSET experiences of participants and their views about the INSET that would make them more competent, confident and positive in teaching students with ADHD. The first question consisted of two parts. The first part concerned formal INSET and participants were invited to provide a description of the form, the content, the orientation of INSET they had received (theoretical/practical) and note strengths and areas that in their opinion needed further development. In the second part, they were asked to report informal forms of INSET they had experience with (e.g. personal study, collaborative planning and teaching with colleagues, discussions during staff

meetings/breaks), and evaluate whether those had been beneficial for them. The second question gave participants the opportunity to develop their expectations and recommendations for future INSET, including preferable form, place, time, legal framework, content and aspects they would like to receive more information about.

#### **8.4.2 Semi-structured interviews and focus groups with teachers**

For the purposes of the study, qualitative data were also derived through follow-up semi-structured interviews and focus groups (see Appendix 11). Both personal interviews and focus groups had the same structure and aimed to provide additional data and explanations to the quantitative data collected in the first phase. More specifically, the purpose was to get an insight into Cypriot elementary school teachers' experiences with, and attitudes towards the instruction of children with ADHD and INSET. The semi-structured form of these interviews enabled the researcher to reword the questions when necessary, to change the sequence and ask further questions based on the responses of participants.

The fundamental rationale behind the concurrent use of individual interviews and focus groups – in-depth interviews of groups of respondents – was that the researcher could learn more about the research topic if she could combine the strengths of the one method with the strengths of the other method while compensating for the weaknesses of each one. Focus groups give the opportunity to yield collective rather than individual views and they are used when the researcher wants to gain multiple perspectives in an interactive group setting. Similarly to one-to-one interviews, focus groups added a human dimension to impersonal questionnaire data, they deepened understanding and provided possible explanations to statistical outcomes.

One of their main benefits was that they got the participants brainstorming, facilitating in this way the in-depth exploration of concepts and the emergence of new ideas. Focus group members interacted with each other more than with the interviewer; they were encouraged to talk to each other, to ask questions and comment on each other's feelings, beliefs and points of views. In fact, they reacted to and built upon each participant's responses to produce information that they might not think of on their own. The main idea behind focus groups was that the group and the conversation setting could help

teachers – even the shy ones – explore, clarify and express their views more easily compared to one-to-one situations.

Through focus groups, the researcher had the opportunity to explore different forms of verbal and non-verbal communication that people use in everyday interaction to convey thoughts and feelings (e.g. jokes, teasing, arguing, gestures, facial expressions, physical and eye contact between group members). Everyday forms of communication can tell as much, if not more, about people's prior experiences, beliefs and emotional reactions towards attitude objects. Compared to individual interviews, focus groups elicited a multiplicity of views and gave an indication of the dynamic of attitudes by showing whether and how, in which ways were teachers influenced by others in the group and reconsidered their initial understandings, evaluations and predispositions in response to stimuli introduced in the discussion. At the same time, the intra-group agreements, disagreements, questions and explanations provided kept the discussion moving forward and allowed the researcher to find out why an issue was salient and what was salient about it.

### **8.4.3 Semi-structured interviews with stakeholders**

For the reasons discussed earlier in the chapter, semi-structured interviews were conducted with six specialists (clinical psychologists) and representatives of organisations responsible for the design and delivery of relevant INSET programmes (MoEC, CPI and ADD-ADHD CYPRUS). In these interviews, participants were invited to describe and evaluate the available INSET opportunities (the form, the content, the structure, strengths and weaknesses) and provide suggestions for further development.

## **8.5 Pilot Study – Reflection**

### **8.5.1 Questionnaire**

The Greek version of the questionnaire was piloted with eleven Greek teachers that were doing their masters degrees in the School of Education, University of Leeds during the academic year 2011-2012. The purpose was to obtain an indication of the time needed to complete the questionnaire, to ascertain whether the instructions and

questions were clearly presented and easily understood and whether the layout was attractive and easy to follow. The pilot study also intended to collect feedback on the type of questions and the appropriateness of response categories.

The participants were invited to complete the questionnaire in the presence of the researcher so as to be in position to immediately notice instructions/questions they struggled with and address possible misunderstandings. The pilot respondents were asked to provide two kinds of written feedback. The first concerned general comments regarding the layout of the questionnaire, the font type, the letter size, the response categories and the type of questions. The participants had the opportunity to comment on these general issues immediately after the completion of the instrument (Feedback Page). The second one was in response to the clarity of instructions and questions. The participants were asked to highlight any ambiguous or difficult wording and provide suggestions for rewording. A follow-up discussion was made in order to gain verbal feedback about the strengths and weaknesses of the questionnaire and ascertain whether all the participants interpreted the questions in the way intended. This discussion was audio-recorded and used along with written feedback.

The pilot procedure indicated that the time needed to complete the questionnaire ranged from 18 to 25 minutes. This timeframe was considered ideal for the purposes of the study and thus no changes were made to the length of the questionnaire. Participants' general comments were highly positive. They found the questionnaire interesting and they agreed that it was easy for them to read, understand and complete it. In their opinion, the layout was easy to follow and the font type, the letter size and the question spacing appropriate for enhancing reading speed and understanding. They found the instructions clear and simple and they highlighted the importance of having specific instructions for each section, especially when the type of response category changed. During the follow-up discussion, the participants acknowledged the critical role of anonymity. They explained that anonymity reduced discomfort and "took the blame off", especially when responding to attitude items.

The participants found the close-ended questions straightforward and easy to complete. They expressed their satisfaction with the existence of only two open-ended questions that needed more time to think about and complete as well as with the provision of

clarifications about the areas they should focus on in order to answer these questions. They also considered the response option DK (Don't know) in the knowledge scale particularly helpful in cases they were not aware of the response in an item. With this response option, they did not spend time thinking the most likely answer or guessing the correct one. The participants did not provide any comments about the wording of attitude items. Overall, knowledge items were found unambiguous, specific and instantly understood. The feedback revealed difficulties in understanding the phrases "chaotic and dysfunctional family environments", "inappropriately talkative" and "poor parenting practices". In the case of "chaotic and dysfunctional family environments" and "poor parenting practices", they all agreed to add "such as..." and provide examples for clarification.

### **8.5.2 Focus Group**

Conducting a trial focus group was beneficial for identifying any ambiguous questions, constraints in the procedure and personal skills that needed further development. The verbal (follow-up discussion) and written feedback (Feedback Page) that was provided on the completion of the focus group in combination with the researcher's reflection on the procedure were important for considering and addressing possible problematic issues.

The members of the focus group (seven out of eleven MA students who completed the questionnaire) approved of the clear instructions and the detailed introduction about the purposes and issues relating to confidentiality and anonymity. As they explained, the introduction contributed to the creation of rapport and made them feel comfortable to talk. The piloting experience indicated the importance of ground rules for the smooth functioning of the procedure. The ground rules that had been established prior to the beginning of the focus group and repeated on a regular basis were: 1) What we say remains in this room; 2) The reference to other people's names should be avoided; 3) Only one person talks at a time; 4) There are no wrong and right answers, just experiences and attitudes that are all valuable and welcome; 5) You can call a break at any time; 6) Mobile phones should be silent; 7) We do not interrupt each other; 8) Please remain focused on the focus group questions.

Participants' verbal and written feedback indicated that the questions were transparent and detailed. Therefore, no changes were made on the focus group protocol. Phrasing the questions by presenting the debates that existed in the literature was found particularly helpful. As participants explained, the presentation of the opposite views made the questions clear and helped them answer precisely. In cases they were providing short responses, the researcher tried to extend them using probes and clarifying questions such as: "Could you tell me more about..." or "Could you explain what you mean by..." These techniques were found particularly effective. The "why" sub-questions that were included in the protocol were also helpful for providing additional data and clarifying the rationale behind participants' attitudes. Another technique that the researcher found helpful for generating more detailed and complete answers was the repetition of the questions and the provision of more time to think. When participants were talking a lot about a topic or when they were providing irrelevant information that strayed from the topics of the focus group (especially when the questions concerned their experiences), the researcher tried to refocus the conversation by mentioning the purposes and reminding the limited timeframe. These techniques were effective but after participants' suggestion, a brief presentation of the topics to be discussed (including the number and a rough estimation of the available time for each one) was provided prior to each focus group in the main study. A technique that was found efficient for moving from the one topic to another smoothly was the summary of all the different ideas discussed in response to a question.

Focus group is a method that yields collective rather than individual views. However, the presence of people with different personalities encourages non-participation of some members and dominance of others. The techniques that the researcher found effective for silent members included reinforcement of their responses value and extension of their short answers with clarifying questions such as when, where, how, which, why. Overly talkative members were effectively managed by asking the rest of the group to comment on their responses or by calling on someone else specifically when asking a question. Overall, the pilot focus group gave a clear picture of the two roles the researcher should fulfil during the procedure: 1) to ask questions, to coordinate the discussion, to be a good time manager, to ensure the participation of all members by managing dominant members and encouraging silent ones, to remind group of ground

rules, to be ready to further explain the questions, and 2) to be responsible for audio-recording and note-taking.

## **8.6 Recruitment and sampling processes**

### **8.6.1 Teachers**

According to the Annual Report 2010 (MoEC, 2011), the number of elementary schools in Cyprus for the school year 2009-2010 was 345. The total number of teachers employed in these schools was estimated at 4243. The random probability sampling technique was used to recruit participants for the first phase of the research. Given that the average number of teachers in each elementary school was 12.3 (4243/345), a random sample of 20 schools was selected in order to approach approximately 200 teachers. In this way, every Cypriot elementary school teacher had an equal chance to participate in the primary phase of the study. The final number of questionnaires that was distributed to the randomly chosen schools was 242. Given that the selected schools were located in both rural and urban regions, the number of teachers in each one varied (from 5 to 22 teachers in each school).

The sample size was an issue that the supervision team and the present researcher had a lot of discussion about and it was decided after a comprehensive review of the sample sizes of parallel studies all over the world. Considering the small number of teachers employed in the educational context of Cyprus compared to other educational contexts that parallel studies have been carried out (e.g. Australia and America) (Sciutto et al., 2000; Bekle, 2004; Kos et al., 2004; West et al., 2005; Ghanizadeh et al., 2006; Ohan et al., 2008), the sample size of this study is considerably high (almost 6.0% of the Cypriot elementary school teacher population). In the second phase of the research, 23 interviews and 4 focus groups were conducted with educators who expressed their willingness to participate, providing their contact details. The number of interviews and focus groups was also decided in consultation with the supervision team, taking into account the aims of the present study and practical issues (time for data collection, transcription and analysis). Before data collection, the number set for focus groups was 4 and for interviews 15. Nevertheless, all 23 educators who provided their contact details for an interview were included in the second phase of the research.

Random probability sampling is considered the approach that ensures sample representativeness (Cohen et al., 2011; Punch, 2009) since it “allows researchers to avoid any systematic selection bias” (Shank and Brown, 2007, p.125). For the purposes of this study, twenty schools were randomly selected from a general list of all Cypriot elementary schools. This type of random probability sampling is called one-stage cluster random sampling and enables researchers to randomly select clusters (in the present study the clusters were the elementary schools) instead of individuals (Cohen et al., 2011). Thus, the final sample consisted of teachers employed in the selected clusters during the school year 2011-2012. According to Babbie (2010, p.218), “cluster sampling may be used when it’s either impossible or impractical to compile an exhaustive list of the elements composing the target population...” The randomly selected schools were located in both rural and urban areas and their educators presented similar to the population variations in terms of gender and years of teaching experience. These features in conjunction with the high response rate (78.9%) enhance the claims for sample representativeness.

After successfully completing the transfer process and obtaining the approvals from the AREA Faculty Research Ethics Committee of the University of Leeds (see Appendix 13) and the Cyprus Centre of Educational Research and Evaluation (CERE), the researcher visited the randomly selected schools in order to meet and discuss with principals on a personal level. In this way, the principals received information about the research purposes and the data collection procedure and they were given a week to decide whether their school would take part in the study. After their positive answer, they were invited to provide information about the number of teaching staff and arrange a convenient day to distribute the questionnaire package.

In an attempt to increase the response rate, the questionnaire packages were distributed and collected on completion by the researcher. Candidate participants received verbal information about the general purposes and the nature of the study and they were invited to read the Introductory Cover Letter (see Appendix 1) and the Information Sheet for details (see Appendix 2). Teachers were asked to return the questionnaires to the prearranged location, either complete or incomplete, so as to eliminate any chance the principal and their colleagues to identify whether they had participated.

Through the Information Sheet, teachers also received information about the purposes and the nature of the second phase of the study. Those who were interested to take part were invited to register their contact details on the “Statement of the second phase of the research” (see Appendix 3) and submit it along with the questionnaire. Thus, the researcher had the opportunity to send them the corresponding Information Sheet (see Appendix 4 and Appendix 5) with all the necessary details. In cases when they agreed to participate, they were invited to read and sign the Informed Consent Form (see Appendix 6 and Appendix 7).

### **8.6.2 Stakeholders**

Having as a purpose to collect information about the available INSET opportunities, the researcher visited the MoEC, the CPI (the governmental organisation responsible for teacher INSET) and the Cyprus Organisation of ADHD (ADD-ADHD CYPRUS). During these visits, the researcher met and discussed with a number of specialists and representatives who expressed their interest about the study and their readiness to provide the required information arranging 30-minute interviews. These people were contacted again when the data collection procedure initiated and they were invited to read the relevant Information Sheet (see Appendix 8) before making their final decision.

## **8.7 Addressing ethical issues**

The ethical issues considered and successfully addressed in the present study were relating to:

- The importance of research for the advancement of knowledge
- The process of obtaining informed consent from participants
- Data protection
- Integrity/honesty/conflict of interests
- Risks and benefits
- Treatment of participants

### **8.7.1 The importance of research for the advancement of knowledge**

The decision to focus on this research area was not accidental. It was based on the originality of the topic in the context of Cyprus, where this kind of investigation had not previously been conducted. The contribution of the study for the advancement of knowledge was corroborated by two governmental organisations, the MoEC and the CERE. In order to conduct the study in elementary schools during school hours, it was necessary to get permission from the abovementioned organisations. For this reason, a specific application form was developed and submitted regarding:

- the content of the study (*title, purposes, research questions, usefulness-significance of the study*)
- the ethical issues and measures to be addressed
- the methodology (*data collection procedure, sampling, research instruments, the time participants had to get involved, research timeline and expected completion time*)
- the research instruments (*questionnaire, protocols of teacher interviews and focus groups in the English and Greek version*)

The responsible committee (representatives of the MoEC and the CERE) considered the application form, acknowledged the originality and the overall contribution of the study and provided the necessary permission. The researcher's permission was then asked so as the published findings to be used by the MoEC administrators and policy-makers for the benefit of children with ADHD and their educators.

### **8.7.2 Obtaining informed consent from participants**

#### **8.7.2.1 Questionnaire**

The Introductory Cover Letter and the Information Sheet had as a purpose to ensure that candidate participants had a clear understanding of the purposes and the nature of the study. The methodology, the exact obligations, the way data would be used after their collection, benefits and possible risks were detailed in the Information Sheet. Candidate participants also received information about the procedures to safeguard anonymity. They were instructed not to register any personal details prior or during the completion

of the questionnaire. Teachers' decision to answer the questionnaire signified that they had received the Information Sheet, they had understood what was demanded from them and they had voluntarily decided to participate. In this way, they were able to provide, albeit indirectly, their informed consent.

### **8.7.2.2 Semi-structured interviews and focus groups with teachers**

Through the Information Sheet, teachers also received information about the second phase of the study. Those who were interested to take part in a personal interview or/and a focus group were invited to register their contact details on the "Statement of the second phase of the research". These educators received a second Information Sheet via email and they were given time to make an informed and voluntary decision. Given their positive answer, they were invited to read and sign the corresponding Informed Consent Form.

### **8.7.2.3 Semi-structured interviews with stakeholders**

The specialists and representatives of organisations had been informed about the research three months earlier and expressed their readiness to participate in a 30-minute interview. When the data collection procedure initiated, they received an Information Sheet and they were given time to finally decide whether they would like to get involved in the study. Given their positive response, they were invited to read and sign the Informed Consent Form (see Appendix 9).

### **8.7.3 Data Protection**

The anonymity of participants in the first phase of the research was automatically ensured since they were instructed not to register any personal details prior or during the completion of the questionnaire. For data security reasons, the completed questionnaires were kept locked primarily in a secure cabinet in Cyprus and afterwards in a personal filing cabinet in university premises. After the completion of the questionnaire, educators were invited to register their contact details on the "Statement of the second phase of the research". According to the Data Protection Act 1998, personal data "must be obtained for a specified and lawful purpose", it "shall not be processed in any

manner incompatible with that purpose” and it must “be kept safe from unauthorised access, accidental loss or destruction” (Research Support-University of Leeds, 2011). In this vein, teachers’ contact details were only used to access volunteers for interviews and focus groups and not in conjunction with the analysis of questionnaire data. That was the reason for providing a separate sheet to register their contact details.

The hard copies of these statements, the completed informed consent forms and the recording devices were kept locked primarily in a secure cabinet in Cyprus. After returning to the UK, they were stored in a locked filing cabinet in university premises. Interview and focus group recordings and transcriptions were only stored in the university ‘M’ drive that nobody can access beyond the researcher. The anonymity of interview and focus group data was ensured by erasing any identifying details immediately after the transcription process. This means that no names or locations were included, nor any comments that might indicate identity or location of any individual. In order to cross reference between interview data, the transcripts were coded with non-meaningful codes (numbers). The same procedure was followed with focus groups; each participant’s answers were coded with a number.

#### **8.7.4 Integrity-honesty-openness-conflict of interests**

The present PhD research was conducted with integrity. The principles of honesty and openness dominated both the data collection procedure and the publication of the results. There was no scope for any conflict of interest since the researcher was self-funded. Consequently, none else had control over the design and the conduct of the study, the analysis of data and the publication of findings.

#### **8.7.5 Risks and benefits**

Candidate participants were assured that their participation in the study did not involve any kind of risk or harm (physical, psychological, financial). The benefits and the overall contribution of the study were provided verbally and written through the Information Sheet.

## **8.7.6 Treatment of participants**

### **8.7.6.1 Health and safety of participants**

To address health and safety issues, the research was conducted during working hours in the work premises of participants.

### **8.7.6.2 Psychological well-being and dignity of participants**

Teachers were not subjected to any kind of stress, coercion or deception. Candidate participants were assured verbally and written that the decision to participate in the study was voluntary and would be taken without any influential procedures. They also got informed that they had the right to withdraw at any time without giving any explanation.

## **8.8 Overview – Conclusion**

This chapter detailed the research purposes and contribution, the instruments used, the recruitment processes and the ethical issues considered and addressed in the present study. The study had as a purpose to investigate Cypriot elementary school teachers' knowledge of the disorder and their attitudes towards the instruction of children with ADHD and INSET. To address the research questions, a mixed methods paradigm of two sequential phases was adopted. Primarily quantitative data were collected through the administration of a questionnaire and qualitative data through semi-structured interviews and focus groups. Participants' knowledge of ADHD was assessed in the first phase of the study using a 35-item knowledge scale. Their attitudes towards the instruction of children with ADHD were quantitatively explored in the first phase of the research and in more depth in the second one. The purpose was not only to capture teachers' attitudes but also to get an insight into the rationale behind their feelings, beliefs and predispositions to act in certain ways. Teachers' attitudes towards the current INSET system, their expectations and recommendations for future INSET were explored both in the first and second phase of the research. Ethical issues (e.g. informed consent, data protection, health and safety, psychological well-being of participants, risks and benefits) had been considered and successfully addressed, as the ethical approval from the AREA Faculty Research Ethics Committee of the University of Leeds signifies.

## Chapter 9 – Methodology of Analysis

For the purposes of this study, a mixed methods paradigm was adopted. The different analytic approaches and software tools that facilitated the management and analysis of quantitative and qualitative data are detailed in the following chapter, which consists of two main parts. The first part focuses on the analysis of questionnaire data and the second part on the two major phases followed to analyse interview and focus group data; pre-coding and coding.

### 9.1 Quantitative data – Questionnaire

The close-ended responses of participants were coded and entered into SPSS 20 (Statistical Package for Social Sciences) for analysis. Items with a dichotomous response format (e.g. Male/Female, YES/NO) were coded as 1 (Male, YES) and 2 (Female, NO) and those with a three choice response format (True/False/Don't Know) as 1 (True), 2 (False) and 0 (Don't Know). Respondents' qualifications were recorded as 1 (Bachelor), 2 (Master), 3 (PhD) and 4 (Other) while responses concerning their age, years of teaching experience and the number of students they had taught with an ADHD diagnosis were entered into SPSS 20 verbatim. Items with a five-point Likert scale response format were recorded as 1 (Strongly Disagree), 2 (Disagree), 3 (Neither agree nor disagree), 4 (Agree), and 5 (Strongly Agree).

Descriptive statistics such as the central tendency, the standard deviation, minimum and maximum scores, frequency distributions, tables and graphs were used to summarise and present the data in a variety of ways. Inferential statistics were also applied to investigate relationships between variables and proceed to comparison between groups of respondents (t-tests, one-way ANOVA, repeated measures ANOVA, correlation analysis, chi-square tests). Participants' responses to the open-ended question 7.2 (recommendations for future INSET) were converted into quantifiable categories and analysed in SPSS 20 using descriptive statistics. Descriptive statistics were then presented along with illustrative quotes. The coding process resembles the process followed to code interview and focus group transcripts (details are provided later in the chapter). To minimise researcher bias, the verbatim responses and the lists of codes

were reviewed by a second researcher. Given the small number of participants that responded to the open-ended questions 7.1a (formal INSET - 11 participants) and 7.1b (informal INSET - 13 participants), the quantification of responses was considered unreasonable.

## **9.2 Qualitative Data – Interviews and Focus Groups**

In contrast to quantitative research which states predefined hypotheses and uses “...ad hoc procedures to define, count and analyse its variables” (Silverman, 1997, p.13), qualitative research is more flexible, open and aims to explain complex phenomena based on participants’ verbal descriptions and actions (Suter, 2006). Qualitative data analysts examine phenomena in depth and detail by collecting rich data from limited numbers of respondents while quantitative data analysts intend generalisations and collect few data from large sample sizes (Patton, 2002). Consequently, quantitative analysis involves statistics, descriptive and inferential, whereas qualitative analysis goes beyond numbers and seeks “for patterns in data and for ideas that help explain why those patterns are there in the first place” (Bernard, 2011, p.338). The flexibility of this research paradigm, the lack of standardised measures and predetermined response categories can explain why qualitative data is relatively easy to collect but difficult, demanding and time-consuming to analyse (Patton, 2002; Robson, 1993).

The nature of data in the two research paradigms requires the acquisition of different analytic skills on the part of researchers. While quantitative data analysis presupposes skilful handling of statistical software packages, qualitative analysis presupposes “creativity”, “divergent thinking” and “strong writing skills” (Suter, 2006, p.328). Considering that a qualitative researcher is not the designer of an instrument but the instrument itself, the transparency of the analysis process is vital for underpinning the credibility of the study (Lincoln and Guba, 1985). According to Patton (2002, p.432), such transparency in procedures is critical since qualitative analysis “transforms data into findings. No formula exists for that transformation. Guidance, yes. But no recipe. Direction can and will be offered, but the final destination remains unique for each inquirer, known only when—and if—arrived at”. The following section details the two key phases (pre-coding and coding) followed to analyse interview and focus group data.

At this stage, it is important to note that the analysis was not linear; the researcher had the flexibility to move back and forth between the phases, as necessary.

### **9.2.1 Pre-Coding Phase**

The first phase of analysis consisted of two main sub-phases; 1) transcription of interview and focus group recordings, and 2) in-depth familiarisation with the data.

Interviews and focus groups with elementary school teachers were audio-recorded using a digital recorder. According to Silverman (2000), audio recordings contribute to the production of highly-detailed and accurate transcripts as they can be examined unlimited times by the same or different investigators. Proposing ways to improve reliability in qualitative research, Perakyla (2004, p.288) highlights that particular emphasis should be placed on “the technical quality of recordings” since a low-quality technical equipment can lead to deficient data and therefore inaccurate transcripts.

During the data collection procedure, the audio-recorded material of each interview and focus group was listened to the same day and brief initial notes that were likely to facilitate the process of analysis and interpretation were taken (e.g. each participant’s experiences, beliefs, negative/positive feelings, interaction with the researcher, characteristics of each one’s personality). When data collection was completed, the audio-recorded interviews and focus groups were fully transcribed, using SoundScriber. SoundScriber is a Windows programme which facilitates the transcription of digitalised audio-recorded files due to the variable speed playback and the potential to automatically re-listen to the same piece of material several times before proceeding to the next part of the interview.

The transcription process enhances the familiarisation of the researcher with the data (Riessman, 1993) and is considered “a key phase of data analysis within interpretative qualitative methodology” (Bird, 2005, p.227). When the transcription of the whole dataset was completed, each transcript was read carefully whilst listening to the corresponding audio-recorded interview or focus group. This was done to check the precision of transcripts and ensure that they exactly reflected the answers of participants. The accuracy of transcripts was checked and verified by eight interviewees

as well who requested to review the transcript of their interview. The anonymity and confidentiality of data collected through interviews and focus groups were ensured by giving each participant a number (e.g. Participant 1) and erasing any identifiable details immediately after transcription. Braun and Clarke (2006, p.87) focus on the familiarisation of researchers with the data and explain that “it is vital that you immerse yourself in the data to the extent that you are familiar with the depth and breadth of the content.” To achieve this, systematic reading of the transcripts was carried out before formal coding and initial ideas, impressions, patterns, and interesting points of view were noted. These notes informed and facilitated the coding phase of analysis.

### **9.2.2 The decision to retain transcripts in Greek language**

The present study was conducted in Cyprus, a country where Greek is the official and the dominant language. Consequently, the research instruments (interview and focus group protocols) were translated into the native language of participants and the data collected were in Greek. The decision to retain the primary version of transcripts and analyse interview and focus group data in the original language was taken after careful consideration of practical issues and benefits relating to the quality of findings.

The large amount of data and time barriers were key reasons for translating into English only the extracts that would be presented in the thesis. However, the fundamental reason for this decision was the need to safeguard the precision of data and consequently the quality of findings. Given that each language has a number of words, idioms, metaphors and expressions that cannot be exactly translated into another language, the in advance translation of the whole dataset might have undermined the accuracy of data and the strength of participants’ arguments. The intention was to keep a clear picture of the data and code the transcripts without losing any important information that emerged from the language itself and the implicit meanings of participants’ answers. Greek language has several expressions that signify individuals’ emotions and predispositions. These do not have equivalent expressions in English and their verbatim translation would be incomprehensible. The Greek version of transcripts enabled identification of all the meanings and feelings, either presented explicitly or implicitly.

In qualitative enquiry, the researcher is the primary “measurement device” and has the whole responsibility to conduct a high-quality study (Miles and Huberman, 1994, p.7). This renders researcher bias one of the most serious threats to validity (Johnson and Christensen, 2004). By retaining transcripts in Greek, the mediation of the researcher was minimised as well as the danger of bias. Considering also that the present researcher had the exclusive responsibility for data collection and analysis, an in-advance translation of the entire dataset would be unreasonable. Translation would be necessary for communicative reasons if a group of researchers from different language backgrounds cooperated for the purposes of a research study.

### **9.2.3 Coding Phase**

The transcription of audio-recorded interviews and focus groups provides a large amount of data that cannot be managed and analysed without being reduced into smaller categories. Coding constitutes the fundamental process of data reduction (Jones and Gratton, 2004) and is considered the bedrock of qualitative data analysis (Hall, 2008). The process of classifying qualitative data through coding is a significant part of the analysis that leads the investigator towards conceptualisation (Miles and Huberman, 1994). According to Miles and Huberman (1994, p.56), “Codes are tags or labels for assigning units of meaning to the descriptive or inferential information compiled during a study. Codes usually are attached to ‘chunks’ of varying size – words, phrases, sentences or whole paragraphs” and can be categorised in descriptive, interpretive and pattern codes.

For the purposes of this study, the transcripts were coded using a combination of approaches: the theory-driven deductive and the data-driven inductive approach (Boyatzis, 1998). In this case, the researcher “starts off with a preliminary set of codes and then revises these in the light of experience with coding data from the study” (Hall, 2008, p.259). A codebook, which contained predefined codes based either on the interview/focus group protocol or the possible answers found in the literature, was created a priori. This primary list guided the coding process and expanded with additional codes that emerged from the data. A preset code, for example, that was defined based on the protocol was the “appropriate educational setting”. The “mainstream setting” and the “special setting” were two preset sub-codes that were

based on answers found in the literature. However, it was not feasible to know the exact answers of respondents that would enable the in advance development of final codes and sub-codes. These emerged after working with the data. The initial list of codes was then subdivided, expanded and re-labelled as necessary, creating a long coding manual. At the same time, a separate codebook was developed to accommodate data that did not fit to any of the predetermined codes.

### **9.2.3.1 Coding using Microsoft Word**

At this stage, the coding was done manually taking advantage of the Microsoft Word function that enables to write comments on the right margin of the text. It was of interest to code and further analyse not only ideas given explicitly (semantic level), but also those expressed indirectly (latent/interpretative level). Face-sheet codes that applied to the entire transcript, such as gender and years of teaching experience, were also used. Each code that expanded preset codes was listed in the codebook “Predetermined Codes”. New ideas that emerged from the data were coded and added in a second codebook, called “New Codes”. The number of the transcript, in which a code was identified, was noted next to the code in the corresponding codebook. This enabled the answers of participants to be quantified (e.g. the number of respondents that favoured mainstream or special educational settings for children with ADHD).

By the end of the coding procedure, long lists of tree codes were formed based on the responses of participants (predetermined and new). “Recommendations for future INSET” was, for example, a preset code that was divided a priori into four components: time, place, type, focus. When the process of coding started, these four codes expanded and long lists of sub-codes were developed. To avoid repetitions and enhance systematisation, the researcher was carefully examining whether an idea had already been reported, coded and added to one of the two codebooks. In yes, the number of the new transcript was noted in brackets next to the code. In an opposite case, the new code was added to the corresponding list of codes. Ideas related to preset codes were coded in black colour while those related to totally new themes emerged from the data in red colour (e.g. medication, companions). The same procedure was followed across the entire dataset and all the transcripts were coded twice using the abovementioned methodology.

The semi-structured form of interviews and focus groups allowed participants to re-introduce topics and link ideas with others reported earlier. Each code could therefore be detected more than once at different points of each transcript. This hindered the procedure of collating each code with the relevant data extracts and increased the risk to miss by mistake important information during the analysis. This difficulty and the need to easily make backups to prevent accidental loss informed the decision to use NVivo 10; computer-based software that facilitates the management, analysis and diagrammatic representation of qualitative data.

### **9.2.3.2 Coding using NVivo 10**

After becoming familiar with the coding tools, the transcripts were imported into NVivo 10. The process of coding in NVivo 10 was an opportunity to double check the coding system developed in Microsoft Word and refine, merge or delete codes as necessary. In contrast to manual coding approaches, NVivo 10 made the coding procedure quicker and easier by providing a number of coding tools (e.g. dragging and dropping and the quick coding bar). The time needed to code the first transcripts was significantly more since the tree nodes in both folders (“Predetermined Codes” and “New Codes”) were under development. Therefore, time was needed to list every new node in the node-book (Code Selection at New Node). As the procedure was progressing and the tree nodes had almost been developed, the coding became significantly less-time-consuming; the researcher had to just select the corresponding node from the node-book (Code Selection at Existing Nodes).

Once the first electronic coding was completed and the tree nodes were developed, the transcripts were read for a second time, paying particular attention to latent ideas that might not have been noticed before. During this second reading, brief memos and rough diagrams were created to record possible links between nodes. Both memos and diagrams were written on paper and were used for composing a model in NVivo 10. Overall, the programme facilitated the process of relabeling, splitting, merging and rearranging nodes into hierarchies as necessary. The feature of NVivo 10 that saved valuable time and supported the analysis and presentation of findings was the collection of all the extracts related to each node in the same document. Consequently, the

likelihood of missing data about an idea was minimised. The quantification of participants' answers was another advantage of the programme. The number of people referred to each node (sources) as well as the number of times each node was mentioned (references) were automatically counted and reported. Without doubt, NVivo 10 contributed to the management of data, the coding of transcripts, the analysis and presentation of findings (immediate access to verbatim quotes). However, the role of the researcher in the process of analysis remained critical. As Lacey and Luff (2007, p.35) explain, computer-based software like NVivo "cannot 'do' the analysis, because it lacks the capacity to think, reflect and analyse."

#### **9.2.4 Searching for themes**

The two coding phases (Microsoft Word and NVivo 10) resulted in long lists of hierarchical codes, both predetermined and new. Coding was an ongoing process of considering the relationships between codes and sorting them into potential themes. When coding was completed, the analysis focused exclusively on the relationship between codes and the way these could be combined to create over-arching themes and sub-themes. As Braun and Clarke (2006, pp.89-90) explain, at this stage the researcher starts "thinking about the relationship between codes, between themes, and between different levels of themes (eg, main overarching themes and sub-themes within them). Some initial codes may go on to form main themes, whereas others may form sub-themes, and others still may be discarded." A number of thematic maps and diagrams were drawn at that time to visualise such relationship. Forming themes and sub-themes was a time-consuming procedure. Codes were sorted, reviewed and re-sorted into potential themes and sub-themes many times before concluding the final ones.

#### **9.2.5 Three levels of analysis - Writing the results**

Interview and focus group data were analysed and presented theme by theme. Along with the collective views of participants (first level of analysis – the number of participants who agreed or disagreed with a viewpoint), the emphasis they gave to their responses was considered. It was of interest to explore whether participants were strongly for or against a view and whether this was repeatedly reported in an interview/focus group. The linguistic choices that supported interviewees' stance were

another source of interest. In a third level, details, specific examples and quotations were provided to support the validity of analysis. The extracts included in the thesis were chosen after careful consideration of their representativeness and appropriateness to indicate the typical and divergent views related to a theme. The presentation of results did not include quotations out of context. The purpose was to illustrate interviewees' thinking and give readers the opportunity to decide what participants were trying to convey.

The analysis was not confined to the presentation of themes accompanied with verbatim quotations. A deeper analysis of the data was conducted by applying a number of strategies proposed by Bazeley (2009). After reporting the different views expressed in response to a theme and the number of people supported each one, it was of interest to identify relationships and consider whether and how different themes were connected. It was examined, for example, whether two or more themes occurred at the same time, whether a theme influenced somehow others and whether there was sufficient evidence to justify an interpretation. The analysis also aimed to challenge generalisations in findings by identifying negative cases and divergent views. This was based on the logic that the non-typical thinking of a participant might be the basis for understanding why the rest of the respondents had a particular stance towards an issue. At this stage, a more interpretative analysis that considered the reasons why particular views were expressed (unconcealed or indirect) was carried out. The data related to each theme were carefully examined to ensure that the researcher's understanding coincided with that of participants. The interpretations contrasted with evidence in an attempt to find either further data to corroborate a particular argument or contrary data that could lead to alternative interpretations.

### **9.3 Overview - Conclusion**

This chapter provided an overview of the procedures followed to manage and analyse quantitative and qualitative data. The structured questions with predetermined response categories (questionnaire) made the management and coding of data straightforward. That was not the case for the large amount of unstructured data collected through semi-structured interviews and focus groups. The analysis of qualitative data was time-consuming and consisted of two main phases that were detailed earlier in the chapter. In

both cases, the analysis was facilitated with the use of computer-based software; SPSS 20 for quantitative and NVivo 10 for qualitative analysis. The skilful handling of these software packages required extensive personal study and participation in multiple training opportunities provided by the University of Leeds.

## **Chapter 10 – INSET in the educational context of Cyprus: Stakeholders' perspective**

The INSET opportunities and support available to Cypriot elementary school teachers was one of the three areas under consideration in the present study. Cypriot scholars describe a weak governmental INSET system that cannot satisfy educators' INSET needs and facilitate the inclusion of children with special needs in mainstream schooling (Symeonidou and Phtiaka, 2012; 2009; Koutrouba et al., 2006; Nikolaidou et al., 2006). Liasidou (2007, p.341) highlights that feelings of incompetence are common since “no substantial support and in-service training are provided to teachers and other professionals appointed in mainstream schools in order to understand and, thereby, to implement inclusion”. Specific information about the availability, the form, the content and the effectiveness of relevant INSET opportunities, governmental or private, was not available. Therefore, the conduct of interviews with specialists (clinical psychologists) and representatives of organisations that design and deliver INSET on ADHD (e.g. the MoEC, the CPI and the ADD-ADHD CYPRUS) was considered necessary. The purpose of these interviews was twofold. The primary purpose was to set the scene regarding teacher INSET on ADHD and fill the gap in the literature. The second purpose was to identify possible discrepancies between the views of stakeholders and teachers who extensively discussed and evaluated INSET in the first two phases of the research. Stakeholders' discussions about the strengths and weaknesses of current INSET opportunities and their recommendations for further improvement enhanced the practical implications of the study.

### **10.1 Current INSET – Recommendations for future INSET**

#### **10.1.1 INSET offered by the ADD-ADHD CYPRUS**

According to the interviewees, the Cyprus Organisation of ADHD (ADD-ADHD CYPRUS) was primarily created as a self-support group that gave parents the opportunity to discuss the challenges they experienced at home and school, to emotionally support each other and share knowledge and effective intervention practices. Since the governmental provision was limited, parents felt that mainstream

school teachers' support was their responsibility. The fact that neither paediatricians nor teachers were aware of the disorder prompted council members to extend the mission of the organisation so as to provide information, advocacy and guidance not only to children with ADHD and their families but also to educators and other professionals. The interviewees made an overview of the services set and the attempts of the organisation to support mainstream school teachers. The hotline, for example, is an immediate source of information that educators across Cyprus can use to resolve queries and discuss with specialists the behaviours, the needs of their students, the difficulties they face in the classroom and the appropriate intervention methods. Seminars and workshops available to parents and teachers are also delivered by specialists who cooperate with the organisation. These primarily focus on the acquisition of knowledge and skills to manage ADHD-related behaviours and teach this group of children. Beyond the information provided by specialists, teachers have the opportunity to discuss with parents and share effective and ineffective interventions based on their previous experiences. The interviewees also referred to the annual conferences (open to parents, teachers and doctors) where professionals from all over the world are invited to speak about the disorder, the implications in children's lives and the role of parents and teachers in supporting them academically and socially.

When interviewees were asked whether the current INSET opportunities are sufficient for making teachers competent, confident and positive in teaching students with ADHD, both answered negatively. As Interviewee 2 explained, the INSET offered by the organisation and other providers "is not enough and will never be enough if there is no follow up". As Interviewee 1 elaborated, "ADHD is not a condition that can be learnt in some hours and even for parents, who live with it, it is still difficult to understand and manage their child's behaviours". Beyond the provision of built-up INSET opportunities, the interviewees highlighted that the accommodation of children with ADHD in mainstream classrooms requires a total revision of the educational system. Based on their communication with mainstream school teachers, they realised that the restrictions set by the traditional educational system in combination with the lack of knowledge resulted in reluctance to undertake the education of students with ADHD. As Interviewee 1 supported,

Teachers want to control everything so as to follow the curriculum faithfully and avoid problems with the Ministry. For this reason, they prefer not to have children with disruptive behaviours in the classroom. Most of them do not know how to manage ADHD and they feel reluctant to apply interventions and make changes in the lesson for their students with ADHD.

Interviewees supported that even the teachers, who receive information about ADHD through the organisation, find it difficult to apply interventions without supervision and support by specialists. As they explained, this will not change if out-of-the school INSET attempts are not complemented with classroom-based practical work and tutoring by specialists. Both interviewees argued that an effective INSET system requires governmental funding and cooperation between all the providers; the MoEC, the CPI and the ADD-ADHD CYPRUS. Interviewee 2 concluded, saying that INSET has to be extensive and gradual since “magic solutions and predefined strategic plans” cannot be given through a seminar, a workshop or a conference.

### **10.1.2 INSET offered by the CPI**

The CPI is the only governmental organisation responsible for providing systematic INSET to educators at pre-elementary, elementary and secondary school levels. With regard to ADHD, the CPI provides every year a 12-hour optional seminar that is completed in five weeks. This seminar has been established and delivered since 2003 to inform educators about the disorder and address possible misconceptions. Based on the records kept by the CPI, the interviewee reported the most common areas that educators have either knowledge gaps or misconceptions. The nature of the disorder, the diagnostic criteria and the assessment procedure are areas that, according to the representative of the CPI, teachers need more information about. The interviewee stated that Cypriot teachers often hold misconceptions about the causation of ADHD (e.g. dietary and family factors); they think that only boys can be diagnosed and they have a tendency to overestimate the prevalence of school-aged children with the disorder (25.0% to 30.0%).

The interviewee explained that the purpose of the seminars is twofold. On the one hand, they aim to inform participants about the nature and the origins of ADHD, the behavioural characteristics of each type, the diagnostic criteria and the assessment

procedure. On the other hand, they focus on the management of ADHD-related behaviours; “the main reason why educators decide to register for these seminars”. The representative of the CPI perceived the seminars as a great opportunity for teachers to become familiar with the disorder and the empirically validated interventions. However, a number of weaknesses and constraints that need to be addressed were reported. The provision of optional INSET after school hours and the limited number of places (approximately twenty-five per year) were two of them. As indicated in the following transcript, the interviewee disapproved of the current policy and recommended the introduction of compulsory INSET that will be part of teachers’ professional responsibilities:

INSET should be mandatory as abroad. Since children with ADHD are educated in the mainstream classroom, all teachers should attend a seminar like this. I know that in the USA, every five years they leave the school to attend INSET on several educational issues and update their knowledge and skills. But there it’s mandatory and they get paid. In Cyprus, you may be a teacher for thirty years and never attend relevant INSET. But this is not teachers’ fault.

Although necessary, the interviewee acknowledged that seminars are not sufficient for teachers who undertake the education of children with ADHD. As explained, “Teachers need the knowledge and they should attend the seminars but the external support is not enough. They need school-based support.” The interviewee concluded, saying that the empowerment of the INSET system and the presence of special teachers in mainstream schools are issues that need to be addressed so as educators to successfully put theory into practice and implement inclusive policies.

### **10.1.3 INSET offered by a clinical psychologist**

#### **10.1.3.1 Privately**

The interviewee described a payable INSET programme available to elementary school educators who have children with ADHD in the classroom and need guidance to manage their behaviour and support them academically and socially. This programme is a combination of theory and practice. As the interviewee explained, the participants are invited to prepare a comprehensive vignette of their student, outlining the observed

behaviours, possible difficulties in the academic and social functioning, talents, interests and effective/ineffective interventions that have been applied so far. They are also invited to note down their queries, the difficulties they encounter in the classroom and the areas they would like to discuss and receive more information about. In this way, the trainer has the opportunity to work on these students and build the whole programme based on the real needs of participants. As the interviewee stated,

When you attend an INSET programme, you should receive feedback on your reality. If you just listen to theoretical things, away from your reality and the situations you experience, then you will learn some basics but you will not benefit at the maximum. And of course, you will find it difficult to apply what you learnt in your reality.

In this vein, the first meeting focuses on the acquisition of a basic theoretical background whereas the rest of the meetings have a more practical form, dealing with the management and instruction of participants' students.

#### **10.1.3.2 In cooperation with the MoEC**

The interviewee had been invited by the MoEC to visit schools with children having an ADHD diagnosis and support their teachers. Since the number of schools that appealed for support was high, the MoEC requested the submission of an INSET plan that would benefit these school units. The interviewee highlighted that INSET should be compulsory but differentiated in cases when educators have students with ADHD in the classroom. According to the recommended plan,

INSET should not be limited to single seminars; it should be a built-up process that provides a good balance of theory and practice. At a first level, familiarisation with the disorder and the available interventions can be achieved through general seminars at the beginning of each school year.

In turn, the schools with diagnosed children should be detected and receive more specific and systematic support. As the interviewee reported, specialists should cooperate with teachers and help them set, implement and evaluate intervention plans. The clinical psychologist approved of school-based INSET in working hours for two

reasons. First, family and other responsibilities render the attendance of INSET opportunities during free time inconvenient. School-based INSET was also considered beneficial due to the different dynamic of each school unit and the varied needs of students with ADHD. According to the interviewee, “School units are like families that experience difficulties in a sector of their life. Although a general seminar might be useful, each family needs to be supported individually to solve its problems.”

The cooperation between school and home and the adoption of a common intervention approach was also considered necessary. According to the interviewee, the interventions should be co-decided by specialists, teachers and parents and be well-understood and easily applied. The clinical psychologist explained that the rest of the teachers would benefit if the experiences, the procedures followed, the effective interventions and the rationale behind these interventions were shared during staff meetings.

#### **10.1.4 INSET offered by the MoEC**

The representatives of the MoEC explained that when a child is diagnosed with ADHD, a joining official is appointed. The joining official has the responsibility to observe the overall progress, to coordinate the school and support mainstream school teachers. Children’s needs are re-evaluated once or twice per year depending on the severity. When interviewees were asked about teacher INSET, they both acknowledged that the current system cannot satisfy the needs of mainstream school educators. They highlighted, however, that attempts have been made and will be made towards this target. The available INSET opportunities and the future plans of the MoEC were then reported. Beyond joining officials, who have an immediate communication with mainstream schools, counsellors and inspectors arrange every year informative events primarily addressed to special teachers. As the interviewees elaborated, an attempt was made to inform mainstream school teachers about ADHD, learning difficulties and autism the year before. These seminars were attended by one representative teacher from each school with the commitment to inform the rest of the colleagues during staff meetings and share the supportive material provided. General seminars with specialists from all over the world are also organised to inform mainstream school teachers about inclusive education, whereas the British Council and other European organisations offer a number of scholarships for INSET on these topics.

The interviewees argued that in comparison with other categories of children with special needs, the INSET opportunities relating to ADHD and learning difficulties are greater. However, they acknowledged that “there is always room for further improvement” (Interviewee 2) and that the MoEC has the intention to prepare all mainstream school teachers for the educational reform. As they explained, the majority of teachers are willing to learn and contribute to the success of inclusive education. Interviewee 1 reported:

We arrange a lot of things and we hope we’ll be able to upgrade the educational system, to increase teachers’ knowledge and change negative attitudes, which is the most difficult part; because people’s attitudes are well-rooted and difficult to alter. An attitude has to do with the nurture, the social values and conditions. Teachers’ knowledge is not the only precondition but it is a fundamental step towards an inclusive school. The lack of knowledge enhances the feelings of incompetence, the fear to teach children with special needs. Through INSET, we intend to modify these attitudes but we know it will be a long process.

As indicated in the above transcript, particular emphasis is placed on the modification of negative attitudes towards educational reform; a target that will be reached by enhancing educators’ knowledge and sense of self-efficacy. The interviewees also talked about the role of special teachers in mainstream schools. As they explained, special teachers are employed on a full-time basis only in schools with special units. In an opposite case, their working time is divided into many schools, according to the needs of each one. The responsibilities of special teachers are twofold. On the one hand, they provide individual supportive teaching to students with ADHD (educational role) and on the other hand guidance to mainstream school educators (consultative role).

Based on the assessment of previous INSET programmes relating to several educational issues, Interviewee 1 stated that educators benefit more when attending workshops delivered in small groups of participants. The representatives of the MoEC proposed the conduct of general seminars and conferences on ADHD, followed by workshops. These can be arranged by counsellors, special teachers or psychologists within each school. With regard to the current INSET attempts, Interviewee 1 reported that:

A pilot programme that aims the modification of educational psychologists' role towards this direction is tried out. This procedure will be evaluated and, if effective, will be applied in elementary schools across Cyprus.

As Interviewee 2 explained, the long-term aim of the MoEC is the provision of compulsory INSET during working hours. This will include informative events, workshops, support and guidance by educational psychologists, counsellors, inspectors and special teachers. The interviewees concluded, saying that the reform of teacher INSET will be a time-consuming procedure that will require personnel and collective endeavours by all the involved parties.

## **10.2 Overview – Conclusion**

This chapter provided an overview of the INSET opportunities available to Cypriot elementary school teachers, as these had been described by specialists and representatives of the MoEC, the CPI and the ADD-ADHD CYPRUS. At the moment, INSET on ADHD is not compulsory. The available opportunities are delivered by external providers in non-working time and they are usually limited to single informative events, such as seminars and conferences. The number of educators that can benefit from these is limited. The five-session seminars of the CPI, for example, can be attended by 25 educators from a pre-elementary to a high school level. Similarly, the seminars provided by the MoEC were available to one representative educator from each school. The interviewees acknowledged the weaknesses of the current INSET system and made suggestions for further improvement. They all recommended the introduction of compulsory, systematic and built-up INSET opportunities (combination of theory and practice) that will be part of educators' professional responsibilities. In cases when teachers undertake the education of children with ADHD, cooperation with specialists and support in setting, implementing and evaluating intervention plans were considered necessary. One of the interviewees suggested using the experiences and knowledge of educators with ADHD students in the classroom to inform the rest of the teachers about the disorder.

## Chapter 11 – Questionnaire Results

The following chapter provides an overview of the results generated in the first phase of the research. Descriptive statistics are used to summarise the data (e.g. measures of central tendency, frequency distributions, minimum and maximum scores) and inferential statistics to investigate relationships between variables and make comparisons between groups of respondents (e.g. t-tests, one-way ANOVA, repeated measures ANOVA, correlation analysis, chi-square tests). Statistical hypothesis testing is detailed in separate sections. More specifically, the first part summarises demographic information while the second one considers teachers' prior experiences with ADHD. The third part details the answers provided in the knowledge scale (Descriptive statistics). The calculation of knowledge scores, the results of normality and reliability checks as well as inferential statistics related to educators' knowledge are detailed in the following part. The fifth part focuses on teachers' sense of self-efficacy to teach students with an ADHD diagnosis. This is followed by descriptive statistics of participants' attitudes towards the instruction of students with ADHD. Inferential statistics are considered in the seventh part. The last two parts of the chapter focus on educators' prior INSET experiences, their expectations and recommendations for future INSET. Responses to open-ended questions relating to prior and future INSET are quantified, summarised and presented along with illustrative quotes.

### 11.1 Demographic information

A total of 242 questionnaires were distributed to Cypriot elementary school teachers, employed in twenty public schools across Cyprus (four districts). One-hundred ninety-one questionnaires (191) were completed and returned to the investigator, yielding an overall response rate of 78.9%. The sample consisted of 34 male teachers (17.9%) and 156 female teachers (82.1%). One teacher did not specify gender (0.5%). The age of participants ranged from 26 to 57 years, with an average of 34.9 years (SD 6.4 years). Participants' years of teaching experience ranged from 1 to 34 with an average of 12.4 years (SD 7.0 years). Teachers with a master's degree comprised the largest percentage of respondents (54.7% or 104 respondents). 40.5% of the sample (77 teachers) reported a bachelor degree whereas a small percentage possessed a PhD (4.7% or 9 teachers).

Of the total teacher sample, 97.9% (187 participants) responded positively to the question “Have you ever heard about ADHD?” and completed the next parts of the questionnaire. 4 participants (2.1%) answered negatively and returned the questionnaire without completing the remaining parts.

## **11.2 Prior experiences with ADHD**

48.1% of participants (89 teachers) reported that they had personal experience with ADHD while the rest 51.9% (96 teachers) responded that they had no family members or/and friends diagnosed with this disorder. The majority of teachers (65.9%, 120 teachers) noted that they had taught at least one student with ADHD during their teaching career. The number of students taught with an ADHD diagnosis ranged from 1 to 30, with the average being 4 (SD 5.1). 76.5% of teachers stated that they had taught at least one student, whom they thought met the criteria for ADHD but did not have an official diagnosis. The number of students that teachers believed should have a diagnosis of ADHD also ranged from 1 to 30, with the average being 6 (SD 5.7).

## **11.3 Knowledge of ADHD: Descriptive statistics**

PART 3 consisted of 35 items that assessed Cypriot elementary school teachers' knowledge with regard to a) the symptoms/diagnosis of ADHD, b) the treatment, and c) general information about the nature of the disorder, the causes and the outcomes. The participants were invited to read each item and circle one of the three response options; T (True), F (False) or DK (Don't Know). The frequency of each response (totals and percentages) can be found in Table 3.

**Table 3 - Distribution of respondents by their answers in PART 3 - Knowledge of ADHD**

Statements	True (T)		False (F)		Don't Know (DK)	
	N	%	N	%	N	%
3.1 ADHD is not a valid disorder; it is a label used to justify naughty and lazy children.	1	0.5	175	<b>94.6</b>	9	4.9
3.2 ADHD can be diagnosed medically by doctors, using specific medical tests.	65	<b>35.5</b>	53	29.0	65	<b>35.5</b>
3.3 Scientific evidence indicates that approximately 15.0% of school age children are diagnosed with ADHD.	45	24.2	5	2.7	136	<b>73.1</b>
3.4 Chaotic and dysfunctional family environments (e.g. frequent family conflicts, abuse) can cause ADHD.	66	35.3	54	28.9	67	<b>35.8</b>
3.5 There is no known cure for ADHD.	32	17.5	69	37.7	82	<b>44.8</b>
3.6 Research evidence suggests that only males can be diagnosed with ADHD.	14	7.5	102	<b>54.5</b>	71	38.0
3.7 There are different subtypes of ADHD.	135	<b>73.4</b>	1	0.5	48	26.1
3.8 Children with ADHD tend to have low self-esteem and poor motivation.	133	<b>71.1</b>	21	11.2	33	17.6
3.9 Children that present ADHD-related behaviours for 3 months can be validly diagnosed with ADHD.	23	12.4	19	10.2	144	<b>77.4</b>
3.10 Children with ADHD outgrow the disorder approximately at the age of 15.	20	10.9	47	25.7	116	<b>63.4</b>

Statements	True (T)		False (F)		Don't Know (DK)	
	N	%	N	%	N	%
3.11 Many times, children with ADHD are overly talkative.	116	<b>62.0</b>	23	12.3	48	25.7
3.12 Children that present only symptoms of inattention can be diagnosed as ADHD.	58	31.0	58	31.0	71	<b>38.0</b>
3.13 The administration of medication can cure ADHD.	54	29.0	62	33.3	70	<b>37.6</b>
3.14 Poor parenting practices (e.g. parental disinterest, absence of consistency, permanent rules and routines) can hinder the management of ADHD-related behaviours.	159	<b>85.5</b>	9	4.8	18	9.7
3.15 Children with ADHD tend to be popular in the classroom due to their outgoing character.	57	30.5	94	<b>50.3</b>	36	19.3
3.16 Stimulant drugs are the most common type of medication used to manage ADHD behaviours.	21	11.2	38	20.3	128	<b>68.4</b>
3.17 Current research suggests that too much sugar, food additives, colourings and preservatives often cause ADHD.	65	34.8	30	16.0	92	<b>49.2</b>
3.18 Many times, children with ADHD do not think before acting and they are described as having intense impatience.	170	<b>90.9</b>	3	1.6	14	7.5
3.19 If medication is prescribed, educational interventions are often unnecessary.	16	8.7	124	<b>67.4</b>	44	23.9
3.20 Genetic factors, structural differences and chemical imbalances in the brain can lead to the manifestation of ADHD.	123	<b>66.5</b>	2	1.1	60	32.4
3.21 A diagnosis of ADHD is always associated with educational underachievement.	43	23.6	106	<b>58.2</b>	33	18.1

Statements	True (T)		False (F)		Don't Know (DK)	
	N	%	N	%	N	%
<b>3.22</b> Children with ADHD behave better in classroom environments that are well-organised, with definite rules, permanent routines, predictable and consistent learning procedures.	151	<b>81.6</b>	15	8.1	19	10.3
<b>3.23</b> The use of antidepressant drugs has shown to be an effective pharmacological intervention for children with ADHD.	7	3.7	34	18.2	146	<b>78.1</b>
<b>3.24</b> Dietary modifications are usually not effective to manage ADHD-related behaviours.	36	19.4	31	16.7	119	<b>64.0</b>
<b>3.25</b> Children with ADHD who are on medication may experience appetite loss, insomnia, mood disturbances and headaches.	54	29.0	10	5.4	122	<b>65.6</b>
<b>3.26</b> Research evidence has shown that electroconvulsive therapy is an effective intervention for severe cases of ADHD.	5	2.7	20	10.7	162	<b>86.6</b>
<b>3.27</b> Children with ADHD usually come from single-parent families.	1	0.5	128	<b>68.4</b>	58	31.0
<b>3.28</b> A child that is extremely hyperactive and inattentive at home but not in another setting can be diagnosed with ADHD.	21	11.5	84	<b>45.9</b>	78	42.6
<b>3.29</b> Pharmacological interventions have negative effects on children's cognitive development.	23	12.4	46	24.7	117	<b>62.9</b>
<b>3.30</b> The difficulty recognising danger makes children with ADHD prone to accidents and injuries.	143	<b>76.9</b>	14	7.5	29	15.6
<b>3.31</b> More intelligent children are more able to control themselves and manage ADHD-related behaviours.	47	25.3	49	26.3	90	<b>48.4</b>

Statements	True (T)		False (F)		Don't Know (DK)	
	N	%	N	%	N	%
3.32 When a child can concentrate, playing videogames or watching T.V., then it is impossible to be diagnosed as ADHD.	12	6.4	96	<b>51.3</b>	79	42.2
3.33 ADHD can be inherited (e.g. it may be more common among first degree biological relatives).	55	29.6	23	12.4	108	<b>58.1</b>
3.34 Children with ADHD tend to develop Oppositional Defiant Disorder (ODD)/ Conduct Disorder, depression and anxiety, 10, 5.5 and 3 times respectively more than children without ADHD.	41	21.9	7	3.7	139	<b>74.3</b>
3.35 Instructional, behavioural and physical accommodations cannot reduce ADHD-related behaviours.	27	14.5	106	<b>57.0</b>	53	28.5

*Bold percentages = highest frequency*

### 11.3.1 Knowledge regarding the nature of ADHD

As indicated in Table 3, the vast majority of teachers (94.6% F) supported that ADHD is a valid disorder and not a label used to justify naughty and lazy children (3.1). 73.1% (DK) of the sample did not know about the prevalence of ADHD among school age children while 24.2% (T) thought that the prevalence was approximately 15.0% (3.3). 54.5% (F) disagreed with the statement that only males can be diagnosed with ADHD (3.6). 7.5% (T) considered ADHD as a disorder that affects only boys whereas 71 teachers (38.0% DK) did not know whether this was true or false. The majority of respondents (63.4% DK) did not know whether ADHD is outgrown by adolescence (3.10). Similarly, half of them (48.4%) did not know whether more intelligent children are more able to control themselves and manage ADHD-related behaviours (3.31). Only 41 out of 187 teachers (21.9% T) agreed with the high risk of comorbidity with other disorders (3.34). The majority of them responded “Don’t Know” (74.3% DK).

### 11.3.2 Knowledge regarding the causation of ADHD

35.3% (T) thought that chaotic and dysfunctional family environments can cause ADHD (3.4), but only 1 teacher (0.5% T) agreed that children with ADHD usually come from single-parent families (3.27). According to 68.4% (F), ADHD cannot be attributed to single parenting. While one third of the sample (35.3% T) attributed the disorder to family factors (3.4), 85.5% (T) supported that poor parenting practices can hinder the management of ADHD-related behaviours (3.14). 49.2% (DK) did not know whether too much sugar, food additives, colourings and preservatives can cause ADHD (3.17). The percentage of teachers that attributed the disorder to dietary factors was 34.8% (T). Only 2 educators (1.1% F) did not believe that genetic factors, structural differences and chemical imbalances in the brain can lead to ADHD (3.20). 66.5% (T) agreed that the disorder is genetically/biologically caused while the rest 32.4% (DK) did not know about the association between ADHD and genetic/biological components. 58.1% (DK) did not know whether ADHD can be inherited (3.33). The percentage of respondents that attributed ADHD to heritability was 29.6% (T).

### 11.3.3 Knowledge regarding secondary effects - outcomes

71.1% (T) of educators reported that children with ADHD tend to have low self-esteem and poor motivation (3.8). 11.2% (F) disagreed while 17.6% (DK) selected the response option “Don’t Know”. Half of the sample (50.3% F) did not believe that children with ADHD tend to be popular in the classroom due to their outgoing character (3.15). The percentage that agreed with the high popularity of these children among their classmates was 30.5% (T). 58.2% (F) of participants responded that an ADHD diagnosis is not necessarily related to poor academic performance (3.21) and 76.9% (T) that the difficulty recognising danger makes children with ADHD prone to accidents and injuries (3.30).

### 11.3.4 Knowledge regarding symptoms/diagnosis

35.5% (T) of the sample supported that the disorder can be diagnosed medically by doctors (3.2). The same percentage responded “Don’t Know” while 29.0% (F) stated that an ADHD diagnosis cannot be confirmed using specific medical tests. 144 participants (77.4% DK) did not know about the period of time a child should present ADHD-related behaviours in order to be diagnosed and 12.4% (T) thought that three months is an adequate timeframe (3.9). While 73.4% (T) agreed with the existence of different ADHD subtypes (3.7), only 31.0% (T) responded that children with primarily inattentive behaviours can be diagnosed as ADHD (3.12).

When participants were asked whether a child that is extremely hyperactive and inattentive at home, but not in another setting, can be diagnosed as ADHD, 45.9% (F) noted that this was not true. 42.6% (DK) selected the response option “Don’t Know” while 11.5% (T) thought that the presence of ADHD-related behaviours in one setting can lead to an ADHD diagnosis (3.28). Similar results were obtained in the item 3.32. 51.3% (F) of the sample did not believe that a child, who can concentrate for playing videogames or watching T.V., cannot be diagnosed as ADHD. 12 teachers (6.4% T) assessed this item as “True” whereas the rest 42.2% responded “Don’t Know”. In reference to primary ADHD behaviours, the majority (90.9% T) agreed that children with ADHD often do not think before acting and they are described as having intense impatience (3.18). As indicated in Table 3, 62.0% (T) stated that children with ADHD

can be overly talkative (3.11). The percentage of teachers that did not validate excessive talkativeness as a behavioural feature of the disorder was 12.3% (F).

### **11.3.5 Knowledge regarding pharmacological/non-pharmacological interventions**

Of the total teacher sample, only 17.5% (T) agreed that there is no known cure for ADHD (3.5). 37.7% assessed the item 3.5 as “False” and 44.8% (DK) selected the response option “Don’t know”. 29.0% (T) thought that the administration of medication can be a cure for the disorder (3.13). 33.3% (F) disapproved of this statement while 37.6% (DK) did not know whether this was true or false. 68.4% (DK) did not know whether stimulant drugs are the most common type of medication used to manage ADHD-related behaviours (3.16). The percentage of teachers that considered stimulants as the first-line pharmacological option for ADHD was 11.2% (T). In the opinion of 67.4% (F), the item “If medication is prescribed, educational interventions are often unnecessary” was not true (3.19). Less than 10.0% (8.7% T) agreed with this viewpoint.

The percentage of participants that did not know about the use of antidepressants for the management of ADHD-related behaviours was 78.1% (DK) (3.23). Only 7 teachers agreed that the administration of antidepressant drugs has shown to be an effective pharmacological intervention for children with ADHD (3.7% T). With regard to the side-effects of medication, the majority of teachers, 65.6% (DK) and 62.9% (DK) respectively, did not know whether medicated children may experience appetite loss, insomnia, mood disturbances and headaches (3.25) and whether pharmacological interventions have negative effects on children’s cognitive development (3.29).

Regarding non-pharmacological interventions, 81.6% (T) agreed that children with ADHD behave better in classroom environments that are well-organised, with definite rules, permanent routines, predictable and consistent learning procedures (3.22). 64.0% (DK) did not know about the role of diet in the management of ADHD-related behaviours (3.24) and 86.6% (DK) whether electroconvulsive therapy is an effective intervention for severe cases of ADHD (3.26). 14.5% (T) of participants believed that instructional, behavioural and physical accommodations cannot reduce ADHD-related behaviours (3.35). 57.0% (F) disagreed with this viewpoint while 28.5% (DK) did not

know whether these kinds of interventions can have positive effects on the management of ADHD.

## **11.4 Knowledge scores calculation and inferential statistics**

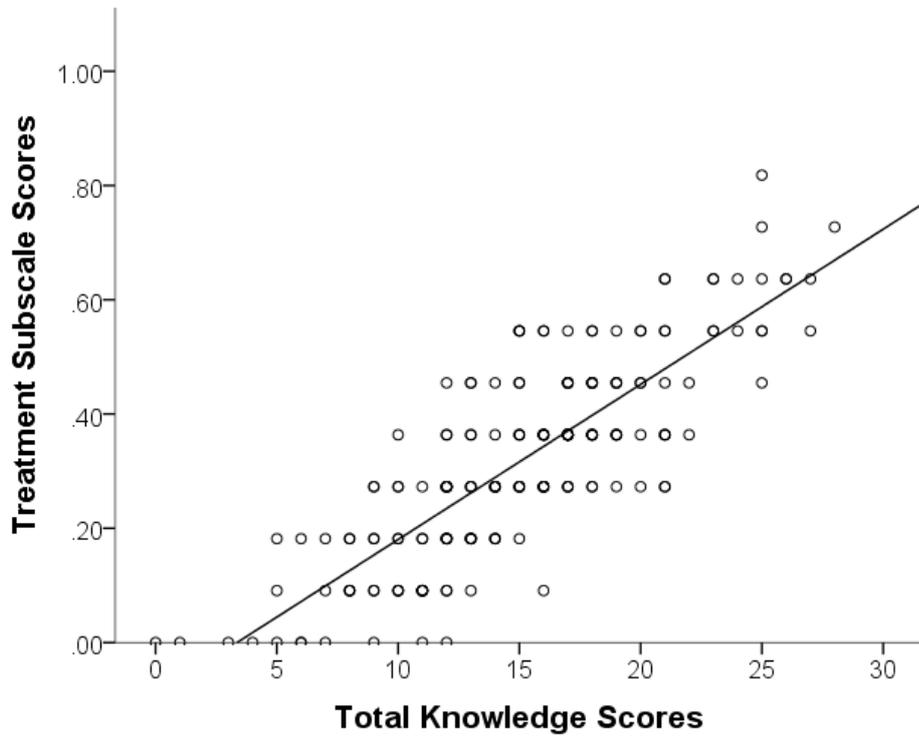
### **11.4.1 Knowledge scores calculation**

The knowledge scores were estimated by summing the total number of correct responses (points). To estimate the total of correct responses, it was necessary to recode the variables so as to be countable. The transformations and the calculation of points were implemented in SPSS 20. The correct answer of each item was scored as one point whereas the other possible answers (incorrect, don't know and missing answers) were scored as zero points. Descriptive statistics indicated that the total knowledge scores ranged from 0 to 28 (0.0% to 80.0%) out of a possible 35 (100.0%).

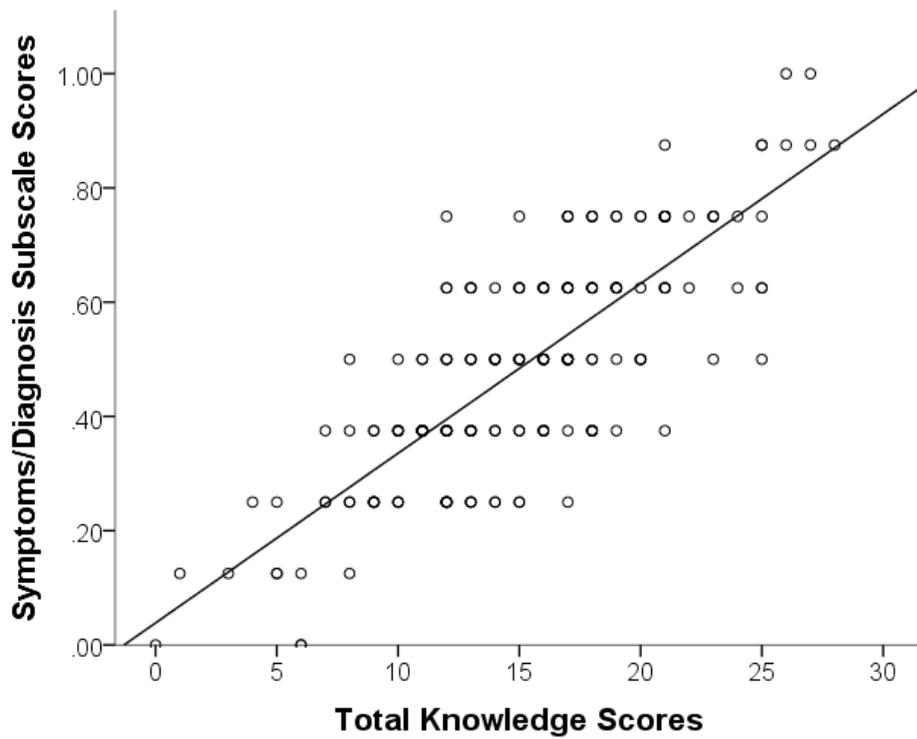
The "Don't Know" responses had the highest frequency in 18 out of 35 items. On average, participants correctly answered 15.2 knowledge items (SD 5.3), which corresponded to a percentage of 43.3%. The same procedure was followed to estimate the total number of correct responses in each subscale. Since each subscale had a different number of items and the comparison was not feasible, the number of correct responses in each one was converted to a percentage. On average, teachers correctly responded to 32.0% of items on the treatment subscale (subscale 1), 48.3% of items on the general information subscale (subscale 2) and 48.9% of items on the symptoms/diagnosis subscale (subscale 3).

Correlational analysis (see Figures 3 - 5) indicated that the total knowledge score of each participant was significantly correlated with each of the three subscale scores (range  $r = .79$  to  $r = .90$ ,  $p < .0005$ ). A significant correlation was also found among the three subscale scores (range  $r = .54$  to  $r = .58$ ,  $p < .0005$ ). This suggests that educators' scores in one domain of knowledge were related to their scores in the other two domains of knowledge.

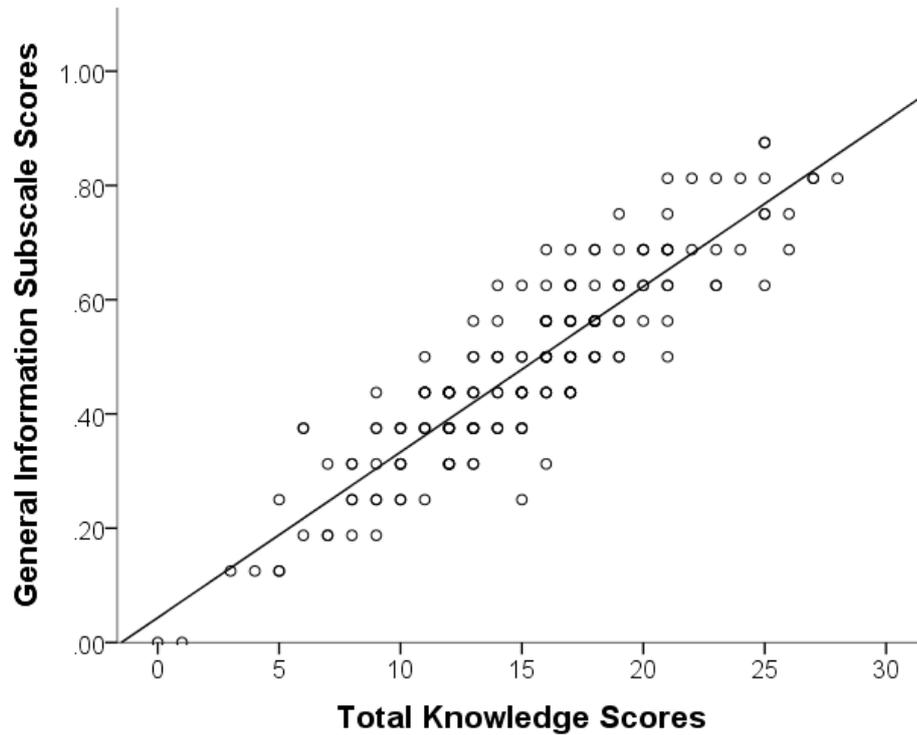
**Figure 3 - Scatterplot of total knowledge scores and treatment subscale scores**



**Figure 4 - Scatterplot of total knowledge scores and symptoms/diagnosis subscale scores**

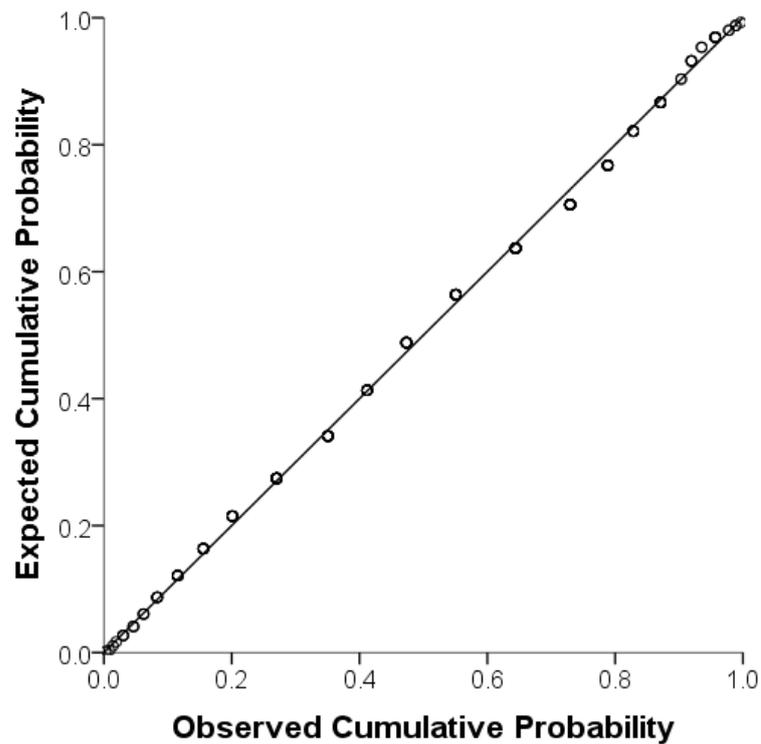


**Figure 5** - Scatterplot of total knowledge scores and general information subscale scores



#### 11.4.2 Normality and reliability checks

To determine whether the knowledge scores of participants met the assumption of normality, the values of skewness and kurtosis, P-P plots and Shapiro-Wilks tests of normality were examined. The Shapiro-Wilks test was chosen among other normality tests as it has been “the most powerful test for all types of distribution and sample sizes” (Razali and Wah, 2011, p.32). The significance value of the Shapiro-Wilks test was greater than .05 ( $p=.39$ ), verifying the null hypothesis that the sample distribution did not significantly deviate from a normal distribution. This output was also echoed visually (see Figure 6). The P-P plot indicated that the observed values fell very close to the expected ones, with minimal deviations of some points from the normally distributed diagonal line. The values of skewness and kurtosis were also close to zero, strengthening the hypothesis that the distribution was close to normal (skewness =  $-.04$  and kurtosis =  $.07$ ).

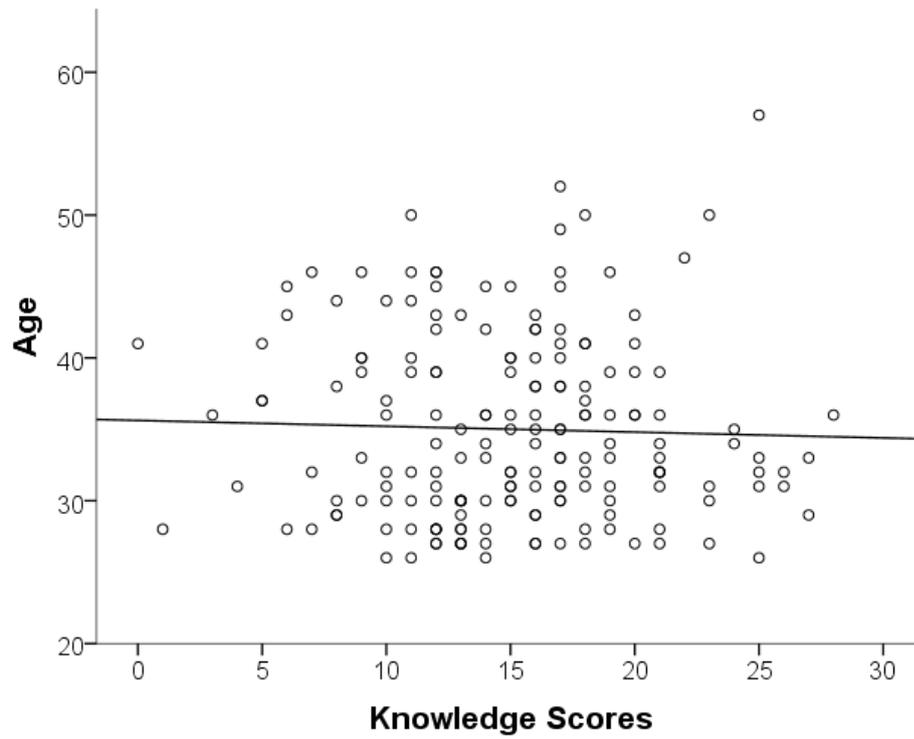
**Figure 6 - Normal P-P plot of knowledge scores**

The reliability of the knowledge scale and subscales was estimated in SPSS using Cronbach's alpha. The high alpha coefficient for the total knowledge score ( $\alpha = .86$ ) suggested that the knowledge scale was an internally consistent measure of educators' knowledge of ADHD. The resultant alpha coefficients for the general information, symptoms/diagnosis and treatment subscales were .72, .67 and .68 respectively, suggesting good reliability between subscale items.

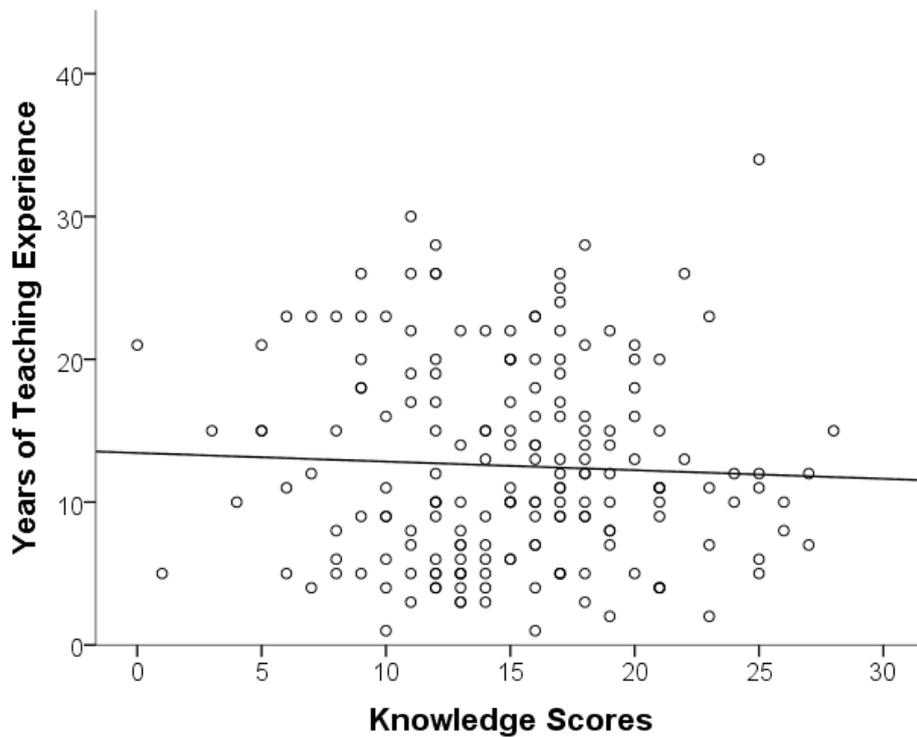
### **11.4.3 Correlational analysis – Teachers' knowledge of ADHD and background characteristics**

A series of Pearson's correlations and scatterplots (see Figures 7 - 10) were used to explore the relationship between teachers' knowledge of ADHD and various background characteristics. The results suggested that teachers' knowledge scores were not correlated with their age, years of teaching experience, the number of students with ADHD they had taught during their teaching career and the number of hours they had received formal INSET ( $p's > .05$ ).

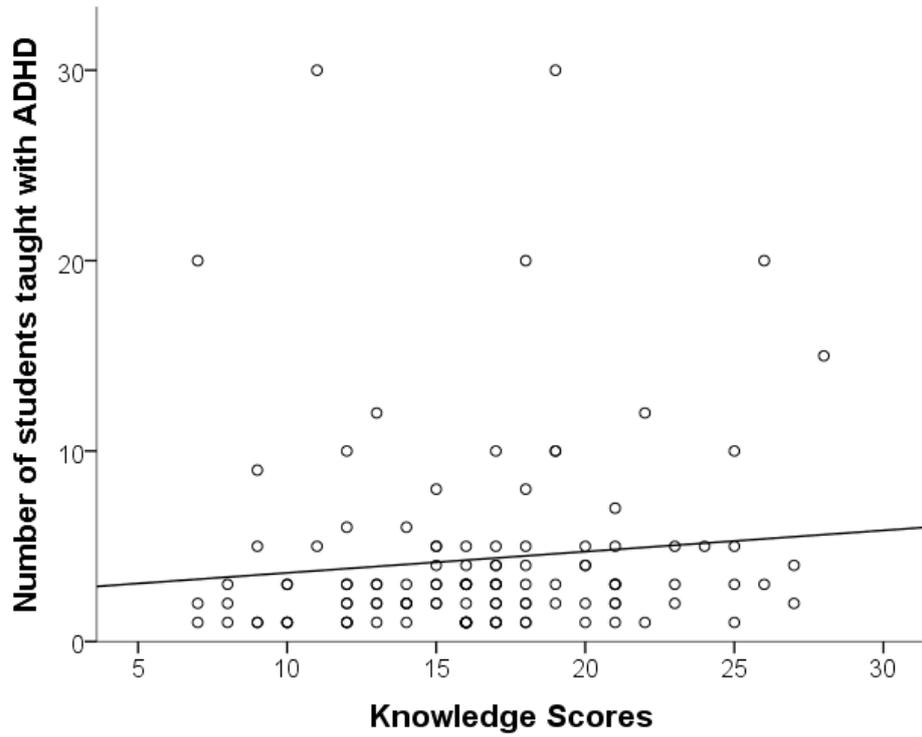
**Figure 7** - Scatterplot of knowledge scores and age ( $r = -.03$ ,  $N = 180$ ,  $p = .66$ )



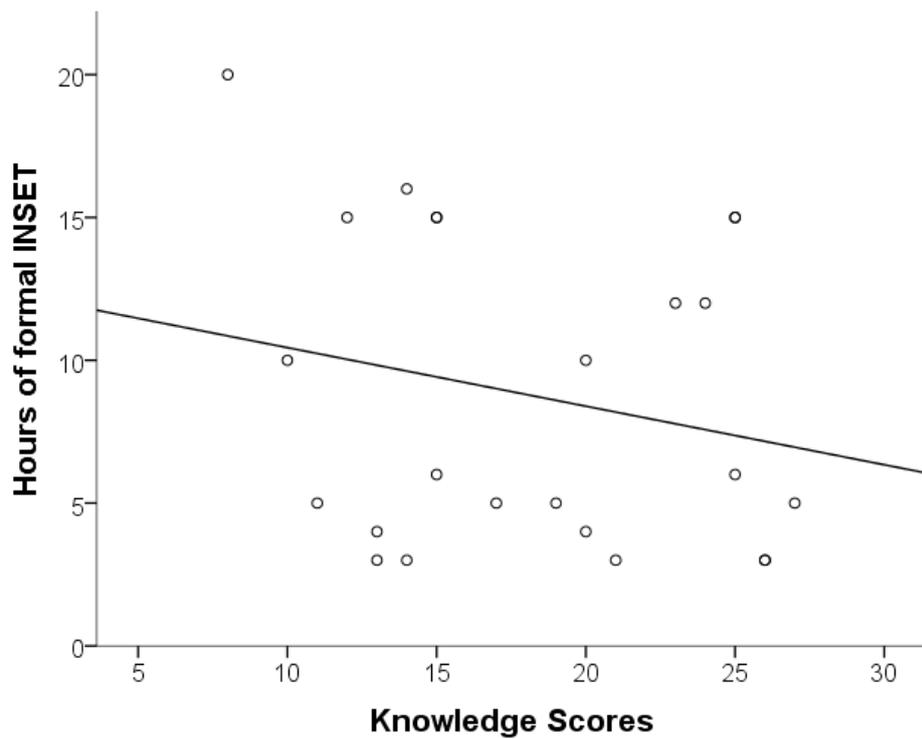
**Figure 8** - Scatterplot of knowledge scores and teaching experience ( $r = -.04$ ,  $N = 184$ ,  $p = .54$ )



**Figure 9** - Scatterplot of knowledge scores and number of students taught with ADHD ( $r = .02$ ,  $N = 115$ ,  $p = .76$ )



**Figure 10** - Scatterplot of knowledge scores and hours of formal INSET ( $r = -.22$ ,  $N = 24$ ,  $p = .30$ )



#### **11.4.4 One-way ANOVA – Teachers' knowledge and qualifications**

One-way ANOVA was used to explore whether there was a significant difference between the average knowledge scores of teachers with a bachelor degree, a master's degree and a PhD. The analysis indicated no significant differences between the three groups of participants ( $F = (2, 183) = .15, p = .86$ ).

#### **11.4.5 Repeated measures ANOVA – Comparison of subscale scores**

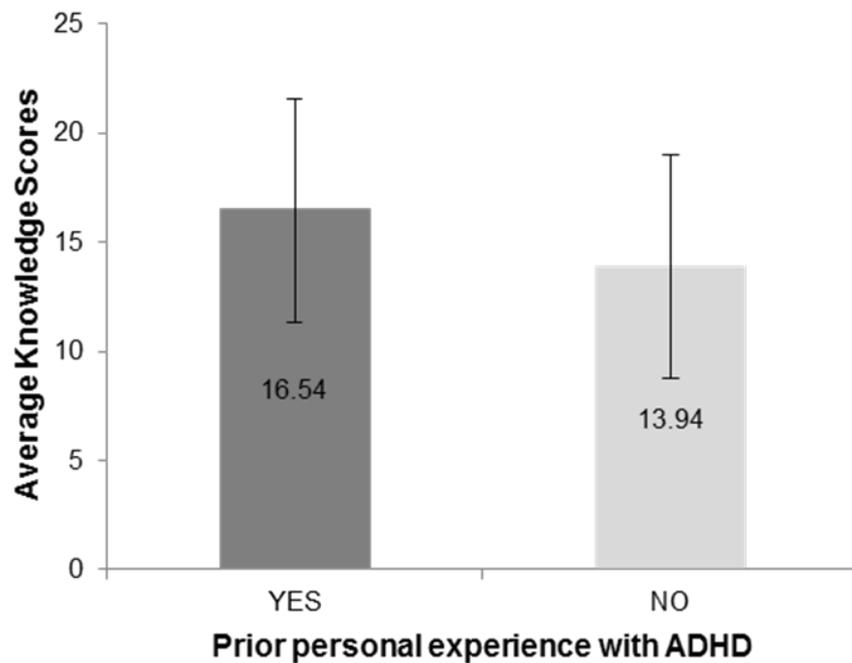
A repeated measures ANOVA was used to detect possible significant differences between the knowledge scores of participants on the three subscales (treatment, general information, and symptoms/diagnosis). Mauchly's test of sphericity suggested that the assumption of sphericity had not been violated,  $\chi^2(2) = 4.25, p > .05$  ( $p = .12$ ). The results indicated that teachers' knowledge scores on the three subscales were significantly different,  $F(2, 372) = 117.69, p < .0005$ . Pairwise comparisons, using the Bonferroni correction, were applied to identify in which domains of knowledge the means significantly differed. Pairwise comparisons revealed that teachers scored significantly lower on the treatment subscale (subscale 1) compared to the general information (subscale 2,  $p < .0005$ ) and symptoms/diagnosis (subscale 3,  $p < .0005$ ) subscales. The scores on subscales 2 and 3 did not present significant differences ( $p = 1.0$ ). Multivariate tests were also found to be significant, strengthening the conclusion that there were significant differences between the scores on the three knowledge domains,  $V = 0.57, F(2, 185) = 121.37, p < .0005$ .

#### **11.4.6 Independent samples t- tests**

Independent samples t-tests were run to examine whether there were significant differences between the knowledge scores of participants who had received INSET on ADHD and those who had not received relevant INSET, those who had taught and those who had never taught students with ADHD and those who had reported personal experience with the disorder (family members/friends) compared to those who had not reported such experience (answers YES/NO in all three cases). Before running statistical hypothesis testing, the data were visually inspected by plotting the average knowledge scores of the groups under comparison on the same graph. Beyond the

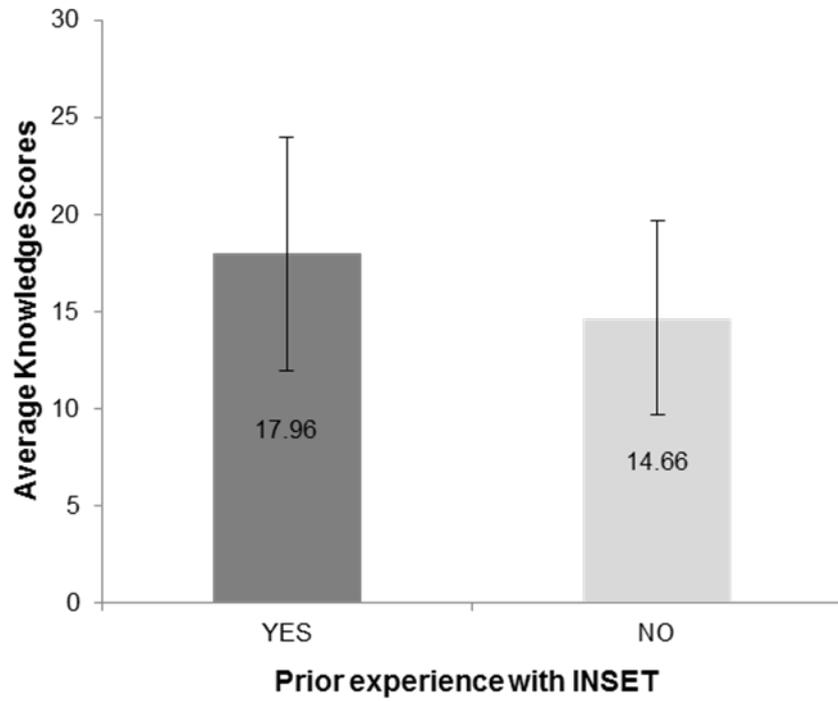
central tendency (the mean), the Standard Deviation (SD) was plotted on the graph, showing the variability of the data. In all three cases, those who had attended previous INSET, who had taught students with ADHD and reported personal experience with the disorder, had a higher average knowledge score compared to the other groups of participants (see Figures 11 – 13).

**Figure 11** - Bar chart of average knowledge scores and SDs by prior personal experience with ADHD

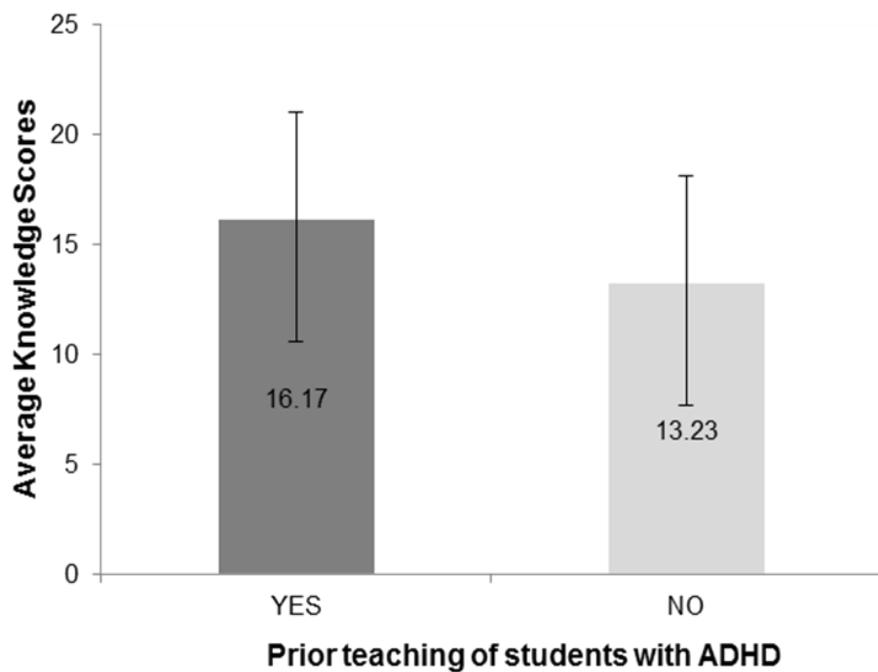


Independent samples t-tests were run to check whether the differences observed between the groups were significant. In all three cases, the Levene's tests for Equality of Variances were not significant ( $p$ 's > .05) and thus the assumption of homogeneity of variances in different groups had not been violated. The outputs suggested that on average, participants who had attended previous relevant INSET had higher knowledge scores ( $M = 17.96$ ,  $SE = 1.13$ ) than those with no experience with INSET ( $M = 14.66$ ,  $SE = .40$ ). This difference was significant,  $t(185) = 3.14$ ,  $p < .005$ ,  $d = 0.46$ . On average, teachers who had personal experience with diagnosed children had significantly higher scores ( $M = 16.54$ ,  $SE = .54$ ) compared to those with no experience ( $M = 13.94$ ,  $SE = .53$ ),  $t(183) = 3.45$ ,  $p < .005$ ,  $d = 0.51$ . Finally, teachers who had taught one or more students with ADHD during their teaching career scored significantly higher ( $M = 16.17$ ,  $SE = .45$ ) than those who had never taught students with ADHD ( $M = 13.23$ ,  $SE = .70$ ),  $t(180) = 3.67$ ,  $p < .0005$ ,  $d = 0.55$ .

**Figure 12** - Bar chart of average knowledge scores and SDs by prior experience with INSET



**Figure 13** - Bar chart of average knowledge scores and SDs by prior teaching of students with ADHD



## **11.5 Self-efficacy to teach students with ADHD**

PART 4 consisted of four items primarily addressing Cypriot elementary school teachers' sense of self-efficacy to manage ADHD-related behaviours and teach students with ADHD. For comparative reasons, the first item examined participants' sense of self-efficacy to teach in mainstream school classrooms without students having an ADHD diagnosis. The Likert-type rating scale provided five response options, ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). Participants were instructed to circle the response option that best described them. The frequency of each response (totals and percentages) is displayed in Table 4.

Table 4 indicates that the majority of respondents considered themselves capable to teach in mainstream school classrooms (24.1% Agree and 57.8% Strongly Agree). However, they had less positive attitudes towards their readiness to educate students with ADHD. When they were asked whether they considered themselves capable to teach in mainstream school classrooms that included one or more students with ADHD, 45.4% disagreed (12.4% Strongly Disagree and 33.0% Disagree). 32.4% remained neutral, indicating uncertainty, while the rest of the teachers considered themselves competent enough to teach in mixed classrooms with one or more diagnosed students (20.5% Agree and 1.6% Strongly Agree). Similar results were obtained in the item 4.3, when educators answered whether they perceived themselves able to adjust the teaching procedure in order to meet the needs of students with ADHD. Similarly, 63.1% of the sample believed they were unaware of the behavioural and physical accommodations that may contribute to the management of ADHD-related behaviours (22.5% Strongly Disagree and 40.6% Disagree).

## **11.6 Attitudes towards the instruction of students with ADHD**

PART 5 consisted of 17 items that examined Cypriot teachers' attitudes (emotions, beliefs, predispositions to act in certain ways) towards the instruction of students with ADHD. The items had the same response format as that in PART 4 and participants were invited to circle one of the five choices. Table 5 summarises the responses of participants in PART 5.

**Table 4 - Distribution of respondents by their answers in PART 4 - Self-efficacy to teach students with ADHD**

Statements	Strongly disagree		Disagree		Neither agree nor disagree		Agree		Strongly agree	
	N	%	N	%	N	%	N	%	N	%
<b>4.1</b> With the knowledge and skills I have, I consider myself capable to teach in mainstream school classrooms.	5	2.7%	17	9.1%	12	6.4%	45	24.1%	<b>108</b>	<b>57.8%</b>
<b>4.2</b> With the knowledge and skills I have, I consider myself capable to teach in mainstream school classrooms including students with ADHD.	23	12.4%	<b>61</b>	<b>33.0%</b>	60	32.4%	38	20.5%	3	1.6%
<b>4.3</b> With the knowledge I have, I consider myself able to adjust the teaching procedure in order to meet the needs of students with ADHD.	23	12.4%	<b>64</b>	<b>34.4%</b>	58	31.2%	38	20.4%	3	1.6%
<b>4.4</b> I am aware of the behavioural and physical accommodations that may contribute to the management of ADHD-related behaviours.	42	22.5%	<b>76</b>	<b>40.6%</b>	43	23.0%	26	13.9%	0	0.0%

*Bold percentages = highest frequency*

**Table 5 - Distribution of respondents by their answers in PART 5 - Attitudes towards the instruction of students with ADHD**

Statements	Strongly disagree		Disagree		Neither agree nor disagree		Agree		Strongly agree	
	N	%	N	%	N	%	N	%	N	%
<b>5.1</b> I am interested to teach students with ADHD the next school year.	38	20.4%	44	23.7%	<b>67</b>	<b>36.0%</b>	32	17.2%	5	2.7%
<b>5.2</b> I feel reluctant to teach students with ADHD.	19	10.2%	43	23.1%	44	23.7%	<b>48</b>	<b>25.8%</b>	32	17.2%
<b>5.3</b> The presence of students with ADHD in the classroom makes me feel stressed.	15	8.1%	37	19.9%	51	27.4%	<b>59</b>	<b>31.7%</b>	24	12.9%
<b>5.4</b> I feel excited about teaching in a classroom that includes students with ADHD.	<b>67</b>	<b>36.0%</b>	60	32.3%	51	27.4%	7	3.8%	1	0.5%
<b>5.5</b> Students with ADHD should be educated in the mainstream classroom.	10	5.4%	21	11.3%	52	28.0%	<b>72</b>	<b>38.7%</b>	31	16.7%
<b>5.6</b> One-to-one instruction is the most appropriate educational approach for students with ADHD.	4	2.2%	24	13.1%	<b>83</b>	<b>45.4%</b>	54	29.5%	18	9.8%
<b>5.7</b> The education of students with ADHD is primarily responsibility of special teachers.	11	5.9%	48	25.7%	<b>60</b>	<b>32.1%</b>	47	25.1%	21	11.2%
<b>5.8</b> Mainstream school teachers are not the proper persons to undertake the education of students with ADHD.	17	9.1%	<b>77</b>	<b>41.4%</b>	50	26.9%	33	17.7%	9	4.8%

Statements	Strongly disagree		Disagree		Neither agree nor disagree		Agree		Strongly agree	
	N	%	N	%	N	%	N	%	N	%
<b>5.9</b> A precondition for the education of students with ADHD in the mainstream classroom is their supervision by companions.	5	2.7%	26	13.9%	54	28.9%	<b>72</b>	<b>38.5%</b>	30	16.0%
<b>5.10</b> The management of ADHD-related behaviours absorbs valuable instructional time and thus the lesson purposes remain unfulfilled.	3	1.6%	30	16.0%	57	30.5%	<b>69</b>	<b>36.9%</b>	28	15.0%
<b>5.11</b> Students with ADHD, who distract the smooth functioning of the lesson, must be kept away from the mainstream classroom for the benefit of the other children.	28	15.0%	<b>71</b>	<b>38.0%</b>	52	27.8%	22	11.8%	14	7.5%
<b>5.12</b> Students with ADHD constitute positive role models for the other children in the classroom.	43	23.0%	<b>77</b>	<b>41.2%</b>	57	30.5%	10	5.3%	0	0.0%
<b>5.13</b> The extra educational support that students with ADHD may need is detrimental to the learning of their classmates without ADHD.	12	6.4%	47	25.1%	51	27.3%	<b>57</b>	<b>30.5%</b>	20	10.7%
<b>5.14</b> I would avoid teaching in classrooms with students having an ADHD diagnosis.	14	7.5%	46	24.6%	<b>57</b>	<b>30.5%</b>	42	22.5%	28	15.0%
<b>5.15</b> In order to treat all students fairly, I would use the same discipline rules for students with and without ADHD.	11	5.9%	<b>67</b>	<b>35.8%</b>	38	20.3%	56	29.9%	15	8.0%

Statements	Strongly disagree		Disagree		Neither agree nor disagree		Agree		Strongly agree	
	N	%	N	%	N	%	N	%	N	%
<b>5.16</b> I would delegate less homework to students with ADHD, according to their pace of work.	1	0.5%	12	6.4%	29	15.5%	<b>91</b>	<b>48.7%</b>	54	28.9%
<b>5.17</b> I would avoid group work in classrooms including students with ADHD in order to avoid the distraction of the other children from the learning procedure.	33	17.7%	<b>97</b>	<b>52.2%</b>	34	18.3%	17	9.1%	5	2.7%

*Bold percentages = highest frequency*

The primary four items (5.1 - 5.4) focused on teachers' emotional response towards the instruction of students with ADHD. The results indicated that 44.1% of respondents were not interested in teaching students with ADHD (20.4% Strongly Disagree and 23.7% Disagree). The percentage of participants that were interested was 19.9%. When participants were asked whether they feel reluctant to teach students with ADHD, 33.3% of them disagreed (10.2% Strongly Disagree and 23.1% Disagree). 23.7% had a neutral opinion whereas 43.0% felt reluctant to undertake classrooms including students with ADHD (25.8% Agree and 17.2% Strongly Agree). As indicated in Table 5, similar results were provided in the item 5.3, when participants answered whether the presence of students with ADHD in the classroom makes them feel stressed. 68.3% of participating teachers noted that they did not feel excited about teaching in classrooms with students having an ADHD diagnosis (36.0% Strongly Disagree and 32.3% Disagree). 27.4% neither agreed nor disagreed, whereas 4.3% felt excited (3.8% Agree and 0.5% Strongly Agree).

Items 5.5 - 5.9 and 5.11 were designed to explore teachers' attitudes towards the appropriate educational setting for students with ADHD. The results indicated that the education of this group of children in the mainstream classroom was favoured by 55.4% (38.7% Agree and 16.7% Strongly Agree). 28.0% did not present a strong belief for or against this item whereas 16.7% disagreed or strongly disagreed with the teaching of students with ADHD in the mainstream classroom. The majority of participants remained neutral when they were asked whether one-to-one instruction constitutes the most appropriate educational approach for students with ADHD (45.3% Neither agree nor disagree). 39.3% favoured one-to-one instruction (29.5% Agree and 9.8% Strongly Agree) whereas 15.3% disagreed with the appropriateness of this educational setting (13.1% Disagree and 2.2% Strongly Disagree). In the opinion of 36.3%, the education of students with ADHD is primarily responsibility of special teachers (25.1% Agree and 11.2% Strongly Agree). 31.6% appeared against this particular item (25.7% Disagree and 5.9% Strongly Disagree) while 32.1% did not have a strong belief for or against.

50.5% of educators were against the view that mainstream school teachers are not the proper persons to undertake the education of students with ADHD (9.1% Strongly Disagree and 41.4% Disagree). The percentage of participants that considered mainstream school teachers not proper to educate this group of children was 22.5%

(17.7% Agree and 4.8% Strongly Agree). 54.5% of respondents agreed that a precondition for the education of students with ADHD in the mainstream classroom is their supervision by companions (38.5% Agree and 16.0% Strongly Agree). Only 16.6% disagreed with the presence of companions in the classroom (2.7% Strongly Disagree and 13.9% Disagree). 53.0% were against the stance that students with ADHD, who distract the smooth functioning of the lesson, must be kept away from the mainstream classroom for the benefit of the other children (15.0% Strongly Disagree and 38.0% Disagree). However, 19.3% supported that these children must be excluded from the mainstream classroom and be educated separately from their peers (11.8% Agree and 7.5% Strongly Agree).

Items 5.10, 5.12 and 5.13 considered teachers' beliefs about the effects that the presence of students with ADHD in the mainstream classroom may have. In the opinion of 51.9%, the management of ADHD-related behaviours absorbs valuable instructional time and thus the lesson purposes remain unfulfilled (36.9% Agree and 15.0% Strongly Agree). 30.5% did not adopt a clear stance (Neither agree nor disagree) whereas 17.6% disagreed (1.6% Strongly Disagree and 16.0% Disagree). 64.2% did not believe that students with ADHD constitute positive role models for the other children in the classroom (23.0% Strongly Disagree and 41.2% Disagree) whereas 41.2% agreed that the extra educational support students with ADHD may need is detrimental to the learning of their classmates without ADHD (30.5% Agree and 10.7% Strongly Agree). 31.5% of respondents disagreed with this item (6.4% Strongly Disagree and 25.1% Disagree) whereas 27.3% neither agreed nor disagreed.

The last four items (5.14 - 5.17) had as a purpose to disclose teachers' predispositions to act in certain ways in relation to students with ADHD. When educators were asked whether they would avoid teaching in classrooms with students having an ADHD diagnosis, 37.5% of them agreed (22.5% Agree and 15.0% Strongly Agree). 32.1% expressed their disagreement to this statement (7.5% Strongly Disagree and 24.6% Disagree). With regard to discipline, 41.7% reported that they would not use the same discipline rules for students with and without ADHD (5.9% Strongly Disagree and 35.8% Disagree). 37.9% supported that in order to treat all students fairly, they would use the same discipline rules regardless of an ADHD diagnosis (29.9% Agree and 8.0% Strongly Agree). 77.6% of the sample responded that they would delegate less

homework to students with ADHD, according to their pace of work (48.7% Agree and 28.9% Strongly Agree). The percentage of teachers that was against this accommodation was 6.9% (0.5% Strongly Disagree and 6.4% Disagree). Finally, 69.9% of participants would not avoid group work in classrooms with students having an ADHD diagnosis (17.7% Strongly Disagree and 52.2% Disagree). 11.8% agreed (9.1% Agree and 2.7% Strongly Agree) while the rest 18.3% did not have a strong predisposition for or against.

Table 6 presents the mean scores and SDs for each of the twenty attitude items (4.2 - 4.4 and 5.1 - 5.17). The order of the items is dependent on their mean score. This means that items with the highest mean scores are listed at the beginning of the table whereas those with lower mean scores are presented afterwards. A high mean score (closer to 5) suggests that on average, educators tended to agree with that specific item. A mean score closer to 1 indicates a tendency to disagree with that item. Mean scores around 3 (Neither agree nor disagree) suggest that on average, participants did not present strong beliefs, emotions and predispositions to act in certain ways.

**Table 6 - Attitude items 4.2 - 4.4 and 5.1 - 5.17 - Means and SDs**

<b>Statements</b>	<b>Mean</b>	<b>SD</b>
<b>5.16</b> I would delegate less homework to students with ADHD, according to their pace of work.	3.99	.868
<b>5.9</b> A precondition for the education of students with ADHD in the mainstream classroom is their supervision by companions.	3.51	1.007
<b>5.5</b> Students with ADHD should be educated in the mainstream classroom.	3.50	1.067
<b>5.10</b> The management of ADHD behaviours absorbs valuable instructional time and thus the lesson purposes remain unfulfilled.	3.48	.985
<b>5.6</b> One-to-one instruction is the most appropriate educational approach for students with ADHD.	3.32	.901
<b>5.3</b> The presence of students with ADHD in the classroom makes me feel stressed.	3.22	1.147
<b>5.2</b> I feel reluctant to teach students with ADHD.	3.17	1.252
<b>5.13</b> The extra educational support that students with ADHD may need is detrimental to the learning of their classmates without ADHD.	3.14	1.108

<b>Statements</b>	<b>Mean</b>	<b>SD</b>
<b>5.14</b> I would avoid teaching in classrooms with students having an ADHD diagnosis.	3.13	1.166
<b>5.7</b> The education of students with ADHD is primarily responsibility of special teachers.	3.10	1.090
<b>5.15</b> In order to treat all students fairly, I would use the same discipline rules for students with and without ADHD.	2.98	1.105
<b>5.8</b> Mainstream school teachers are not the proper persons to undertake the education of students with ADHD.	2.68	1.026
<b>4.2</b> With the knowledge and skills I have, I consider myself capable to teach in mainstream school classrooms including students with ADHD.	2.66	.992
<b>4.3</b> With the knowledge I have, I consider myself able to adjust the teaching procedure in order to meet the needs of students with ADHD.	2.65	.993
<b>5.11</b> Students with ADHD, who distract the smooth functioning of the lesson, must be kept away from the mainstream classroom for the benefit of the other children.	2.59	1.110
<b>5.1</b> I am interested to teach students with ADHD the next school year.	2.58	1.079
<b>4.4</b> I am aware of the behavioural and physical accommodations that may contribute to the management of ADHD-related behaviours.	2.28	.967
<b>5.17</b> I would avoid group work in classrooms including students with ADHD in order to avoid the distraction of the other children from the learning procedure.	2.27	.949
<b>5.12</b> Students with ADHD constitute positive role models for the other children in the classroom.	2.18	.848
<b>5.4</b> I feel excited about teaching in a classroom that includes students with ADHD	2.01	.915

### **11.7 Chi-square tests of association (Pearson's chi-square tests)**

A series of Pearson's chi-square tests were performed to examine whether there were significant differences in the patterns of responses (attitude items 4.2 - 4.4 and 5.1 - 5.17) provided by participants who had received INSET on ADHD, who had taught students with an ADHD diagnosis and had personal experience with the disorder (family members/friends). For this purpose, the observed frequencies were compared to

the expected ones that were calculated under the hypothesis of no association. In each Pearson's chi-square test, two categorical variables were used. Background characteristics consisted of two categories (YES/NO) and attitude items of three categories (disagree/neither agree nor disagree/agree).

The results suggested that educators' experience with family members/friends having an ADHD diagnosis, the previous teaching of students with ADHD and the participation in relevant INSET opportunities were significantly related to their perceived knowledge and sense of self-efficacy to manage ADHD-related behaviours and teach this group of children (Items 4.2, 4.3, 4.4). In all Pearson's chi-square tests, the expected frequencies were greater than 5 and the significance values smaller than .05. Therefore, the null hypothesis that assumed the independence of the two variables was in all cases rejected and confidence was gained in the hypothesis that there were significant differences in the response patterns of teachers with and without such experiences. Cramer's V, a measure of association between two categorical variables, indicated medium associations between the variables under investigation (medium effect sizes). These associations were in all cases significant. This suggests that the values of the test statistics were unlikely to have happened coincidentally. Overall, teachers with prior experiences with INSET, family members/friends and students with ADHD had significantly higher perceived knowledge and sense of self-efficacy. The outputs of the Pearson's chi-square tests (Items 4.2, 4.3, 4.4) and the percentages of agreement and disagreement of each group are displayed in Tables 7 – 9.

A series of Pearson's chi-square tests suggested that there was no significant association between prior personal experience with the disorder and teachers' attitudes towards the instruction of students with ADHD (Items 5.1 - 5.17). The significance value of each chi-square statistic was greater than .05, confirming the independence of the variables under investigation. Similarly, the patterns of responses provided in the items 5.1 - 5.17 did not present significant differences when teachers had taught students with ADHD or had attended relevant INSET. In all cases, the significance values of the chi-square statistics were greater than .05.

**Table 7 - Participants' responses depending on their prior personal experience with ADHD (family members/friends) - Items 4.2 to 4.4**

Items	Chi-square Statistic	Gramer's V		Agree (%)	Disagree (%)
4.2 With the knowledge and skills I have, I consider myself capable to teach in mainstream school classrooms including students with ADHD.	$\chi^2(2) = 9.14,$ $p = .01.$	.22	<b>Group 1</b>	31.8%	37.5%
			Group 2	13.7%	52.6%
4.3 With the knowledge I have, I consider myself able to adjust the teaching procedure in order to meet the needs of students with ADHD.	$\chi^2(2) = 14.89,$ $p < .005$	.28	<b>Group 1</b>	32.6%	33.7%
			Group 2	12.6%	58.9%
4.4 I am aware of the behavioural and physical accommodations that may contribute to the management of ADHD-related behaviours.	$\chi^2(2) = 19.35,$ $p < .001$	.32	<b>Group 1</b>	23.6%	48.3%
			Group 2	5.2%	77.1%

*Group 1 = Teachers who had personal experience with ADHD*

*Group 2 = Teachers without personal experience with ADHD*

**Table 8** - Participants' responses depending on their prior experience with students having an ADHD diagnosis - Items 4.2 to 4.4

Items	Chi-square Statistic	Gramer's V		Agree (%)	Disagree (%)
4.2 With the knowledge and skills I have, I consider myself capable to teach in mainstream school classrooms including students with ADHD.	$\chi^2(2) = 6.72,$ $p < .05$	.19	<b>Group 1</b>	28.0%	40.7%
			Group 2	11.3%	53.2%
4.3 With the knowledge I have, I consider myself able to adjust the teaching procedure in order to meet the needs of students with ADHD.	$\chi^2(2) = 12.00,$ $p < .005$	.26	<b>Group 1</b>	29.4%	39.5%
			Group 2	8.1%	59.7%
4.4 I am aware of the behavioural and physical accommodations that may contribute to the management of ADHD-related behaviours.	$\chi^2(2) = 11.14,$ $p < .005$	.25	<b>Group 1</b>	19.2%	55.8%
			Group 2	3.2%	77.4%

*Group 1 = Teachers who had taught students with ADHD*

*Group 2 = Teachers who had never taught students with ADHD*

**Table 9** - Participants' responses depending on their prior experience with relevant INSET - Items 4.2 to 4.4

Items	Chi-square Statistic	Gramer's V		Agree (%)	Disagree (%)
<b>4.2</b> With the knowledge and skills I have, I consider myself capable to teach in mainstream school classrooms including students with ADHD.	$\chi^2(2) = 18.93,$ $p < .001$	.32	<b>Group 1</b>	53.6%	28.6%
			Group 2	16.6%	47.8%
<b>4.3</b> With the knowledge I have, I consider myself able to adjust the teaching procedure in order to meet the needs of students with ADHD.	$\chi^2(2) = 20.16,$ $p < .001$	.33	<b>Group 1</b>	53.6%	35.7%
			Group 2	16.5%	48.7%
<b>4.4</b> I am aware of the behavioural and physical accommodations that may contribute to the management of ADHD-related behaviours.	$\chi^2(2) = 23.47,$ $p < .001$	.35	<b>Group 1</b>	42.9%	46.4%
			Group 2	8.8%	66.0%

*Group 1 = Teachers who had received INSET on ADHD*

*Group 2 = Teachers who had not received INSET on ADHD*

## 11.8 Previous INSET experiences (formal and informal)

When the teachers were asked whether there is adequate information about ADHD and ways to manage ADHD-related behaviours in the classroom, 88.1% strongly disagreed (38.9%) or disagreed (49.2%). Of the total teacher sample, 15.0% (28 participants) indicated prior experience with formal INSET on ADHD. The majority had attended the five-session optional seminars arranged and delivered by the CPI (60.7%). 17.9%, 10.7%, 7.1% and 3.6% responded that it was an initiative of the MoEC, a private organisation, the ADD-ADHD CYPRUS and a special teacher respectively. The period of time that participants had received formal INSET ranged from 3 to 20 hours. When educators were asked whether the formal INSET they had received was adequate for managing and teaching students with ADHD, only 7.1% agreed whereas none of them strongly agreed. 71.4% disagreed (57.1%) or strongly disagreed (14.3%) with this item while the rest 21.4% neither agreed nor disagreed. In the opinion of 100.0% of participants, more formal INSET is needed in order to manage ADHD-related behaviours and create an inviting learning environment for students with ADHD (60.7% Agree and 39.3% Strongly Agree).

Eleven out of the 28 participants completed the statement 7.1(a), describing the form, the content, the orientation of the INSET they had received (theoretical/practical) and noting down any strengths and areas that in their opinion needed further development. Nine out of these educators had attended the seminars delivered by the CPI, one of them a conference arranged by the Cyprus Organisation of ADHD and the last educator a series of seminars provided by a private organisation. In all cases, teachers highlighted that they had attended these opportunities on their own initiative because they wanted to learn about the disorder and the available classroom-based interventions. The fundamental purpose was to develop the knowledge and skills needed to manage the behaviours of their students with ADHD and facilitate the lesson procedure.

The teachers acknowledged the contribution of seminars and conferences to the acquisition of a basic knowledge background but focused on their limitations. The place, the time, the voluntary character and theoretical orientation of these INSET opportunities were the most common areas of criticism. First, the participants perceived voluntary INSET in non-working time as inconvenient and suggested the introduction

of compulsory INSET that will be part of their professional responsibilities. As an educator reported, “the government should take the responsibility to train teachers about ADHD. INSET should take place within each school and appeal to all educators” (Questionnaire 148). Another participant talked along similar lines, explaining that “the conduct of seminars in non-working hours and many times in a different city hinders the attendance even of the colleagues who are interested to learn” (Questionnaire 170).

The educators reported that the seminars and conferences attended were theoretically-oriented and therefore they did not facilitate the management and teaching of children with ADHD as expected. They primarily focused on the nature of the disorder, the diagnostic criteria, the assessment procedure and general approaches to intervention (pharmacological and non-pharmacological) and minimally on the management of ADHD-related behaviours in mainstream classroom settings. The participants explained that the attendance of single informative events had as a result most of the information to be forgotten throughout the years. One participant, for example, said that “a long time has passed and I forgot most of the information provided in the seminars” (Questionnaire 23). Another teacher, who had attended the seminars of the CPI seven years ago, noted that she was not in position to describe the content and the areas that had been discussed (Questionnaire 5). In general, seminars and conferences were perceived as inadequate for managing the behaviours of students with ADHD and accommodating the lesson to their needs. A number of participants readily expressed their discontent with the available INSET opportunities:

I participated in an INSET programme on ADHD nine years ago but it only offered academic knowledge that did not support my work in the classroom. (Questionnaire 35)

The current formal INSET attempts are rare and of low quality. (Questionnaire 32)  
Information through booklets and single seminars minimally helps. (Questionnaire 81)

I attended the optional seminars of the CPI but they were totally theoretical and did not particularly help. (Questionnaire 148)

There was much theory and no practical applications in the classroom, which is the most important. (Questionnaire 170)

There was also a general agreement among participants that the recommended classroom-based interventions were not in all cases applicable and effective. This was because they were general and detached from the reality of each participant, the dynamic of each classroom, the type, the severity, the age, the background and the specific needs of each student with ADHD. As an educator explained, “There was no connection between the interventions recommended in the seminars and the needs of the students that participants had in their classrooms” (Questionnaire 170). INSET in non-working time, which does not allow the cooperation with trainers and the application of interventions in real settings, was also criticised. The participants suggested the introduction of INSET that will focus on the management of ADHD-related behaviours in classroom settings and will promote the active involvement of educators. In their opinion, they would benefit more from their participation in workshops (Questionnaires 19, 23, 32, 148), the attendance of sample lessons undertaken by trained teachers or specialists in classrooms with students having an ADHD diagnosis (Questionnaire 18, 148, 170) and the exchange of experiences and effective intervention practices with experienced colleagues (Questionnaires 18, 27). Individualised guidance, co-teaching and support by specialists were considered essential by the majority of respondents in cases they had students with ADHD in the classroom (Questionnaires 27, 35, 81, 143, 148, and 170).

Only 13 out of 187 participants reported that they had been involved in informal forms of INSET. The response with the highest frequency concerned personal study of relevant books, articles and electronic sources. This response was followed by informal discussions with colleagues during staff meetings and breaks and whenever that was possible with teachers who had previous experiences with diagnosed students. Informal discussions with paediatricians, special teachers and relatives with children having ADHD, were less frequent responses. All but one educator considered these forms of INSET insufficient and made a number of recommendations for future INSET.

## **11.9 Expectations and recommendations for future INSET**

Ninety-five (95) out of 187 teachers completed the statement 7.2 regarding the INSET that would make them feel more competent, confident and positive in teaching children with ADHD. Participants were instructed to focus on their expectations of future

INSET, the preferable time, place, legal framework, form, content and aspects they would like to receive more information about. Teachers' recommendations were coded and entered into SPSS 20 for analysis. The frequencies and percentages are summarised in Tables 9 - 12.

### 11.9.1 Expectations

The elimination of negative feelings, the effective management of ADHD-related behaviours and the improvement of teaching practice were participants' fundamental expectations of future INSET. Teachers were mostly oriented towards INSET programmes that would enhance their understanding of the disorder and the needs of students with an ADHD diagnosis. As they explained, the ultimate purpose of attending relevant INSET is to learn how to manage the behaviours related to the disorder and provide a high quality education to students with ADHD and their classmates. Some representative answers are as follows:

Teachers should be able to detect students with ADHD, to understand their needs, to apply effective interventions and accommodate the lesson accordingly. (Questionnaire 29)

After an INSET programme, the teacher should be aware of practical ways to manage ADHD-related behaviours, to resolve problems that may arise from the presence of these children in the classroom and keep the same standard of education. (Questionnaire 36)

I would like to learn about the disorder overall and specifically about practices to manage the behaviours of students with ADHD. (Questionnaire 13)

I expect to learn about the management of ADHD in order to avoid problems in the teaching procedure. (Questionnaire 25)

The participants believed that INSET should provide knowledge and skills that will make them feel confident to undertake the education of children with ADHD. In Questionnaires 4, 21 and 26, for example, the teachers highlighted the importance of developing a high sense of self-efficacy:

It is important that INSET makes you feel that you can manage ADHD-related behaviours and teach children with the disorder effectively. (Questionnaire 4)

INSET should make teachers feel ready to undertake classrooms including children with ADHD. (Questionnaire 21)

The main expectation of INSET is to learn how to manage the behaviours of children with ADHD and teach them without stress. (Questionnaire 26)

An educator (Questionnaire 146) reported that the unwillingness to teach students with ADHD originated from the lack of knowledge about the disorder and the fear to deal with a situation that was unfamiliar to her. For this reason, she highlighted the need for an INSET programme that will help teachers understand what exactly the disorder is and how they should approach their students with an ADHD diagnosis.

### 11.9.2 Recommendations

With regard to the preferable timeframe, the majority of educators suggested that INSET should be part of their professional responsibilities and be provided in working time. INSET during afternoon, weekend and holiday time was the least frequent response. Frequencies and percentages are displayed in Table 10.

**Table 10** - *Distribution of respondents by the preferable time for INSET*

Preferable Time	Frequency	V. Percentage
Working hours	70	81.4%
Non-working hours	5	5.8%
Does not really matter	11	12.8%
Total	86	100.0%

Some participants also provided the rationale behind their decision. Teachers who favoured INSET in non-working time acknowledged that in an opposite case instructional time would be lost and the overall functioning of the school units would be disrupted. In the opinion of the majority, the introduction of INSET in working time would be the most convenient for educators whose free time is restricted due to family and other commitments.

The analysis of teachers' responses indicated three preferable places. The provision of school-based INSET that will take into consideration the dynamic and needs of each school unit was the response with the highest frequency. A small number of teachers proposed alternative places, such as the INSET centre of each city or other convenient places close to their house. Seven participants noted that the priority should be the provision of INSET opportunities available to all, either within or outside the school. Table 11 outlines participants' responses according to the preferable place.

**Table 11 - Distribution of respondents by the preferable place for INSET**

Preferable Place	Frequency	V. Percentage
Within the school	66	76.7%
In the INSET centre	5	5.8%
In a convenient place, close to my house	8	9.3%
Does not really matter	7	8.1%
Total	86	100.0%

Participants appeared to be against voluntary INSET. The high number of school-age children with ADHD and the drawbacks of letting educators decide whether they are willing to spend their free time for this purpose were among the reasons that justified this decision. A group of teachers explained that non-compulsory INSET undermines the importance of teachers' knowledge and gives the impression that the education of children with ADHD is not primarily their responsibility. Three participants, for example, reported:

If something is voluntary, it means that it is not necessary to be aware of. INSET should be voluntary only if teachers can decide whether to teach or not students with ADHD. Since there is no choice, the government should prepare all teachers to do that. Without preparation, teachers cannot undertake such responsibility. (Questionnaire 44)

ADHD is so common that teachers without diagnosed students in their classrooms the current school year are highly likely to have the next school years. Consequently, all teachers should be trained about the disorder. (Questionnaire 181)

If teachers were aware of the disorder and ways to manage ADHD behaviours in advance, they would not be negative and avoid teaching in classrooms including students with ADHD. (Questionnaire 170)

Advance information about the disorder was also considered critical for the early identification and accurate diagnosis of children with ADHD. In this vein, the vast majority of participants supported the introduction of compulsory INSET irrespective of the exposure to students with ADHD. They also perceived the differentiation of INSET and the provision of additional support as essential when teachers undertake the education of children with ADHD. One teacher, for example, said:

The theoretical background is important but the time for practice under specialists' supervision necessary. If I had a student with ADHD in the classroom, communication and cooperation with specialists would be highly helpful. It is important for teachers to receive guidance on a personal level and have access to people that will help them immediately resolve queries and overcome problems that may arise. (Questionnaire 183)

Another participant talked along similar lines, "I would feel more confident if constant cooperation and support by specialists was available" (Questionnaire 14). In Table 12, the responses of participants with respect to the preferable legal framework are displayed.

**Table 12 - Distribution of respondents by the preferable legal framework**

Preferable legal framework	Frequency	V. Percentage
Compulsory for all educators	65	77.4%
Compulsory when undertaking the education of children with ADHD	19	22.6%
Total	84	100.0%

In terms of the areas they would like to receive more information about, all participants agreed that INSET should primarily focus on empirically validated classroom-based

interventions that could be easily applied to manage ADHD-related behaviours and facilitate the teaching procedure. A group of teachers (e.g. Questionnaires 10, 18, 80, 84, 87, 91, 100, 119, 120, 123, 131, and 142) criticised the nomination of trainers from academia. As they explained, trainers who have never worked with diagnosed students in practice usually focus on theoretical information (e.g. the nature and causation of ADHD) and not on practical examples and interventions that will benefit educators, students with ADHD and their classmates. One of these teachers reported,

Trainers should not be detached from the reality of a school classroom. They should be persons who have implemented and assessed the effectiveness of the recommended interventions and have practical solutions to propose. (Questionnaire 142)

42.9% suggested that future INSET should also provide background information about the disorder and address knowledge gaps and misconceptions relating to the diagnostic criteria, the origins of ADHD, the referrals for evaluation, the assessment procedure, the pharmacological interventions, their benefits and side-effects. Participants' responses revealed nine forms of INSET that in their opinion would make them feel more positive and competent to teach students with ADHD. The figures and percentages are displayed in Table 13.

**Table 13** - *Distribution of respondents by the preferable form of INSET*

Preferable form of INSET	Frequency	Percentage
Seminars by specialists	9	10.1%
Workshops	14	15.7%
Practical support by specialists in the classroom (individualised guidance - co-teaching - application of recommended interventions - feedback)	10	11.2%
Sample lessons by trained teachers or specialists in classrooms with diagnosed students	5	5.6%
Video-recorded material of sample lessons	2	2.2%

Preferable form of INSET	Frequency	Percentage
On-line INSET - website for ADHD - forum	2	2.2%
Theoretical background through seminars and practical support by specialists in the classroom	25	28.0%
Theoretical background through seminars and sample lessons by trained teachers or specialists	10	11.2%
Seminars by specialists and teachers having experience with diagnosed students	12	13.5%
Total	89	100.0%

As indicated in Table 13, the majority of participants found the cooperation between teachers and specialists essential. The response with the highest frequency refers to a multi-stage INSET programme that combines seminars with individualised guidance, co-teaching and support by specialists in developing and implementing intervention plans. A participant, for example, reported that “INSET should be a combination of theory and practice. It is important for teachers who undertake classrooms with diagnosed students to apply the recommended interventions under the supervision and support of specialists” (Questionnaire 44). Similarly, another colleague suggested that “teachers need general seminars that will help them understand what exactly the disorder is and how they can deal with it and after that individualised guidance based on the needs of their students” (Questionnaire 176). Another teacher talked along similar lines saying, “I would prefer to attend a seminar on ADHD and then work with an experienced specialist on practical, real problems I have in the classroom” (Questionnaire 31).

10.1% favoured seminars delivered by specialists whereas 13.5% believed that they would benefit more if colleagues who had taught students with ADHD participated, sharing experiences, effective and ineffective intervention practices. These teachers expressed a general disagreement with over-crowded informative events and a preference towards seminars conducted within school units. The attendance of sample lessons delivered by trained teachers or specialists as well as a combination of seminars and sample lessons were recommended by almost 20.0%. The preparation and

distribution of relevant video-recorded material was among the preferences of the minority. Workshops were preferred by 15.7% whereas alternative forms of INSET, such as officially established websites and forums available to teachers and specialists, were preferable by the minority of educators.

## **11.10 Overview - Conclusion**

This chapter detailed the results generated from questionnaires to Cypriot elementary school teachers. Educators' knowledge of the disorder, their attitudes towards the instruction of students with ADHD, their sense of self-efficacy were explored in relation to various background characteristics (e.g. age, years of teaching experience, qualifications, previous personal experience with ADHD, previous teaching of students with an ADHD diagnosis and previous experience with relevant INSET).

On average, participants correctly responded to 43.3% of the 35 knowledge scale items. Of interest were the "Don't Know" responses which had the highest frequency in 18 out of 35 items. The five most common "Don't Know" responses concerned the prevalence of school-age children with ADHD, the period of time ADHD-related behaviours need to be present in order for a child to be diagnosed, the use of antidepressant drugs and electroconvulsive therapy as well as the comorbidity of ADHD with other disorders. The attribution of ADHD to dietary factors and chaotic/dysfunctional family environments were among the most common misconceptions. Items relating to the assessment procedure and the primarily inattentive behaviours were also among those with the highest percentages of incorrect responses.

Teachers were more knowledgeable about symptoms/diagnosis and general information subscale items and less knowledgeable about treatment subscale items. Significant differences between the scores of the symptoms/diagnosis and general information subscales were not found. The results suggested that teachers' knowledge scores were not correlated with various background characteristics, including age, years of teaching experience, the number of students with ADHD they had taught during their teaching career and the number of hours they had received formal INSET. Similarly, there were no significant differences between the groups of participants who reported a bachelor degree, a master's degree or a PhD. However, participants who had attended previous

relevant INSET had significantly higher scores on the knowledge scale compared to their colleagues with no experience with INSET. Teachers who reported experience with family members, friends and students with ADHD also scored significantly higher than those with no such experience.

Educators who reported prior experience with INSET, family members, friends and students with ADHD tended to have greater sense of self-efficacy to undertake the education of these children. In contrast, there was no significant association between the prior personal experience with the disorder and teachers' attitudes towards the instruction of students with ADHD (Items 5.1 - 5.17). Similarly, the patterns of responses provided in items 5.1 - 5.17 did not present significant differences when teachers had taught students with ADHD or had attended relevant INSET.

Although 65.9% of educators had taught at least one student with ADHD during their teaching career, only 15.0% reported prior experience with relevant formal INSET. The majority of participants specified that they had attended on their own initiative the optional seminars of the CPI. The place, the time, the voluntary character and theoretical orientation of these seminars were the most common areas of criticism. The enhancement of their understanding of the disorder, the elimination of negative feelings, the effective management of ADHD-related behaviours and the improvement of teaching practice were educators' fundamental expectations of future INSET. The majority of teachers were oriented towards compulsory school-based INSET programmes that would focus on the management of ADHD-related behaviours in classroom settings. Only 13 participants reported experience with informal forms of INSET, such as personal study and discussions with colleagues during staff meetings or breaks.

## **Qualitative data analysis – Overview of the main themes (Personal Interviews and Focus Groups)**

In the current study, both interviews and focus groups had as a purpose to get an insight into Cypriot elementary school teachers' experiences with, and attitudes towards the instruction of children with ADHD and INSET. As thoroughly explained in the Methodology of Analysis chapter, the interview and focus group transcripts were coded using a combination of approaches: the theory-driven deductive and the data-driven inductive approach. In this case, a short preliminary list of codes, based on the interview/focus group protocol, was created a priori (see Appendix 14). This list guided the coding process and expanded with additional codes that emerged from the data. A separate codebook was also developed to accommodate data that did not fit to any of the predetermined codes (e.g. origins of ADHD; medication; parents; relationships with peers; companions). A combination of these two codebooks can be found in Appendix 15.

The participants were primarily invited to talk about their prior experiences with diagnosed students and those whom they thought met the criteria for ADHD but did not have an official diagnosis. Teachers were expected to focus on the behavioural profile of their students and the interventions implemented (e.g. educational, behavioural) to manage ADHD-related behaviours, to facilitate their accommodation in the mainstream classroom and enhance their academic productivity. In contrast, participants emphasised the difficulties encountered and the negative impact that, in their opinion, the presence of these children had on the academic progress and safety of classroom peers (pp. 178-183, 200-201, 203-204, 207, 219-220, 227-229, 233-234). As shown later in Chapters 12 and 13, the benefit of classroom peers was in the centre of interviews/focus groups and informed educators' beliefs about the appropriate educational setting and their predispositions to act in certain ways. Educators' tendency to focus on classroom peers' education and safety was a theme that emerged through interviews and focus groups.

It is critical to note that such tendency was apparent for children with primarily hyperactive/impulsive behaviours and not for those with primarily inattentive behaviours. In the first case, children were seen as highly demanding for the daily practice and as those causing greater levels of stress and tiredness. Teachers considered

students with hyperactivity/impulsivity “difficult” and they placed particular emphasis on challenges relating to the smooth functioning of the learning procedure, the discipline and safety. They agreed, for instance, that the management of hyperactive/impulsive behaviours (physical, verbal, emotional) absorbs valuable instructional time which, in turn, is detrimental to the learning of typically developing peers. In contrast, participants who shared experiences with primarily inattentive students (personal or colleagues’ experiences) explained that these kinds of behaviours did not influence the teaching procedure but the learning and the academic progress of these students. The pivotal role that the severity and the nature of observed behaviours played in teachers’ decision making, feelings, beliefs and predispositions (as this emerged from the data) is highlighted both in the presentation of the results (Chapters 12 and 13 – pp. 178-186, 186-187, 203, 220, 229, 234, 240) and the final discussion chapter.

When talking about their prior experiences with ADHD, a group of teachers placed particular emphasis on parents and the way these influence the current educational reality (pp. 183-184, 228, 232-233, 237, 243). Focus was not only on parents of children with the disorder but also on parents of classroom peers. A number of interviewees and focus group members argued that a group of parents visit private psychologists and pay to get “fake” ADHD certificates. They explained that these parents primarily aim to justify their children’s misbehaving with the disorder and ensure special treatment and educational facilitations in secondary school (e.g. extra time for testing, less workload). Other teachers indicated experience with parents who considered ADHD a non-valid disorder and the behaviour of their children typical for their age. These parents’ lack of knowledge, their negative attitudes towards the disorder and the fear of stigmatisation hindered the diagnostic procedure, the development and implementation of intervention plans for years. According to participants, such delays negatively affected the management of ADHD-related behaviours and, in turn, the overall functioning of the teaching procedure.

Similar to teachers’ worries and beliefs were shared by parents of classroom peers who considered the presence of students with ADHD against the education and safety of their children. This group of parents had readily expressed their disagreement with the education of students with ADHD in the mainstream classroom to teachers and head-

teachers. The stance of “rejection” that a number of parents adopted was, according to the majority of participants, apparent in the behavioural responses of classroom peers. Considering the relationship between children with ADHD and typically developing peers was beyond the scope of the study. Nevertheless, such relationship and the rationale behind this was one of the themes that emerged from participants themselves and thoroughly discussed in individual interviews and focus groups (pp. 184-186, 227-228, 239).

Interviews and focus groups were also interested to explore teachers’ beliefs about the appropriate educational setting for children with ADHD. In line with participants in the first phase of the research (questionnaires), interviewees and focus group members who favoured either mainstream or special educational settings were the minority. Qualitative data analysis suggested that the adoption of a full-time mainstream or special learning environment was neither unconditional, nor applicable in all cases. Characteristics such as the nature and severity of observed behaviours, the overall behavioural profile of each child, educators’ sense of self-efficacy, the presumed impact and the benefit of classroom peers, played a critical role and informed participants’ beliefs about the most appropriate educational setting (pp. 202-206, 220-221, 234-235, 240). Although a specific question about paraprofessionals was not asked, the majority of teachers talked about their prior experiences with “companions” and expressed their attitudes towards their presence in the mainstream classroom. The current role of companions was a theme that emerged from individual interviews and focus groups and raised issues regarding their nomination for these positions, their knowledge of ADHD, their effectiveness in managing ADHD-related behaviours and their overall contribution to the academic and social productivity of accompanied children (pp. 206-208, 221-222, 235, 240).

Participants’ predisposition to choose classrooms including children with ADHD was a theme set in advance and thoroughly explored in individual interviews and focus groups (pp. 198-202, 222, 229, 235-236, 241-242). The majority of interviewees and focus group members reported that they would not undertake such classrooms if they had the right of choice. The rationale behind this negative predisposition precisely resembles the rationale provided to justify the favourable attitudes towards the adoption of special educational settings, either on a part-time or full-time basis. Beyond the difficulties that

arise when having a child with ADHD in the classroom (discipline, pedagogical, safety issues) and the lack of preparation on the part of teachers, participants' responses also focused on difficulties emerged as a result of the current educational reality (e.g. big classroom sizes, inflexible curriculum, time constraints, evaluation system). These difficulties raised issues regarding the readiness of the educational system to support and facilitate the accommodation of children with ADHD in mainstream settings.

The participants were also asked to comment on whether ADHD is a valid disorder or a label that has no real justification and what is really happening is that children are naughty and lazy (pp. 188-189, 222-224, 230, 236, 242). The validity of ADHD was a theme defined in advance based on the interview/focus group protocol. In contrast, the validity of diagnostic conclusions (misdiagnosis – pp. 189-190, 236-237, 243) and the origins of the disorder (pp. 190-193, 222, 231, 237, 243) were themes which emerged from the responses that participants provided to support their views over the validity of ADHD. In a similar way, the administration of medication was an issue that emerged in two focus groups when the members talked about their prior experiences with students having an ADHD diagnosis. The positive and adverse effects of medication, as these had been experienced by participants, in parallel with the wider beliefs about the origins of the disorder and the use of pharmacological interventions in childhood informed their stance towards this approach to intervention (pp.218-220, 233-234).

The INSET opportunities and support available to Cypriot elementary school teachers was one of the three areas under consideration in the study. Educators' prior INSET experiences and recommendations for future INSET were thoroughly discussed in individual interviews and focus groups and reported in Chapters 12 and 13. As can be seen in Appendix 15, these were two themes set in advance based on the semi-structured questions. In cases when teachers indicated experience with relevant INSET, then they were invited to give a description of this opportunity, to talk about strengths and areas that in their opinion needed further development and evaluate its overall contribution to the management and education of children with ADHD (pp. 194-198). The place, the time, the type, the legal framework and theoretical orientation of the current INSET opportunities were the most common areas of criticism and those teachers provided their recommendations about (pp. 209-214, 224-225, 231, 237, 243).

## Chapter 12 - Personal Interview Results

Interviews with 18 female and 5 male elementary school teachers were conducted from February to April 2012. Interviewees' years of teaching experience ranged from 4 to 35. Five out of the 23 participants were principals and one of them an assistant principal. The composition of the sample in this way allowed the voice of teachers in different positions – both managerial and non-managerial – to be heard. The following chapter is divided into six main parts. The first one considers participants' prior experiences with ADHD. The particular emphasis that interviewees placed on hyperactive/impulsive behaviours and the challenges emerged as a result of these is depicted in the first part (discipline, pedagogical, safety issues, complaints by classroom peers and their parents, unfriendly peer relationships). The second part focuses on teachers' attitudes towards the validity and origins of ADHD whereas the third one on their experiences with relevant INSET. Participants' predisposition to choose classrooms including children with ADHD and their attitudes towards the appropriate educational setting for these children are detailed in the fourth and fifth parts respectively. The final part focuses on participants' recommendations for future INSET.

### 12.1 Experiences with ADHD in the mainstream classroom

When the interviewees were asked whether they had taught students with ADHD during their teaching career, all of them responded positively. 19 teachers noted that they had taught students with an official diagnosis of ADHD while 11 of them stated that they had taught at least one student, whom they thought met the criteria for ADHD but did not have a diagnosis. Participants' experiences had been differentiated according to the type and therefore the behavioural characteristics of each child. Teachers, for example, who had taught students with extreme levels of hyperactivity/impulsivity, reported less positive experiences and placed particular emphasis on challenges relating to the smooth functioning of the learning procedure, the safety and the relationships of students with ADHD and their peers. In contrast, participants who shared experiences with primarily inattentive students (personal or colleagues' experiences) focused on the "individuality" of the condition and challenges relating to the learning and the academic progress of these students.

### 12.1.1 Hyperactivity / Impulsivity – Challenges (discipline/safety)

The majority of interviewees (19 out of 23) focused on behaviours related to hyperactivity-impulsivity. These teachers reported that their students were reluctant to accept any kind of restriction; they found it difficult to obey classroom rules and remain seated during the lesson as expected at the elementary school age. Five teachers emphasised the intense difficulty of their students participating in team games and group activities due to a tendency not to cooperate, respect the rules and wait for directions. 10 participants mentioned “out of control” behaviours including climbing to objects and trees, rolling down the floor, throwing out desks and chairs, continual running inside and outside the classroom. The majority of interviewees (16) commended that the second most salient behavioural feature, beyond hyperactivity, was a tendency to scream, to be noisy and over-talkative. Some representative answers are as follows:

What is coming in my mind when listening to ADHD is a year of constant noise, confusion and problems. This boy couldn't remain quiet and seated for more than one minute and believe me I don't exaggerate. He was leaving the seat without reason and permission, he was getting under the desk, he was crawling and spinning on the floor, he was shouting. He couldn't stop talking. I really didn't know how to cope with this student. I tried everything. (Participant 15)

Experiences with ADHD? I could write a book. I experience such a tragic situation this year. I cannot cooperate with this child in any case. He moves all the time in the classroom; he throws rubbers, pencils, rulers to me and his classmates. He does not follow any directions, any rules. His behaviour is out of control. If you come in the classroom for an hour, you will understand how severe the situation is. He screams all the time; he wants to be outside the classroom. I just have a repetition, a buzzing noise in my ear: 'Can I go to the toilet? Can I go to the toilet?' If you don't answer what he wants to hear, he doesn't stop. He cannot participate in any game, in any group activity. This is the reason I avoid group activities this year. The only thing he does is noise. He shreds the course books, he sticks gum and saliva on his classmates' handouts, he throws rocks to the glasses and his classmates during breaks; he cannot control his movements. He climbs the trees and I cannot reach him and put him down. His behaviour is really insufferable. I am a teacher for 15 years and it's the first time I have such a terrible problem. (Participant 5)

In contrast to the majority of participants that placed particular emphasis on behaviours associated with hyperactivity/impulsivity, 4 teachers described behavioural features that could be accounted as an ADHD-Combined Presentation. Besides the extreme levels of hyperactivity, Participants 1, 9, 12 and 18 highlighted their students' difficulty remaining concentrated and their tendency to be forgetful, disorganised and easily distracted by external stimuli. Participant 12, for example, argued:

Every day we have the same situation. He takes the other children's stuff, he stands up and walks in the classroom, he stubbornly refuses to write what I have on the blackboard and he is always absentminded. When the bell rings to get in the classroom, he comes after 15 minutes. He lives in his own world, he constantly looks outside the window and his concentration is distracted by everything. This boy has a combined type of ADHD but the problems related to hyperactivity are more. He cannot remain seated for two minutes, really. He does anything to create confusion and avoid the lesson. (Participant 12)

13 teachers also focused on their students' tendency to get involved in dangerous activities without noticing the consequences, to behave aggressively and be prone to accidents and fights. As they explained, these behavioural features usually resulted in self-injuries and rendered the safety of teachers and typically developing children at risk. The following excerpts demonstrate these viewpoints:

He asked to go to the toilet but I didn't let him. It was the tenth time that day. And he jumped from the window, he was injured but he got out. After that, we decided to move to the ground floor for more safety. If he was seriously injured, the school would be in trouble and I would lose my job. (Participant 10)

He has absolutely no sense of danger. He is so impetuous. Really, I think he has a mental problem. Otherwise it's impossible not to understand how tragic the situation is. He throws stones and laughs, he doesn't realise how dangerous is that. (Participant 5)

Six teachers pointed out examples of children that presented aggressive behaviours towards their peers. Participant 19, for instance, described a boy that was using pins or other sharp items to hurt his classmates. Participant 9 also shared experiences with a

student that was not in position to control his anger and many times he was beating, pinching and biting his classmates without realising what he was doing.

Some participants used an emotionally strong language to describe their experiences. 3 participants, for example, referred to “insufferable behaviours” whereas other 3 participants perceived the presence of students with ADHD as a “terrible problem” for the teaching procedure and the safety of their classmates. 5 teachers talked about a “tragic situation” that negatively influenced not only the lesson but also their psychology and physical health. Participants 16 and 19 defined the school years they had taught students with ADHD as a “hell”. Participant 16, one of the principals, said:

I remember I had 32 students in the classroom. With that boy the situation was much more difficult. I couldn't control his behaviour. I remember I characterised that situation as a hell. I had that child at the beginning of my career as a teacher. So I didn't have even the experience to manage these kinds of behaviours and it was a really difficult period for me. (Participant 16)

Participants' answers indicated that the difficulty in managing behaviours related to hyperactivity/impulsivity usually resulted in feelings of anxiety and distress. Participant 19, for example, reported that she was not able to sleep because of the stress whereas Participant 4 pointed out her intention to quit the job for a year since she felt incapable to cope with the situation. Although having many years of teaching experience, Participant 18 felt that every day was like his “first day in the job”. As he explained, the behaviours of his student were “unpredictable and out of control”. In the excerpts below, another two teachers shared their predicament:

I'll never forget that case. I think it was an extreme case of student with ADHD. Every time I was writing on the blackboard or when I was not next to him, his behaviour was out of control. I am an assistant principal, I have many years of teaching experience and I can say with certainty that the year I had that class was one of the most difficult in my career. That student made me feel stressed because I couldn't do the lesson as I wanted. I want to be perfect in my job but with that child in the classroom, I couldn't. (Participant 10)

I have 15 years of teaching experience and I taught hundreds of students but no one with such a terrible problem as the boy I have this year. I am really desperate. Six months now I have tried hard to minimise these behaviours and make him part of the class. But I can't see any positive result. One step ahead, ten backwards. Every day I leave the school with headache. It's impossible to complete the lesson. In December I got sick. His behaviour became insufferable; I cannot tolerate it anymore. (Participant 5)

### **12.1.1.1 Priority to classroom peers' education**

Participants who indicated experience with hyperactive, impulsive and aggressive students agreed that their primary concern was the preservation of a high quality education for the rest of their students. According to these teachers, behaviours that cause noise and lack of discipline create a general confusion in the classroom and an inappropriate learning environment. As they explained, the management of these behaviours usually absorbs significant instructional time and the lesson purposes remain unfulfilled. Participant 6 emphasised that “the rest of the students cannot concentrate and the teacher necessarily interrupts the lesson and spends most of the time on discipline issues”. Similarly, Participant 17 reported that he was spending an important amount of the teaching time to bring the other students' attention back to the lesson and repeat the same things. There was also a general agreement that hyperactive/impulsive children needed particular attention and constant supervision on the part of the teacher. This was considered “problematic” and “unfair” by participants. As they explained, the extra support and attention were detrimental to the other students' education. Participant 3, for example, said:

When I had the child without the companion, it was really difficult to keep a balance and provide equal support to my students. Every time I was going to help another child, he was running and bothering the others. I didn't know what I should do; to be next to him like a policeman and control his behaviour or to help the other children ignoring the confusion? To be honest, I was paying more attention to him rather than to his classmates. But I was alone in the classroom. His behaviour was so problematic and dangerous that you couldn't let him alone. (Participant 3)

Another teacher elaborated:

The average number of students in each class is 20. You can understand that a teacher cannot pay attention to only one student. It's unfair and against the education of the others. But during that year, I was dealing with that student all the time and I was saying the same things again and again: 'stop, sit, quiet, we are in this page, in this exercise'. How many times the other children to listen to the same things? (Participant 8)

Participant 23 expressed her relief when the student with ADHD was not at school since she could do the lesson "without problems". Participant 13 reported that it was extremely difficult to be on schedule and pay equal attention to the other students that were in the first class of the elementary school and they also needed particular support in developing their reading and writing skills. As she said, "I couldn't finish the lesson and that was really stressful. Every day I was exhausted with his behaviour and I had to keep the balances in the class, to support all my students equally". In the transcript below, another teacher shared her experiences:

If I calculated the actual teaching time, I would say that it was significantly less compared to other school years. I was always behind goals because he was constantly interrupting the lesson and I was spending time to control his behaviours. (Participant 3)

### **12.1.1.2 Priority to safety issues**

Beyond the challenges related to the functioning of the learning procedure, another challenge that teachers encountered was to ensure the safety of children with ADHD and their classmates and normalise their tense relationships. Safety issues were considered of critical importance by teachers who shared experiences with hyperactive, impulsive and aggressive children; children that could not recognise danger and were prone to accidents and fights. Participant 2 talked about her experience:

He is constantly teasing and pinching the children around him. The others get annoyed and they report him again and again. And I discipline his behaviour but I can't make him stop. After two minutes, the same situation. Then the others get

angry and they start fighting. This boy cannot control his anger and many times he is violent. I am always in the middle to stop fights and avoid injuries and this is really stressful. (Participant 2)

Participant 14, a teacher who had the exclusive responsibility to teach physical education and music placed particular emphasis on safety issues rather than pedagogical ones. As he explained, it is harder to discipline a child with ADHD in physical education and music since the structure and the nature of these lessons foster ADHD-related behaviours. According to this teacher, even the typically developing children consider these lessons “a very good opportunity to relax and diverge from the strict schedule of academic subject matters”. Participant 14 highlighted the adverse consequences of not following the instructions and obeying the rules by sharing a relevant incident:

Imagine how children with ADHD behave when they hold a ball or a music instrument. With these children I have to be two and three times more careful. My main worry is their safety and the safety of others. Two years ago, I had a child with ADHD that was playing with a flute and hurt the student next to him by accident. The parents of the second child came to the school and I was in trouble. (Participant 14)

### **12.1.1.3 Classroom peers’ parents – Worries/Complaints**

Teachers’ difficulty in managing ADHD-related behaviours resulted in complaints not only by students but also by parents who considered the presence of students with ADHD against the education and safety of their children. Five teachers gave examples of parents who had readily expressed their disagreement with the education of students with ADHD in the mainstream classroom. These parents primarily expressed their worries about the safety of their children and secondarily about their learning that in their opinion was hindered by their classmates with ADHD. The participants who reported these examples found parents’ worries reasonable. Participant 17, for example, said:

I am a parent and I can completely understand other parents’ concerns. Each parent wants the best quality of education for his child and he has high demands on the

part of the teacher, especially at the elementary school. And you can understand that parents react negatively to anything or if anyone threatens either the learning or the safety of their children. And in reality, the classrooms including children with ADHD are not in worse position in relation to the other classrooms? Parents don't have the right to complain when the behaviour of one child leaves the whole classroom back? Or when the other classrooms have better results? Parents discuss with other parents and compare. And many times they ask to move their children to other classrooms. (Participant 17)

The difficulty in managing ADHD-related behaviours in combination with parents' complaints and the pressure to follow the predetermined curriculum had negative effects on teachers' sense of self-efficacy. 3 participants considered themselves "bad teachers" and they felt "guilty" for their difficulty controlling disruptive behaviours. 9 teachers experienced anxiety and distress whereas 1, 6, 1 and 2 participants reported feelings of panic, desperation, fear and confusion respectively. Participant 8, for example, said:

I was dealing with discipline problems all the time and the other children were listening to the same things again and again and that was really annoying. Students are not stupid. They strictly judge everything and they can understand whether their teacher is not in position to control the classroom and do the lesson properly. And I had many complaints by students and their parents. I had pressure from everywhere; it was really stressful. I felt guilty for the other children because it was my responsibility to manage her behaviour but I couldn't. 21 years I never had complaints by anyone but during that year I couldn't stop problematic behaviours, it's true. And I can't blame anybody for complaining; students or parents. (Participant 8)

#### **12.1.1.4 Relationship with classroom peers – Tense / Unfriendly**

15 out of 23 participants focused on the relationships between students with ADHD and their classmates and their role as teachers to normalise tensions and form friendships. Teachers argued that the relationships between their students with and without ADHD were tense and unfriendly whereas the complaints by peers a daily phenomenon. The behavioural features of children with ADHD that in their opinion resulted in social isolation and peer rejection concerned their difficulty respecting the rules, their tendency to be egocentric, to tease and act aggressively towards their peers, to disrupt

the games and be over-talkative, repeating the same things again and again. The participants reported that they had tried to enhance children's interaction and form good relationships in the classroom. However, typically developing children continued avoiding and excluding children with ADHD from their companies and games. There was a general agreement among participants that the social exclusion was more notable in out of school situations; children with ADHD were not usually invited to social gatherings. The teachers expressed their sadness and worry about the difficulty of these children forming friendships and more importantly maintaining them. At the same time, they could understand the perspective of the other children who tolerated the behaviour of their peers with ADHD for a long time before developing this negative stance towards them. Some representative responses are as follows:

They got tired, they don't want him anymore. And I really don't know what to do to change this bad relationship. Even if I manage his behaviours as much as I can during the lesson, it's impossible to be next to him during breaks. Girls have the biggest problem with him, they don't tolerate his annoying behaviour and they complain all the time. (Participant 12)

At the beginning, children with ADHD, especially the hyperactive ones, are accepted by their peers and become popular in companies. This doesn't last for a long time because these children are constantly naughty and annoy the others. And they start complaining and they are right. How many times to be interrupted and bothered? They report them all the time: 'this child did that and that, he left his seat, he is under the desk, he destroyed our game, he took my pencil, he bothers me all the time and I cannot concentrate.' (Participant 16)

Participant 21 elaborated:

He has no friends and he is always alone. During breaks I observe him running behind the others and he thinks that they are playing. But the other children are just ignoring him. It was really sad when he had invited his classmates for his birthday and nobody went. (Participant 21)

Beyond teachers' difficulty normalising the relationships between students with ADHD and their classmates, 2 participants talked about the complaints by peers for discrimination on the part of the teacher. Participants 15 and 17 explained that the

typically developing children could not understand why their classmate with ADHD was constantly presenting disruptive behaviours but more importantly why the teacher was not reacting with the same stringency, enforcing discipline. The “discrimination in discipline”, as it was perceived by the other children, had as a result the enhancement of stigmatisation and isolation as illustrated in the following excerpt:

Due to the tolerance I was showing, the other children were complaining all the time. They were saying: ‘why this boy doesn’t obey the rules and you never say something and you get angry with us for such a little mischief?’ They thought that I was doing discriminations, that I liked that boy more and they didn’t want him. The other students couldn’t understand that their classmate had a disorder, a severe problem and that was the reason for behaving like that. (Participant 15)

Feelings of anxiety and distress as well as challenges relating to the functioning of the learning procedure, the safety and the relationship between students with ADHD and their classmates, were reported by participants who had taught students with intense hyperactivity, impulsivity and aggressiveness. The experiences, the challenges and the reactions of participants towards children with attention deficits were completely different, as indicated in the following section.

### **12.1.2 Attention Deficits – A “personal problem”**

8 participants made comparisons between students with hyperactivity/impulsivity and those with attention deficits. These teachers supported that the management of inattentive behaviours is not difficult since they do not cause confusion in the classroom or influence the lesson in any way. They explained that inattention is a “personal problem” and they highlighted the negative effects on children’s academic performance. Participant 18, for example, emphasised his student’s difficulty remaining concentrated, especially in theoretical subject-matters and multi-stage procedures. As he said, “This week we learn about the algorithm of division. The algorithm of division has many steps and it is really difficult for him to remain concentrated and understand it. He cannot follow the whole procedure.” Participants 6 and 22 acknowledged teachers’ tendency to focus on hyperactive children and avoid making referrals for inattentive students. Participant 22, for example, said: “I think there are many undiagnosed children

with attention deficits. As teachers, we usually focus on children with problematic behaviours that make our life difficult”. Participant 1 talked about her experiences:

Look. I have a girl with attention deficits in my classroom this year. She is sitting quietly on her seat and she is constantly looking outside the window. Her mind is always somewhere else; she can't follow the lesson procedure. But she doesn't create any problem in the classroom. She just creates problem to herself because she can't concentrate and consequently she can't complete her schoolwork.  
(Participant 1)

Another participant talked along similar lines:

I had a discussion with colleagues about children with ADHD that do not bother anyone; those with attention deficits. But as they told me, it's very difficult for them to learn because they daydream and they lose important parts of the lesson, they forget their books and their homework and they don't understand teachers' instructions as the other children do. They always remain back, their learning gaps grow and their self-esteem is getting lower and lower. (Participant 17)

Similarly to Participant 17, Participants 9 and 13 talked about inattentive children's low self-esteem. The difficulty of these children in learning, the feelings of incompetence, the low academic performance and the constant remarks of educators were in their opinion the reasons for becoming introvert and developing low self-esteem and depressive feelings.

#### **Key findings from teachers' experiences with ADHD**

- 19 participants reported prior experience with diagnosed students.
- 11 had taught students without an official diagnosis.
- Experiences varied according to the behavioural characteristics of students.
- The majority described children with hyperactive/impulsive behaviours.
- These teachers focused on challenges relating to: 1) the functioning of the learning procedure, 2) the safety and 3) the relationships between students with ADHD and their peers.
- Participants who shared experiences with primarily inattentive students focused on challenges relating to the learning and their academic progress.

## 12.2 Teachers' attitudes towards the validity of ADHD

When teachers were asked whether ADHD is a valid disorder or a label with no real justification, all of them supported the validity of ADHD and explained that there is a distinct segregation between children with ADHD and those that are “naughty” and “lazy”. To justify their stance, they reported examples of students that were not in position to control their behaviour and remain concentrated although they wanted and they exerted continual efforts to do that. Participant 1 explained that at the beginning she got nervous with her student since she thought that it was a spoiled child without boundaries from the family. Later on, she realised that the presence of ADHD-related behaviours was not consciously controlled by the child. Another teacher talked along similar lines:

At least the students I had during my teaching career never showed that they were lazy. They had so much stress, they wanted to learn. But it was difficult for them to remain focused. They were trying but they couldn't. I don't accept the term 'lazy' and I strongly believe it's a valid disorder. (Participant 18)

Participant 8 shared her thoughts about this issue, saying:

I think that ADHD is a real disorder; something that the child brings since birth. The girl I had was neither lazy nor naughty. It was a hard-working child that made efforts to remain seated, to concentrate and complete her schoolwork and homework. She had the disposition to behave like the other children but she couldn't. She couldn't remain still. She was playing with her pencil, the exercise book, she was looking outside the window and she was teasing her classmates. (Participant 8)

Although ADHD has been recently recognised in Cyprus, 5 interviewees argued that this disorder always existed and indicated experience with students that presented ADHD-related behaviours in the past. Participant 14 provided his explanation why the disorder was not recognised in the previous decades:

The educational system and the society didn't pay attention to these phenomena. People's primary concern was to ensure the basics for their family; the standard of

living was low. Forty and fifty years ago, the majority of students could only attend the elementary school. Nowadays the situation is different. All children attend the school and there is a tremendous progress in medicine and psychology. The new living conditions gave us the opportunity to focus on these issues. Of course it is not an imaginary disorder. I am pretty sure there were children with ADHD before but they didn't have the time, the knowledge and the resources to diagnose them. While the standard of living increases and the educational system and medicine advance, disorders like ADHD become more official and well recognised. And I think in the future, biochemical exams and brain scans will precisely detect the problem since birth. (Participant 14)

### **12.2.1 Questioning the validity of diagnostic conclusions**

Unlike teachers' agreement regarding the validity of ADHD, 8 participants questioned the validity of diagnosis. Participant 11 felt that the diagnostic conclusions are under dispute since precise diagnostic procedures are not followed. In her opinion, specialists often conclude an ADHD diagnosis without being completely sure whether a student belongs to this category, to another category or presents comorbidity. Participant 13 also challenged the validity of diagnosis, supporting that specialists proceed to conclusions without proper investigation and diachronic assessment of children's behaviour. Five teachers talked about over-diagnosis. Participant 12 explained her view in this way:

I believe that ADHD is a valid disorder. At the same time, I think that we tend to even justify naughty behaviours saying that it's ADHD. Of course there are some children that really have ADHD but I think there is over-diagnosis. Without having the necessary evidence we say that a child has ADHD. I don't know. It's like a trend. We diagnose so many children with hyperactivity, attention deficits while this may not be the case. Consequently, some children are rightly diagnosed and some others not. Maybe this happens in order some specialists or institutes to earn money. I don't know. (Participant 12)

Another teacher elaborated:

Many times, a 'fake' ADHD diagnosis is a proper excuse for parents and teachers to desist effort, saying that they cannot intervene to the biology and genes of the

child. Thus, they stop feeling guilty or shame for the behaviour of their child or their student. (Participant 7)

Considering that the presence of only attention deficits cannot be perceived as ADHD, Participant 4 also questioned the validity of diagnosis. This teacher talked about a child that had been diagnosed with ADHD without presenting signs of hyperactivity. In her opinion, the diagnosis was “wrong” and “exaggerated” as illustrated in the following transcript:

He had severe problems with concentration but I didn't notice any symptoms of hyperactivity. That specific diagnosis became privately and I believe it was too early. I don't know. I am pretty sure that in Cyprus we have over-diagnosis. Because I told you; that boy didn't have any symptoms of hyperactivity. I have the impression that they present the situation more severe than in reality and they diagnose children without reason. (Participant 4)

### **12.2.2 Origins of ADHD**

Along with their attitudes towards the validity of ADHD, all but two participants expressed their views about the origins of the disorder. Eight of them advocated that ADHD originates exclusively from biological and genetic factors. Participant 11, for example, argued: “When teaching children with ADHD, you realise that the problem is organic. It's something biological that cannot be changed. They are like blind people. They are born like that.” Participant 13 connected the biological origins of the disorder with the existence of pharmacological interventions. Participant 5 talked with certainty about the biological/genetic causes of ADHD, indicating experience with “insufferable behaviours” that could not be explained by other reasons beyond genetic or biological. Participant 5 further explained her view, saying:

It's so different to teach a naughty child and a child with ADHD. You cannot cope with ADHD. Definitely the problem is biological. Something is wrong inside the child. I am sure they have some impairment that prevents them from being in control. Otherwise I cannot explain the tragic situation I experience this year. And I strongly believe that the problem is inheritable because during the assessment

procedure we learnt that his father also presented ADHD behaviours at school.  
(Participant 5)

In contrast to the eight participants that attributed the disorder exclusively to biological and genetic factors, 5 educators supported that each child may develop ADHD for different reasons. According to these interviewees, there is a group of children with biological or genetic predispositions to ADHD and another group of children who develop the disorder due to various dietary (e.g. high consumption of sugar) and family factors (e.g. chaotic and dysfunctional family environments, poor parenting practices). Participant 22 shared her thoughts about this issue:

In some cases the problem is genetic. In others, it may be the result of eating habits. I watched a TV programme about the bad effects of sugar and food preservatives. I do not doubt anything. But for sure it's not a label that we created. ADHD exists. In some cases the problem is due to the problematic situations that a child experiences at home. It depends. (Participant 22)

Similarly, Participant 15 talked about two categories of children with ADHD. The first one consisted of children with a biological predisposition to the disorder whereas the second one of children that "misbehaved" due to insufficient boundaries, rules and routines. As this principal suggested, the training of parents whose children belong to the latter category is necessary. What Participant 15 describes in the following excerpt illustrates this attitude:

The parents of these children should be trained and be supported by specialists so as to learn how to grow up their children, how to behave and set rules and routines early. Unfortunately, these parents think that they are good parents when they always say 'yes' and spoil their children. But this is wrong and their actions cause many problems. One of them is ADHD. And it's reasonable. When parents never forced their child to remain seated, to follow some rules and routines at home, ADHD behaviours in the classroom are predictable. (Participant 15)

Two educators stated that ADHD is always attributed to external factors. Participant 9 reported that the dysfunctional family environment is the main origin of ADHD and gave examples of diagnosed children who had experienced "intense fights between

parents” or “a difficult divorce”. This teacher also discussed the excessive demands of the modern lifestyle that force both parents to work almost all day, leaving their children home alone. As she explained, children that do not grow up with the presence of their parents and do not develop strong emotional bonds with them tend to present ADHD-related behaviours. Participant 9 concluded saying, “Unfortunately we cannot intervene to each child’s family and change the situation at home that in my opinion is the main cause of this disorder.” Similarly, Participant 20 argued that ADHD originates from the contemporary nutritional habits that are full of sugar, artificial ingredients and preservatives as well as from the modern ways of entertainment that are limited to in-house activities (e.g. TV, videogames). She said:

ADHD is a disorder of our era. And I think that this happens because the living conditions have changed. Think how children were living 50 and 60 years ago. They didn’t have sweets and chocolates. All these cause hyperactivity. And it’s not only about food. Since babies, they are in front of a TV; they watch things that move so fast. Children’s life in the previous years was much simpler. Namely, our way of life causes ADHD. Parents work hard and children stay home alone and spend their time in front of a computer. Their brain deals only with images that move fast. And when you put them in a classroom, in front of a teacher, they cannot concentrate. And it’s logical. The traditional lesson has nothing to do with the out-of-school life and children find it slow and boring. And because of this, ADHD behaviours develop. (Participant 20)

In contrast to the rest of the teachers, who attributed ADHD to single factors (either biological/genetic or environmental), 5 participants supported that biological and genetic risk factors interact with environmental risk components in order to cause ADHD. These teachers explained that a child with a genetic or biological predisposition does not necessarily have ADHD since the development of the disorder also depends on the living conditions he experiences at home. The following transcript illustrates this idea:

If a child has a biological predisposition to ADHD and grows up in a problematic environment, then the likelihood of being diagnosed is high. But I don’t think that a child without a predisposition can develop ADHD because of environmental factors. Since there are pharmacological interventions, I am pretty sure there is a biological problem. (Participant 10)

Another teacher talked along similar lines:

I am sure there is a genetic predisposition. But I don't dismiss the environmental influence. ADHD genes are externalised in certain conditions. When a child lives in an unbalanced family environment without support, supervision and communication with parents, then it is more likely to externalise this predisposition. When a child lives in a healthy and supportive family, then the likelihood for ADHD is lower. Even if the disorder appears, the behaviours will be more manageable. I can see this from my student this year. He comes from a very good family. They follow a specific programme, they set rules and routines and they cooperate with school. They do a great job. When I say 'I will talk to your parents', he immediately stops misbehaving. (Participant 19)

Participant 16 offered a different opinion about the causation of ADHD. According to this teacher, the origins of hyperactivity are differentiated from the origins of attention deficits. She attributed hyperactivity to biological and genetic factors ("children present hyperactivity since birth") and attention deficits to "problematic family environments" or difficult situations, such as a health problem or a family member death.

**Key findings from teachers' attitudes towards the validity/origins of ADHD**

- All participants supported the validity of ADHD.
- 8 teachers challenged the validity of diagnostic conclusions and talked about "over-diagnosis" and "misdiagnosis".
- Teachers' beliefs about the origins of ADHD varied.
- 8 teachers argued that ADHD originates from biological and genetic factors.
- 2 teachers stated that ADHD is attributed to dietary and family factors.
- 5 teachers suggested that children develop ADHD for different reasons.
- 5 teachers acknowledged the complexity of ADHD and supported that it cannot be explained based either on single biological/genetic or environmental factors.
- 1 teacher attributed hyperactivity to internal factors and inattention to external ones.

## 12.3 Experiences with previous INSET

### 12.3.1 No experience with INSET

18 participants indicated no prior experience with INSET. The reasons for not participating in any relevant INSET opportunity had to do in all but one case with external factors that teachers could not control. Only Participant 8 expressed unwillingness to learn about the disorder. She said: “The truth is that I haven’t intended to. ADHD is a topic that I am not interested in so as to spend my free time for attending seminars.” The rest of the teachers expressed their disappointment with the inadequate INSET and explained that they had neither cooperated with specialists nor received information for relevant programmes. These teachers highlighted the importance of INSET and expressed their readiness to get involved in relevant opportunities. Participant 10 argued:

Even if there were some available seminars and workshops, nobody informed me and I didn’t know where to appeal for support. And it was sad because I was just doing experiments and so much time was lost. If I had the chance to be trained, the situation would be much better. (Participant 10)

Another participant elaborated:

What I had done was based on my experiences; I have two children and many years of teaching experience. The problem is not only for ADHD but also for other topics we need INSET about. The INSET system in Cyprus ‘suffers’; it cannot satisfy our needs in any case. (Participant 9)

Five participants expressed their intense disagreement with the policy of the MoEC to provide INSET opportunities primarily to special teachers. Participant 23, for instance, explained that it would be more reasonable to give priority to mainstream school teachers who did not have the opportunity to be trained about these issues during their first degree. One of the principals, a PhD holder, criticised the current INSET system by

providing a comparison between the system of Cyprus and that of the country she had completed her PhD. She said:

I don't know if there are INSET opportunities outside the school but within the school nothing. There are some whole-day seminars about inclusive education, once per year, but they are not available to mainstream school teachers, only to special ones. I can't understand the philosophy of this. In my opinion, we have a completely unsuccessful INSET system. In the country I did my PhD, every six years teachers leave the school for six months in order to attend INSET for all the topics. Otherwise, they are not considered qualified anymore. In Cyprus there is no INSET. In cases there are some seminars, they are ineffective. They only provide theoretical knowledge that teachers forget when they get out the room. We spend so much money to arrange seminars with foreigner specialists without reason. It's not something systematic that we build on. (Participant 11)

Participants also expressed their discontent with the bureaucratic and time-consuming procedures for diagnosis and support. Participant 23, for example, argued that the MoEC had consciously increased the bureaucracy in procedures to prevent teachers from making referrals and asking for support. Participant 15 complained about the "ineffective role" of special teachers and psychologists. In his opinion, they do not provide the necessary support to mainstream school teachers. They just mediate between schools and the MoEC, "filling forms and maintaining an unneeded bureaucracy". Participants 10 and 13 also criticised the tendency of the MoEC to offer INSET opportunities only for academic subject matters, such as Greek and Maths. Ten educators gave examples of children that had remained undiagnosed for years due to the time-consuming diagnostic procedures. As they explained, the teachers of these children had not received information or any kind of support in the meantime or after the diagnostic conclusions. Participant 12 shared her experiences:

I have a child that was diagnosed with ADHD this year, after our continual efforts. This child is in the fourth class now. I understand that the procedure takes some time but not so much. To make you understand the problem, I started the diagnostic procedure when I had this child again in the first class. Four years without any official intervention by the MoEC. Neither me, nor the teachers of the second and third classes received INSET. (Participant 12)

Another teacher shared her experiences:

I had a child with severe problems of hyperactivity and aggressiveness that had been diagnosed privately. I had sent the diagnostic documents and many reports about his behaviour, what he could do and what he couldn't, and I was asking for help. But I hadn't received any answer for months. At the end of the school year, they came in my classroom for five minutes and they left. I never had further communication with them. (Participant 4)

Despite general discontent with the time-consuming procedures, Participants 5 and 16 acknowledged that the deficiencies of the system were not specialists' fault. They both reported that the number of the MoEC administrators and specialists is small and delays in the process of diagnosis and support reasonable. Participant 5, for example, said that there was only one psychologist for the elementary schools of two districts.

### **12.3.2 Experience with previous INSET**

Five participants indicated prior experience with relevant INSET. Of them, only one teacher found it particularly helpful. This specific teacher (Participant 12) had participated in a programme delivered by ADD-ADHD CYPRUS. Beyond theoretical information (e.g. ADHD causation, diagnostic criteria), this programme placed particular emphasis on the management of ADHD-related behaviours at school and home and involved participants in practical workshops. The participation of parents, the exchange of experiences and intervention practices were in her opinion major advantages of the programme. Participant 12 reported that the knowledge she gained, the communication with specialists and the overall support of the organisation made her feel more confident to undertake the education of children with ADHD. However, she acknowledged that "further INSET from the MoEC is always welcome". The only limitation that was noted by Participant 12 concerned the time. She said:

I recommend it unconditionally. But it needs time. When I attended these sessions I had plenty of time. I didn't have my children and I could easily leave the house during the weekend. Now the situation is different. I have two children and many responsibilities. When INSET is not in working time, it's not easy to go anymore.

And it's not only me. More than 90.0% of teachers have families and they struggle to spend their free time for INSET. (Participant 12)

Notwithstanding the fact that Participant 12 found the support of ADD-ADHD CYPRUS particularly helpful, only two interviewees knew about the organisation. The rest of the teachers, who indicated experience with INSET, had attended the five-session seminars of the CPI. These teachers acknowledged the contribution of the seminars to the acquisition of a basic knowledge background but focused on the limitations that undermined their effectiveness. In their opinion, the main limitation was the theoretical orientation of the seminars and the lack of practical recommendations for the management of ADHD-related behaviours. The four participants felt that the seminars were detached from the classroom reality and therefore they did not facilitate the management and teaching of children with ADHD as expected. Two participants found the seminars of the CPI "boring", whereas all of them criticised the lack of continuity and communication with the trainer. The following excerpt demonstrates these viewpoints:

I remember it was a set of five seminars, once per week. On a scale of 10 I would evaluate them with 3 because they were theoretically-oriented and barely supported my work in the classroom. Even if I had some information in my mind then, after so many years I forgot everything. And I really wonder; they don't understand that once in your teaching career is not enough? (Participant 15)

Participant 16 talked along similar lines, criticising the seminars of the CPI:

The seminars were more like a lecture. We didn't talk a lot about our experiences with children and how to deal with them in the classroom. We left back the most useful part. To be honest, these seminars neither pleased me, nor helped my work in the classroom. After two years, when I had a child with ADHD again, honestly, I decided to attend them for a second time. Neither the first or second were useful. (Participant 16)

As Participant 16 elaborated, the different background of participants had as a result the content of the seminars and the discussions to be kept at a "general and superficial level". As she explained, "a trainer, who has in front of him educators from a pre-

elementary to a high-school level, cannot focus on the different needs of each school-age”. This teacher concluded, suggesting that the educators of each educational level should be trained separately and INSET should be accommodated to their needs. The four teachers also focused on the inconvenient time of these seminars. Participant 20, for example, said:

The time is an important impediment. I am not aware of other colleagues with families who attended these seminars. The MoEC, which in my opinion should train all teachers in working hours, is absent. If the MoEC doesn't promote INSET, how they expect from us to spend our free time voluntarily? A typical teacher with personal life and family commitments doesn't have the time and the mood to spend afternoons and weekends for trainings. (Participant 20)

#### **Key findings from teachers' experiences with INSET**

- 18 participants reported no experience with relevant INSET.
- The reasons for not participating in INSET programmes on ADHD were in all but one case external ones that could not be controlled by teachers.
- Of the five teachers, only one found the INSET programme attended particularly helpful (INSET provided by ADD-ADHD CYPRUS).
- The other four participants focused on the limitations relating to the time, the form and the content of that INSET opportunity (INSET provided by the CPI).

## **12.4 Teachers' predisposition to choose classrooms including children with ADHD**

When participants were asked whether they would choose classrooms including children with ADHD, 17 of them responded negatively. The two main reasons for this decision had to do with the difficulties that arise when having a child with ADHD in the classroom and the lack of preparation on the part of the teacher. These educators supported that the teaching in classrooms with children having an ADHD diagnosis is more difficult than the teaching in classrooms with typically developing children. At the same time, they highlighted that they had not been trained on ADHD and thus they did

not feel confident to undertake the education of these children. As illustrated in the following transcripts, teachers' sense of self-efficacy to manage ADHD-related behaviours and teach this group of children was low:

I am not proud of my response, but no. I know that it's difficult and with the knowledge I have, I don't feel I am in position to manage these behaviours and have the desirable results in the lesson. (Participant 1)

I haven't been trained in order to choose classrooms including children with ADHD. I have changed many schools and I met hundreds of teachers. We are all in the same position. I never had a colleague who asked for a classroom with ADHD. (Participant 14)

We have the responsibility to teach all the subjects, the number of students in each classroom is high and a child with problematic behaviours can only make the situation worse. The MoEC never invited mainstream school teachers for INSET on ADHD. I think it's logical not to feel confident to choose these classrooms. If I was a teacher and not a principal, I would never go to my principal and say, 'can I have this classroom?' (Participant 11)

As indicated in the response of Participant 11, the high number of students in each classroom constituted another reason for not undertaking the education of children with ADHD. Participant 22 also considered the classroom size an important factor. In her opinion, "it is much more manageable to have a child with ADHD in a classroom of 10 rather than in a classroom of 25". According to this participant, in a classroom of 25 students the teacher does not have the time to manage ADHD-related behaviours, to support the child with ADHD academically, to maintain a high quality education and provide equal support to the rest of the students.

4 teachers justified their negative stance focusing on the pressure to follow the curriculum and fulfill the pedagogical purposes defined by the MoEC. In their opinion, the lesson purposes remain unfulfilled when there are "problematic behaviours" in the classroom and the teacher constantly deals with discipline issues. These participants explained that the need to follow the national curriculum in a specific timeframe and the lack of flexibility remove educators' freedom to adjust the lesson to the needs of their students. Worries about their evaluation by principals and inspectors, the need to

complete the lesson as arranged and equally support all the students were participants' reasons for not choosing classrooms including children with ADHD. Some representative answers are as follows:

The truth is that in classrooms with children having ADHD, teachers face more difficulties in discipline and teaching. Therefore, they need help. If there is no support and cooperation with specialists, these teachers will definitely be in worse position in relation to their colleagues who have quiet classrooms, without special problems, and can progress with teaching without delays. Which teacher would select a classroom with problems? You have the pressure to follow the curriculum; you have the pressure to give all the necessary qualifications to your students. (Participant 17)

On the one hand, they want to accommodate these children in the mainstream classroom and on the other hand they haven't provided either INSET or flexibility to arrange the lesson purposes accordingly. If you don't want these students, you are not a good teacher but if you don't fulfill all the purposes, again you are not a good teacher and you have a negative impact on your evaluation. As the situation in our schools remains like that, I wouldn't choose classrooms with students having ADHD or other special needs. (Participant 23)

Six participants justified their preference for classrooms with typically developing children, explaining that the teaching of children with ADHD is "exhausting" and "stressful". Participant 19, for example, said:

I wouldn't risk it because I told you before. I couldn't sleep from the stress when I had that child. I couldn't make him sit and do my lesson. It was a really exhausting period. Why to do this to myself again since I have the right of choice? (Participant 19)

Participant 5 also focused on the negative effects that the presence of children with ADHD may have on teachers' psychological and physical well-being. At the same time, she criticised the support and motivations provided by the MoEC in order to choose these classrooms:

Without doubt, the answer is no. Why to choose a classroom with problems? They will give some benefits or extra money? No. I love my job but this year I leave the school with headache and nobody came to help me six months now. The situation is tragic. All these regarding inclusion are ideal only in theory. Not in reality. Those who support inclusion, sitting comfortably in their quiet offices, let's come to teach them. (Participant 5)

Based on their experiences as principals and responsible for the allocation of classrooms at the beginning of each school year, Participants 7 and 21 verified teachers' tendency to avoid classrooms that include children with ADHD or other special needs. Participant 21 explained that when teachers work in a specific school the year before and they know in which classrooms there are students with ADHD, they usually avoid them and they ask to undertake another classroom. As this principal elaborated, this is the reason for allocating these classrooms to new-coming teachers who are not aware of the classroom history and thus they do not complain. Participant 8 expressed her disappointment for this discrimination. Participant 7 also talked along similar lines:

To be honest, all teachers prefer classrooms with typically developing children. When there is a child that needs specific treatment, they prefer not to undertake this classroom. This is the truth. (Participant 7)

In contrast to the majority of teachers, 6 participants appeared to be more positive to choose classrooms including children with ADHD. They set, however, some preconditions that should be fulfilled. Participants 12 and 15, for example, responded that they would choose these classrooms if they received additional INSET. Similarly, Participant 10 considered the presence of specialists in schools essential and he set as a criterion the systematic communication and cooperation with them. Participant 4 also stated that this decision depends on the educational conditions and the support provided. She said:

It depends. If there was provision, if the child was attending the lesson in the mainstream classroom for some hours with a trained companion, then yes. I wouldn't have any problem to choose this classroom. It would be a challenge for me and I would really enjoy doing it. But under these conditions, where the teacher pulls his hair from desperation, I wouldn't. (Participant 4)

Participant 13 acknowledged that she did not have the knowledge to manage ADHD-related behaviours. However, she appeared to be positive to choose classrooms with children having an ADHD diagnosis. In her opinion, “teachers with greater years of teaching experience should choose these classrooms since they are more able to cope with difficult behaviours compared to younger colleagues”. Finally, Participant 6 responded that she would consider all the parameters before taking her decision. According to this teacher, the main criterion would be the background of the colleague that would alternatively undertake the classroom. Namely, the colleague’s years of teaching experience, the knowledge and previous experiences with ADHD would inform her decision.

**Key findings from teachers’ predisposition to choose classrooms including children with ADHD**

- 17 participants were completely against the idea to choose classrooms including children with ADHD.
- The two main reasons for this decision had to do with the difficulties that arise when having a child with ADHD in the classroom and the lack of preparation on the part of the teacher.
- 6 participants appeared to be more positive to choose classrooms with children having an ADHD diagnosis.
- They set, however, some preconditions that should be fulfilled (e.g. additional INSET, communication and cooperation with specialists, trained companions).

## **12.5 Teachers’ attitudes towards the appropriate educational setting**

When the researcher asked whether children with ADHD should be educated in the mainstream classroom or in a different educational setting, the attitudes of participants varied. 5 participants acknowledged that each child with ADHD is unique and therefore there is not a specific educational setting that can meet the needs of all diagnosed children. According to these teachers, each child should be considered individually and

the decision should be taken bearing in mind the nature of observed behaviours and the severity. In this vein, they argued that primarily inattentive students that do not disrupt the lesson should be educated in the mainstream classroom along with their peers. In contrast, students with hyperactivity, impulsivity and possibly aggressive behaviours should be educated either in a special setting (e.g. in a special unit) or for few hours in the mainstream classroom under the supervision of a companion. Participant 19 supported that this decision is not “black or white” whereas Participant 11 said that “one size does not suit to all”. This teacher highlighted the need to take into account all the parameters and people affected from this decision; the child with ADHD, the teacher and the classmates. Participant 2 also said:

The setting should be chosen according to the severity and whether a child has only attention deficits or hyperactivity as well. Because inattention is something personal, it doesn't affect anyone else. The classroom is quiet and the other children can attend the lesson without problem. In this case I think it's unfair to exclude these children from the classroom. The hyperactivity, the noise and the confusion, the fact that there is no discipline influence the whole class. In cases when children with ADHD hinder the learning of the other students, then they should be educated separately; either one-to-one or in a special unit. (Participant 2)

Participant 16 was another teacher who considered the mainstream classroom the most appropriate learning environment for inattentive students. However, she stated that the instruction of students with attention deficits presupposes preparation on the part of the teacher. In her opinion, each teacher should learn how to minimise distractions and arouse the child's interest for the lesson.

6 participants were against the instruction of students with ADHD in the mainstream classroom and favoured special educational settings (e.g. one-to-one instruction, instruction in a special unit or a special school). Participant 23, for example, perceived one-to-one instruction as the most suitable setting for two reasons. As she explained, individual support is beneficial for children with ADHD since it enhances their concentration and learning. At the same time, she found the teaching in the mainstream classroom “exhausting” for their teachers and at the expense of their classmates. Participant 1 agreed that one-to-one instruction is ideal for covering the learning gaps that grow due to attention deficits. In contrast, Participant 3 justified her stance focusing

on the negative effects that the presence of students with ADHD may have on the learning procedure. She said:

From my experience, I can say that it's really difficult for the teacher and the other students to have a child behaving like that in the classroom. These behaviours influence the quality of the lesson and this is unfair for the others. For me, there are two possible solutions; either to be educated in a special unit by special teachers or exclusively in a special school. (Participant 3)

Participant 10 explained that the high number of students in each classroom as well as the lack of provision and knowledge on the part of teachers render the accommodation of these children in mainstream classrooms "problematic and special settings the only way". Of the six teachers, Participant 5 had the most intense reaction against the education of children with ADHD in mainstream settings:

In any case in the mainstream classroom; they can't follow the programme of a typical classroom. They should go in special education. Honestly; this year I spend the time to resolve discipline problems and I never finish my lesson. I can't teach; I believe he should be outside the classroom, I can't tolerate him anymore. I don't believe in inclusive education; it's applicable only in theory. As a mainstream and not a special teacher, I need to ensure the academic progress of all my students and their safety which is at risk. I can't be next to him all the time. I am an elementary school teacher and I have to do lesson, not baby-sitting. (Participant 5)

In contrast, 4 teachers advocated the full-time education of children with ADHD in the mainstream classroom. They set however some preconditions that should be fulfilled; smaller classroom sizes, enhancement of teachers' knowledge of the disorder and the management of ADHD-related behaviours. When the four participants were asked to provide the rationale behind their decision, all of them argued that the education in the mainstream classroom prevents social isolation and stigmatisation and develops children's social skills. Participant 14, for instance, said:

You can't exclude the child from the classroom because the group is really important for socialisation. If you isolate the child and hinder the interaction with the classmates, there will be serious problems in life afterwards. Socialisation begins from the small group, step by step. And then the child develops the skills

needed to be included in bigger groups. It is important to think. How a child that always works in one-to-one situations will be able to get a job in a sector where the cooperation between colleagues is demanded? It will be really difficult. (Participant 14)

8 participants argued that a combination of mainstream and special settings would be the most appropriate educational approach for children with ADHD. The main suggestion of these teachers was the part-time education in the mainstream classroom, under the supervision of a companion or a special teacher, in parallel with individual supportive teaching. Based on her experience, Participant 12 supported that the most suitable person to undertake individual supportive teaching is the teacher of the mainstream classroom. As this educator explained, cooperation between mainstream school teachers and specialists is usually minimal. This has as a result the supportive teaching to be unrelated to the teaching of the mainstream classroom. In the opinion of Participant 12, mainstream school teachers who have a continual interaction with their students can easier detect and cover their learning gaps through one-to-one instruction. These educators also emphasised the importance of distributing the teaching time per setting according to the needs of each child and rearranging at frequent intervals as necessary. The transcript below is representative of the above views:

Children with ADHD need individual support; this doesn't mean that they should be educated separately. They should be in the classroom and receive parallel support by special teachers. Special teachers must be in the classroom to observe children's behaviour and evaluate whether there is any improvement. If yes, the teaching hours in the mainstream classroom should gradually increase. Otherwise, special teachers should work on the behavioural and learning needs of these children during the supportive teaching. (Participant 17)

Participant 16 favoured one-to-one supportive teaching but criticised the tendency to exclude students with ADHD from lessons such as physical education, music and art. This educator suggested that the schedule of supportive teaching should be rearranged regularly so as children to participate in non-academic lessons as well which enhance their social and cooperative skills. The need for socialisation was the reason why Participant 7 favoured the part-time education of children with ADHD in the mainstream classroom. As he explained, individual supportive teaching is the most

appropriate for children's academic progress, whereas the environment of a classroom corroborates the feeling of belonging and helps them create friendships. Participant 9 provided a different rationale behind her decision. She considered that children with ADHD "misbehave" and the way for behaving "normally" is their interaction with typically developing peers and the imitation of their behaviour. She said:

Children with ADHD should be included in the mainstream classroom for some hours. This is the only way to understand what the appropriate and the expected behaviour is. The total isolation would make them worse. As teachers we have to remind them what the normal behaviour is and help them minimise abnormal behaviours as much as possible. (Participant 9)

### **12.5.1 Companions**

As indicated in the previous section, the responses of participants regarding the appropriate educational setting varied as well as the thinking behind the decision of each one. Although a specific question about companions was not asked by the researcher, 17 out of 23 participants discussed the positive and adverse effects that the presence of companions may have. The stance of teachers was differentiated according to their prior experiences. 3 participants, for example, reported "bad" experiences with companions and disagreed with their presence in the classroom. In the opinion of these teachers, companions cannot at the moment fulfill the expectations of their role because they do not have the knowledge and skills to manage ADHD-related behaviours and support children's learning. They found that companions hinder the education of the accompanied children and concluded that their presence has more harmful than beneficial outcomes. Participant 4, for example, expressed her intense disagreement with companions saying:

At the moment, the role of 'companion' is useless. Namely, they put a random lady next to the child with ADHD, like a decoration. The hyperactive boy I told you before had a companion next to him all the time. But she didn't know how to control his behaviour. Companions haven't been trained for this role. They are not degree holders. They just completed the lyceum; sometimes neither the lyceum. I really don't understand why they don't set some criteria for the appointment of companions. They put anyone in this position. I guess the reason is financial. The

salary of companions is really low. Imagine the difference in salary for nominating special teachers in these positions. (Participant 4)

In contrast to Participants 4, 6 and 10, 14 teachers considered the presence of companions essential for the management of ADHD-related behaviours and the facilitation of the teaching procedure. Participants with prior experience with hyperactive, impulsive and aggressive children pointed out that their education in the classroom without continual supervision was detrimental to the other children's learning and safety. In the excerpts below, two participants share their experiences and positive attitudes towards companions:

That child couldn't be in the classroom without companion. The combination of hyperactivity, aggressiveness and no sense of danger was a 'disaster' for the lesson and our safety. When the companion was not at school, it was a nightmare. Without her support, his behaviour was uncontrollable and we were all in danger. Because I couldn't be next to him all the time; I had 22 students to teach. We say for equal rights in education. On the one hand, we ensure these children's right to be educated in the mainstream school. But I haven't seen the opposite to happen. How the Ministry protects the other children's right for education when a child absorbs the attention of the teacher and undermines the quality of teaching? (Participant 11)

It was my first year, I had so much stress anyway and I had never heard about ADHD. If I had under my supervision only that child, I would find ways to control his behaviour. But I had a whole class and I couldn't pay attention to only one. Fortunately the companion was amazing. She set boundaries and she found ways to make him calm. When this was impossible, they were leaving the classroom and I could finish my lesson without problems. (Participant 19)

Although the majority of participants focused exclusively on children with hyperactivity/impulsivity, 5 participants highlighted the importance of companions for children with attention deficits. These teachers explained that in a typical classroom of twenty and over students, the mainstream school teacher does not have the time to constantly provide one-to-one support to the child with ADHD. Participant 2, for example, reported that a companion can benefit not only the child with attention deficits but his classmates as well. On the one hand, the companion will bring the child's concentration back to the lesson and repeat or simplify instructions as needed whereas

the mainstream school teacher will have plenty of time to individually support all the students according to the needs of each one. Participant 8 talked along similar lines:

I don't think these children should attend a special school. But a companion is necessary. Thus, they won't be isolated and at the same time they will receive the support that a teacher cannot give them. When I had that girl, I was mostly dealing with her. The extra time was helpful; but only for her. For the others, the continual repetition was annoying and they were complaining. (Participant 8)

Participant 13 acknowledged both advantages and disadvantages in the role of companions and recommended ways for their elimination. According to this teacher, accompanied children usually experience stigmatisation and develop feelings of inferiority that negatively influence their interaction with peers and the creation of friendships. In her opinion, the problem of socialisation and stigmatisation would be resolved if companions were assistants of the whole classroom and provided more discreet support to these specific students. Participant 13 highlighted the need to alter the current strict supervision not only inside the classroom but also during breaks and unstructured activities. She disapproved of companions' tendency to constantly be next to these students and suggested letting them behave and play "normally" while observing from a distance that they can intervene if needed.

**Key findings from teachers' attitudes towards the appropriate educational setting**

- Teachers' attitudes towards the appropriate educational setting varied.
- 6 teachers favoured special educational settings.
- 4 teachers advocated the full-time education of students with ADHD in the mainstream classroom.
- 8 teachers favoured a combination of mainstream and special educational settings.
- 5 teachers suggested different educational settings according to the type and the severity.
- Teachers' attitudes towards companions were differentiated according to their prior experiences.

## 12.6 Teachers' recommendations for future INSET

### 12.6.1 Preferable time

When participants were asked about the preferable timeframe, all of them reported that INSET in non-working time is neither convenient nor particularly helpful. In their opinion, INSET during afternoon and weekend time is usually not tailored specifically enough to the classroom reality and the needs of each teacher. It was also considered discouraging for educators whose free time is restricted due to family and other commitments. In the excerpt below, Participant 2 provides her rationale behind this decision:

The ideal for me would be in working time. I heard that the CPI arranges some seminars but I didn't find time to go. I am a mum of 3 children and when I leave the school I pick up my children from their schools. I prepare their lunch, I clean, I help them with their homework and I drive them to their non-school activities; swimming, handball, private lessons for English and French language. My husband works until 6 o'clock every day. He can't help me. Let's say I find someone to take care of my children for some days. There are so many topics to be trained about. Imagine; 5 afternoons for ADHD, 5 for emotional problems, 5 for autism and so on. Especially when you have little children and no one to take care of them, it's really difficult. (Participant 2)

Having in mind a pilot INSET programme that had been applied the year before in elementary and high schools, Participants 3 and 10 recommended the arrangement of "INSET days". As they explained, during these days students will stay at home and all the teaching staff will have the opportunity to receive school-based INSET on ADHD.

### 12.6.2 Preferable place and type

Participants appeared to be against out-of-school INSET which in their opinion only provides general theoretical information. As they supported, INSET would be more convenient and helpful if it was conducted within each school and focused on the children with ADHD that educators had in their classrooms. There was also a general negative attitude towards the attendance of single informative events (e.g. seminars); the

most common type of INSET in Cyprus. Nine participants expressed their disagreement with the provision of theoretical information (e.g. the causes of ADHD) and highlighted the importance of focusing on interventions that will facilitate the management of ADHD-related behaviours. Participant 1, for example, said:

It's really boring and pointless to sit on a chair and listen to a lecture on ADHD. At some point you get lost and you leave the room without having in your mind some accommodations, some practices you can apply to manage the behaviour of your student and make the situation in your classroom better. I don't know if it's only me but I don't want to go to a seminar and listen to a literature review. If I want to learn about the causes of ADHD, for example, I can find information in relevant web-pages or books. (Participant 1)

In contrast, 14 participants argued that the ideal INSET would be a combination of theory and practice. In their opinion, the acquisition of a basic theoretical background should be the first phase of an INSET programme. As Participant 19 supported, "it's difficult to understand a situation and intervene effectively if you don't know what is hidden underneath this situation". Participant 22 strongly agreed with this viewpoint. She said:

A solid building presupposes a strong basis, doesn't it? The same in our case; we need practical recommendations and support but we need some theoretical knowledge as well. When I had that child I had no idea why the problem existed; if it was something biological, dietary or his family's fault. I didn't know the reasons and I started doing things blindly. For me, an accurate knowledge background is necessary. (Participant 22)

Participant 14 acknowledged the importance of theoretical background but criticised the tendency of trainers to do a "monologue" about the nature of ADHD and leave marginal or no time for the management of related behaviours. This teacher suggested that seminar time should be distributed more carefully so as participants to have plenty of time to talk about their experiences and the challenges they face in the classroom. In the opinion of Participant 14, the discussion between trainers and teachers and the recommended interventions will be beneficial not only for those set a specific question but also for the rest of participants. Seven teachers also expressed the desire to learn

about the assessment procedure that needs to be followed for an ADHD diagnosis. As they reported, the complexity and bureaucracy in procedures were preventive factors for making referrals for children whom they thought met the criteria for ADHD. For this reason, they recommended the provision of information relating to the referrals for evaluation, the supportive documents, the way they should compose reports of their students' behaviour, the diagnostic instruments as well as the role of teachers, specialists and parents in this process.

Even the teachers who advocated the importance of theoretical background suggested that informative events (e.g. seminars and conferences) should be complemented by more practical and individualised forms of INSET (e.g. workshops, sample lessons, cooperation and support by specialists). 18 participants considered the systematic cooperation between mainstream school teachers and specialists essential. These teachers justified their preference for individualised guidance, explaining that each child is unique and reacts differently to interventions according to the nature and severity of ADHD-related behaviours, the presence of co-existing disorders, the age, the administration of medication and the living conditions at home. Consequently, the development of individual intervention plans was considered necessary. The following excerpts illustrate these ideas:

General suggestions that we can find in every book are not always applicable because each child and the dynamic of each classroom are different. The ideal for me would be the nomination of 30 trainers, for example, who will have the responsibility to detect the classrooms including children with ADHD and train their teachers. At the beginning, the trainer can work as a second teacher in the classroom, applying the recommended accommodations and interventions. The trainer can then take the role of observer and leave the teacher act alone, noting down feedback and recommendations for further improvement. After this supportive period, teachers and trainers should be in touch for further support if required. (Participant 11)

Although difficult to happen, the best for me would be a continual interaction with my trainer. One seminar or one visit in my classroom is nothing. I would like to have the trainer with me for some days, to observe my student and give some advice, some guidelines, to try some interventions together, to give feedback and

ideas about the rearrangement of the classroom and the lesson. It's important for me to have access to this trainer and every time I feel that I cannot cope to be able to discuss the problem and receive further supportive material and management ideas. (Participant 23)

Five participants disagreed with the nomination of specialists that will move from school to school to train teachers. These participants found the procedure "time-consuming" and suggested the permanent presence of one or two specialists in each school (e.g. a special teacher or/and a psychologist). In their opinion, this would give teachers the opportunity to discuss the challenges they face, to receive information about ADHD, to immediately resolve queries and appeal for support. Participants 4 and 10 argued that the permanent presence of specialists would also facilitate the process of diagnosis (immediate observation of children's behaviour, preparation of referrals and supportive documents).

Participant 17 criticised the current responsibilities of special teachers which are limited to the provision of one-to-one supportive teaching to students with ADHD. As he explained, "the MoEC does not use special teachers' knowledge for the common interest". This participant compared mainstream school teachers with the residents of Third World countries. In the latter case, "people receive food from developed countries but they have neither the knowledge nor the means to produce their own foodstuff and live independently". Participant 17 argued that the same happens when special teachers take children with ADHD for individual supportive teaching. After their return in the classroom, mainstream school teachers still struggle to manage ADHD-related behaviours and accommodate the lesson accordingly.

Six participants expressed the desire for an INSET system that will promote communication and support between teachers. In their opinion, communication with colleagues who have taught students with ADHD, the exchange of experiences and successful management practices will be valuable support for them. As they explained, this communication could be promoted through the participation of experienced teachers in seminars and other informative events. Participant 7 suggested the creation of an official website and forum that teachers will use to share relevant informative material, experiences, challenges and classroom-based interventions. Thus, teachers will

be able to try out the recommended interventions and immediately ask for clarifications, if needed.

Seven participants recommended the attendance of sample lessons delivered either by trained teachers or specialists in classrooms including children with ADHD. As these teachers reported, it would be more beneficial to see in practice, rather than just listen to, the accommodations in the classroom environment and the teaching procedure. Participants 10 and 21 suggested the preparation and distribution of relevant video-recorded material to each school. Acknowledging that the transition to an INSET system available to all will be a long process, Participants 7 and 10 recommended an alternative idea. They proposed the provision of INSET opportunities (attendance of relevant seminars, workshops, individualised guidance and provision of relevant supportive material) to one teacher from each school who will take responsibility to inform and support the colleagues with diagnosed children in the classroom.

### **12.6.3 Preferable legal framework**

18 participants favoured compulsory INSET irrespective of teachers' exposure to students with ADHD. In the opinion of these teachers, the MoEC should firstly arrange general informative events available to all and then give priority for further support to colleagues who undertake the education of children with ADHD. Participant 9 supported that "even the over-crowded seminars will be better than nothing" since teachers will have the opportunity to learn some basic information about the disorder and the management of related behaviours. Participants 2, 6 and 20 justified their preference, saying that teachers would feel more confident and positive to teach children with ADHD if they received in advance information about the disorder and the empirically-validated interventions and if they knew that they would get further support throughout the year. Given the high prevalence of school-age children with ADHD and the likelihood of teaching a diagnosed child, Participant 3 considered compulsory INSET essential. Participant 18 talked along similar lines:

All teachers should learn at least the basics. Most of us have no idea what exactly this disorder is and children with ADHD are included in our classrooms for more

than 10 years now. If the MoEC doesn't decide to differentiate their education, they will stay in our classrooms. Hence, all of us should be trained. (Participant 18)

Five teachers believed that INSET should be compulsory only for educators who undertake classrooms including children with ADHD. Participant 8, for example, justified her response saying: “when teachers receive INSET on Greek or Maths, they can use the new knowledge for the benefit of all the students in every classroom. This is not the case with INSET on ADHD”. The participation in an INSET programme on a specific disorder, which teachers may not experience in their teaching career, was in her opinion “unreasonable”.

#### **Key findings from teachers' recommendations for future INSET**

- Participants favoured school-based INSET in working time.
- The preferable form of INSET varied.
- 9 participants disagreed with the provision of theoretical information (e.g. ADHD causation).
- 14 participants argued that the ideal INSET would be a combination of theory and practice.
- 18 teachers favoured compulsory INSET irrespective of the exposure to students with ADHD.
- 5 teachers favoured compulsory INSET only for teachers who undertake classrooms including children with ADHD.

## **12.7 Overview - Conclusion**

Chapter 12 provided an overview of the results generated from interviews with 23 Cypriot elementary school teachers. These interviews considered participants' prior experiences with the disorder and relevant INSET, their attitudes towards the instruction of children with ADHD and their recommendations for future INSET (preferable timeframe, place, type and content). The purpose was not only to capture teachers' attitudes but also to get an insight into the rationale behind their feelings, beliefs and predispositions to act in certain ways. Data analysis suggested that teachers' prior

experiences with ADHD impacted on and formed their emotions, their beliefs about the appropriate educational setting and their predispositions to undertake classrooms including children with ADHD.

Participants' experiences varied according to the nature, the severity of ADHD-related behaviours and the overall behavioural profile of their students. Teachers, who had taught students with extreme levels of hyperactivity/impulsivity, reported less positive experiences and highlighted the difficulties arisen from their presence in the mainstream classroom. Students with hyperactivity/impulsivity and possibly aggressive behaviours were seen as causing greater levels of stress and tiredness than students with primarily inattentive behaviours. Teachers considered these students "difficult" and placed particular emphasis on challenges relating to the smooth functioning of the learning procedure, the safety and the relationships of students with ADHD and their peers. In contrast, participants who shared experiences with primarily inattentive students (personal or colleagues' experiences) explained that these kinds of behaviours did not influence the teaching procedure but the learning and the academic progress of these students.

While the participants supported the validity of ADHD, for different reasons (e.g. lack of precise diagnostic mechanisms and diachronic assessment, financial interests) eight of them challenged the validity of diagnostic conclusions and talked about "over-diagnosis" and "misdiagnosis". Teachers' beliefs about the origins of the disorder varied. A group of teachers believed that ADHD originates from variant biological and genetic factors while another group argued that it is attributable to various dietary, living and family factors. Some teachers acknowledged the complexity of ADHD and supported that the disorder cannot be explained based either on single biological/genetic or environmental factors while others suggested that different children develop ADHD for different reasons.

The majority of interviewees reported that they would not undertake classrooms including children with ADHD if they had the right of choice. Teachers' prior experiences were influential for this decision. The limited knowledge of the disorder overall and the management of related behaviours specifically, feelings of anxiety, incompetence and distress, the inflexible national curriculum and worries about the

annual evaluation by principals and inspectors were reported to justify this negative predisposition. Participants, who were positive to choose classrooms with children having an ADHD diagnosis, set some preconditions that should be fulfilled (e.g. additional INSET, communication and cooperation with specialists, trained companions).

The attitudes towards the appropriate educational setting for children with ADHD varied as well as the rationale behind each participant's response. While a group of teachers favoured the full-time education of children either in mainstream or special educational settings (e.g. one-to-one instruction, instruction in a special unit or a special school), another group believed that a combination of settings would be the most appropriate educational approach. The need for socialisation was the reason why teachers supported the full-time or part-time education of these children in the mainstream classroom. Acknowledging the multiple presentations of the disorder, a number of participants suggested different educational settings according to the nature of observed behaviours and the severity index. Although a specific question was not asked, the majority of interviewees discussed their prior experiences with companions and their willingness to cooperate with them in the future. This willingness had been formed based on their prior experiences.

Although the majority of participants had taught at least one child with an official diagnosis of ADHD, only five of them had participated in relevant INSET. All but one teacher had attended the optional seminars of the CPI. These teachers focused on the limitations of the seminars and argued that they barely supported the management and teaching of students with ADHD. Overall, the interviewees disapproved of single informative events (e.g. seminars, conferences) delivered by external providers in non-working time. They favoured school-based INSET (seminars, workshops, attendance of sample lessons, individualised guidance) that will primarily focus on the management of ADHD-related behaviours and the facilitation of the teaching process. Systematic communication and cooperation with specialists in developing, implementing and evaluating intervention plans based on the needs of each child were considered essential by the majority of participants.

## Chapter 13 - Focus Group Results

For the purposes of the present study, qualitative data were also collected through four focus groups that lasted for 42-55 minutes. Each focus group involved four teachers employed either in the same or in different public elementary schools of the same district. 12 female and 4 male educators participated with years of teaching experience ranging from 3 to 16. In contrast to one-to-one interviews, where participants interacted exclusively with the interviewer, in focus groups they interacted more with each other. The researcher set the topic of interest and intervened only for encouraging silent members to express their views. In the majority of cases the teachers built on other participants' responses whereas the intra-group agreements, disagreements and questions kept the discussion moving forward.

The researcher did not notice any attempt on the part of the focus group members to give socially desirable responses. As the participants explained at the beginning of each focus group, the present study was an opportunity for them to share their experiences, to set the challenges relating to the education of these students in the mainstream classroom, to express their discontent with the support provided and contribute to the improvement of the educational conditions for children with ADHD and their classroom peers.

The purpose of these focus groups was to gain additional data regarding teachers' experiences with, and attitudes towards the disorder, the instruction of children with ADHD and INSET; not to assess their knowledge. Teacher knowledge of ADHD was explored through questionnaires in the first phase of the research. Making assumptions about focus group members' knowledge would be risky since not all of them referred to the same topics or spent equal time to discuss experiences with their officially diagnosed and undiagnosed students. Given that the nature of focus groups does not allow generalisations -small samples that are imperfectly representative of the larger population are involved-, it was considered sensible to avoid quantification and analyse participants' responses focusing on the dynamic and the unique features of each group. Therefore, each participant's responses were not examined individually but in conjunction with the rest of the group, providing the reader with information about the topics that produced consensus and disagreements.

## **13.1 Focus Group 1**

### **13.1.1 Vignette**

Four female teachers with years of teaching experience ranging from 3 to 6 participated in the first focus group. Participants 1 and 2 (5 and 6 years respectively) were colleagues in the same elementary school. The other two participants (Participants 3 and 4; 3 years each) were employed in different schools but they knew each other from their undergraduate studies. Since Participants 1 and 2 had not met Participants 3 and 4 before, time was given at the beginning of the focus group to become familiar with each other and talk about general themes. Of the four participants, three (Participants 1, 2 and 3) indicated experience with students that had been officially diagnosed with ADHD. Participant 4 stated that she had taught one student that in her opinion fulfilled the criteria for the disorder but did not have an official diagnosis. Participants 2 and 3 reported experience with students that were on medication and discussed the effects of pharmacological interventions on their students' behaviour. The four teachers had not received INSET on ADHD. The lack of knowledge about the management of ADHD-related behaviours and the intention to complete the lesson without delays were the reasons that participants mentioned to justify their negative stance towards choosing classrooms including children with ADHD. The answers of participants indicated an inconsistency of views regarding the validity of the disorder, the causation and the role of companions. In some cases, the participants were influenced by the responses and thinking of other members and modified their primary views.

### **13.1.2 Experiences with ADHD – Challenges – Medication**

In this focus group, two participants (Participants 2 and 3) indicated prior experience with students that were on medication and focused on the positive and negative effects of pharmacological interventions. Despite the administration of the same stimulant medication, the two teachers described a completely different situation and expressed inconsistent views about the appropriateness of this kind of intervention. The previous experiences of participants informed their attitudes towards medication as illustrated in the following extract:

P2- My student was on medication. I don't know if that was the expected outcome but he couldn't interact with me and the other children.

P1- That's true; neither during breaks. I remember he was always sitting alone; he was living in his own world.

P2- Yes. He was constantly sleeping on the desk and he couldn't participate in the lesson. I don't know if the medicines were too strong but I think that medication should be avoided. He was constantly depressed. What's the reason of including him in the mainstream classroom when he has no interaction with the teacher and his classmates and he doesn't learn anything?

P3- It's strange because I also have a child on medication but he is completely different. I haven't noticed any of the side-effects you just reported. Medication just keeps him calm and concentrated and makes him more receptive to learn. It facilitates the management of ADHD behaviours and I have plenty of time to focus on the other children as well; something impossible when he is not on medication. When he doesn't take his medicines, his behaviour is out of control; he acts without thinking. He can't calm and stop talking and teasing the others and all my attention is on him to prevent fights. He needs constant supervision.

P2- Ok, the positive is that he was sitting quietly and I could do my lesson without problems. This year, he quitted medication and he is a completely different child.

P1- Indeed. He acts like a wild animal, like the child I had two years ago. The teacher is really desperate. When the situation is so severe, I am not against medication.

P4- I agree. In these cases, medication may be the only solution.

P2- Ok, you are right. It's really difficult to have a child behaving like that in the classroom. But again, I think it would be better to find another solution and avoid medication; a different educational setting, for example.

The above extract revealed a disagreement regarding the appropriateness of pharmacological interventions for children with ADHD. Participant 2 appeared to be quite sceptical about the administration of medication since she thought that the adverse effects were more than the positive ones. Despite the positive effects on the management of ADHD-related behaviours, Participant 2 found medication detrimental to her student's interpersonal and educational development. Comparing the behaviour of her student when he was and when he was not on medication, Participant 3 considered pharmacological interventions critical for the management of ADHD, the safety of

students and the smooth functioning of the learning process. Participants 1 and 4 advocated Participant 3's viewpoints. As they explained, children with disruptive and aggressive behaviours should be medicated before being accommodated in the mainstream classroom. Considering the challenges that may arise, Participant 3 also concluded that children with intense hyperactivity, impulsivity and no sense of danger should be educated either in the mainstream classroom taking medication or in a different educational setting. Participant 2 acknowledged the difficulties and shared the concerns of the other teachers. However, she argued that it would be preferable to avoid medication and find more appropriate educational settings for these students.

### **13.1.3 Appropriate educational setting – Companions**

The discussion among participants revealed common attitudes towards the appropriate educational setting for students with ADHD. The teachers acknowledged the multiple presentations of the disorder and the unique needs of each child and they suggested a number of factors that need to be taken into account prior to this decision; the severity and nature of ADHD behaviours, the administration of medication, the presence of aggressiveness and other comorbid conditions. The four educators favoured a combination of mainstream and special educational settings and they supported that the allocation of hours per setting should be based on the abovementioned factors. As they explained, the full-time education in a mainstream classroom would hinder the learning of children with ADHD and their classmates while the full-time adoption of a segregated learning environment would be disadvantageous for their social development and the creation of friendships. One-to-one supportive teaching on a part-time basis was in the opinion of participants necessary for providing the extra educational support that mainstream school teachers cannot provide in typical classrooms of twenty and over students. The following transcript illustrates part of the conversation on this issue:

P2- Nowadays, the trend is the education in the mainstream classroom. Ok. I don't agree with the total segregation of these students but I know that individual supportive teaching would be beneficial for them and their peers. I told you that I disagree with pharmacological solutions. But the truth is that the management and teaching of these children is very difficult and their behaviour against the education of the other children. Hence, they should not be in the classroom on a full-time basis. Individual teaching would help them remain concentrated and learn while the

education in the mainstream classroom would enhance socialisation. A combination would be the best.

P3- That's true. You can't exclude the child from the classroom because if he feels different, he will behave differently. But when the child presents behaviours that influence the whole classroom, it's not right to be educated there on a full-time basis. I think it depends on the nature of observed behaviours the extent to which a child can be educated in the mainstream classroom.

P4- Participant 3 is right. The hours of individual teaching should be decided according to the severity and the potential of a child to follow the schedule of a mainstream classroom.

P1- I agree. Being in the mainstream classroom on a full-time basis under the supervision of a companion, for example, is not a good idea. Companions cannot help because they have not received training for this role. They are in the same position as we are.

P2- If companions were specialised on the disorder, I would agree. At the moment, they can only facilitate children with kinetic difficulties. They have no specialisation on disorders like ADHD.

P4- This is true but I still believe that companions can help and they should be in the classroom. We would lie if we said that we don't need support. When you have a child behaving in the way we described earlier, you definitely need a second person to focus on this child. We don't have one student under our supervision; we usually have 20 to 25. For me, even a non-trained companion can help the situation. Better than nothing.

P3- It's very difficult, I agree. But another unqualified person can do nothing. Participant 2 is right. If it was a special teacher or a trained companion, then yes.

P1- The ideal for me would be our preparation to manage the behaviours of our students with ADHD and overcome difficulties but the MoEC doesn't take responsibility for this. Each teacher works alone.

In Focus Group 1, the idea of "companion" evoked disagreements. As indicated in the above extract, Participants 1, 2 and 3 disagreed with the supervision of children with ADHD by companions. According to these educators, the companions who are currently employed in elementary schools have not received relevant training prior or after their nomination to this position. Consequently, they do not have the knowledge and skills needed to manage ADHD-related behaviours and facilitate the functioning of the lesson. In contrast, Participant 4 considered the constant supervision of children with ADHD necessary regardless of companions' previous training and qualifications.

As she explained, the high number of students in each classroom renders the management of ADHD-related behaviours by mainstream school teachers difficult and the presence of companions an important support.

#### **13.1.4 Experiences with previous INSET**

In the above transcript, Participant 1 expressed her disappointment with the insufficient support provided in relation to the management and teaching of students with ADHD. The other three members of the focus group also reported that they had not received INSET on ADHD and guidance in developing and implementing intervention plans. When the participants were asked about the Cyprus organisation of ADHD, they all said that they had never heard about this before and they questioned the reason why the MoEC does not promote and cooperate with the organisation for teacher INSET.

#### **13.1.5 Predisposition to choose classrooms including children with ADHD**

Participants' prior experiences with the disorder and specifically the difficulties in managing ADHD-related behaviours and teaching this group of children informed their negative predisposition to choose classrooms including children with ADHD. They all agreed that if they had the right of choice, they would avoid classrooms with children having an ADHD diagnosis and they would undertake those with typically developing children.

#### **13.1.6 Attitudes towards the validity/origins of ADHD**

The question on the validity of ADHD evoked disagreements among participants. Whereas Participants 1, 3 and 4 supported that ADHD is a valid disorder with biological and genetic origins, Participant 2 disagreed and provided an alternative explanation. As indicated in the following excerpt, Participants 1, 3 and 4 argued that there is a distinct segregation between students with ADHD and those that are spoiled, naughty and lazy. Participant 2 expressed her reservations about the validity of ADHD and suggested that the high number of diagnoses over the last decade is worrying and should be re-examined. According to Participant 2, the presence of ADHD-related behaviours in

such a frequent rate may not be attributable to a biologically-based disorder but to a failure of the educational system to be reconstructed in accordance with the current living conditions and needs. The clarity of Participant 2's thinking, the examples provided and the questions posed strongly influenced the other three educators who reconsidered their preliminary views and questioned the validity of ADHD as their colleague did. The following extract illustrates part of the discussion on this issue:

P1- It's a valid disorder but I believe we have both categories of students; those who really have ADHD and those who misbehave. But there is a big difference between these two categories. When we were students, the disorder was not recognised and all these children were in the category of 'naughty and lazy'. But now, we can understand whether they have ADHD. It's so different to teach a child with a biological problem in relation to a naughty one. If you discipline a naughty child, he will stop and sit quietly. A child with ADHD cannot control his behaviour.

P4- I agree. A naughty child can understand when he is doing something bad; a child with ADHD acts without consciousness.

P3- That's true. If you ask from a naughty child to sit quietly for the lesson and then play with his favourite game, he will obey without any problem. These kinds of strategies are not effective for my student with ADHD. When he is not on medication, you can do nothing to make him calm.

P2- I am afraid I don't share your viewpoints. I doubt that ADHD is a valid disorder with biological or genetic origins. Ok, I can see that these children have intense problems of hyperactivity and distractibility but again I have my reservations and I really wonder: isn't it strange to meet this disorder in such a big scale nowadays? Have you ever thought that we have these behaviours because our schools are so traditional and they force the children to take a pencil and write on a workbook? 15 and 20 years ago, that was the normal. Not anymore. The out-of-school life of children is so different. They have PSPs, computers, smart phones, tablets and access to the internet. Is there any chance all this to be a failure of our system to introduce technology and keep children motivated? Sitting for seven hours on a chair, writing and listening to the teacher may not be the normal anymore. The needs of people change but the school remains the same. You disagree?

P3- You made me quite sceptical now. If it was something biological, why we didn't have the same number of children with ADHD before?

P4- I never thought about this but you are right. With the progress of technology, the daily life of children has changed but the lesson is still so traditional. But how is

it possible for a teacher to differentiate the lesson without the material infrastructure? Most schools do not have even computers in the classrooms.

P1- That's true. But even if we had the material infrastructure, the introduction of technology would not be so simple. The majority of colleagues over 45 years of age have difficulties in using computers, electronic sources etc. They need training.

At the beginning, Participants 1, 3 and 4 appeared to be quite certain about the validity and biological origins of ADHD. However, the strong attitude of Participant 2, who supported the opposite, was decisive for causing uncertainty among educators. Participant 2 moved the responsibility from the child to the educational system and disputed the biological origins of ADHD-related behaviours. This was the fundamental reason why she disapproved of medication as a method of intervention. This teacher suggested that interventions should be disconnected from the child and be focused on the unsuccessful school functioning which has the main responsibility for hyperactivity and inattention.

### **13.1.7 Recommendations for future INSET**

In Focus Group 1, the teachers were against INSET that is provided in non-working time and is mostly limited to general theoretical seminars. In their opinion, INSET in the form of seminars minimally facilitates the management and education of children with ADHD. The participants did not dismiss the importance of an accurate theoretical background but explained that this could be gained through electronic and other sources. They indicated a transparent preference towards built-up and practical forms of INSET and they highlighted the need of cooperating with specialists for the development and implementation of intervention plans:

P2- We need persons specialised on ADHD to spend some time in the classroom and give advice based on the needs of our students. It is important for teachers to work with specialists and see in practice how they should approach their students with ADHD; what interventions they could apply to manage their behaviours and resolve discipline problems.

P3- Exactly; each child is different and reacts differently to interventions. You cannot attend a general seminar and apply the same interventions in all cases.

P1- That's true. In a different way I would manage my student and in a different way the colleague. They had such a dissimilar behaviour. This is why we need a specialist in each school; to observe the behaviour of each child and help teachers develop individual intervention plans.

P3- This is the ideal but we all know that at the moment it's difficult to happen. I have an alternative idea. One specialist could have, for example, three schools under his supervision and visit each one twice per week to evaluate the overall progress and resolve queries and problems that may arise.

P1- Even once per week will be beneficial; not like the educational psychologist that came only once in the classroom at the beginning of the year. She didn't help me at all.

P4- What can be done in a visit? Teachers need systematic communication with specialists; to share problems, to discuss possible solutions, to apply interventions, to evaluate their effectiveness and co-decide the next steps.

Overall, the teachers in this focus group disagreed with the attendance of single informative events delivered by external providers and they favoured information and support within school premises. The regular presence of a specialist in each school was therefore considered essential. When the participants were asked about the areas they would like to receive more information about, they all focused on interventions that will facilitate the management of ADHD-related behaviours and instructional accommodations that will promote the academic progress of their students with ADHD.

#### **Key points from Focus Group 1**

- Participants: 4 female teachers
- Years of teaching experience: 3 to 6
- Experience with officially diagnosed students: 3 participants
- Focus on behaviours that could be considered an ADHD-Predominantly Hyperactive/Impulsive Presentation
- Focus on discipline/safety issues and challenges relating to the functioning of the lesson

### **Key points from Focus Group 1**

- Experience with students that were on medication
- Prior experiences informed attitudes towards pharmacological interventions
- In favour of a combination of mainstream and special educational settings
- No prior experience with INSET on ADHD
- No willingness to choose classrooms including children with ADHD
- The validity of ADHD under dispute
- In favour of school-based INSET opportunities in working time
- In favour of cooperation with specialists for the development and implementation of intervention plans

## **13.2 Focus Group 2**

### **13.2.1 Vignette**

One female and three male teachers with years of teaching experience ranging from 3 to 9 participated in the second focus group. Participants 1 and 3 (5 and 3 years respectively) were colleagues in the same elementary school whereas the other two educators (Participants 2 and 4; 9 and 8 years respectively) were employed in different schools. However, all of them had worked together in the past and thus additional time for familiarisation was not needed. The four participants indicated experience with students that had been officially diagnosed with ADHD. Participant 1 also talked about a child that had been referred for evaluation. In contrast to Focus Group 1, the teachers in Focus Group 2 did not have experience with children that were on medication. They all described “difficult” children that created problems in the teaching procedure and rendered the safety of their peers and teachers at risk. Similarly to Focus Group 1, the members of Focus Group 2 reported that they had not received relevant INSET and they did not feel competent to manage ADHD-related behaviours and accommodate the lesson to the needs of their students with ADHD. Teachers’ prior experiences and feelings of incompetence informed their decision to avoid classrooms including children with ADHD. In line with Focus Group 1, the responses of participants revealed an

inconsistency of views about the validity and origins of the disorder as well as the appropriate educational setting for children with ADHD.

### **13.2.2 Experiences with ADHD – Challenges (Discipline / Safety / Relationships with peers / Parents' complaints)**

When the question regarding the previous experiences with ADHD was set, the participants focused on children with intense hyperactivity/impulsivity and challenges relating to the functioning of the learning process and the safety of students with ADHD, their classmates and teachers. Only Participant 4 acknowledged that beyond hyperactivity, her student also had severe attention deficits. Participants 1 and 3 had common experiences with a boy that was reluctant to accept any kind of restriction and follow the schedule of the classroom. These teachers emphasised the difficulty of their student respecting the rules, waiting for his turn and cooperating with the rest of the children in team games and group activities. Participant 2 talked about out-of-control behaviours including walking on the desks, climbing to objects, cutting the curtains and breaking the water hoses. The focus group members agreed that hyperactivity often coexisted with a tendency to behave aggressively and get involved in dangerous activities without noticing the consequences. As they said, this tendency was stressful for the teachers who were always “alert” to prevent fights and injuries. The following transcript represents part of the conversation on teachers' experiences:

P3- When you have students with ADHD in the classroom, your priority is to make them sit and stop talking, shouting, teasing and fighting with the other students. The child I had three years ago did not have a companion so you can understand how difficult it was for me to do the lesson.

P4- That's true. I had the same problems with my student. He couldn't sit quietly and remain concentrated for more than 2-3 minutes. The other children were complaining and they didn't want to sit with him. His behaviour was really annoying for them and they were fighting all the time. Discipline and safety issues were my priority.

P1- I know what you mean. The student of Participant 3 was in my classroom last year so I don't need to say a lot.

P3- Actually he was acting more like a pre-school child. He couldn't follow instructions, cooperate, respect the rules and meet the behavioural expectations of the elementary school.

P2- My student was really aggressive. I remember once he threw a fire extinguisher and nearly killed a child. Thank God, the other child run away and nothing happened. But the parents were really upset. They visited the school to complain and they asked from the principal to move the child with ADHD to another classroom.

P3- Oh my God; it reminds me our student.

P1- Do you remember when he threw the racket during PE and nearly killed me? And he was laughing.

P3- He couldn't realise how dangerous was that.

P1- Instead of thinking the consequences, he was laughing.

P4- The way they behave is like they have no consciousness of what they are doing, they cannot segregate what is wrong and what is right.

In this focus group, particular emphasis was placed on the intense relationship between students with ADHD and their typically developing peers as well as on the negative reaction of parents to the education of children with ADHD in the mainstream classroom. Given the nature of observed behaviours, the teachers acknowledged that their primary concern was the safety of their students. In their attempt to manage the behaviour of students with ADHD, they were spending most of the instructional time for discipline issues rather than academic ones. In the opinion of Participant 3, the challenges would decrease if children with ADHD were supervised by companions. As he explained, the constant surveillance would facilitate the management of ADHD-related behaviours, giving mainstream school teachers the opportunity to equally support their students during the lesson.

### **13.2.3 Appropriate educational setting**

Educators' answers revealed inconsistent attitudes towards the appropriate educational setting for students with ADHD. While Participants 3 and 4 supported a combination of mainstream and special settings, Participants 1 and 2 favoured segregated learning environments. Participants 3 and 4 agreed that the part-time education of children with ADHD in special units is beneficial for their learning and the academic progress of their

classmates while the education in a mainstream classroom necessary for socialisation. These teachers explained that the allocation of hours per setting should be based on the nature of observed behaviours and the degree to which a child can meet the behavioural and academic demands of a mainstream classroom. Participant 4 highlighted the importance of evaluating the progress of children at frequent intervals so as to redistribute the teaching time accordingly.

Focusing on their prior experiences, Participants 1 and 2 argued that it would be preferable for children with ADHD to be educated by specialists either in special units or in one-to-one situations. These teachers reported that the behaviours of their students with ADHD created an inappropriate learning environment and made it extremely difficult for them to focus on their pedagogical role. Setting as a priority the safety and academic progress of typically developing children, they both concluded that such segregation is necessary.

#### **13.2.4 Experiences with previous INSET**

When the participants were asked about their prior INSET experiences, they all responded that they had never been invited to participate in relevant INSET although they had undertaken classrooms including children with ADHD.

#### **13.2.5 Predisposition to choose classrooms including children with ADHD**

Considering their prior experiences and difficulties in managing ADHD-related behaviours, the educators in Focus Group 2 agreed that they would not choose classrooms with children having an ADHD diagnosis. The following extract illustrates the rationale behind this decision:

P4- The truth is that I don't know how to manage a child with ADHD. I tried some practices but in the majority of cases they were ineffective. These children need special treatment and when you are in a classroom of twenty-five students without support, the teaching becomes really difficult. My attention was necessarily on him and I couldn't be the teacher I wanted to be for my students. So my answer is no.

P1- I totally agree. I wouldn't put myself in the same situation if I could choose.

P2- I think nobody would ask for a classroom with problematic behaviours. Am I wrong?

P3- I think no. Personally and the majority of colleagues haven't been prepared to manage these kinds of behaviours and teach students with disorders like this. In our first degree, we had a relevant module but it only focused on the history of special education in Cyprus and the UK.

P1- That's true. It was a theoretical module. We didn't even mention disorders like ADHD. To be honest, I first heard about the disorder when I had that child in the classroom. But even if that module focused on ADHD, autism, dyslexia and so on, it wouldn't be enough. At University, you have so many modules. You study, you have the exams and you forget. For me, INSET is the most important. If you have in-service information and support the time you face a situation, then you will find the ways to deal with this situation effectively.

As indicated in the above transcript, the limited knowledge about the management of the disorder was the fundamental reason why the participants did not feel competent to choose classrooms including children with ADHD. They all criticised the pre-service and in-service training provided in relation to the management and teaching of this group of children and they suggested that at the moment their education should be undertaken primarily by special teachers.

### **13.2.6 Attitudes towards the validity/origins of ADHD**

In line with Focus Group 1, the question on the validity of ADHD evoked disagreements. Whereas Participants 1, 3 and 4 agreed that ADHD is a valid disorder that originates exclusively or partly from biological/genetic factors, Participant 2 attributed these kinds of behaviours to family reasons. This educator believed that the behaviour of his student resulted from the dysfunctional family environment he grew up. The "problematic behaviour" at school was in his opinion a reaction to the living conditions and a way to receive the attention of teachers and peers.

Although in agreement with the validity of ADHD, Participants 1, 3 and 4 had inconsistent views about the origins of the disorder. Participant 1 was certain about the biological basis of ADHD. He said: "We explained to him in 1000 different ways that

his behaviour was not acceptable. He couldn't understand. After two minutes he was acting in the same way. That's why I think the problem was clearly biological." Participants 3 and 4 disapproved of Participants 1 and 2's absolute views and they supported that ADHD is attributable to a combination of internal and external factors. These teachers suggested that children have a biological predisposition to the disorder but the living conditions play an important role in the development and severity of observed behaviours.

### **13.2.7 Recommendations for future INSET**

In line with the majority of teachers in the first and second phase of the study, the members of Focus Group 2 favoured school-based INSET in working time. Of the four participants, only Participant 1 believed that teacher INSET should focus exclusively on the management of ADHD-related behaviours in classroom settings. The other three participants were also interested to receive information about the nature and future course of the disorder, the diagnostic criteria and the referrals for evaluation, the assessment procedure and the available pharmacological and home-based interventions. Having a spherical understanding of the disorder was in the opinion of these teachers critical not only for the early identification and accurate diagnosis of children with ADHD but also for the information and support of their parents. Hence, they proposed the arrangement of school-based seminars irrespective of teachers' exposure to students with ADHD and the provision of additional support for those who undertake their education. The attendance of sample lessons was recommended by Participants 1, 3 and 4. These teachers agreed that they would feel more confident to try interventions out if they had the opportunity to see their application by specialists. Participant 4 acknowledged that this is practically difficult and she recommended cooperation between the MoEC and specialists for the preparation and distribution of video-recorded sample lessons.

#### **Key points from Focus Group 2**

- Participants: 3 male and 1 female teachers
- Years of teaching experience: 3 to 9
- Experience with officially diagnosed students: 4 participants

### **Key points from Focus Group 2**

- Focus on primarily hyperactive/impulsive children
- Focus on discipline/safety issues
- Emphasis on the tense relationship between children with ADHD and their typically developing peers
- No prior experience with students that were on medication
- Inconsistent attitudes towards the appropriate educational setting for students with ADHD – combination of mainstream and special settings/special settings
- No prior experience with INSET on ADHD
- No willingness to choose classrooms including children with ADHD
- The validity of ADHD under dispute
- In favour of school-based INSET opportunities in working time
- In favour of school-based seminars, sample lessons and individualised guidance when undertaking classrooms including children with ADHD

## **13.3 Focus Group 3**

### **13.3.1 Vignette**

One male and three female teachers with years of teaching experience ranging from 3 to 16 participated in the third focus group (Participant 1 → 14, Participant 2 → 16, Participant 3 → 3 and Participant 4 → 6). The four educators were colleagues in the same elementary school and they had experience with students that had been officially diagnosed with ADHD. Participants 2 and 4 also reported experience with students that in their opinion fulfilled the criteria of ADHD but did not have an official diagnosis. Some of these students had been referred for evaluation. Participants 3 and 4 talked about children whose parents hindered the procedure of diagnosis and support for years due to their refusal to attribute the observed behaviours to a disorder and provide their consent for evaluation. Participant 3 explained that her student had been referred for ADHD by the pre-elementary school teacher but the negative reaction of parents and the fear of stigmatisation prevented the assessment and diagnosis for four years. Based on

the experiences of these participants, focus group members had a discussion about parents' lack of knowledge and highlighted the need for involving parents in training programmes on ADHD that will enhance their understanding of the disorder and their willingness to cooperate with school and consent for their children's diagnosis and support. Participant 2's experiences with a student that was on medication started a discussion about the use of pharmacological interventions. Similarly to Focus Groups 1 and 2, the teachers in Focus Group 3 had not received relevant INSET and they were not willing to undertake on their own initiative classrooms including children with ADHD. In contrast to Focus Groups 1 and 2, the participants in Focus Group 3 agreed that ADHD is a valid disorder. However, they questioned the validity of diagnosis. Similarly to the other two focus groups, the responses were inconsistent in topics such as the origins of ADHD and the appropriate educational setting.

### **13.3.2 Experiences with ADHD – Challenges – Medication**

When the participants were asked about their previous experiences with ADHD, all but Participant 2 described children with primarily hyperactive/impulsive behaviours. The fact that the parents had prevented the diagnostic process and the application of interventions for four years was according to Participant 3 the reason why the behaviours of her student were so intense and their management so difficult. Overall, the teachers found the instruction of these children difficult and stressful, primarily because they did not know how to manage their behaviours and avoid continual interruptions in the teaching procedure. Participant 2 shared experiences with a predominantly inattentive child and explained that the education of children with attention deficits is easier and less stressful than the education of children with extreme levels of hyperactivity. Participant 2 reported that his student was on medication and questioned the reason for such an "extreme" intervention for a child that had never created problems in the classroom. This started a conversation about the appropriateness of pharmacological interventions:

P2- The truth is that he couldn't remain concentrated but I think the administration of medication is an extreme solution. This child never misbehaved or caused problems during the lesson.

P1- I agree with the colleague. I am against medication, especially for children with attention deficits. Medication has side-effects and children need to do blood tests

regularly. Imagine how strong these drugs are. If the situation cannot be controlled in any other way and the child is hyperactive or dangerous for him-self and the others, then yes. But if the child can remain seated and quiet, I think it's a big mistake to administer medicines that we don't know what side-effects will have in the future.

P4- That's right. In general, I disagree with pharmacological interventions for children. I wouldn't be against only for children with extreme hyperactivity that influence the academic progress of the whole classroom.

P3- In all cases, you should start with non-pharmacological interventions. But there are some children that really need medication.

P2- For me, medicines must be the last option. They should only be used when the safety of these children and their peers is at risk.

As indicated in the above transcript, the teachers had a general negative stance towards medication. In their opinion, the administration of medication is an "extreme" method of intervention that should be avoided unless the behavioural features of a child are so intense that they cannot be controlled in any other way. The nature of observed behaviours and the severity index were in their opinion the two parameters that should be taken into account prior to this decision. Considering the possible side-effects of pharmacological interventions, the participants concluded that students without disruptive behaviours should not take medication. For them, medication should be administered only when ADHD-related behaviours negatively influence the teaching process and render the safety of students at risk.

### **13.3.3 Appropriate educational setting – Companions**

In line with Focus Group 2, the participants in Focus Group 3 had inconsistent attitudes towards the appropriate educational setting for students with ADHD. Participants 1 and 4 favoured a combination of mainstream and special settings (one-to-one instruction) and they suggested that the distribution of teaching hours should be decided based on the behavioural and educational profile of each child. These teachers considered the part-time education in the mainstream classroom important for the development of social skills and the creation of friendships while the individual supportive teaching beneficial for the learning of children with ADHD and the academic progress of their typically developing peers.

Setting a number of preconditions that should be fulfilled, Participant 3 advocated the full-time education of children with ADHD in mainstream classrooms. INSET opportunities to mainstream school teachers, smaller classroom sizes and trained companions were among the preconditions reported by Participant 3 and supported by the other three members of the focus group. Acknowledging the multiple presentations and levels of severity, Participant 2 suggested that each child should be evaluated individually and the decision about the appropriate educational setting should be taken considering the degree to which the observed behaviour influences the functioning of the lesson.

#### **13.3.4 Experiences with previous INSET**

Similarly to Focus Groups 1 and 2, the teachers in Focus Group 3 had not received INSET on ADHD. They all expressed a general discontent with the current provision and explained that the MoEC neither facilitates the diagnostic procedure nor provides INSET opportunities to mainstream school teachers who undertake the education of these children. Participants 1 and 4 reported that the diagnosis of their students was made privately in order to avoid the time-consuming and bureaucratic governmental procedures. At that point, the researcher asked whether they had communication with the Cyprus Organisation of ADHD. Beyond Participant 3, who had received relevant information from a parent, the other three educators had never heard about the organisation before.

#### **13.3.5 Predisposition to choose classrooms including children with ADHD**

When the participants were asked whether they would choose classrooms including children with ADHD, all of them answered negatively and provided the rationale behind this decision. Teachers' prior experiences with ADHD, feelings of incompetence and distress formed their negative stance as indicated in the following excerpt:

P3- Personally I wouldn't choose it. I believe that only an experienced teacher can cope with such extreme behaviours; a teacher who throughout the years has

developed excellent discipline skills. For me it was very difficult because I had neither the knowledge, nor the experience.

P4- I agree. Nobody informed us about ADHD and nobody helped us when we had these children in the classroom.

P3- When you feel unfamiliar with a situation, I think it's reasonable to avoid it.

P1- For me, the problem is not the years of teaching experience. All the teachers face the same difficulties because children with ADHD are not naughty. The problem is biological and the typical discipline strategies are not effective.

P2- That's true. This is why I would select these classrooms only if nobody wanted to undertake them. Otherwise I don't think so.

P1- At the beginning of this year, the principal asked me to undertake one of the Grade 5 classrooms. That was the classroom with the student I told you before. I denied. I didn't want to take this classroom again. You can't imagine how exhausted I was during that year. I am sorry to say this but one year is more than enough. The teachers of the third and fourth grades felt the same; absolute tiredness.

Beyond Participant 2, who would choose classrooms including children with ADHD if no colleague was willing to do it, the other three participants would not undertake these classrooms if they had the right of choice. These teachers justified their decision focusing on their prior experiences, their difficulty in managing ADHD-related behaviours and the insufficient INSET opportunities. Participants 3 and 4 attributed part of the challenges to their limited teaching experience. This factor was disputed by participants with greater years of teaching experience who supported that the nature of the disorder renders the common discipline strategies ineffective.

### **13.3.6 Attitudes towards the validity/origins of ADHD – Parents and Misdiagnosis**

In Focus Group 3, the teachers agreed that ADHD is a valid disorder and not a label used to justify naughty and lazy children. The frequency and severity of observed behaviours were in their opinion unlikely to originate from typical misbehaving and laziness. Despite the general agreement over the validity of ADHD, Participants 1 and 4 questioned the validity of diagnosis. Participant 1 felt that ADHD became a trend in the educational context of Cyprus. Consequently, she believed that specialists often

conclude an ADHD diagnosis without proper investigation and without being completely sure that a child belongs to this category. Participant 4 argued that a group of parents, who consider themselves “unsuccessful” either because their children misbehave or because they are not good students, visit private psychologists and pay to get an ADHD diagnosis. On the one hand they move the responsibility to other reasons and they stop feeling guilty and on the other hand they use ADHD as an excuse to ask for facilitations and special treatment on the part of the teacher.

As in Focus Groups 1 and 2, the origins of ADHD evoked disagreements. While Participants 2 and 4 considered the disorder genetically predefined and they gave examples of students whose parents also presented ADHD-related behaviours in the past, Participants 1 and 3 supported that ADHD is attributable to a combination of biological and dietary factors. Participant 1 disapproved of heredity and living conditions as causal risk factors. To justify her response, she focused on her student’s brother who did not present similar behaviours even though they had the same parents and they grew up in the same environment. Participants 1 and 3 highlighted the role of diet, saying that the observed behaviours were more intense after the consumption of chocolates and other sweets during breaks.

### **13.3.7 Recommendations for future INSET**

Similarly to Focus Groups 1 and 2, the teachers in Focus Group 3 were against INSET in non-working time. As Participant 4 argued and the other members agreed, “Teachers are typical employees; they cannot deal with their professional status even during their free time.” Considering that advance information about the nature of ADHD and the diagnostic criteria is critical for the early diagnosis and intervention, the teachers suggested the conduct of seminars delivered by specialists in each school. They also agreed that the colleagues with diagnosed students in the classroom should receive more specific information and support. For this reason, they recommended either the permanent or the weekly presence of a specialist (e.g. a psychologist, a special teacher) in each school. As they explained, the role of specialists will be twofold. On the one hand, they will facilitate the process of diagnosis and deliver school-based seminars and on the other hand they will provide guidance to those who undertake the education of children with ADHD.

### Key points from Focus Group 3

- Participants: 1 male 3 female and teachers
- Years of teaching experience: 3 to 16
- Experience with officially diagnosed students: 4 participants
- All but one participant described children with primarily hyperactive/impulsive behaviours
- The instruction of children with ADHD was considered difficult and stressful
- Experience with a student that was on medication
- Negative attitudes towards pharmacological interventions
- Administration of medication only when the observed behaviours negatively influence the teaching procedure and render the safety of students at risk
- Inconsistent attitudes towards the appropriate educational setting for students with ADHD – combination of mainstream and special settings/mainstream settings/different settings according to the nature of observed behaviours
- No prior experience with INSET on ADHD
- No willingness to choose classrooms including children with ADHD
- The validity of diagnostic conclusions under dispute – over-diagnosis
- In favour of school-based INSET opportunities in working time
- In favour of school-based seminars and individualised guidance to those who undertake the education of children with ADHD (permanent/weekly presence of a specialist in each school)

## **13.4 Focus Group 4**

### **13.4.1 Vignette**

Four female teachers with years of teaching experience ranging from 4 to 14 participated in the last focus group. Participants 1, 2 and 3 (14, 10 and 5 years respectively) were colleagues in the same elementary school whereas Participant 4 (4 years) was employed in a different school of the same district. Since Participant 4 had

not met the other three teachers before, time was given to become familiar with each other. Of the four participants, only two (Participants 2 and 3) indicated experience with students that had been officially diagnosed with ADHD. Participants 1 and 4 stated that they had taught students whom they thought met the criteria for ADHD but did not have an official diagnosis. Beyond Participant 1, who reported experience with children presenting both hyperactivity and inattention, the other three teachers described behaviours that could be considered an ADHD-Predominantly Hyperactive/Impulsive Presentation. Participant 2 talked about a student with highly aggressive behaviours that rendered the safety of teachers and classmates at risk. In line with Focus Groups 1, 2, and 3, the teachers in Focus Group 4 had not received governmental INSET on ADHD. However, Participant 3 had attended relevant seminars provided by a private organisation. For different reasons, two educators argued that they would choose classrooms including children with ADHD. Inconsistent views were also provided about the origins of ADHD and the appropriate educational setting. As in Focus Group 3, the participants supported the validity of ADHD but questioned the validity of diagnosis and talked about over-diagnosis.

#### **13.4.2 Experiences with ADHD – Challenges (Discipline / Safety / Relationships with peers)**

When the participants were invited to talk about their prior experiences, they all described “difficult” children that needed continual supervision even during break time and they focused primarily on safety issues and challenges relating to the functioning of the lesson. Participant 2 who had taught a child with ADHD for two school years and Participant 3 who had two children with ADHD in the same classroom placed particular emphasis on the tense relationship between these children and their classroom peers. Participant 2 described her student as a “small adult with criminal features” and explained that the tendency to insult and react aggressively towards his classmates and teachers rendered discipline and safety issues her main priority. To highlight the severity, Participant 2 described an incident with a colleague who broke his finger when he got in the middle to stop a fight and protect a child from being hit by the student with ADHD. Participant 3 acknowledged that her students did not present such extreme forms of aggressiveness. However, the continual teasing, the excessive talkativeness,

the tendency to be egocentric and the difficulty respecting the rules and cooperating resulted in arguments and fights and made them unpopular in the classroom.

### **13.4.3 Appropriate educational setting – Companions**

In this focus group, Participants 3 and 4 were against the exclusion of children with ADHD from the mainstream classroom. According to these teachers, segregated educational settings on a part-time or a full-time basis should only be adopted in “extraordinary cases” when ADHD co-exists with aggressiveness and other severe comorbid conditions. To facilitate the accommodation of these children in the mainstream classroom and the management of ADHD-related behaviours, Participants 3 and 4 considered the permanent presence of companions essential. However, they expressed their disagreement with the criteria set for the nomination of companions and they suggested either the provision of training to the current employees or the appointment of special teachers in these positions.

Participants 1 and 2 disapproved of the full-time accommodation of children with ADHD in mainstream classrooms. In their opinion, these children should mostly be educated individually by special teachers and only for some hours in mainstream classrooms along with their typically developing peers. While Participant 1 justified her decision focusing more on the positive effects of individual supportive teaching, Participant 2 placed particular emphasis on challenges relating to the presence of these children in the mainstream classroom. Based on her prior experiences, Participant 2 suggested that one-to-one settings are necessary for children who disrupt the teaching process and render the safety of peers and teachers at risk. Participant 1 agreed with Participant 2 but acknowledged that the full-time education in a mainstream classroom can also be against the academic progress of children with ADHD who struggle to remain focused in settings with multiple visual and auditory stimuli.

### **13.4.4 Experiences with previous INSET**

In line with Focus Groups 1, 2 and 3, the teachers in Focus Group 4 had not participated in INSET on ADHD and they criticised the decision of the government to introduce the integrative law of 1999 without preparing mainstream school teachers to accommodate

children with special needs in their classrooms. To enhance her understanding of the disorder and the management of ADHD-related behaviours, Participant 3 had attended on her own initiative a series of seminars delivered by a private organisation. The content of these seminars, the supportive material provided and the exchange of experiences with parents were in her opinion particularly helpful but not sufficient to solve the problems in the classroom.

### **13.4.5 Predisposition to choose classrooms including children with ADHD**

While Participants 2 and 4 reported that they would not choose classrooms including children with ADHD, Participants 1 and 3 appeared to be more positive to undertake on their own initiative the education of these children. The following extract illustrates part of the discussion on this question:

P4- Look, since I've never received training, I would prefer classrooms without children with ADHD. It's unfair my lack of knowledge to influence a whole classroom.

P2- I agree. And I can't forget how difficult those two years were for me and the other children. I wouldn't take the risk to have the same problems again.

P3- To be honest I don't really mind. In my first year as a teacher I had two students and I didn't even know the basics about the disorder. That year taught me a lot about ADHD and in the meantime I attended some relevant seminars, I learnt some things. Why not? I think the precondition for me would be the cooperation with specialists and parents. It's really important. If you build at school and parents destroy at home, there is no progress.

P2- But it's impossible to know in advance whether parents are willing to cooperate.

P3- The truth is that the majority of parents want to help but they don't know how. For me, teachers' and parents' training is of equal importance. The MoEC should train both teachers and parents and facilitate the cooperation between school and home.

P1- This is true. Children spend half of the day at school and the other half at home. We all need training because ADHD is so common. Even if you don't have an officially diagnosed child in the classroom, you will definitely have one or more undiagnosed. So, it's pointless to avoid it. Half of the children are hyperactive.

Attention deficits are constant. I teach in the brightest classroom of the school and I always have the curtains closed because they look outside and they cannot concentrate. I think there are children with more severe problems than ADHD.

P4- So, it's better to choose a classroom with ADHD in order to avoid more difficult situations?

P1- I think yes.

The prior experiences of Participants 2 and 4, the challenges they faced and the feelings of incompetence informed their negative stance towards classrooms with children having ADHD. For different reasons, Participants 1 and 3 did not reject the possibility to choose these classrooms. On the one hand, Participant 1 believed that each classroom includes either diagnosed or undiagnosed children with ADHD and thus such avoidance would be unreasonable. At the same time, she perceived ADHD as a “less severe problem” compared to others that in her opinion would be more difficult for a mainstream school teacher to manage. On the other hand, Participant 3 considered that her prior experiences and seminars attended made her more competent to undertake the education of students with ADHD. However, she set as a precondition the systematic communication and cooperation with parents and specialists. The training of parents on ADHD was also an issue of high importance among focus group members.

#### **13.4.6 Attitudes towards the validity/origins of ADHD – Parents and Misdiagnosis**

Similarly to Focus Group 3, the participants in Focus Group 4 agreed that ADHD is a valid disorder. Participant 3 argued that this disorder always existed but it was not recognised in the educational context of Cyprus. Consequently, neither parents nor teachers had the knowledge to attribute these kinds of behaviours to a disorder and refer the children to specialists for a diagnosis. According to Participant 3, the lack of knowledge had as a result these students to remain undiagnosed and receive labels such as “naughty” and “lazy” while that was not the case. The other interviewees supported Participant 3's viewpoints and agreed that the media, the high number of specialists and the inclusive orientation of the government contributed to the recognition of the disorder.

Beyond Participant 4, who attributed ADHD exclusively to biological factors, the other three participants considered that the living conditions also play an important role. These educators justified their views describing the dysfunctional family background of their students. Participant 1 talked about two categories of children; those who are correctly diagnosed with ADHD and those who are misdiagnosed. Participant 1's statement started a conversation about over-diagnosis:

P1- As soon as the MoEC gave facilitations to high school students with ADHD, there is over-diagnosis. We have many parents who get informed about these facilitations and visit private psychologists to get a diagnosis.

P3- This is absolutely right. Instead of letting their children take their responsibilities and exert the necessary effort at high school, they try to relax the conditions.

P4- Nowadays, an ADHD diagnosis is given so easily.

P3- And I get really angry when they prompt their children to use ADHD in order to justify any unacceptable behaviour.

P1- ADHD becomes the justification for everything.

P2- And of course, they stop feeling ashamed about their children that do not study, do not obey the rules and make the life of their teachers and peers difficult.

In the above transcript, the educators questioned the validity of diagnostic conclusions and they gave examples of parents who visited private psychologists to get diagnostic certificates that would ensure the provision of extra educational support and the tolerance of high school teachers. The participants criticised not only the parents but also the specialists who provide deceptive diagnostic documents because of the money.

#### **13.4.7 Recommendations for future INSET**

In line with the previous three focus groups, the participants in Focus Group 4 suggested that the MoEC must take responsibility for teachers' INSET in working time. Participants 1 and 2, mothers of three and two children respectively, argued that INSET during afternoon time is inconvenient due to family commitments. Participant 4 reported that teachers usually notice students with ADHD-related behaviours but "they don't know what the next step is; where to appeal for support". Therefore, she recommended the introduction of informative events about bureaucratic and procedural

issues such as the referrals for evaluation, the supportive documents and the assessment procedure. Overall, the participants favoured the attendance of seminars that will enhance their understanding of ADHD but agreed that these should only be part of teacher INSET. Participant 2, for example, proposed the permanent presence of a psychologist or a special teacher in each school and the provision of systematic and built-up INSET opportunities. As illustrated in the following excerpt, the other participants agreed and highlighted the importance of cooperating with specialists for the development and implementation of intervention plans:

P2- The ministry should realise that mainstream school teachers are not specialists; our studies focused on the education of typically developing children, not those with special needs. And it's impossible to learn everything in one seminar. If there was a psychologist or a special teacher in the school, the teachers would learn about the disorder gradually. Not only those who have diagnosed students in the classroom; all. This specialist could arrange informative events during staff meetings and propose intervention practices according to the needs of each child.

P3- I agree. INSET should be undertaken by specialists who are familiar with the school, the behaviour and needs of children with ADHD.

P4- In this case, they will propose interventions tailored specifically to these children, not general things.

P3- Advice is good but we need more; we need to cooperate with specialists in the classroom, to see how they apply these interventions. I think it's not something utopian and I can't understand why this kind of support is not available. They can't find the specialists? I don't know.

In the above transcript, the participants acknowledged that their first degree did not provide the knowledge and skills needed to teach children with ADHD and they highlighted the importance of in-service information and cooperation with specialists. Participant 3 questioned the reasons why the MoEC does not proceed to the nomination of specialists. This started a discussion about the need for decentralisation. The fact that everything depends on the MoEC was in their opinion the reason for the delays in the diagnostic procedure and the insufficient INSET opportunities. Given this, they recommended cooperation between the MoEC and private doctors, psychologists, relevant organisations and universities.

### **Key points from Focus Group 4**

- Participants: 4 female teachers
- Years of teaching experience: 4 to 14
- Experience with officially diagnosed students: 2 participants
- All but one participant described behaviours that could be considered an ADHD-Predominantly Hyperactive/Impulsive Presentation
- Focus on discipline/safety issues and challenges relating to the functioning of the lesson
- Emphasis on the tense relationship between children with ADHD and their typically developing peers
- No prior experience with students that were on medication
- Inconsistent attitudes towards the appropriate educational setting for students with ADHD – combination of mainstream and special settings/mainstream settings
- In favour of segregated educational settings only in “extraordinary cases”
- No prior experience with governmental INSET on ADHD
- Attendance of seminars delivered by a private organisation: 1 participant
- Positive to choose classrooms including children with ADHD: 2 participants
- The validity of diagnostic conclusions under dispute – over-diagnosis
- In favour of school-based INSET opportunities in working time
- In favour of school-based seminars and individualised guidance to those who undertake the education of children with ADHD (permanent presence of a specialist in each school)

## **13.5 Overview – Conclusion**

This chapter summarised the data generated from four focus groups with Cypriot elementary school teachers. For the purpose of these focus groups, the participants were invited to talk about their prior experiences with ADHD and relevant INSET and provide their recommendations for future INSET. They were also invited to express

their attitudes towards the appropriate educational setting for children with ADHD, the validity of the disorder as well as their predisposition to choose or not classrooms including children with ADHD.

The majority of teachers indicated experience with children having an official diagnosis of ADHD and they described behaviours that could be considered an ADHD-Predominantly Hyperactive/Impulsive Presentation. Those who had not taught children with an official diagnosis reported that they had undiagnosed students in the classroom; students that in their opinion fulfilled the criteria for ADHD but did not have an official diagnosis until that time. Although the majority of participants indicated experience with officially diagnosed students, none of them had received INSET and support by the MoEC. Only one teacher reported the attendance of relevant seminars during her free time.

The attitudes of participants towards non-predetermined topics, such as the administration of medication as an approach of intervention, were also emerged through the intra-group discussion in two focus groups. The validity of ADHD was challenged in the first two focus groups whereas the validity of diagnostic conclusions in the third and fourth focus groups. All but two participants stated that they would not undertake classrooms including children with ADHD if they had the right of choice. These teachers' prior stressful experiences and difficulties in managing ADHD-related behaviours were the fundamental reasons why they had developed this negative stance towards the education of children with ADHD.

The views of participants in relation to the appropriate educational setting for children with ADHD had been inconsistent. While the majority suggested a combination of mainstream and special settings -education in mainstream classrooms under the supervision of companions in parallel with education in special units and one-to-one supportive teaching-, a group of teachers favoured either segregated or mainstream learning environments on a full-time basis. Overall, the participants described stressful experiences with diagnosed or/and undiagnosed children with ADHD, they expressed their discontent with the current INSET provision and they provided a number of recommendations for the appropriate educational setting and future INSET.

## Chapter 14 – Summary, Discussion and Conclusions

The present study had as a purpose to broaden and add to the research base on ADHD by investigating Cypriot elementary school teachers' knowledge of the disorder and their attitudes towards the instruction of children with ADHD. The study also aimed to explore teachers' prior INSET experiences and their expectations and recommendations for future INSET. This chapter provides a discussion of the findings obtained from questionnaires, personal interviews and focus groups. The findings are discussed in relation to each research question with reference to the existing literature.

With respect to the first research question, *“What is the knowledge of Cypriot elementary school teachers with regard to: a) the symptoms/diagnosis of ADHD, b) the treatment and c) general information regarding the nature of the disorder, the causes and the outcomes?”*, methodological and sampling differences are considered to provide possible explanations to the consistent or inconsistent percentage correct scores found in comparison to parallel studies. With respect to the second research question, *“What are the attitudes of Cypriot elementary school teachers with regard to: a) the instruction of students with ADHD, b) their self-efficacy in teaching students with ADHD, c) the current and future INSET scheme?”*, particular emphasis is placed on the rationale behind participants' feelings, beliefs and predispositions to act in certain ways. Final conclusions, practical implications, limitations and recommendations for future research are also provided in this chapter.

### 14.1 Cypriot teachers' knowledge of ADHD

Cypriot teachers' knowledge of ADHD was explored in the first phase of the research using a 35-item knowledge scale. The knowledge scale had a three choice response format (True/False/Don't Know) and measured teachers' knowledge in three distinct domains: a) symptoms/diagnosis b) treatment and c) general information. On average, participants correctly responded to 43.3% of the 35 knowledge items. This percentage is not as high as in parallel studies by Jerome et al. (1994), Barbaresi and Olsen (1998), Bekle (2004) and Ohan et al. (2008) who reported 77.5%, 77.0%, 82.4% and 76.3% respectively. This discrepancy is likely due to methodological differences across studies. In contrast to the present study, the studies by Barbaresi and Olsen (1998),

Bekle (2004) and Ohan et al. (2008) adopted the scale and the two choice response format (True/False) introduced by Jerome et al. (1994). Given the 50.0% likelihood of guessing the correct answer, the higher average percentage correct scores found in these studies might be attributable to the response format and not to actual greater knowledge levels.

The hypothesis that methodological differences might explain the discrepant average percentage correct scores seems credible since parallel studies with a three choice (True/False/Don't Know) response format also reported lower scores, similar to the one in the current study. Sciutto et al. (2000) and Perold et al. (2010), for example, noted average percentage correct scores of 47.8% and 42.6% respectively. A higher average percentage correct score of 60.7% was found in the study by Kos et al. (2004). Given that the present study and that by Kos et al. (2004) used an identical response format, methodological differences cannot adequately explain the higher score reported in the latter case. Although unclear, this is likely due to differences in experience with students having an ADHD diagnosis and sampling bias that were discussed in Chapter 7.

Considering that both Cypriot and Australian participants (Kos et al., 2004) with prior exposure to students with ADHD scored significantly higher on the knowledge scale compared to their colleagues with no such experience, the average percentage correct scores in the two studies are not surprising. The fact that a greater percentage of Australian teachers had taught at least one student with ADHD during their teaching career (83.0%) in relation to Cypriot teachers (65.9%) might have contributed to the lower score in the current study. Considering also evidence regarding the critical role of INSET in improving educators' knowledge of ADHD, the higher average percentage correct score (57.3%) reported by West et al. (2005) might be attributable to sampling bias. In contrast to the present study, wherein participants were randomly recruited from several elementary schools across Cyprus, approximately 30.0% of participants in the study by West et al. (2005) were recruited during INSET sessions on ADHD delivered at the Centre for Attention and Related Disorders. The attendance of these sessions and the information about the nature of the disorder, the diagnostic criteria and interventions might have enhanced participants' understanding of ADHD and resulted in higher scores.

In alignment with previous studies (Jerome et al., 1994; Sciutto et al., 2000; Bekle, 2004; West et al., 2005; Ohan et al. 2008; Perold et al., 2010; Anderson et al., 2012), Cypriot teachers scored significantly lower on treatment items and specifically on those related to pharmacological and alternative interventions (e.g. electroconvulsive therapy). On average, participants correctly answered 32.0% of items on the treatment subscale, 48.3% of items on the general information subscale and 48.9% of items on the symptoms/diagnosis subscale. The significant differences found suggest that subscales are useful in identifying strengths and weaknesses in educators' knowledge of ADHD. In line with American (Sciutto et al., 2000) and Australian teachers (Kos et al., 2004), Cypriot teachers indicated a tendency to select the response option "Don't Know" rather than incorrectly responding to an item. 86.6%, for example, did not know whether electroconvulsive therapy constitutes an effective intervention for severe cases of ADHD. Similarly, the majority of Cypriot teachers did not know about the role of diet in the management of ADHD-related behaviours, the side-effects (appetite loss, insomnia, mood disturbances, headaches, cognitive development) and types of pharmacological interventions (stimulants, antidepressants). The observed insufficient knowledge of ADHD medication and its side-effects informed participants' stance towards this approach to intervention in two focus groups.

This tendency, which was apparent in the other two subscales as well (the "Don't Know" responses had the highest frequency in 18 of 35 items), indicates that teachers' lack of knowledge was more prominent than their misconceptions. This is highly important in the light of evidence suggesting that teachers are less receptive to learn when they hold inaccurate beliefs about a topic (DiBattista and Shepherd, 1993). Teachers, for example, who do not know about the role of diet in the management of ADHD-related behaviours, are more likely compared to colleagues who incorrectly believe that reduction of sugar intake is an effective intervention to look for further information before recommending modifications in children's diet (DiBattista and Shepherd, 1993). Similarly, when teachers hold the misconception that stimulant medication has adverse effects on children's typical cognitive development, they are less likely to learn more before rejecting pharmacological interventions and providing misplaced advice to parents. Overall, teachers' low scores on intervention items may reflect a de-emphasis on ADHD interventions in relevant undergraduate and INSET

programmes (Anderson et al., 2012). Given the critical role of teachers in providing information to parents, in implementing non-pharmacological interventions (e.g. behaviour modification strategies) and observing the effects of medication on children's behavioural, educational, social and emotional functioning, it is important that future INSET focuses on empirically validated interventions and addresses knowledge gaps in the area.

In contrast to parallel studies (e.g. Sciutto et al., 2000; Perold et al., 2010), which found participants' knowledge on the symptoms/diagnosis subscale to be significantly higher than their knowledge on the general information subscale, Cypriot teachers' scores on the two subscales did not present significant differences. In line with previous research (e.g. Sciutto et al., 2000; West et al., 2005; Perold et al., 2010), the majority of Cypriot teachers were aware of primary ADHD behaviours. 90.9% of them, for example, knew that impatience and impulsivity can be symptoms of the disorder. The fact that the number of items relating to primary symptoms was limited and emphasis was placed on broader diagnostic issues might have resulted in lower scores on the symptoms/diagnosis subscale.

In this study, symptoms/diagnosis items were purposely chosen to examine teachers' knowledge of distinguishing criteria (e.g. persistence of symptoms, number of settings, subtypes), the diagnostic procedure and behaviours beyond the obvious ones that signify an ADHD diagnosis (e.g. excessive talkativeness). This kind of knowledge is important given that the presence of related behaviours is a necessary but not sufficient criterion for ADHD. The criteria of "persistence, time of onset, pervasiveness, and severity" are indispensable to confirm that the observed behaviours are due to ADHD and not due to another condition that looks like ADHD (Montague and Castro, 2005, p.400). In the present study, teachers displayed substantial knowledge gaps on these items. For example, 77.4% and 42.6% respectively did not know about the period of time and the number of settings that ADHD-related behaviours need to be present for an ADHD diagnosis.

Inconsistent with parallel studies by Kos et al. (2004), Bekle (2004) and Ohan et al. (2008) that reported percentages of 77.5%, 97.0% and 79.9% respectively, only 31.0% of Cypriot teachers knew that children with inattention, but not hyperactivity, can be

diagnosed as ADHD. This finding is worrying for children with primarily inattentive behaviours who are likely to be overlooked, to remain undiagnosed and unsupported (Millstein et al., 1997; Ohan et al., 2008). Considering the direct (primary source of information) and indirect informational role (referrals for evaluation) that teachers may take, future INSET should enhance coverage of information about the diagnostic procedure and criteria and address knowledge gaps and misconceptions.

Similar knowledge gaps were found in the general information subscale. The majority of participants either did not know or held incorrect beliefs about the nature (e.g. prevalence, future course of the disorder, gender differences, and peer relationships) and the origins of the disorder (e.g. dietary and family factors, heritability). 73.1%, for example, did not know about the prevalence of ADHD among school-age children and 63.4 % did not know about the future course of the disorder. The high percentages of “Don’t know” responses are in line with those reported in parallel studies that assessed teachers’ knowledge using a True/False/Don’t Know response format (Sciutto et al., 2000; Kos et al., 2004, West et al., 2005; Perold et al., 2010) (for details see Chapter 7).

The identified knowledge gaps should be addressed in future INSET for the benefit of children with ADHD. Being aware, for instance, that ADHD is highly likely to persist in adulthood is important to help teachers understand the severity of the disorder and intervene early to avoid adverse long-term outcomes on the behavioural, social, academic and emotional functioning of their students with ADHD (DuPaul and Stoner, 2003; Ohan et al., 2008). Statistical analysis indicated that half of the sample either did not know or considered ADHD a disorder that affects males only. This is likely due to the nature of behaviours that male and female children with ADHD usually present. Whereas boys often externalise behaviours related to hyperactivity/impulsivity, which are disruptive and easily observable by teachers, girls usually present primarily inattentive behaviours that are more likely to be overlooked (Sayal, 2007; NICE, 2009). Given that a minority of participants knew that children can be diagnosed with ADHD without necessarily being hyperactive, this hypothesis seems credible.

Overall, Cypriot teachers indicated a good understanding of possible outcomes and difficulties associated with ADHD (e.g. low self-esteem, poor motivation, difficulty recognising danger, prone to accidents and injuries). This kind of knowledge might

have resulted from their experience with diagnosed children; 65.9% of participants noted that they had taught at least one student with ADHD during their teaching career. Inconsistent with the low percentages of incorrect and “Don’t Know” responses found in studies by Kos et al. (2004) and Ghanizadeh et al. (2006), half of the current sample displayed a lack of knowledge or held misconceptions about the relationships between students with ADHD and their classmates. Awareness of the social difficulties that children with ADHD often experience is important for applying interventions that enhance their social skills and levels of acceptance among peers. The majority of teachers, who participated in the second phase of the research and reported experience with hyperactive/impulsive students, focused on the unfriendly relationships between their students with and without ADHD and their role as teachers to normalise tensions and form friendships. The behavioural features that in their opinion resulted in social isolation and peer rejection were in line with those reported in the literature (Normand et al., 2011; NICE, 2009; Selikowitz, 2004; Du Paul and Stoner, 2003; Blachman and Hinshaw, 2002; Kewley, 2001; Borrill, 2000). These included the difficulty of children with ADHD respecting the rules and cooperating, their tendency to be egocentric, to tease and act aggressively towards peers, to disrupt games and be over-talkative, repeating the same things again and again.

In alignment with previous research (for details see Chapter 7), the majority of Cypriot teachers either held a misconception or indicated a lack of knowledge about the role of diet in the development of ADHD. Similarly, a minority of participants knew that ADHD is not considered to be the result of a dysfunctional family life (e.g. frequent family conflicts, abuse). Given the link between causation (e.g. dietary factors) and interventions (e.g. dietary modifications), it is important that trainers focus on causal risk factors and address insufficient knowledge and inaccurate beliefs in the area (Weyandt, 2007; DiBattista and Shepherd, 1993). In line with the study by Sciutto et al. (2000), the majority of Cypriot teachers did not know whether ADHD can be inherited and may be more common among first degree biological relatives. The knowledge that children with ADHD are highly likely to have at least one of their parents diagnosed with the disorder is critical to facilitate school-home communication and help teachers develop realistic expectations for parents’ potential to cooperate and implement intervention programmes at home (Perold et al., 2010). This multiplicity of views and

misconceptions regarding the origins of ADHD were apparent in individual interviews and focus groups as well.

In line with parallel studies by Sciutto et al. (2000) and Perold et al. (2010), the percentage correct scores of Cypriot teachers were not correlated with their age and their qualifications. Similarly, participants' overall percentage correct scores were not correlated with their years of teaching experience. This finding corroborates those reported by Jerome et al. (1994) (the American sample), Kos et al. (2004) and Perold et al. (2010) but it is inconsistent with the findings by Jerome et al. (the Canadian sample), Sciutto et al. (2000) and Anderson et al. (2012). In the latter cases, educators with less years of teaching experience scored significantly lower on the knowledge scale compared to their colleagues with greater teaching experience. Given that Sciutto et al. (2000) and Anderson et al. (2012) used the same response format with the current study, methodological factors cannot explain the different impact that teaching experience had on educators' percentage correct scores. Although unclear, the variability in findings may be due to differences in INSET across countries. Compared to the Cypriot sample, the American sample of Sciutto et al. (2000) and the Australian sample of Anderson et al. (2012) might have greater opportunities to engage in relevant INSET, thereby enhancing their knowledge over the years. However, information to strengthen this claim was not found in the available papers. In the current study, the percentage of teachers who had attended INSET on ADHD was only 15.0%. This may be the reason for presenting relatively stable knowledge levels across their teaching career. This scenario seems credible given that Cypriot teachers with prior experience with INSET had significantly higher scores on the knowledge scale than their colleagues with no such experience.

Teachers who reported experience with family members, friends or/and students with ADHD scored significantly higher compared to participants with no prior exposure to children with ADHD. This is in line with the findings by Sciutto et al. (2000), Kos et al. (2004) and Perold et al. (2010). These research teams found that educators who had taught students with ADHD during their teaching career had a greater understanding of the disorder and significantly higher percentage correct scores. This finding is not surprising given that teachers, who undertake the education of children with ADHD, become familiar with the behavioural features and the nature of the disorder and they

are more likely to get involved in personal study, in formal INSET and informal conversations with parents and colleagues with relevant experience (Anderson et al., 2012; Sciotto et al., 2000). The exposure to children with ADHD and the multiple sources of information may therefore explain the discrepancy in scores. Inconsistent with the American sample of Sciotto et al. (2000), Cypriot teachers' percentage correct scores were not correlated with the degree of such exposure (the number of students with ADHD they had taught during their teaching career).

## **14.2 Cypriot teachers' attitudes towards the instruction of children with ADHD**

Teachers' attitudes towards inclusion have been widely explored over the past few decades (Woodcock, 2013; Fields, 2006). Studies involving educators across countries have corroborated the powerful influence that attitudes have on teacher performance and the implementation and success of inclusive initiatives (Woodcock, 2013; Cassady, 2011; Fields, 2006; Avramidis et al., 2000a; Hastings and Oakford, 2003; Siegel and More, 1994; Center and Ward, 1987; Jamieson, 1984). As Avramidis et al. (2000, p.278) explain, the attitudes of school personnel directly involved in inclusive education "may act to facilitate or constrain the implementation of policies". For inclusive education to succeed, it is of critical importance that educators hold positive attitudes and they are willing to accommodate children with special needs in their classrooms (Woodcock, 2013; Cassady, 2011; Angelidis, 2008; Winter, 2006). In an opposite case, they are more likely to resist individualising lesson plans and shift responsibility for the education of these children to specialists (Fields, 2006; Avramidis et al., 2000).

Overall, when educators possess negative attitudes towards inclusive education, they are less likely to differentiate their pedagogy and provide an inviting learning environment for their students with special needs (Cassady, 2011; Soodak et al., 1998). It is therefore important that teachers develop a critical understanding of inclusion and display a commitment to inclusive principles and demands (Avramidis et al., 2000). When such understanding, responsibility and commitment are not evident, inclusive attempts are generally unsuccessful (Fields, 2006). Existing research in the area has primarily explored teacher attitudes towards the idea of inclusion in general and not towards specific categories of children (Cassady, 2011). As a result, educators' attitudes towards

children with ADHD have not been widely and distinctly investigated in the past (for details see Chapter 7). Consequently, the need to explore and understand teacher attitudes and levels of acceptance that children with ADHD have in mainstream classrooms further exists.

In the current study, Cypriot teachers' attitudes towards children with ADHD were quantitatively explored in the first phase of the research and in more depth through semi-structured interviews and focus groups. The purpose was not only to capture teachers' attitudes but also to get an insight into the rationale behind their feelings, beliefs and predispositions to act in certain ways. To the researcher's knowledge, an in-depth qualitative exploration of elementary school teachers' attitudes towards children with ADHD has not been conducted. The present study aimed to address this gap in the literature and raise an understanding of the reasons that form teachers' attitudes. In contrast to participants' knowledge that could be quantified and interpreted, their attitudes were neither definite nor simple to explain at first sight. Quantitative and qualitative analysis suggested that the majority of teachers did not have absolute attitudes. The overall behavioural profile of children with ADHD informed their feelings, beliefs and predispositions to act in certain ways.

Qualitative data analysis provided evidence suggesting that educators' prior experience with children having an ADHD diagnosis impacts on and forms their attitudes. The experiences of participants had been differentiated according to the nature of observed behaviours, the severity index and whether a child was or was not on medication. Teachers, for example, who had taught students with extreme levels of hyperactivity/impulsivity, reported less positive experiences and highlighted the difficulties from their presence in the mainstream classroom. Students with hyperactivity/impulsivity were seen as causing greater levels of stress and tiredness than students with primarily inattentive behaviours. Teachers considered these students "difficult" and they placed particular emphasis on challenges relating to the smooth functioning of the learning procedure, the safety and the relationships between students with ADHD and their peers. They agreed, for instance, that the management of ADHD-related behaviours absorbs valuable instructional time and thus the lesson purposes remain unfulfilled. 64.2% in the first phase of the research considered students with ADHD negative role models for the other children whereas 41.2% believed that the

extra educational support students with ADHD may need is detrimental to the learning of their classmates without ADHD.

In contrast, teachers who shared experiences with inattentive students (personal or colleagues' experiences) expressed more favourable attitudes towards them and their education in mainstream classrooms. They focused on the "individuality" of the condition and challenges relating to the learning and the academic progress of these students. The observed variance in Cypriot teachers' attitudes towards children with diverse behavioural profiles is in line with earlier findings suggesting that educators' attitudes towards inclusion, their competence and willingness to accommodate children with special needs are strongly influenced by the severity and nature of the special need (Cassady, 2011; Ryan, 2009; Fields, 2006; Koutrouba et al., 2006; Dupoux et al., 2005; Loreman et al., 2005; Avramidis and Norwich, 2002; Avramidis et al., 2000; Soodak et al., 1998; Scruggs and Mastropieri, 1996; Center and Ward, 1987).

To explore teacher attitudes towards children from different categories of special needs, Fields (2006) involved Australian elementary school teachers enrolled in a university-based INSET course in special education. For the purposes of the study, participants were presented with fourteen short vignettes of children with varying behaviours, characteristics and needs (e.g. specific learning difficulties, mobility difficulties, language/communication disorder, hearing impairment, behavioural and emotional disorders, gifted and talented children) and they were invited to answer some questions in response to the descriptions provided (an open-ended question and two five-point Likert scale response items). Data analysis suggested that teachers were mixed in their attitudes. Children with behavioural and emotional disorders were seen as the most challenging to manage and teach and as those teachers felt the least confident to provide an inclusive education. This finding is not surprising, given that behaviour management is considered the number one concern of educators (Vinson, 2002). The categories that teachers rated the least challenging and felt more confident to teach included gifted and talented children and those with communication disorders (Fields, 2006).

The abovementioned findings corroborated those reported in earlier studies on teachers' attitudes towards inclusion. In studies conducted by Clough and Lindsay (1991), Avramidis et al. (2000), Hastings and Oakford (2003), for example, children with

emotional and behavioural disorders were seen as the most challenging and as those with a greater negative impact on their classmates and the teaching procedure. Similarly, studies by Dupoux et al. (2005), Loreman et al. (2005), Soodak et al. (1998) and Forlin (1995) indicated that teachers held more positive attitudes and they were most willing to accommodate children with social, physical disabilities, specific learning difficulties and hearing impairment and least receptive to include those with behavioural and emotional disorders.

Avramidis and Norwich (2002) suggested that the mixed attitudes that teachers develop are likely due to the perceived accommodations and skills, managerial and instructional, needed for including these children in the mainstream classroom. Overall, the categories of children that educators view as the most demanding and challenging for their daily practice are those for whom they hold the most negative attitudes and they are least willing to undertake the education (Cassady, 2011; Soodak et al, 1998; Center and Ward, 1987). These children have consistently been those with behavioural and emotional disorders (Woodcock, 2013; Cassady, 2011; Avramidis and Norwich, 2002) and in the current study those with hyperactive and impulsive behaviours.

The pivotal role of teachers' prior experiences is in line with research suggesting that attitudes develop as a result of personal experience or observation (Crisp and Turner, 2010; Fiske, 2010; Hogg and Cooper, 2007). According to the Theory of Planned Behaviour, prior experiences, behaviours, culture and social norms do not have a direct impact on behaviour formation but they are mediated through, and form individuals' attitudes and subjective norms (Fishbein and Ajzen, 1975). Several processes are involved in attitude formation. In reference to the affective component, such processes comprise classical and instrumental (operant) conditioning, mere exposure (Crisp and Turner, 2010; Fiske, 2010; Hogg and Cooper, 2007), observational learning and modelling (Fiske, 2010). In the first two cases, attitude development is the result of an individual's experience with a given stimulus while in the latter two cases an attitude is based on modelled or observed behaviour of other people (Fiske, 2010). In instrumental conditioning and observational learning, stimuli associated with negative consequences bring about negative emotional responses and vice versa. Mere exposure effect suggests that individuals have a tendency to develop favourable attitudes towards stimuli they are familiar with. Greater exposure to such stimuli increases liking levels (Upton et al.,

2012). Cognitive theories focus on more reasoned approaches of attitude formation. As Hogg and Cooper (2007, p.125) explain, “an attitude is formed on the basis of cognitions when one comes to believe either the attitude object possesses (un)desirable attributes, or that the attitude object will bring about (un)desired outcomes”. Consequently, teachers’ beliefs about the education of children with ADHD in mainstream classrooms resulted from an overall evaluation of the attributes of these children and the effects that their presence in the classroom may have.

In the first phase of the study, teachers who consistently favoured either mainstream or special educational settings for children with ADHD were the minority. While a group of teachers highlighted the importance of being educated in a mainstream classroom environment, simultaneously they favoured one-to-one instruction. A second group of teachers neither agreed nor disagreed with any educational setting. Although paradoxical at first sight, personal interviews and focus groups gave participants the opportunity to develop their beliefs and provide the rationale behind these decisions. The in-depth discussions with the interviewees revealed that the adoption of a full-time mainstream or special educational setting was neither unconditional, nor applicable in all cases.

Personal interview and focus group data analysis suggested two groups of teachers that either remained neutral or favoured both mainstream and special educational settings. Acknowledging the heterogeneity of this group (multiple presentations and levels of severity), a number of teachers held different attitudes towards the appropriate educational setting for children with primarily inattentive behaviours and those with primarily hyperactive/impulsive behaviours. Teachers, who favoured special educational settings (e.g. one-to-one instruction, instruction in a special unit, in a special school) and argued that the education of these children is primarily responsibility of special teachers, indicated prior experiences with students that were not in position to accept any kind of restriction, to follow classroom rules and recognise danger. In the opinion of these teachers, children with these kinds of behaviours cannot follow the demanding schedule of a mainstream classroom and they undermine the quality of the lesson. Thus, for their benefit and that of their classmates, they should mostly or exclusively be educated separately.

Overall, teachers that appeared to be against the education of children with ADHD in the mainstream classroom justified their decision focusing on the negative effects that the presence of these students may have (discipline, learning and safety issues). They also explained that it is “exhausting” and “stressful” for their teachers and at the expense of their classmates. The high numbers of students in mainstream classrooms as well as the lack of knowledge on the part of mainstream school teachers to manage ADHD-related behaviours were among the reasons that justified the favourable attitudes towards special educational settings. Participants, who were aware of or had taught primarily inattentive students, suggested that this group of children should be educated in the mainstream classroom along with their typically developing peers.

A second group that favoured both mainstream and special educational settings involved teachers who considered a combination of two an ideal educational approach. These teachers argued that the education in the mainstream classroom on a full-time basis would undermine the quality of the lesson and hinder the learning of children with ADHD and their classmates. These findings are in line with those reported in a study by Koutrouba et al. (2006) which explored Cypriot teachers’ attitudes towards children with special needs (for details see Chapter 6). The main suggestion of this group of teachers was the part-time education of children with ADHD in the mainstream classroom, under the supervision of a trained companion or a special teacher, in parallel with individual supportive teaching. In their opinion, the allocation of teaching hours per setting should be based on the behavioural profile and the educational needs of each child. The need for socialisation was the main reason why participants favoured the part-time education of children with ADHD in the mainstream classroom. As they explained, individual supportive teaching is the most appropriate for their academic progress whereas the environment of a classroom corroborates the feeling of belonging and helps them create friendships.

The majority of teachers in both research phases agreed that a precondition for the accommodation of students with ADHD in the mainstream classroom is their supervision by companions (assisting personnel, employed for supporting children with special needs). The attitudes of teachers towards companions had also been differentiated according to their prior experiences. A minority of participants, who expressed unfavourable attitudes, reported that the companions they had cooperated

with could not support the management of ADHD-related behaviours and children's learning in the mainstream classroom. They found that companions hindered the academic progress and socialisation of accompanied children and they concluded that their presence had more harmful than beneficial outcomes. On the other hand, the majority considered companions essential for the management of ADHD and the facilitation of the teaching procedure.

It is generally accepted that the successful implementation of inclusive initiatives depends on both human and material resources. As Avramidis et al. (2000, p.209) explain "simply more people or more computers are not enough; rather, how the resources are being utilised is of importance". To bring about the best possible impact on children's behavioural, academic and social functioning, it is critical that the MoEC undertakes the training of companions prior to their nomination to this position. Such training can raise an understanding of the disorder, the associated difficulties and ways to provide discreet support, without hindering children's education and socialisation. At this point, two questions that should be considered and addressed by those who set the labour protocols and are involved in the nomination of companions are posed: To what extent does the current role of companions facilitate or hinder children's education and socialisation in mainstream classrooms? Can this role be beneficial for both the children with ADHD and for their typically developing peers? In the meantime, the current role of companions should be clearly communicated to elementary school educators who often perceive them as personal teachers and complain about their poor educational background. Such understanding could be gained through teacher INSET programmes.

The percentages found in the first phase of the research suggest that teachers were mixed in their emotions and willingness to undertake the education of children with ADHD. In the second phase, the majority of interviewees stated that if they had the right of choice, they would not undertake classrooms including children with ADHD. Participants' prior stressful experiences and difficulties in managing ADHD-related behaviours seemed influential for this negative predisposition. The intention to equally support all the students during the lesson and worries about their annual evaluation by governmental inspectors were also reported as reasons for not choosing classrooms with children having an ADHD diagnosis.

In parallel with implications relating to teacher INSET, which will be discussed later in the chapter, the current results highlight the need for an overall reconstruction of the current educational system. To facilitate the education of children with ADHD in mainstream classroom settings, accurate knowledge and favourable attitudes on the part of teachers are necessary but not enough. Radical modifications in the curriculum and teacher evaluation system, for example, are issues of critical importance that policy-makers and administrators of the MoEC should carefully consider. At the moment, teachers are invited to undertake the education of children with ADHD but they argue that they do not have the flexibility to diverge from the strict curriculum and timeline set in advance by the MoEC. The need to reach the educational goals set for each grade level on time and get a high score on the annual evaluation were among the reasons that justified participants' reluctance to undertake the education of children with ADHD. The high number of students in mainstream classrooms was another reason that brought about negative attitudes towards the teaching of children with ADHD.

The need for school-home cooperation, co-decision and implementation of interventions, was another issue set by participants. In the second phase of the study, a group of teachers indicated experience with parents who considered ADHD a non-validated disorder and hindered the diagnostic procedure, the development and implementation of intervention plans for years. It is therefore crucial for parents to be provided with multiple training opportunities that will enhance their knowledge of the disorder and their willingness to cooperate with school, to implement home-based interventions and consent for the administration of medication if needed. Overall, factors that impede the progress towards inclusive education and provisions, which can facilitate the accommodation of children with ADHD in mainstream classrooms, should be high priority educational issues in the agenda of the MoEC.

### **14.3 Current INSET provision**

Notwithstanding the emphasis that teachers placed on INSET, only 15.0% had participated in relevant programmes and 7.1% found them helpful for the management and teaching of children with ADHD. The reasons for the low percentage of attendance were in the majority of cases external ones. 72.8%, for example, reported that they did not have the opportunity to participate in formal INSET on ADHD since there was no

provision by the MoEC. Overall, the participants expressed their disappointment and criticised the policy of the MoEC to provide relevant INSET opportunities primarily to special teachers. The role of INSET in mainstream school teachers' knowledge and sense of self-efficacy was corroborated in the first phase of the research. Statistical analysis suggested that Cypriot teachers, who had attended prior INSET, had significantly higher scores on the knowledge scale and greater sense of self-efficacy to manage and teach this group of children. The lack of INSET and consequently the limited knowledge in managing ADHD-related behaviours was the most commonly reported reason for interviewees' disagreement with the presence of these children in mainstream classrooms and their negative predisposition to undertake their education.

The majority of participants with prior INSET experience had attended on their own initiative the five-session optional seminars delivered by the CPI. These teachers acknowledged the contribution of the CPI seminars to the acquisition of a basic knowledge background but focused on their limitations. The place, the time, their voluntary character and theoretical orientation were the most common areas of criticism. The teachers perceived voluntary INSET in non-working time as inconvenient and they suggested the introduction of compulsory school-based INSET that will be part of their professional responsibilities. These beliefs about the preferable time, place and legal framework were reported by the majority of participants in both research phases.

The participants explained that INSET in non-working time is usually not tailored specifically enough to the classroom reality and the needs of each teacher. It was also considered discouraging for educators whose free time is restricted due to family and other commitments. Overall, the teachers appeared to be against out-of-school INSET. In their opinion, it only provides general information, without considering the specific needs of each child. Simultaneously, it does not allow cooperation with trainers and application of interventions in real conditions. For these reasons, the provision of school-based INSET was the response with the highest frequency. Considering that ADHD is common and the likelihood of having a diagnosed or undiagnosed child in the classroom high, the majority supported the introduction of compulsory INSET irrespective of the exposure to students with ADHD. The in advance information about the nature of the disorder and the diagnostic criteria was in the opinion of teachers critical for the early identification and accurate diagnosis of children with ADHD. The

majority, however, considered the provision of further INSET opportunities and support essential for those who undertake the education of children with ADHD.

The theoretical orientation of the CPI seminars was perceived as their main limitation. The teachers felt that the seminars were detached from the classroom reality. They primarily focused on the nature of ADHD and general approaches of intervention and therefore they did not facilitate the management and teaching of children with ADHD as expected. This was because the recommended interventions were not tailored to the dynamic of each classroom, the nature of observed behaviours, the severity, the age, the background and the specific needs of each student with ADHD. Overall, Cypriot teachers criticised the attendance of single informative events by external providers and they considered continuity and cooperation with trainers as key principles of a successful INSET programme. Specialists and representatives of organisations that deliver relevant INSET, governmentally or privately, also recommended the provision of built-up INSET opportunities.

In this study, the teachers were mostly oriented towards INSET programmes that would enhance their understanding of ADHD and the needs of this group of children. The management of ADHD-related behaviours and the improvement of teaching practice were educators' fundamental expectations of future INSET. As they explained, these would minimise negative feelings and make them feel more confident to undertake the education of children with ADHD. In this vein, even those who advocated information about the nature of the disorder suggested that focus should be on practical issues with immediate benefits for the teaching procedure. The way teachers should approach students with ADHD and interventions that could be easily applied in a classroom setting were the most commonly reported responses. The overall criticism over the current INSET provision and the recommendations of stakeholders were in line with those of teachers in both research phases.

#### **14.4 Implications for future INSET**

While several practical implications have already been recommended in the chapter, a few others relating to teacher INSET can also be offered as a result of the present study. Considering the findings reported in both research phases, it could be argued that with

the provision of extensive INSET opportunities and support, teachers' knowledge of ADHD and sense of self-efficacy can increase while their attitudes towards the instruction of this group of children are likely to become more favourable. As Ross-Hill (2009, p.189) argues, lack of systematic and substantial INSET often results in "tension, stress, and strain for both teachers and students alike in inclusive settings". Providing educators with knowledge, skills and systematic support is therefore likely to address insecurities and enhance their willingness to undertake the education of children with ADHD.

At this point, an important dilemma that should be carefully considered and resolved by those involved in the development and delivery of governmental teacher INSET, such as academics and MoEC administrators, is posed. This dilemma concerns the nature of future INSET programmes and the extent to which teachers' preference for practical knowledge with immediate impact on everyday practice (school-based interventions) should define the structure and content of such programmes. The observed emphasis of teachers on the practical is in line with the results reported in a study by Symeonidou and Phtiaka (2009). When Cypriot teachers were asked to prioritise four given thematic areas of future INSET, they all indicated a preference for practical aspects. Learning about the characteristics and educational needs of different categories of children with special needs, practical strategies to cope with them and ways to differentiate the lesson accordingly were the most commonly reported answers (Symeonidou and Phtiaka, 2009).

Developing INSET programmes that respect educators' expressed views and meet their expectation to be exposed to strategies that facilitate the management and teaching of children with ADHD is highly important. Considering the informational role that teachers are invited to take in the diagnostic procedure and their critical contribution in advising parents, it is of equal importance that future INSET focuses on broader knowledge areas and addresses gaps and misconceptions identified and discussed earlier in the thesis. Considering also that prior exposure to children with ADHD was found to be associated with a greater understanding of the disorder, it is suggested that future INSET maximises the opportunities for educators to be exposed to children with ADHD. Given research supporting the pivotal role that teacher attitudes have in the successful implementation of inclusive initiatives (Woodcock, 2013; Cassady, 2011;

Fields, 2006; Avramidis et al., 2000a; Hastings and Oakford, 2003; Siegel and More, 1994; Center and Ward, 1987; Jamieson, 1984), it is imperative that future INSET places emphasis not only on the acquisition of knowledge and skills but also on the development of favourable attitudes.

Therefore, in parallel with teachers' insufficient knowledge of ADHD, administrators and policy-makers should also consider the lack of ideological preparation, the limited understanding of inclusive education and the segregating ideologies that were reproduced in the findings of the current study. In line with earlier studies that explored Cypriot teachers' attitudes towards children with special needs (Koutrouba et al., 2006; Symeonidou and Phtiaka, 2009) (for details see Chapter 6), the current sample considered specialists' expertise superior to their own knowledge and pedagogical skills and they often shifted responsibility for the education of children with ADHD to special teachers. They also displayed a misunderstanding of inclusive principles and they perceived socialisation as the fundamental reason why children with ADHD should be educated in mainstream classrooms along with their typically developing peers.

Considering the findings of the current study and broader social ideologies that undermine the progress towards inclusion, cooperation between the administrators of the MoEC and academics in the field is necessary to achieve a balance between theory and practice in future INSET programmes. Thus, teachers' preference for the practical will be respected and simultaneously the theoretical background that is highly important to address prejudices and segregating ideologies will not be overlooked. An INSET programme that alongside practical strategies provides opportunities for teachers to reflect on and develop a critical understanding of the principles and benefits of inclusive education is more likely to alter negative attitudes (Koutrouba et al. 2006; Angelides, 2004; Papanastasiou and Koutselini, 2003; Symeonidou, 2002b; Avramidis et al., 2000). Such INSET can help teachers understand the importance of their role in the implementation of inclusive practices and provide them with "a vision and knowledge skills to operationalise that vision; skills which allow them to modify their everyday practice in ways which are ultimately inclusive" (Avramidis et al., 2000, p.209). Given the overall findings, it is imperative that educators' understanding of ADHD, expectations of children with the disorder and attitudes towards their accommodation in

mainstream classrooms are carefully guided through undergraduate courses and INSET programmes.

## **14.5 Limitations and Recommendations for future research**

1. The present research aimed to investigate Cypriot teachers' knowledge of, and attitudes towards ADHD. Exploring the direct relationship between these two variables at the level of the individual was beyond the scope of the study. Personal interviews and focus groups revealed potential relationships between these variables that need to be further explored. They indicated, for example, that teachers, who felt they were aware of the disorder and specifically the empirically validated interventions, held more positive attitudes towards the inclusion of children with ADHD in the mainstream classroom and they were more willing to take responsibility for their education. Future research should investigate the degree to which and how teachers' knowledge of ADHD forms their attitudes. It would also be interesting to explore whether the levels of knowledge in various areas (general information, symptoms/diagnosis, and treatment) form educators' attitudes in different ways.
2. The sample was restricted to Cypriot elementary school teachers. Given that pre-elementary, secondary and technical school educators were not involved in the study, it can only be hypothesised that the current findings would be formed in the same way if educators from several educational levels were sampled. For comparative reasons, future studies should explore the knowledge and attitudes of pre-elementary and secondary/technical school teaching personnel that deal with early childhood and teenage ADHD and pre-service educators that do not have prior experience with ADHD in the classroom.
3. Personal interviews and focus groups revealed that prior experiences with students having an ADHD diagnosis often brought about negative feelings and unfavourable predispositions and beliefs. Less positive experiences and, in turn, less favourable attitudes were primarily expressed by teachers who had taught students with extreme levels of hyperactivity/impulsivity (physical/verbal/emotional). These teachers considered students with ADHD "difficult" and "demanding" for their daily practice and they placed particular

emphasis on challenges relating to the smooth functioning of the learning procedure, the safety and the relationships between students with ADHD and their peers. Given the current findings, it would be interesting for future studies to systematically examine how and why teachers' prior exposure to children with ADHD influences their attitudes. Such relationship could be investigated in the light of social psychological theoretical models (TRA and TPB) and research suggesting that attitudes develop as a result of personal experience/observation and an overall evaluation of the attributes, desirable/undesirable, that an attitude object possesses (Crisp and Turner, 2010; Fiske, 2010; Hogg and Cooper, 2007).

4. Personal interviews and focus groups suggested several factors that alongside prior experience informed teachers' attitudes towards the instruction of children with ADHD. An in depth exploration of these factors was beyond the scope of the present study. It is therefore recommended that future research explores, using quantitative and qualitative measures, the extent to which and how variables such as the nature and severity of observed behaviours, classroom size, curriculum and time constraints set by the MoEC, school-home cooperation and teacher evaluation system influence teachers' attitudes. The results of these studies can raise a greater understanding of the factors that inform teachers' feelings, beliefs and predispositions to act in certain ways and offer several implications for educational policy, practice and teacher INSET.
5. The present study was limited to an exploration of Cypriot teachers' attitudes towards the instruction of children with ADHD. Focusing on the complex relationship between attitudes and behaviour and examining how teacher attitudes impact on and form their behaviour in classroom settings would be an important area for future research. Relevant studies could examine the applicability in the educational arena of social psychological theoretical models (e.g. TRA and TPB) that were designed and widely used in research to explain the relationship of attitudes with behaviour formation.
6. In the second phase of the study, a group of teachers indicated experience with parents who considered ADHD a non-valid disorder and the behaviour of their children typical for their age. These parents' lack of knowledge and the fear of stigmatisation hindered not only the diagnosis but also the development and implementation of intervention plans for years. Given the critical role that parents are invited to take in the diagnostic and intervention procedure, it is of equal importance that they are provided with multiple training opportunities

which will enhance their knowledge of the disorder and their willingness to cooperate with school, to implement home-based interventions and consent for the administration of medication if needed. It is therefore crucial that future research studies assess the accuracy of their knowledge and identify gaps and misconceptions that need to be considered and addressed in parent training programmes.

7. In personal interviews and focus groups, a number of teachers reported examples of classroom peers' parents who had readily expressed their disagreement with the education of students with ADHD in mainstream classrooms. These parents primarily worried about the safety of their children and secondarily about their learning that in their opinion was hindered by their classmates with ADHD. Examining the perspectives of classroom peers' parents and evaluating whether and how these perspectives influence the stance of typically developing children towards children with ADHD could raise a deeper understanding of the current social and educational reality.
8. The study got an insight into the feelings, beliefs and predispositions of Cypriot elementary school teachers towards children with ADHD. However, the voice of these children was not heard. The current findings suggest that at the moment Cypriot children with ADHD share their learning time between special units, individual supportive teaching and mainstream classrooms and they often experience rejection by teachers and classroom peers. Teachers usually perceive their presence in the mainstream classroom at the expense of their classmates' education and safety while typically developing children tend to exclude them from companies and social gatherings (predominantly hyperactive/impulsive children). Given the lack of studies that examine ADHD from the child's point of view, it could be only hypothesised how these children experience the current educational reality. Exploring the feelings and perspectives of children with ADHD could therefore be a very useful extension of this work with direct impact on educational policies and practice.
9. Considering the relationship between children with ADHD and their classroom peers was beyond the scope of the study. This relationship was one of the themes that emerged through semi-structured interviews and focus groups. When describing their prior experiences with students having an ADHD diagnosis, the majority of participants focused on the social underachievement

of these students and the unfriendly relationships with their classmates. The study, however, focused on teachers' understanding and did not explore the feelings and perspectives of classroom peers. Such exploration could be an important area for future research.

10. Likewise consideration of companions' knowledge, perspectives, behavioural responses and effects on the academic, social and emotional functioning of children with ADHD may also be very useful in providing a rich picture of current experiences and provision. As discussed earlier in the thesis, the role and contribution of paraprofessionals or "companions", as they are commonly defined in the educational context of Cyprus, was a theme that emerged by the majority of teachers in the second phase of the research. Interview and focus group data analysis suggested that teachers' attitudes towards companions were differentiated according to their prior experiences. A minority reported negative experiences and argued that companions could not fulfil the expectations of their role primarily because they had not been trained on ADHD. These participants found that companions had hindered the education and socialisation of accompanied children and concluded that their presence in the classroom had more harmful than beneficial outcomes. On the other hand, the majority considered the presence of companions a beneficial and valuable support. This group of teachers focused on the positive effects and explained that the companions they had cooperated with facilitated the management of ADHD-related behaviours and significantly contributed to the safety of children and the smooth functioning of the teaching procedure. The current role of companions and their overall contribution should be thoroughly evaluated in future research, clarified and reconsidered, if needed, for the benefit of children with ADHD.

To conclude with future research concepts, it is important to note that the current PhD initially aimed to design and implement an INSET programme on ADHD and evaluate the effects on Cypriot elementary school teachers' knowledge, attitudes and behavioural responses. This would be done by following pairs of teachers and children with ADHD and by using questionnaires (to assess knowledge - prior and after the INSET programme), individual interviews (to explore attitudes) and participant observation (to examine possible modifications in behaviour). After careful consideration of intervention-based research designs and in consultation with the supervision team, the

initial research plan was revised since a lot of groundwork needed to be done first in order to understand the context and the needs of Cypriot teachers. According to Symeonidou and Phtiaka (2009), the development of an INSET scheme that responds to educators' needs presupposes the prior assessment of these needs. Failure to identify the needs of a specific population can undermine the relevance and effectiveness of INSET. As soon as this gap in the literature had been acknowledged, the study was oriented towards the identification of Cypriot elementary school teachers' knowledge of ADHD, attitudes towards children diagnosed with this disorder, prior experiences with relevant INSET, expectations and recommendations for future INSET.

Statistical analysis indicated that Cypriot teachers, who had attended previous relevant INSET (15.0%), had significantly higher scores on the knowledge scale and greater sense of self-efficacy to teach students with ADHD compared to their colleagues with no such experience. Having all this groundwork done (identification of Cypriot teachers' knowledge gaps/misconceptions, recommendations for INSET), researchers and administrators of the MoEC and CERE are at the moment in a stronger position to consider an intervention-based work and involve teachers in relevant INSET programmes. To assess the effects of these programmes, longitudinal study designs could be adopted wherein classroom observations, pre-tests and post-tests of teachers' knowledge and attitudes will be used.

## **14.6 Dissemination Plans**

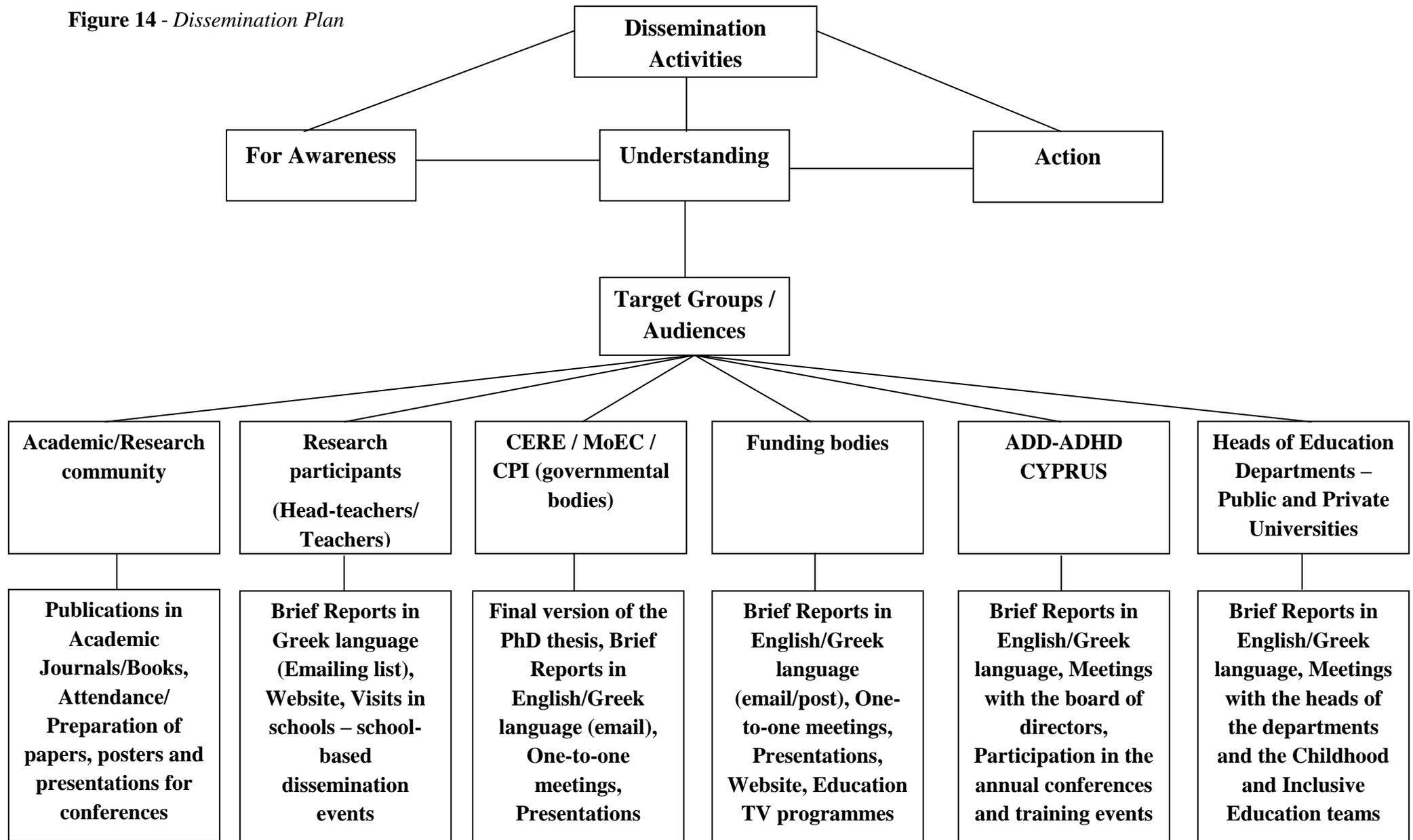
Disseminating the outcomes of the study to the wider higher education community, the participants and the local education/funding bodies has been an issue of particular interest since the early stages of the PhD. Dissemination activities have two main purposes. The primary purpose is to raise awareness of the disorder in general, the study and its outcomes in particular to a wide audience, beyond the academia. According to Harmsworth et al. (2000, p.3), "Creating such an awareness of your project's work will help the "word of mouth" type dissemination and help you build an identity and profile within your community." The second purpose is to raise an in-depth understanding of the study and its implications to target audiences which have the power to influence

procedures, policies and practices and bring about change in the educational reality of teachers and children with ADHD (see Figure 14).

As noted earlier in the thesis, the overall contribution of the study was corroborated by two governmental organisations, the Ministry of Education and Culture (MoEC) and the Centre of Educational Research and Evaluation (CERE). In order to conduct the study in elementary schools during working hours, it was necessary to get permission from the abovementioned organisations. For this purpose, a specific application form was developed and submitted regarding: a) the content of the study, b) the ethical issues and measures to be addressed, c) the methodology and d) research instruments (English and Greek versions). The responsible committee (representatives of the MoEC and the CERE) considered the application form, acknowledged the originality and contribution of the study and provided the necessary permission. The researcher's consent was then asked so as the research findings to be disclosed to these educational bodies and used by the MoEC administrators and policy-makers for the benefit of children with ADHD and their educators. For this purpose, a full copy of the final version of the thesis as well as brief reports of the main findings and their implications for the educational practice and policy-making will be sent via email. In parallel, informative presentations for the members of the committee and one-to-one meetings with key representatives and administrators of the MoEC and the CERE will take place.

The participants were invited, both verbally and written (through the information sheets), to send an email expressing their interest to get informed about the findings of the study. These teachers will receive brief feedback reports via email -in Greek language- that will focus on the research purposes, the background, the methodology, the main outcomes, the overall contribution and implications of the study. Meetings with the principals of the participating schools will also be arranged. The principals will receive corresponding to teachers' feedback reports and they will be invited to provide their consent for conducting school-based dissemination events. The feedback reports given to principals and teachers will provide details about a relevant website. In this website, they will be able to find information about the disorder (identification, assessment, diagnosis, interventions, and available support – e.g. ADD-ADHD CYPRUS), the study and the findings. Awareness of the website

Figure 14 - Dissemination Plan



will also be raised via email (principals and teachers of participating schools). Corresponding emails will be sent to principals of elementary schools across Cyprus whom the consent will be asked for the arrangement of informative events within their schools.

Raising awareness of the study and its implications to research/academic audiences has been a fundamental target of the dissemination plan. To achieve this, the last three years I have participated in several conferences, seminars and workshops; I had the opportunity to prepare presentations/posters for broad academic audiences and discuss the study with professionals from various disciplines, universities and countries. The participation in corresponding future opportunities and the preparation of papers for publication in academic journals and books are at the moment high priority issues. A number of academic journals that could accommodate the current work have been considered and relevant papers are in progress (e.g. *Teaching and Teacher Education Journal*, *European Journal of Special Needs Education*, *International Journal of Inclusive Education*, *European Journal of Teacher Education*, *Journal of Attention Disorders*).

As indicated earlier in the thesis, the Cyprus Pedagogical Institute (CPI) is the governmental organisation with the primary responsibility for teacher INSET. The current INSET provision with regard to ADHD (strengths/weaknesses), the expectations and recommendations for future INSET, as these had been discussed by teachers and reported in the thesis, will be clearly communicated to the CPI via brief reports, presentations and personal meetings with representatives and specialists responsible for the development and delivery of relevant teacher INSET opportunities. A similar dissemination approach will be set to inform the board of directors, the members and specialists that cooperate with, and support the Cyprus Organisation of ADHD (see Figure 14).

Research findings have suggested that Cypriot elementary school teachers receive either little or no formal pre-service and in-service training on ADHD. In parallel with the implications for INSET, this finding also has implications for teachers' pre-service education and training. Given this, it was considered reasonable to approach the heads of the Education Departments in both public and private universities and provide

information about the study, the findings and the importance of practically and ideologically preparing trainee teachers for the education of children with ADHD. Attempts to promote the development of the current teacher INSET provision will also be made by approaching, informing and intending possible cooperation with governmental, private and European education funding bodies (brief reports and meetings with key members to discuss the study and its implications).

## **14.7 Overview – Conclusion**

The present study examined Cypriot elementary school teachers' knowledge and attitudes in relation to ADHD, one of the most common and controversial lifelong disorders. The high prevalence of the disorder among school-age children suggests that the likelihood of teachers having a diagnosed or undiagnosed child with ADHD in their classroom is high. As indicated in earlier chapters, mainstream school teachers are invited to play a pivotal role in identifying undiagnosed children with ADHD, in evaluating their behavioural, educational and social functioning, in advising parents, in implementing non-pharmacological interventions and observing the effects of medication. A clear understanding of the disorder, the needs of children with ADHD and the empirically validated interventions is therefore imperative for the early identification, the accurate diagnosis and the effective application and evaluation of interventions. Acknowledging the critical role of knowledge, researchers from all over the world have indicated particular interest in assessing educators' knowledge of ADHD and identifying areas that need further development. This kind of investigation had not previously been conducted in the educational context of Cyprus. Consequently, empirical evidence about the knowledge background of Cypriot elementary school teachers was not available.

In contrast to educators' knowledge of the disorder, their attitudes towards children with ADHD have not been widely and distinctly investigated in the past. Existing studies across countries have primarily explored teacher attitudes towards the idea of inclusion in general and not towards specific categories of children with special needs. Given the association of attitudes with behaviour formation, it is highly important that research studies explore teacher attitudes and raise an understanding of the acceptance levels children with ADHD have in mainstream classrooms. Acknowledging the gaps in the

literature, the present study has broadened and added to the research base on ADHD by investigating and providing a much needed insight into Cypriot elementary school teachers' knowledge of the disorder and their attitudes towards the instruction of children with ADHD. Teachers' prior INSET experiences were also explored in parallel with their expectations and recommendations for future INSET. Overall, the study has contributed to, and enhanced the international literature on teachers' knowledge of, and attitudes towards ADHD, offering at the same time several practical implications, primarily relating to teacher INSET provision.

The study has shown that Cypriot elementary school teachers' knowledge of ADHD was not particularly high. Comparable average knowledge scores and a tendency to select the response option "Don't Know" were apparent in parallel studies that also used a three choice (True/False/Don't Know) response format. Cypriot teachers' percentage correct scores on the three subscales (symptoms/diagnosis, treatment, general information) were significantly different. In alignment with previous studies, Cypriot participants scored significantly lower on the treatment subscale compared to the symptoms/diagnosis and general information subscales. In contrast to parallel studies, Cypriot teachers' percentage correct scores on the general information and symptoms/diagnosis subscales did not present significant differences. This may be attributable to methodological factors discussed earlier in the chapter. Overall, substantial knowledge gaps and misconceptions were found in all three subscales. These findings are highly important since they can be used to inform the content of future INSET programmes.

Cypriot teachers' percentage correct scores were not correlated with various background characteristics, including age, years of teaching experience and the number of students with ADHD they had taught during their teaching career. Similarly, there were no significant differences between the groups of participants who reported a bachelor degree, a master's degree or a PhD. However, participants who had attended formal INSET on ADHD had significantly higher scores on the knowledge scale than those with no experience with INSET. Similarly, teachers who indicated experience with family members, friends and students with ADHD scored significantly higher compared to their colleagues with no such experience. Questionnaire, personal interview and focus group data analysis suggested that the majority of teachers did not have absolute

attitudes regarding ADHD. Characteristics such as the nature of ADHD-related behaviours, the severity and the overall behavioural profile of each child informed their feelings, their predispositions to act in certain ways and their beliefs towards the most appropriate educational setting. Overall, educators' prior experiences with children having an ADHD diagnosis played a pivotal role in the formation of their attitudes.

Although 65.9% of educators had taught at least one student with ADHD during their teaching career, only 15.0% reported experience with relevant formal INSET. The majority of participants specified that they had attended on their own initiative the five-session optional seminars of the CPI. The place, the time, the voluntary character and theoretical orientation of these seminars were the most common areas of criticism. The effective management of the disorder and the improvement of teaching practice were educators' fundamental expectations of future INSET. The majority of teachers were oriented towards compulsory school-based INSET programmes that will be part of their professional responsibilities and will focus on the management of ADHD-related behaviours. Continuity and cooperation with trainers were considered key principles of a successful INSET programme. Overall, the criticism over the current INSET provision and the recommendations of stakeholders were in line with those reported by teachers in both research phases. Given the findings of the study, several practical implications, primarily relating to teacher INSET, were provided for the administrators of the MoEC and policy-makers. A number of limitations and aspects that had not been explored in the study were also identified and reported along with recommendations for future research in the field.

## References

- Abikoff, H. et al. 2009. Effects of MPH-OROS on the organizational, time management, and planning behaviors of children with ADHD. *J Am Acad Child Adolesc Psychiatry*. **48**(2), pp.166-175.
- ADD-ADHD CYPRUS. 2013. *A Guide for Teachers*. [Online]. [Accessed 22 January 2014]. Available from: <http://www.add-adhd.org.cy/publications/teachersgreek.pdf>
- ADD-ADHD CYPRUS. 2013. *ADD-ADHD Medication*. [Online]. [Accessed 31 July 2013]. Available from: <http://www.add-adhd.org.cy/publications/medicationenglish.pdf>
- Advokat, C. 2009. What Exactly Are the Benefits of Stimulants for ADHD? *Journal of Attention Disorders*. **12**(6), pp.495-498.
- Ajzen, I. 1991. The theory of planned behavior. *Organizational Behavior and Human Decision Processes*. **50**, pp. 179-211.
- Ajzen, I. 1985. From intentions to actions: A theory of planned behavior. In: Kuhl, J. and Beckman, J. eds. *Action-control: From cognition to behavior*. Heidelberg: Springer, pp. 11-39.
- Ajzen, I. and Fishbein, M. 1980. *Understanding attitudes and predicting social behaviour*. Englewood Cliffs, NJ: Prentice-Hall.
- Alberts-Corush, J. et al. 1986. Attention and impulsivity characteristics of the biological and adoptive parents of hyperactive and normal control children. *American Journal of Orthopsychiatry*. **56**(3), pp.413-423.
- Alvarez, J.A. and Emory, E. 2006. Executive Function and the Frontal Lobes: A Meta-Analytic Review. *Neuropsychology Review*. **16**(1), pp.17-42.
- American Academy of Pediatrics (AAP). 2011. ADHD: Clinical Practice Guideline for the Diagnosis, Evaluation, and Treatment of Attention-Deficit/Hyperactivity Disorder in Children and Adolescents. *Pediatrics*. **128**(5), pp.1007-1022.
- American Psychiatric Association (APA). 2013. *Diagnostic and statistical manual of mental disorders (DSM-5)*. Arlington, VA: American Psychiatric Publishing.
- Anderson, D.L. et al. 2012. Knowledge of Attention Deficit Hyperactivity Disorder (ADHD) and attitudes toward teaching children with ADHD: The role of teaching experience. *Psychology in the Schools*. **49**(6), pp. 511-525.
- Angelides, P. et al. 2010. Making sense of inclusion for leadership and schooling: a case study from Cyprus. *International Journal of Leadership in Education*. **13**(3), pp.319-334.
- Angelides, P. et al. 2009. The role of paraprofessionals in developing inclusive education in Cyprus. *European Journal of Special Needs Education*. **24**(1), pp.75-89.

- Angelides, P. 2008. Patterns of inclusive education through the practice of student teachers. *International Journal of Inclusive Education*. **12**(3), pp.317-329.
- Angelides, P. and Michailidou, A. 2007. Exploring the role of 'special units' in Cyprus schools: A case study. *International Journal of Special Education*. **22**(2), pp.87-95.
- Angelides, P. et al. 2006. Preparing teachers for inclusive education in Cyprus. *Teaching and Teacher Education*. **22**(4), pp. 513–522.
- Angelides, P. 2004. Moving towards inclusive education in Cyprus? *International Journal of Inclusive Education*. **8**(4), pp.407-422.
- Angelides, P. et al. 2004. Reflections on policy and practice of inclusive education in pre-primary schools in Cyprus. *European Journal of Special Needs Education*. **19**(2), pp.211-223.
- Angelides, P. et al. 2003. Forging a multicultural education ethos in Cyprus: reflections on policy and practice. *Intercultural Education*. **14**(1), pp.57-66.
- Antonak, R.F. and Livneh, H. 2000. Measurement of attitudes towards persons with disabilities. *Disability and Rehabilitation*. **22**(5), pp.211-224.
- Arcia, E. et al. 2000. Teacher understanding of ADHD as reflected in attributions and classroom strategies. *Journal of Attention Disorders*. **4**(2), pp.91-101.
- Arnold, L.E. and DiSilvestro, R.A. 2005. Zinc in attention deficit/hyperactivity disorder. *Journal of Child and Adolescent Psychopharmacology*. **15**(4), pp.619-627.
- Asherson, P. 2013. ADHD in Adults: A Clinical Concern. In: Surman, C.B.H. ed. *ADHD in Adults: A Practical Guide to Evaluation and Management*. New York: Humana Press, pp.1-18.
- Ashley S. 2005. *The ADD & ADHD Answer Book: Professional Answers to 275 of the Top Questions Parents Ask*. Illinois: Sourcebooks.
- Avramidis, E. et al. 2000. 'A Survey into Mainstream Teachers' Attitudes Towards the Inclusion of Children with Special Educational Needs in the Ordinary School in one Local Education Authority'. *Educational Psychology*. **20**(2), pp. 191-211.
- Avramidis, E. and Norwich, B. 2002. Teachers' Attitudes towards Integration / Inclusion: A Review of the Literature. *European Journal of Special Needs Education*. **17**(2), pp. 129-147.
- Babbie, E.R. 2010. *The Practice of Social Research*. Belmont, CA: Wadsworth.
- Banaschewski, T. et al. 2004. Non-stimulant medications in the treatment of ADHD. *Eur Child Adolesc Psychiatry*. **13**(1), pp.102-116.
- Barbarese, W.J. et al. 2007. Modifiers of long-term school outcomes for children with attention deficit/hyperactivity disorder: Does treatment with stimulant medication make

a difference? Results from a population-based study. *Journal of Developmental and Behavioural Pediatrics*. **28**(4), pp.274-287.

Barbarese, W.J. and Olsen, R.D. 1998. An ADHD educational intervention for elementary schoolteachers: A pilot study. *Developmental and Behavioral Pediatrics*. **19**(2), pp.94-100.

Barkley, R.A. 2013. *Taking Charge of ADHD: The Complete, Authoritative Guide for Parents*. New York: The Guilford Press.

Barkley, R.A. 2008. Classroom Accommodations for Children with ADHD. *The ADHD Report*. **16**(4), pp.7-10.

Barkley, R.A. 2006. *Attention-Deficit/Hyperactivity Disorder: A Handbook for Diagnosis and Treatment*. New York: Guilford Press.

Barkley, R.A. 2006. History. In: Barkley, R.A. and Murphy, K.R. eds. *Attention-deficit Hyperactivity Disorder: A Clinical Workbook*. New York: The Guilford Press, pp.3-52.

Barkley, R.A. 2005. *ADHD and the nature of self-control*. New York: Guilford.

Barkley, R.A. 2003. Issues in the diagnosis of attention-deficit/hyperactivity disorder in children. *Brain & Development*. **25**, pp.77-83.

Barkley, R.A. et al. 2003. Does the treatment of attention-deficit/hyperactivity disorder with stimulants contribute to drug use/abuse? A 13-year prospective study. *Pediatrics*. **111**(1), pp.97-109.

Barkley, R.A. et al. 2002. International Consensus Statement on ADHD. *Clinical Child and Family Psychology Review*. **5**(2), pp.89-111.

Barkley, R.A. 1998. *Attention-Deficit Hyperactivity Disorder: a handbook for Diagnosis and Treatment*. New York: Guilford.

Barkley, R.A. 1997. Behavioral Inhibition, Sustained Attention, and Executive Functions: Constructing a Unifying Theory of ADHD. *Psychological Bulletin*. **121**(1), pp.65-94.

Barkley, R.A. 1995. *Taking Charge of ADHD: The Complete, Authoritative Guide for Parents*. New York: Guilford.

Barry, T.D.S. et al. 2002. Academic Underachievement and Attention-Deficit/Hyperactivity Disorder: The Negative Impact of Symptom Severity on School Performance. *Journal of School Psychology*. **40**(3), pp.259-283.

Batty, M.J. et al. 2010. Cortical gray matter in attention-deficit/hyperactivity disorder: A structural magnetic resonance imaging study. *Journal of the American Academy of Child and Adolescent Psychiatry*. **49**(3), pp.229-238.

- Baumgaertel et al. 1995. Comparison of Diagnostic Criteria for Attention Deficit Disorders in a German Elementary School Sample. *J. Am. Acad. Child Adolesc. Psychiatry.* **34**(5), pp. 629-638.
- Bazeley, P. 2009. Analysing Qualitative Data: More Than 'Identifying Themes'. *Malaysian Journal of Qualitative Research.* **2**(2), pp.6-22.
- Becker, A. et al. 2006. Psychopathological screening of children with ADHD: Strengths and Difficulties Questionnaire in a pan-European study. *European Child & Adolescent Psychiatry.* **15**(1), pp.i56-i62.
- Bekle, B. 2004. Knowledge and attitudes about Attention-Deficit Hyperactivity Disorder (ADHD): A comparison between practicing teachers and undergraduate education students. *Journal of Attention Disorders* [online]. **7**(3), pp.151-161. [Accessed 12 May 2011]. Available from: <http://jad.sagepub.com/content/7/3/151>.
- Bernard, H.R. 2011. *Research Methods in Anthropology: Qualitative and Quantitative Approaches*. UK: AltaMira Press.
- Bhutta, A.T. et al. 2002. Cognitive and behavioral outcomes of school-aged children who were born preterm: A meta-analysis. *Journal of the American Medical Association.* **288**(6), pp.728-737.
- Biederman, J. et al. 2009. Do Stimulants Protect Against Psychiatric Disorders in Youth With ADHD? A 10-Year Follow-up Study. *Pediatrics.* **124**(1), pp.71-78.
- Biederman, J. et al. 2008. Stimulant therapy and risk for subsequent substance use disorders in male adults with ADHD: a naturalistic controlled 10-year follow-up study. *Am J Psychiatry.* **165**(5), pp.597-603.
- Biederman, J. and Faraone, S.V. 2005. Attention-deficit hyperactivity disorder. *Lancet.* **366**(9481), pp.237-248.
- Biederman, J. et al. 1999. Pharmacotherapy of attention-deficit/hyperactivity disorder reduces risk for substance use disorder. *Pediatrics.* **104**(2), [no pagination].
- Bird, C.M. 2005. How I stopped dreading and learned to love transcription. *Qualitative Inquiry.* **11**(2), pp.226-248.
- Blachman, D.R. and Hinshaw, S.P. 2002. Patterns of friendship among girls with and without attention-deficit/hyperactivity disorder. *Journal of Abnormal Child Psychology.* **30**(6), pp.625-640.
- Bloor, M. 1997. Techniques of Validation in Qualitative Research: a Critical Commentary. In: G. Miller and R. Dingwall, ed. *Context and Method in Qualitative Research*. London: Sage, pp.37-50.
- Bobb, A.J. et al. 2006. Molecular genetic studies of ADHD: 1991 to 2004. *American Journal of Medical Genetics Part B (Neuropsychiatric Genetics).* **141**, pp.551-565.

- Borrill, J. 2000. *All about ADHD: A booklet for those wanting to know more about Attention Deficit Hyperactivity Disorder*. London: Mental Health Foundation.
- Bouchard, M.F. et al. 2010. Attention-deficit/hyperactivity disorder and urinary metabolites of organophosphate pesticides. *Pediatrics*. **125**, pp.e1270–e1277.
- Boucher, O. et al. 2012. Prenatal methylmercury, postnatal lead exposure, and evidence of attention deficit/hyperactivity disorder among Inuit children in Arctic Québec. *Environmental Health Perspectives*. **120**(10), pp.1456-1461.
- Boyatzis, R. 1998. *Transforming qualitative information: Thematic analysis and code development*. Thousand Oaks, CA: Sage.
- Braun, V. and Clarke, V. 2006. Using thematic analysis in psychology. *Qualitative Research in Psychology*. **3**(2), pp.77-101.
- Brehm, S. et al. 2002. *Social Psychology*. London: Houghton Mifflin.
- Brock et al. 2009. *Identifying, assessing, and treating ADHD at school*. London, New York: Springer.
- Brown, T.E. 2009. ADD/ADHD and Impaired Executive Function in Clinical Practice. *Current Attention Disorder Reports*. **1**(1), pp.37–41.
- Brown, T.E. 2009. Developmental Complexities of Attentional Disorders. In: Brown, T.E. ed. *ADHD comorbidities: handbook for ADHD complications in children and adults*. Arlington, VA: American Psychiatric Publishing, pp.3-22.
- Brown, T.E. 2006. Executive Functions and Attention Deficit Hyperactivity Disorder: Implications of two conflicting views. *International Journal of Disability, Development and Education*. **53**(1), pp.35- 46.
- Burgess, P.W. 1997. Theory and methodology in executive function research. In: Rabbit, P. ed. *Methodology of frontal and executive function*. East Sussex, UK: Psychology Press Publishers, pp.81-116.
- Bussing, R. et al. 2002. General classroom teachers' information and perceptions of attention deficit hyperactivity disorder. *Behavioral Disorders*. **27**(4), pp.327-339.
- Cacace, A.T. and McFarland, D.J. 2006. Delineating Auditory Processing Disorder (APD) and Attention Deficit Hyperactivity Disorder (ADHD): A Conceptual, Theoretical, and Practical Framework. In: Parthasarathy, T.K. ed. *An Introduction to Auditory Processing Disorders in Children*. New Jersey: Lawrence Erlbaum Associates, Publishers, pp.39-61.
- Cantwell, D.P. 1975. Genetics of hyperactivity. *Journal of Child Psychology and Psychiatry*. **16**(3), pp.261-264.
- Carmona, S. et al. 2009. Vento-striatal reductions underpin symptoms of hyperactivity and impulsivity in attention-deficit/hyperactivity disorder. *Biological Psychiatry*. **66**(10), pp.972-977.

Cassady, J. M. 2011. Teachers' Attitudes Toward the Inclusion of Students with Autism and Emotional Behavioral Disorder. *Electronic Journal for Inclusive Education*. **2**(7), [no pagination].

Castellanos, F.X. et al. 2009. The restless brain: attention-deficit hyperactivity disorder, resting-state functional connectivity, and intra-subject variability. *Can. J. Psychiatry*. **54**(10), pp.665-672.

Castellanos, F.X. et al. 2006. Characterizing cognition in ADHD: beyond executive dysfunction. *Trends in Cognitive Sciences*. **10**(3), pp.117-123.

Castellanos, F.X. et al. 2002. Developmental Trajectories of Brain Volume Abnormalities in Children and Adolescents With Attention-Deficit/Hyperactivity Disorder. *JAMA*. **288**(14), pp.1740-1748.

Center, Y. and Ward, J. 1987. Teachers' attitudes towards the integration of disabled children into regular schools. *The Exceptional Child*. **34**(1), pp. 41-56.

Chandler, C. 2010. *The Science of ADHD: A Guide for Parents and Professionals*. West Sussex, UK: Wiley-Blackwell.

Christakou, A. et al. 2013. Disorder-specific functional abnormalities during sustained attention in youth with Attention Deficit Hyperactivity Disorder (ADHD) and with Autism. *Molecular Psychiatry*. **18**(2), pp.236-244.

Chronis, A.M. et al. 2006. Evidence-based psychosocial treatments for children and adolescents with attention-deficit/hyperactivity disorder. *Clinical Psychology Review*. **26**(4), pp.486-502.

Clough, P. and Lindsay, G. 1991. *Integration and the Support Service* (London, NFER).

Coffin, J.M. et al. 2005. Impaired cerebellar learning in children with prenatal alcohol exposure: a comparative study of eyeblink conditioning in children with ADHD and dyslexia. *Cortex*. **41**(3), pp.389-398.

Coghill, D. et al. 2005. Whither causal models in the neuroscience of ADHD? *Developmental Science*. **8**(2), pp.105-114.

Cohen, L. et al. 2011. *Research Methods in Education*. New York: Routledge.

Constantinides, I. 1992. *Report of the special committee for the study of ways of providing help to children with special needs*. Nicosia: Ministry of Education and Culture.

Cook, D. 1992. Psychological impact of disability. In: Parker, R.M. and Szymanski, E.M. eds. *Rehabilitation counselling: basics and beyond*. Austin, TX: PRO-ED, pp.249-272.

Cooper, P. 2006. AD/HD. In: Lewis, A. and Norwich B. eds. *Special Teaching for Special Children: Pedagogies for inclusion*. Maidenhead : Open University Press, pp.123-137.

Cooper, P. and Bilton, K.M. 2002. *Attention Deficit/Hyperactivity Disorder: a practical guide for teachers*. London: David Fulton.

Cooper, W.O. et al. 2011. ADHD Drugs and Serious Cardiovascular Events in Children and Young Adults. *The New England Journal of Medicine*. **365**(20), pp.1896-1904.

Crisp, R.J. and Turner, R.N. 2010. *Essential social psychology*. Los Angeles, CA: Sage.

Cubillo, A. et al. 2012. A review of fronto-striatal and fronto-cortical brain abnormalities in children and adults with Attention Deficit Hyperactivity Disorder (ADHD) and new evidence for dysfunction in adults with ADHD during motivation and attention. *Cortex*. **48**(2), pp.194-215.

Cunningham, L. et al. 1975. Studies of adoptees from psychiatrically disturbed biological parents: Psychiatric conditions in childhood and adolescence. *British Journal of Psychiatry*. **126**, pp.534-549.

Curatolo, P. et al. 2010. The neurobiological basis of ADHD. *Italian Journal of Pediatrics*. **36**(1), pp.79-85.

Cyprus Pedagogical Institute (CPI). 2013. *Optional in-service training seminars*. [Online]. [Accessed 22 February 2013]. Available from: <http://www.pi.ac.cy/>

Detweiler, R.E. et al. 1999. A multi-modal approach to the assessment and management of ADHD. In: Cooper, P. and Bilton, K. eds. *ADHD: Research, Practice and Opinion*. London: Whurr, pp.43-59.

DiBattista, D. and Shepherd, M.L. 1993. Primary school teachers' beliefs and advice to parents concerning sugar consumption and activity in children. *Psychological Reports*. **72**(1), pp. 47-55.

Donfrancesco, R. et al. 2013. Iron and ADHD: Time to Move Beyond Serum Ferritin Levels. *Journal of Attention Disorders*. **17**(4), pp.347-357.

D'Onofrio, B.M. et al. 2007. Causal inferences regarding prenatal alcohol exposure and childhood externalizing problems. *Arch Gen Psychiatry*. **64**(11), pp.1296-1304.

Doukanari, M. 2009. *International consideration of ADHD and Cypriot teachers' perceptions about the disorder, the instruction of children with ADHD, the administration of medication and the use of classroom-based approaches to intervention*. Unpublished MA Critical Study, University of Leeds.

Duesenberg, D. 2006. ADHD: Diagnosis and Current Treatment Options to Improve Functional Outcomes. In: Parthasarathy, T.K. ed. *An Introduction to Auditory Processing Disorders in Children*. New Jersey: Lawrence Erlbaum Associates, Publishers, pp.187-201.

Dunlap, G. et al. 1994. Choice making to promote adaptive behavior for students with emotional and behavioral challenges. *Journal of Applied Behavior Analysis*. **27**(3), pp.505-518.

DuPaul, G.J. et al. 2011. ADHD in the Classroom: Effective Intervention Strategies. *Theory Into Practice*. **50**(1), pp.35-42.

DuPaul, G.J. and Weyandt, L.L. 2006. School-based Intervention for Children with Attention Deficit Hyperactivity Disorder: Effects on academic, social, and behavioural functioning. *International Journal of Disability, Development and Education*. **53**(2), pp.161-176.

DuPaul, G.J. and Stoner, G. 2003. *ADHD in the schools: Assessment and intervention strategies*. New York: Guilford.

Dupoux, E. et al. 2005. Teachers' Attitudes Toward Integration of Students with Disabilities in Haïti and the United States. *International Journal of Disability, Development and Education*. **52**(1), pp.43-58.

Durston, S. et al. 2004. Magnetic resonance imaging of boys with attention-deficit/hyperactivity disorder and their unaffected siblings. *Journal of the American Academy of Child and Adolescent Psychiatry*. **43**(3), pp.332-340.

Eagly, A.H. and Chaiken, S. 1993. *The psychology of attitudes*. Fort Worth, TX: Harcourt Brace Jovanovich College Publishers.

Ebert II, E.S. et al. 2011. *The Educator's Field Guide from Organization to Assessment (and Everything in Between)*. Thousand Oaks, CA: Corwin Press.

Einarsdottir, J. 2008. Teaching children with ADHD: Icelandic early childhood teachers' perspectives. *Early Child Development and Care*. [Online]. **178**(4), pp.375-397. [Accessed 14 February 2010]. Available from: <http://dx.doi.org/10.1080/03004430701321696>

Ellis, B. and Nigg, J. 2009. Parenting practices and attention-deficit/hyperactivity disorder: new findings suggest partial specificity of effects. *J Am Acad Child Adolesc Psychiatry*. **48**(2), pp.146-154.

Emler, N. 2001. *Self-esteem: the costs and causes of low self-worth*. Layerthorpe: YPS.

Emond, V. et al. 2009. Structural and functional neuroanatomy of attention-deficit hyperactivity disorder (ADHD). *Encephale*. **35**(2), pp.107-114.

Eubig, P.A. et al. 2010. Lead and PCBs as risk factors for attention deficit/hyperactivity disorder. *Environmental Health Perspectives*. **118**(12), pp.1654-1667.

Fabiano, G.A. et al. 2009. A meta-analysis of behavioral treatments for attention-deficit/hyperactivity disorder. *Clinical Psychology Review*. **29**(2), pp.129-140.

- Fabiano, G.A. and Pelham, W.E. 2003. Improving the effectiveness of behavioural classroom interventions for attention-deficit/hyperactivity disorder: A case study. *Journal of Emotional and Behavioral Disorders*. **11**(2), pp.122-128.
- Fair, D.A. 2010. Atypical default network connectivity in youth with attention deficit/hyperactivity disorder. *Biol. Psychiatry*. **68**(12), pp.1084-1091.
- Faraone, S.V. and Buitelaar, J. 2010. Comparing the efficacy of stimulants for ADHD in children and adolescents using meta-analysis. *Eur Child Adolesc Psychiatry*. **19**(4), pp.353-364.
- Faraone, S.V. and Mick, E. 2010. Molecular Genetics of Attention Deficit Hyperactivity Disorder. *Psychiatr Clin North Am*. **33**(1), pp.159-180.
- Faraone, S.V. et al. 2005. Molecular Genetics of Attention-Deficit/Hyperactivity Disorder. *Biological Psychiatry*. **57**(11), pp.1313-1323.
- Farrar, A. 2011. *ADHD*. Minneapolis, USA: Lerner Publishing Group.
- Fayyad, J. et al. 2007. Cross-national prevalence and correlates of adult attention-deficit hyperactivity disorder. *Br J Psychiatry*. **190**, pp.402-409.
- Ficks, C.A. and Waldman, I.D. 2009. Gene–Environment Interactions in Attention-Deficit/Hyperactivity Disorder. *Curr Psychiatry Rep*. **11**(5), pp.387-392.
- Fields, B. 2006. *Beyond Disabilities: Broadening the View of Special Needs and the Inclusive Education Challenges Facing Primary Teachers*. Paper presented at the annual meeting of the Association for Active Educational Researchers, Adelaide.
- Findler, L. et al. 2007. The Multidimensional Attitudes Scale toward Persons with Disabilities (MAS): Construction and Validation. *Rehabilitation Counseling Bulletin*. **50**(3), pp.166-176.
- Findling, R.L. 2008. Evolution of the treatment of attention-deficit/hyperactivity disorder in children: a review. *Clin Ther*. **30**(5), pp.942-957.
- Findling, R.L. et al. 2005. Short- and long-term cardiovascular effects of mixed amphetamine salts extended release in children. *J Pediatr*. **147**(3), pp.348-354.
- Fishbein, M. and Ajzen, I. 1975. *Belief, attitude, intention, and behavior: An introduction to theory and research*. Reading, MA: Addison-Wesley.
- Fishbein, M. 1967. Attitude and the prediction of behavior. In: Fishbein, M. ed. *Readings in attitude theory and measurement*. New York: John Wiley, pp.477-492.
- Fiske, S.T. 2010. *Social beings: Core motives in social psychology*. Hoboken, NJ: Wiley.
- Flick, U. 2002. *An Introduction to Qualitative Research*. London: Sage.

- Forlin, C. 1995. Educators' beliefs about inclusive practices in Western Australia. *British Journal of Special Education*. **22**(4), pp.179-185.
- Fowler, F. J. Jr. 1984. *Survey research methods*. Thousand Oaks, CA: Sage.
- Frafjord-Jacobson, K.L. et al. 2013. Daily Report Cards: A Recommended Intervention in the Schools. *International Journal of Basic and Applied Science*. **1**(3), pp.461-472.
- Froehlich, T.E. et al. 2009. Association of Tobacco and Lead Exposures With Attention-Deficit/Hyperactivity Disorder. *Pediatrics*. **124**(6), pp.e1054–e1063.
- Furman, L. 2009. ADHD: What Do We Really Know? In: Timimi, S. and Leo, J. eds. *Rethinking ADHD: from brain to culture*. Basingstoke: Palgrave Macmillan, pp.21-57.
- Gale, T. 1999. Policy trajectories: treading the discursive path of policy analysis. *Discourse: Studies in the Cultural Politics of Education*. **20**(3), pp.393-406.
- Gaub, M. and Carlson, C.L. 1997. Behavioral characteristics of DSM-IV ADHD subtypes in a school-based population. *Journal of Abnormal Child Psychology*. **25**(2), pp.103-111.
- Ghanizadeh, A. et al. 2006. Knowledge and attitudes towards attention deficit hyperactivity disorder among elementary school teachers. *Patient Education and Counseling*. **63**, pp.84-88.
- Gizer, I.R. et al. 2009. Candidate gene studies of ADHD: A meta-analytic review. *Human Genetics*. **126**(1), pp.51-90.
- Glass, C.S. and Weigar, K. 2000. Teacher perceptions of the incidence and management of attention deficit hyperactivity disorder. *Education*. **121**(2), pp.412–420.
- Glover, V. 2011. Annual Research Review: Prenatal stress and the origins of psychopathology: An evolutionary perspective. *Journal of Child Psychology and Psychiatry*. **52**(4), pp.356-367.
- Golden, S.M. 2009. Does Childhood Use of Stimulant Medication as a Treatment for ADHD Affect the Likelihood of Future Drug Abuse and Dependence? A Literature Review. *Journal of Child & Adolescent Substance Abuse*. **18**(4), pp.343-358.
- Goldstein, S. 2006. Is ADHD a growth industry? *Journal of Attention Disorders*. **9**(3), pp.461- 464.
- Gould, M.S. et al. 2009. Sudden death and use of stimulant medications in youths. *Am J Psychiatry*. **166**(9), pp.992-1001.
- Graham, J. et al. 2011. European guidelines on managing adverse effects of medication for ADHD. *Eur Child Adolesc Psychiatry*. **20**(1), pp.17-37.
- Gratton, C. and Jones, I. 2004. *Research methods for sport studies*. London: Routledge.

- Grizenko, N. et al. 2008. Relation of maternal stress during pregnancy to symptom severity and response to treatment in children with ADHD. *Journal of Psychiatry and Neuroscience*. **33**(1), pp.10-16.
- Grskovic, J.A. and Zentall, S.S. 2010. Understanding ADHD in girls: Identification and social characteristics. *International Journal of Special Education*. **25**(1), pp.170-183.
- Gualtieri, C.T. and Johnson, L.G. 2005. ADHD: Is Objective Diagnosis Possible? *Psychiatry*. **2**(11), pp.44-53.
- Hall, R. 2008. *Applied Social Research: Planning, Designing and Conducting Real-World Research*. South Yarra: PALGRAVE MACMILLAN.
- Harmsworth, S. et al. 2000. *Creating an Effective Dissemination Strategy: An Expanded Interactive Workbook for Educational Development Projects*. Bridging the Gap – Innovations Project 2001.
- Hastings, R. and Oakford, S. 2003. Student teachers' attitudes towards the inclusion of students with special needs. *Educational Psychology*. **23**(1), pp.87-94.
- Heiman, T. 2005. An Examination of Peer Relationships of Children With and Without Attention Deficit Hyperactivity Disorder. *School Psychology International*. **26**(3), pp.330–339.
- Hepperlen, T.M et al. 2002. Measuring teacher attitudes and expectations toward students with ADHD: Development of the Test of Knowledge About ADHD (KADD). *Journal of Attention Disorders*. [Online]. **5**(3), pp.133-142. [Accessed 12 May 2011]. Available from: <http://jad.sagepub.com/content/5/3/133>.
- Hogg, M.A. and Cooper, J.M. 2007. *The Sage handbook of social psychology: Concise Student Edition*. Los Angeles, CA: Sage.
- Hogg, M. and Vaughan, G. 2005. *Social Psychology*. London: Prentice Hall.
- Holst, J. 2008. Danish teachers' conception of challenging behaviour and DAMP/ADHD. *Early Child Development and Care*. [Online]. **178**(4), pp.363-374. [Accessed 14 February 2010]. Available from: <http://dx.doi.org/10.1080/03004430701321621>
- Hong, Y. 2008. Teachers' perceptions of young children with ADHD in Korea. *Early Child Development and Care*. [Online]. **178**(4), pp.399-414. [Accessed 14 February 2010]. Available from: <http://dx.doi.org/10.1080/03004430701321829>
- Hulme, C. and Snowling, M. 2009. *Developmental disorders of language, learning and cognition*. Oxford: Wiley-Blackwell.
- Jerome, L. et al. 1994. A Comparison of American and Canadian Teachers' Knowledge and Attitudes Towards Attention Deficit Hyperactivity Disorder (ADHD), *Canadian Journal of Psychiatry*. **39**, pp. 563– 567.

- Johnson, B. and Christensen L. 2004. *Educational research: quantitative, qualitative, and mixed approaches*. Boston: Allyn and Bacon.
- Jones, H.A. and Chronis-Tuscano, A. 2008. Efficacy of teacher in-service training for Attention-Deficit/Hyperactivity Disorder. *Psychology in the Schools*. **45**(10), pp.918-929.
- Jones, P. 2008. Pictures of Children: What Are the Attitudes Behind Services and Provision? In: Jones, P. et al. eds. *Childhood: Services and Provision for Children*. London: Pearson Education Limited, pp.53-71.
- Juneja, M. et al. 2010. Iron Deficiency in Indian Children with Attention Deficit Hyperactivity Disorder. *Indian Pediatr*. **47**(11), pp.955-958.
- Jurbergs, N. et al. 2007. School-home notes with and without response cost: Increasing attention and academic performance in low-income children with attention-deficit/hyperactivity disorder. *School Psychology Quarterly*. **22**(3), pp.358-379.
- Karagiorgi, Y. and Nicolaidou, M. 2010. Opening Pandora's Box: school autonomy in Cyprus and emerging implications for school leaders. *Management in Education*. **24**(2), pp.62-68.
- Karagiorgi, Y. and Symeou, L. 2007. Teachers' in-service training needs in Cyprus. *European Journal of Teacher Education*. **30**(2), pp.175-194.
- Kent, K.M. et al. 2011. The academic experience of male high school students with ADHD. *Journal of Abnormal Child Psychology*. **39**(3), pp.451-462.
- Kessler, R.C. et al. 2006. The prevalence and correlates of adult ADHD in the United States: results from the National Comorbidity Survey Replication. *Am J Psychiatry*. **163**(4), pp.716-723.
- Kewley, G. and Latham, P. 2008. *100 ideas for supporting pupils with ADHD*. London; New York: Continuum.
- Kewley, G.D. 2005. *Attention Deficit Hyperactivity Disorder: what can teachers do?* London: David Fulton.
- Kewley, G.D. 2001. *Attention Deficit Hyperactivity Disorder: recognition, reality and resolution*. London: David Fulton.
- Kollins, S.H. et al. 2011. Clonidine extended-release tablets as add-on therapy to psychostimulants in children and adolescents with ADHD. *Pediatrics*. **127**(6), pp.e1406-e1413.
- Konrad, A. et al. 2009. Structural brain abnormalities in attention-deficit/hyperactivity disorder: A voxel-based MRI study in adult patients. *Clinical Neurophysiology*. **120**, [no pagination].
- Kooij, J.J.S. 2013. *Adult ADHD: Diagnostic Assessment and Treatment*. London: Springer.

- Kooij, J.J.S. et al. 2010. European consensus statement on diagnosis and treatment of adult ADHD: The European Network Adult ADHD. *BMC Psychiatry*. **10**(67), pp.1-24.
- Kos, J.M. et al. 2006. Children with Attention Deficit Hyperactivity Disorder and their Teachers: A review of the literature. *International Journal of Disability, Development and Education*. **53**(2), pp.147-160.
- Kos, J.M. et al. 2004. Knowledge about Attention-Deficit/Hyperactivity Disorder: A comparison of in-service and pre-service teachers. *Psychology in the Schools*. **41**(5), pp.517-526.
- Koutrouba, K. et al. 2006. Factors correlated with teachers' attitudes towards the inclusion of students with special educational needs in Cyprus. *European Journal of Special Needs Education*. **21**(4), pp.381-394.
- Krain, A.L. and Castellanos, F.X. Brain development and ADHD. *Clinical Psychology Review*. **26**(4), pp.433-444.
- Kratochvil, C.J. et al. 2006. Effects of long-term atomoxetine treatment for young children with attentiondeficit/hyperactivity disorder. *J Am Acad Child Adolesc Psychiatry*. **45**(8), pp.919-927.
- Kutscher, M.L. 2008. *ADHD - Living Without Brakes*. London: Jessica Kingsley Publishers.
- Lacey, A. and Luff, D. 2007. *Qualitative Research Analysis*. The NIHR RDS for the East Midlands/Yorkshire & the Humber.
- Lambek, R. et al. 2010. Validating neuropsychological subtypes of ADHD: how do children with and without an executive function deficit differ? *Journal of Child Psychology and Psychiatry*. **51**(8), pp.895-904.
- Lambert, N.M. et al. 2006. Subjective responses to initial experience with cocaine: an exploration of the incentive-sensitization theory of drug abuse. *Addiction*. **101**, pp.713-725.
- Lambert, N.M. 2005. The contribution of childhood ADHD, conduct problems, and stimulant treatment to adolescent and adult tobacco and psychoactive substance abuse. *Ethical human psychology and psychiatry*. **7**(3), pp.197-221.
- Lambert, N.M. and Hartsough, C.S. 1998. Prospective study of tobacco smoking and substance dependencies among samples of ADHD and non-ADHD participants. *J Learn Disabil*. **31**(6), pp.533-544.
- Langley, K. et al. 2005. Maternal smoking during pregnancy as an environmental risk factor for attention deficit hyperactivity disorder behaviour. A review. *Minerva Pediatrica*. **57**(6), pp.359-371.

- Larsson, H. et al. 2012. Childhood attention-deficit hyperactivity disorder as an extreme of a continuous trait: a quantitative genetic study of 8,500 twin pairs. *J Child Psychol Psychiatry*. **53**(1), pp.73-80.
- Lee, K. 2008. ADHD in American early schooling: from a cultural psychological perspective. *Early Child Development and Care*. [Online]. **178**(4), pp.415-439. [Accessed 14 February 2010]. Available from: <http://dx.doi.org/10.1080/03004430701321852>
- Lehn, N. et al. 2007. Attention problems and attention-deficit/hyperactivity disorder in discordant and concordant monozygotic twins: evidence of environmental mediators. *J Am Acad Child Adolesc Psychiatry*. **46**(1), pp.83-91.
- Li, D. et al. 2006. Meta-analysis shows significant association between dopamine system genes and attention deficit hyperactivity disorder (ADHD). *Human Molecular Genetics*. **15**(14), pp.2276–2284.
- Liasidou, A. 2008. Politics of inclusive education policy-making: the case of Cyprus 4784 (excluding references). *International Journal of Inclusive Education* **12**(3), pp.229-241.
- Liasidou, A. 2008. Critical discourse analysis and inclusive educational policies: the power to exclude. *Journal of Education Policy*. **23**(5), pp.483-500.
- Liasidou, A. 2007. Inclusive education policies and the feasibility of educational change: the case of Cyprus. *International Studies in Sociology of Education*. **17**(4), pp.329–347.
- Lincoln, Y. and Guba, E. 1985. *Naturalistic Inquiry*. Beverly Hills, CA: Sage.
- Lindström, K. 2011. Preterm birth and Attention-Deficit/Hyperactivity Disorder in schoolchildren. *Pediatrics*. **127**, pp.858-865.
- Livingston, K. 1997. Ritalin: Miracle Drug or Cop-out? *Public Interest*. **127**, pp.3-19.
- Loe, I.M. and Feldman, H.M. 2007. Academic and Educational Outcomes of Children with ADHD. *Journal of Pediatric Psychology*. **32**(6), pp.643-654.
- Loreman, T. et al. 2005. *Preservice Teachers' Attitudes and Concerns Regarding Inclusive Education*. Paper presented at the International Special Education Conference, Glasgow.
- Mackie, S. et al. 2007. Cerebellar development and clinical outcome in attention deficit hyperactivity disorder. *American Journal of Psychiatry*. **164**(4), pp.647-655.
- Mannuzza, S. et al. 2008. Age of methylphenidate treatment initiation in children with ADHD and later substance abuse: prospective follow-up into adulthood. *Am J Psychiatry*. **165**(5), pp.604-609.
- Martel, M.M. et al. 2010. The dopamine receptor D4 gene (DRD4) moderates family environmental effects on ADHD. *J Abnorm Child Psychol*. **39**(1), pp.1-10.

- Masseti, G.M. et al. 2008. Academic Achievement Over 8 Years Among Children Who Met Modified Criteria for Attention-deficit/Hyperactivity Disorder at 4–6 Years of Age. *Journal of Abnormal Child Psychology*. **36**(3), pp.399-410.
- Mather, B.A. 2012. The Social Construction and Reframing of Attention-Deficit/Hyperactivity Disorder. *Ethical Human Psychology and Psychiatry*. **14**(1), pp.15-26.
- McGoey, K.E. and DuPaul, G.J. 2000. Token Reinforcement and Response Cost Procedures: Reducing the Disruptive Behavior of Preschool Children with Attention-Deficit/Hyperactivity Disorder. *School Psychology Quarterly*. **15**(3), pp.330-343.
- Miles, M.B. and Huberman, A.M. 1994. *Qualitative data analysis: an expanded sourcebook*. Thousand Oaks; London: Sage.
- Miller, M. and Hinshaw, S.P. 2010. Does Childhood Executive Function Predict Adolescent Functional Outcomes in Girls with ADHD? *J Abnorm Child Psychol*. **38**(3), pp.315-326.
- Ministry of Communications and Works. 2011. *The streets and buildings Law regarding the use of buildings by disabled people*. [Online]. [Accessed 15 October 2011]. Available from: <http://www.mcw.gov.cy/>
- MoEC. 2013. *Attention Deficit Hyperactivity Disorder*. [Online]. [Accessed 18 January 2014]. Available from: [http://www.moec.gov.cy/eidiki\\_ekpaidefsi/vivliografia/adhd\\_booklet.pdf](http://www.moec.gov.cy/eidiki_ekpaidefsi/vivliografia/adhd_booklet.pdf)
- MoEC. 2012. *Annual Report 2012*. Nicosia: Konos Ltd.
- MoEC. 2011. *Annual Report 2010*. Nicosia: Konos Ltd.
- MoEC. 1999. *The Education and Training of Children with Special Needs Law of 1999 (113(I)/1999)*. [Online]. [Accessed 15 February 2011]. Available from: <http://www.moec.gov.cy/eidiki/index.html>.
- MoEC. 1988. *Special Education Buletin*. Nicosia: Ministry of Education and Culture.
- MoEC. 1979. *The 1979 Special Education Act (N. 47/79) for the Education of Children with Special Needs*. Nicosia: Government Press.
- Molina, B.S.G. et al. 2013. Adolescent substance use in the multimodal treatment study of attention-deficit/hyperactivity disorder (ADHD) (MTA) as a function of childhood ADHD, random assignment to childhood treatments, and subsequent medication. *J Am Acad Child Adolesc Psychiatry*. **52**(3), pp.250-263.
- Molina, B.S.G. et al. 2007. Delinquent behavior and emerging substance use in the MTA at 36-months: prevalence, course, and treatment effects. *J Am Acad Child Adolesc Psychiatry*. **46**(8), pp.1027-1039.

Montague, M. and Castro, M. 2005. Attention Deficit Hyperactivity Disorder: Concerns and Issues. In: Clough, P. et al. eds. *Handbook of Emotional and Behavioural Difficulties*. London: Sage, pp.399-415.

Morrison, J.R. and Stewart, M.A. 1973. The psychiatric status of the legal families of adopted hyperactive children. *Archives of General Psychiatry*. **28**(6), pp.888-891.

Morton, J. 2004. *Understanding Developmental Disorders: A causal modelling approach*. Oxford: Blackwell.

Mostofsky, S.H. et al. 2002. Smaller prefrontal and premotor volumes in boys with attention-deficit/hyperactivity disorder. *Biological Psychiatry*. **52**(8), pp.785-794.

Mrug, S. et al. 2009. Discriminating Between Children With ADHD and Classmates Using Peer Variables. *Journal of Attention Disorders*. **12**(4), pp.372-380.

Mrug, S. et al. 2001. Children with Attention-Deficit/Hyperactivity Disorder: Peer Relationships and Peer-Oriented Interventions. *New Directions for Child and Adolescent Development*. **2001**(91), pp.51-77.

MTA Cooperative Group. 1999. A 14-month randomized clinical trial of treatment strategies for attention-deficit/hyperactivity disorder. The MTA Cooperative Group. Multimodal Treatment Study of Children with ADHD. *Archives of General Psychiatry*. **56**(12), pp.1073-1086.

Nakao, T. et al. 2011. Gray matter volume abnormalities in ADHD: voxel-based meta-analysis exploring the effects of age and stimulant medication. *Am J Psychiatry*. **168**(11), pp.1154-1163.

Narr, K.L. et al. 2009. Widespread cortical thinning is a robust anatomical marker for attention-deficit/hyperactivity disorder. *J. Am. Acad. Child Adolesc. Psychiatry*. **48**(10), pp.1014-1022.

National Health and Medical Research Council (NHMRC). 2012. *Clinical Practice Points on the diagnosis, assessment and management of Attention Deficit Hyperactivity Disorder in children and adolescents*. [Online]. [Accessed 2 June 2013]. Available from: <https://www.nhmrc.gov.au/guidelines/publications/mh26>

Neuman, R.J. et al. 2007. Prenatal Smoking Exposure and Dopaminergic Genotypes Interact to Cause a Severe ADHD Subtype. *Biological Psychiatry*. **61**(12), pp.1320-1328.

NICE. 2009. *Attention Deficit Hyperactivity Disorder: Diagnosis and management of ADHD in children, young people and adults* [online]. Leicester and London: The British Psychological Society and the Royal College of Psychiatrists. [Assessed 20 May 2010]. Available from: <http://www.nice.org.uk/nicemedia/pdf/ADHDFullGuideline.pdf>

NICE. 2008. *Attention Deficit Hyperactivity Disorder: Diagnosis and management of ADHD in children, young people and adults*. [Online]. [Assessed 20 May 2010]. Available from: <http://www.nice.org.uk/nicemedia/pdf/CG072NiceGuidelineV2.pdf>

Nicolaidou, M. et al. 2006. Promoting inclusive practices in primary schools in Cyprus: empowering pupils to build supportive networks. *European Journal of Special Needs Education*. **21**(3), pp.251-267.

Nigg, J. et al. 2010. Measured gene-by-environment interaction in relation to attention-deficit/hyperactivity disorder. *J Am Acad Child Adolesc Psychiatry*. **49**(9), pp.863-873.

Nigg, J.T. et al. 2008. Low Blood Lead Levels Associated with Clinically Diagnosed Attention-Deficit/Hyperactivity Disorder and Mediated by Weak Cognitive Control. *Biological Psychiatry*. **63**(3), pp.325–331.

Nigg, J.T. et al. 2005. Causal heterogeneity in attention-deficit/hyperactivity disorder: Do we need neuropsychologically impaired subtypes? *Biological Psychiatry*. **57**(11), pp.1224-1230.

Nikolas, M.A. and Burt, S.A. 2010. Genetic and environmental influences on ADHD symptom dimensions of inattention and hyperactivity: A meta-analysis. *Journal of Abnormal Psychology*. **119**(1), pp.1-17.

Nikolas, M. et al. 2010. Gene × environment interactions for ADHD: synergistic effect of 5HTTLPR genotype and youth appraisals of inter-parental conflict. *Behavioral and Brain Functions*. **6**(23), [no pagination].

Normand, S. et al. 2011. How do children with ADHD (mis)manage their real-life dyadic friendships? A multi-method investigation. *Journal of Abnormal Child Psychology*. **39**(2), pp.293-305.

Ohan, J.L. and Johnston C. 2011. Positive illusions of social competence in girls with and without ADHD. *Journal of Abnormal Child Psychology*. **39**(4), pp.527-539.

Ohan, J.L. et al. 2011. Teachers' and education students' perceptions of and reactions to children with and without the diagnostic label “ADHD”. *Journal of School Psychology*. **49**(1), pp.81-105.

Ohan, J.L. et al. 2008. Does knowledge about Attention-Deficit/Hyperactivity Disorder impact teachers' reported behaviors and perceptions? *School Psychology Quarterly*. **23**(3), pp.436-449.

Olson, J.M. and Zanna, M.P. 1993. Attitudes and attitude change. *Annual Review of Psychology*. **44**, pp.117-154.

Olssen, M. et al. 2004. *Education Policy. Globalisation, Citizenship and Democracy*. London: Sage.

O'Regan, F.J. 2005. *Attention Deficit Hyperactivity Disorder*. London, New York: Continuum International Publishing Group.

Papadopoulos, T.C. 2002. The impact of inclusion policy on educational psychology practices: The Cypriot reality. *Educational and Child Psychology*. **19**(2), pp.33-45.

- Papanastasiou, C. and Koutselini, M. 2003. Developmental model of democratic values and attitudes toward social actions. *International Journal of Educational Research*. **39**(6), pp.539-549.
- Parens, E. and Johnston, J. 2009. Facts, values, and Attention-Deficit Hyperactivity Disorder (ADHD): an update on the controversies. *Child and Adolescent Psychiatry and Mental Health*. **3**(1). [no pagination].
- Pashiardis, G. and Pashiardis, P. 2011. Investigating teachers' excellence in Cyprus. In: Anastasiades, P. et al. eds. *Teacher education in modern era: Trends and issues*. [no place]. [no publisher], pp.59-71.
- Patton, M.Q. 2002. *Qualitative research and evaluation methods*. Thousand Oaks; London: Sage.
- Paul, D. 2008. *ADHD: the essential guide*. Great Britain: Need2Know.
- Pelham, W.E. and Fabiano, G.A. 2008. Evidence-based psychosocial treatments for attention-deficit/hyperactivity disorder. *Journal of Clinical Child and Adolescent Psychology*. **37**(1), pp.184-214.
- Perakyla, A. 2004. Reliability and validity in research based on naturally occurring social interaction. In: Silverman, D. ed. *Qualitative Research: Theory, Method and Practice*. London: Sage, pp.283-302.
- Perold, M. et al. 2010. Primary school teachers' knowledge and misperceptions of attention deficit hyperactivity disorder (ADHD). *South African Journal of Education*. **30**(3), pp.457-473.
- Persianis, P. 2003. British colonial higher educational policymaking in the 1930's; the case of a plan to establish a university in Cyprus. *Compare*. **33**(3), pp.351-368.
- Persianis, P. 2000. Conflict between centrality and localism and its impact on knowledge construction and legitimation in peripheral universities; the case of the University of Cyprus. *Compare*. **10**(1), pp.35-51.
- Pfiffner, L.J. et al. 2013. Educational Outcomes of a Collaborative School–Home Behavioral Intervention for ADHD. *School Psychology Quarterly*. **28**(1), pp.25-36.
- Pheula, G.F. et al. 2011. Are family variables associated with ADHD, inattentive type? A case-control study in schools. *European Child and Adolescent psychiatry*. **20**(3), pp.137-145.
- Phtiaka, H. 2006. From separation to integration: parental assessment of State intervention. *International Studies in Sociology of Education*. **16**(3), pp.175–189.
- Phtiaka, H. 2003. The power to exclude; facing the challenges of inclusive education in Cyprus. *International Journal of Contemporary Sociology*. **40**(1), pp.139-152.
- Phtiaka, H. 2000. Special Education in Cyprus: A critical historical account. *International Special Education Congress 2000*. University of Manchester.

- Pliszka S. 2007. Practice parameter for the assessment and treatment of children and adolescents with attention-deficit/hyperactivity disorder. *J Am Acad Child Adolesc Psychiatry*. **46**(7), pp.894-921.
- Powell, S. and Nelson, B. 1997. Effects of choosing academic assignments on a student with attention deficit hyperactivity disorder. *Journal of Applied Behavior Analysis*. **30**(1), pp.181-183.
- Powers, R.L. et al. 2008. Stimulant treatment in children with attention-deficit/hyperactivity disorder moderates adolescent academic outcome. *Journal of Child & Adolescent Psychopharmacology*. **18**(5), pp.449-459.
- Press and Information Office (PIO). 2010. *The 1974 Turkish Invasion and its Consequences*. [Online]. [Accessed 16 August 2013]. Available from: <http://www.moi.gov.cy/>
- Punch, K.F. 2009. *Introduction to Research Methods in Education*. London: Sage.
- Rabbit, P. 1997. Methodologies and models in the study of executive function. In: Rabbit, P. ed. *Methodology of frontal and executive function*. East Sussex, UK: Psychology Press Publishers, pp.1-38.
- Rabiner, D. et al. 2000. Early Attention Problems and Children's Reading Achievement: A Longitudinal Investigation. *J Am Acad Child Adolesc Psychiatry*. **39**(7), pp.859-867.
- Rao, S. 2004. Faculty attitudes and students with disabilities in higher education: A literature review. *College Student Journal*. **38**(2), pp.191-198.
- Raz, R. and Gabis, L. 2009. Essential fatty acids and attention-deficit-hyperactivity disorder: a systematic review. *Dev Med Child Neurol*. **51**(8), pp.580-592.
- Razali, N.M. and Wah, Y.B. 2011. Power comparisons of Shapiro-Wilk, Kolmogorov-Smirnov, Lilliefors and Anderson-Darling tests. *Journal of Statistical Modeling and Analytics*. **2**(1), pp.21-33.
- Reid, R. et al. 1994. An analysis of teachers' perceptions of attention deficit-hyperactivity disorder. *The Journal of Research and Development in Education*. **27**(3), pp.195-202.
- Research Support-University of Leeds. 2011. *Data protection, anonymisation and sharing research data*. [Online]. [Accessed 9 October 2011]. Available from: <http://researchsupport.leeds.ac.uk/images/uploads/docs/DataProtectionAnonymisationSharingResearch.pdf>.
- Rief, S.F. 2003. *The ADHD Book of Lists: a practical guide for helping children and teens with Attention Deficit Disorders*. San Francisco: Jossey-Bass.
- Riessman, C.K. 1993. *Narrative Analysis*. Newbury Park, CA: Sage.

Robson, C. 1993. *Real world research: a resource for social scientists and practitioner-researchers*. Oxford: Blackwell.

Rodriguez, A. 2008. Impact of prenatal risk factors in attention deficit hyperactivity disorders: potential for gene-environment interactions. *Psychiatry*. **7**(12), pp.516-519.

Rommelse, N. 2010. Attention Deficit Hyperactivity Disorder and Cognition. In: Tremblay, R.E. et al. eds. *Encyclopedia on Early Childhood Development*. [Online]. Montreal, Quebec: Centre of Excellence for Early Childhood Development and Strategic Knowledge Cluster on Early Child Development, pp.1-7. [Accessed 29 May 2014]. Available from: <http://www.child-encyclopedia.com/documents/RommelseANGxp.pdf>

Ross-Hill, R. 2009. Teacher attitudes towards inclusion practices and special needs students. *Journal of Research in Special Educational Needs*. **9**(3), pp.188-198.

Rubia, K. et al. 2009. Methylphenidate normalises activation and functional connectivity deficits in attention and motivation networks in medication-naïve children with ADHD during a Rewarded Continuous Performance Task. *Neuropharmacology*. **57**(7-8), pp.640-652.

Rubia, K. et al. 2009. Disorder-specific dissociation of orbitofrontal dysfunction in boys with pure Conduct disorder during reward and ventrolateral prefrontal dysfunction in boys with pure Attention-Deficit/Hyperactivity Disorder during sustained attention. *Am J Psychiatry*. **166**(1), pp.83-94.

Rubia, K. et al. 2008. Dissociated Functional Brain Abnormalities of Inhibition in Boys With Pure Conduct Disorder and in Boys With Pure Attention Deficit Hyperactivity Disorder. *Am J Psychiatry*. **165**(7), pp.889–897.

Rutledge R. 2008. *When Your Child Has . . . ADD/ADHD*. MA: F+W Publications.

Rutter, M. 2007. *Identifying the environmental causes of disease: How should we decide what to believe and when to take action?* London: Academy of Medical Sciences.

Ryan, J.B. et al. 2011. Medication Treatment for Attention Deficit Hyperactivity Disorder. *Theory Into Practice*. **50**(1), pp.52-60.

Ryan, T.G. 2009. Inclusive attitudes: A pre-service analysis. *Journal of Research in Special Educational Needs*. **9**(3), pp.180-187.

Ryan-Krause, P. 2011. Attention Deficit Hyperactivity Disorder: Part III. *Journal of Pediatric Health Care*. **25**(1), pp.50-56.

Rycus, J.S. and Hughes, R.C. 2000. What is Competency-Based Inservice Training? *Institute for Human Services*.

Samuels, J.A. et al. 2006. Effect of stimulants on 24-h ambulatory blood pressure in children with ADHD: a double-blind, randomized, cross-over trial. *Pediatr Nephrol*. **21**(1), pp.92-95.

- Sayal, K. 2007. Diagnosis and Assessment. In: Taylor, E. ed. *People with Hyperactivity: Understanding and Managing Their Problems*. London: Mac Keith Press, pp.53-70.
- Scheffler, R.M. et al. 2009. Positive association between attention-deficit/hyperactivity disorder medication use and academic achievement during elementary school. *Pediatrics*. **123**(5), pp.1273-1279.
- Scheffler, R.M. et al. 2007. The Global Market For ADHD Medications. *Health Affairs*. **26**(2), pp.450-457.
- Schelleman, H. et al. 2011. Cardiovascular events and death in children exposed and unexposed to ADHD agents. *Pediatrics*. **127**(6), pp.1102-1110.
- Schmitz, M. et al. 2002. Neuropsychological Performance in DSM-IV ADHD Subtypes: An Exploratory Study With Untreated Adolescents. *Can J Psychiatry*. **47**(9), pp.863-869.
- Schultz, B.K. et al. 2011. School-based treatment of attention-deficit/hyperactivity disorder. *Psychology in the Schools*. **48**(3), pp.254-262.
- Sciutto, M.J. et al. 2000. Teachers' knowledge and misperceptions of Attention-Deficit/Hyperactivity Disorder. *Psychology in the Schools*. **37**(2), pp.115-122.
- Scruggs, T.E. and Mastropieri, M.A. 1996. Teacher perceptions of mainstreaming/inclusion, 1958-1995: A research synthesis. *Exceptional Children*. **63**(1), pp.59-74.
- Seidman, L.J. et al. 2005. Structural Brain Imaging of Attention-Deficit/Hyperactivity Disorder. *Biological Psychiatry*. **57**(11), pp.1263-1272.
- Selikowitz, M. 2009. *ADHD*. Oxford: Oxford University Press.
- Semrud-Clikeman, M. et al. 2010. Executive functioning in children with Asperger syndrome, ADHD-combined type, ADHD-predominately inattentive type, and controls. *J Autism Dev Disord*. **40**(8), pp.1017-1027.
- Sen, B. and Swaminathan, S. 2007. Maternal prenatal substance use and behaviour problems among children in the U.S. *J Ment Health Policy Econ*. **10**(4), pp.189-206.
- Shank, G. and Brown, L. 2007. *Exploring Educational Research Literacy*. New York: Routledge.
- Sharkey, L. and Fitzgerald, M. 2007. Diagnosis and Classification of ADHD in Childhood. In: Fitzgerald, M. et al. eds. *Handbook of Attention Deficit Hyperactivity Disorder*. West Sussex, UK: John Wiley & Sons Ltd, pp.13-35.
- Shaw, P. et al. 2007. Attention-deficit/hyperactivity disorder is characterized by a delay in cortical maturation. *Proceedings of the National Academy of Sciences of the United States of America*. **104**(49), pp.19649-19654.

- Shaw, P. et al. 2006. Longitudinal mapping of cortical thickness and clinical outcome in children and adolescents with attention-deficit/ hyperactivity disorder. *Archives of General Psychiatry*. **63**(5), pp.540-549.
- Shaw-Zirt, B. et al. 2005. Adjustment, social skills, and self-esteem in college students with symptoms of ADHD. *Journal of Attention Disorders*. **8**(3), pp.109-120.
- Silverman, D. 2000. *Doing Qualitative Research: A Practical Handbook*. London: Sage.
- Silverman, D. 1997. The Logics of Qualitative Research. In: Miller, G. and Dingwall, R. eds. *Context and Method in Qualitative Research*. London: Sage, pp.12-25.
- Simon, V. et al. 2009. Prevalence and correlates of adult attention-deficit hyperactivity disorder: meta-analysis. *Br J Psychiatry*. **194**(3), pp.204-211.
- Singh, I. et al. 2010. Young People's Experience of ADHD and Stimulant Medication: A Qualitative Study for the NICE Guideline. *Child and Adolescent Mental Health*. **15**(4), pp.186-192.
- Skinner, M.E. and Hales, M.R. 1992. Classroom teachers' "explanations" of student behavior: One possible barrier to the acceptance and use of applied behavior analysis in the schools. *Journal of Educational and Psychological Consultation*. **3**(3), pp.219-232.
- Smith, T.F. 2010. Meta-analysis of the heterogeneity in association of DRD4 7-repeat allele and AD/HD: Stronger association with AD/HD combined type. *American Journal of Medical Genetics. Part B, Neuropsychiatric Genetics*. **153B**(6), pp.1189-1199.
- Snider, V. E. et al. 2003. Teacher knowledge of stimulant medication and ADHD. *Remedial and Special Education*. **24**(1), pp 46-57.
- Sonuga-Barke, E. et al. 2010. Beyond the dual pathway model: Evidence for the dissociation of timing, inhibitory, and delay-related impairments in attention-deficit/hyperactivity disorder. *Journal of the American Academy of Child and Adolescent Psychiatry*. **49**(4), pp.345-355.
- Soodak, L. et al. 1998. Teacher, student, and school attributes as predictors of teachers' responses to inclusion. *Journal of Special Education*. **31**(4), pp.480-497.
- Sowell, E.R. et al. 2003. Cortical abnormalities in children and adolescents with attention- deficit hyperactivity disorder. *Lancet*. **362**(9397), pp.1699-1707.
- Spahis, S. et al. 2008. Lipid profile, fatty acid composition and pro- and anti-oxidant status in pediatric patients with attention-deficit/hyperactivity disorder. *Prostaglandins Leukotrienes and Essential Fatty Acids*. **79**(1-2), pp.47-53.
- Spencer, T.J. et al. 2007. Further evidence of dopamine transporter dysregulation in ADHD: a controlled PET imaging study using altropane. *Biological Psychiatry*. **62**(9), pp.1059-1061.

- Spencer, T.J. et al. 2005. In Vivo Neuroreceptor Imaging in Attention-Deficit/Hyperactivity Disorder: A Focus on The Dopamine Transporter. *Biological Psychiatry*. **57**(11), pp.1293–1300.
- Spencer, T.J. et al. 2002. Overview and Neurobiology of Attention-Deficit/Hyperactivity Disorder. *Journal of Clinical Psychiatry*. **63**(12), pp.3-9.
- Spilling, M. and Spilling, J. 2010. *Cultures of the World: Cyprus*. New York: Benchmark Books.
- Sprich, S. et al. 2000. Adoptive and biological families of children and adolescents with ADHD. *Journal of the American Academy of Child and Adolescent Psychiatry*. **39**(11), pp.1432- 1437.
- Strine, T.W. et al. 2006. Emotional and behavioral difficulties and impairments in everyday functioning among children with a history of attention-deficit/hyperactivity disorder. *Preventing Chronic Disease*. **3**(2), [no pagination].
- Strong, J. and Flanagan M.O. 2005. *AD/HD For Dummies*. Indiana: Wiley Publishing.
- Suter, W.N. 2006. *Introduction to educational research: a critical thinking approach*. Thousand Oaks; London: Sage.
- Swanson, J.M. et al. 2011. Contrast of medical and nonmedical use of stimulant drugs, basis for the distinction, and risk of addiction: comment on Smith and Farah (2011). *Psychol Bull*. **137**(5), pp.742-748.
- Swanson, J. M. et al. 2007. Secondary evaluations of MTA 36-month outcomes: propensity score and growth mixture model analyses. *Journal of the American Academy of Child & Adolescent Psychiatry*. **46**(8), pp.1003-1014.
- Syed, E.U. and Hussein, S.A. 2010. Increase in Teachers' Knowledge About ADHD After a Week-Long Training Program: A Pilot Study. *Journal of Attention Disorders*. [Online]. **13**(4), pp.420-423. [Accessed 12 May 2011]. Available from: <http://jad.sagepub.com/content/13/4/420>
- Symeonidou, S. and Phtiaka, H. 2009. Using teachers' prior knowledge, attitudes and beliefs to develop in-service teacher education courses for inclusion. *Teaching and Teacher Education*. **25**(4), pp.543–550.
- Symeonidou, S. 2007. Parental associations and education politics regarding disability: the case of Cyprus. *International Journal about Parents in Education*. **1**(0), pp.164-173.
- Symeonidou, S. 2005. Inclusive policy, segregating practice: a cultural analysis of the impairment discourse reflected in the official and hidden curricula in Cyprus. *Inclusive and Supportive Education Congress International Special Education Conference Inclusion: Celebrating Diversity?* Glasgow, Scotland.
- Symeonidou, S. 2002. A critical consideration of current values on the education of disabled children. *International Journal of Inclusive Education*. **6**(3), pp.217-229.

- Tait, K. and Purdie, N. 2000. Attitudes toward Disability: Teacher education for inclusive environments in an Australian university. *International Journal of Disability, Development and Education*. **47**(1), pp.25-38.
- Tannock, R. 2007. *The Educational Implications of Attention Deficit Hyperactivity Disorder*. [Online]. [Accessed 20 May 2013]. Available from: <http://www.edu.gov.on.ca/eng/literacynumeracy/inspire/research/tannock.pdf>
- Tannock, R. 1998. Attention Deficit Hyperactivity Disorder: Advances in Cognitive, Neurobiological, and Genetic Research. *Journal of Child Psychology and Psychiatry and Allied Discipline*. **39**(1), pp.65-99.
- Taylor, E. and Sonuga-Barke, E.J. 2008. Disorders of attention and activity. In: Rutter, M. et al. eds. *Rutter's textbook of child psychiatry*. Oxford, UK: Blackwell, pp.521-542.
- Taylor, E. 2007. Clinical and Epidemiological Foundations. In: Taylor, E. ed. *People with Hyperactivity: Understanding and Managing Their Problems*. London: Mac Keith Press, pp.1-25.
- Taylor, E. and Rogers, J.W. 2005. Practitioner review: early adversity and developmental disorders. *J Child Psychol Psychiatry*. **46**(5), pp.451-467.
- Thapar, A. et al. 2013. Practitioner Review: What have we learnt about the causes of ADHD? *Journal of Child Psychology and Psychiatry*. **54**(1), pp.3-16.
- Thapar, A. et al. 2005 .The genetics of attention deficit hyperactivity disorder. *Human Molecular Genetics*. **14**(2), pp.275-282.
- Thorell, L.B. and Dahlström, K. 2009. Children's Self-Reports on Perceived Effects on Taking Stimulant Medication for ADHD. *Journal of Attention Disorders*. **12**(5), pp.460-468.
- Timimi, S. and Leo, J. 2009. *Rethinking ADHD: from brain to culture*. Basingstoke: Palgrave Macmillan.
- Timimi, S. 2007. *Mis-understanding ADHD: The complete guide for parents to alternatives to drugs*. Indiana, USA: Author House.
- Timimi, S. 2005. *Naughty Boys: Anti-Social Behaviour, ADHD and the Role of Culture*. New York: Palgrave Macmillan.
- Timimi, S. and 33 Coendorsers. 2004. A Critique of the International Consensus Statement on ADHD. *Clinical Child and Family Psychology Review*. **7**(1), pp.59-63.
- Timimi, S. and Taylor, E. 2004. ADHD is best understood as a cultural construct. *British Journal of Psychiatry*. **184**, pp.8-9.
- Train, A. 2005. *ADHD: How to deal with very difficult children*. London: Souvenir Press.
- Triandis, H. 1971. *Attitude and Attitude change*. New York: Wiley.

- Vaughan, B.S. et al. 2009. Current medications for the treatment of Attention Deficit/Hyperactivity Disorder. *Psychology in the Schools*. **46**(9), pp.846-856.
- Vereb, R. L. and DiPerna, J. C. 2004. Teachers' knowledge of ADHD, treatments for ADHD, and treatment acceptability: An initial investigation. *School Psychology Review*. **33**(3), pp.421-428.
- Vilchinsky, N. et al. 2010. Attitudes toward People with Disabilities: The Perspective of Attachment Theory. *Rehabilitation Psychology*. **55**(3), pp.298-306.
- Vinson, T. 2002. *Inquiry into the provision of public education in N.S.W.* Sydney: N.S.W. Teachers Federation and P & C Association.
- Visser, J. and Jehan, Z. 2009. ADHD: a scientific fact or a factual opinion? A critique of the veracity of Attention Deficit Hyperactivity Disorder. *Emotional and Behavioural Difficulties*. [Online]. **14**(2), pp.127-140. [Accessed 2 June 2010]. Available from: <http://dx.doi.org/10.1080/13632750902921930>
- Volkow, N.D. et al. 2009. Evaluating dopamine reward pathway in ADHD: clinical implications. *JAMA*. **302**(10), pp.1084-1091.
- Watson, K. 2001. Introduction: Rethinking the role of comparative education. In: Watson, K. ed. *Doing Comparative Education Research*. Oxford: Symposium, pp.9-18.
- Wehmeier, P.M. et al. 2010. Social and Emotional Impairment in Children and Adolescents with ADHD and the Impact on Quality of Life. *Journal of Adolescent Health*. **46**(3), pp.209-217.
- Wender, P.H. 2000. *ADHD: Attention Deficit Hyperactivity Disorder in children, adolescents, and adults*. Oxford: Oxford University Press.
- West, J. et al. 2005. A comparison of teachers' and parents' knowledge and beliefs about Attention-Deficit/Hyperactivity Disorder (ADHD). *School Psychology International*. **26**(2), pp.192-208.
- Weyandt, L.L. et al. 2009. Assessment of teacher and school psychologist knowledge of Attention-Deficit/Hyperactivity Disorder. *Psychology in the Schools*. **46**(10), pp.951-961.
- Weyandt, L.L. 2007. *Attention deficit hyperactivity disorder: An ADHD primer*. Mahwah, NJ: Lawrence Erlbaum and Associates.
- Wheeler, L. et al. 2009. Variability of ADHD symptoms across primary school contexts: an in-depth case study. *Emotional and Behavioural Difficulties*. **14**(1), pp.69-84.
- Wheeler, L. et al. 2008. ADHD in schools: prevalence, multi-professional involvements and school training needs in an LEA. *Emotional and Behavioural Difficulties*. [Online]. **13**(3), pp.163-177. [Accessed 9 February 2010]. Available from: <http://dx.doi.org/10.1080/13632750802253137>

- Wilens, T.E. et al. 2008. Effect of prior stimulant treatment for attention-deficit/hyperactivity disorder on subsequent risk for cigarette smoking and alcohol and drug use disorders in adolescents. *Arch Pediatr Adolesc Med.* **162**(10), pp.916-921.
- Wilens, T.E. et al. 2004. Effects of once-daily osmotic-release methylphenidate on blood pressure and heart rate in children with attention-deficit/hyperactivity disorder: results from a one-year follow-up study. *J Clin Psychopharmacol.* **24**(1), pp.36-41.
- Wilens, T.E. et al. 2003. Does Stimulant Therapy of Attention-Deficit/Hyperactivity Disorder Beget Later Substance Abuse? A Meta-analytic Review of the Literature. *Pediatrics.* **111**(1), pp.179-185.
- Willcutt, E.G. et al. 2005. Validity of the executive function theory of attention-deficit/hyperactivity disorder: a meta-analytic review. *Biological Psychiatry.* **57**(11), pp.1336-1346.
- Winter, E. 2006. Initial Teacher Education: Preparing New Teachers for Inclusive Schools and Classrooms. *Support for Learning.* **21**(2), pp.85-91.
- Winterstein, A.G. et al. 2007. Cardiac safety of central nervous system stimulants in children and adolescents with attention-deficit/hyperactivity disorder. *Pediatrics.* **120**(6), pp.e1494-e1501.
- Wodak, R. and Meyer M. 2009. Critical discourse analysis: history, agenda, theory and methodology. In: Wodak, R. and Meyer, M. eds. *Methods for Critical Discourse Analysis.* London; Thousand Oaks: Sage, pp.1-33.
- Wolraich, M.L. et al. 2003. Teachers' screening for attention deficit/hyperactivity disorder: comparing multinational samples on teacher ratings of ADHD. *Journal of Abnormal Child Psychology.* **31**(4), pp.445-455.
- Wood, J.G. et al. 2007. Beyond Methylphenidate: Nonstimulant Medications for Youth With ADHD. *Journal of Attention Disorders.* **11**(3), pp.341-350.
- Woodcock, S. 2013. Trainee Teachers' Attitudes Towards Students With Specific Learning Disabilities. *Australian Journal of Teacher Education.* **38**(8), pp.16-29.
- Yang, B. et al. 2007. A meta-analysis of association studies between the 10-repeat allele of a VNTR polymorphism in the 3'-UTR of dopamine transporter gene and attention deficit hyperactivity disorder. *American Journal of Medical Genetics. Part B, Neuropsychiatric Genetics.* **144B**(4), pp.541-550.
- Young, S. et al. 2013. *ADHD: making the invisible visible - An Expert White Paper on attention-deficit hyperactivity disorder (ADHD): policy solutions to address the societal impact, costs and long-term outcomes, in support of affected individuals.* [Online]. [Accessed 7 June 2013]. Available from: <http://www.europeanbraincouncil.org/>

## Appendices

### Appendix 1 - Introductory cover letter for teachers

Dear teacher,

My name is Maria Doukanari and I am a PhD student at the University of Leeds in the UK. My research interest focuses on Cypriot elementary school teachers and children with **Attention Deficit Hyperactivity Disorder (ADHD)**.

The involvement of Cypriot elementary school teachers is a fundamental precondition for the conduct of the present study and the completion of my PhD entitled “**Cypriot elementary school teachers’ knowledge, attitudes and in-service training (INSET) regarding children with Attention Deficit Hyperactivity Disorder (ADHD)**”.

**Research Purposes:**

1. To explore Cypriot elementary school teachers’ knowledge of ADHD and their attitudes towards the instruction of children diagnosed with this disorder.
2. To consider Cypriot elementary school teachers’ prior INSET experiences, their expectations and recommendations for future INSET on ADHD.

I completely understand that you have a really busy schedule but I would be grateful if you could spend some time to read the following Information Sheet, before making the decision to participate or not.

Thank you in advance for your cooperation and your valuable contribution.

Yours sincerely,  
Maria Doukanari

## Appendix 2 - Information sheet for teachers

Dear Teacher,

The information included in this letter aims to ensure that you have a clear understanding of the **purposes** and the **nature of the study**. The **methodology, the way data will be used** after their collection; **benefits** and possible risks are clearly presented below.

### The benefits of the present research

On a local level, the findings of the study (teacher knowledge, attitudes, recommendations for future INSET) will offer several practical implications, primarily relating to teacher INSET provision on ADHD.

A number of **presentations and articles** that aim to benefit children with ADHD and their educators will be developed based on the findings of the study.

On a broader level, **the study will contribute to the international literature** on teachers' knowledge of, and attitudes towards ADHD in a context where this kind of investigation had not previously been conducted.

### Your contribution to the study

**1<sup>st</sup> Phase of the Research** → A questionnaire (30 minutes)

**2<sup>nd</sup> Phase of the Research** → A semi-structured personal interview (30 minutes) or/and a focus group (45 minutes)

**1<sup>st</sup> Phase of the Research** I would be grateful if you spent some of your valuable time to complete the following questionnaire.

### Useful information for making your decision

Your participation does **not** involve any kind of **risk, harm or deception**.

Your decision to complete the following questionnaire is **completely voluntary** and should be taken consciously without any influential procedures.

**If you decline** to participate, there will be **no consequences** for you or your job.

The answers will be **anonymous** → To safeguard your anonymity please **do not register any personal details prior or during the completion of the questionnaire**. Your decision to answer the following questionnaire will signify that you have received this information sheet, you have understood what is demanded from you and you have voluntarily decided to participate in the present study. In this way, you will be able to provide your informed consent.

Once the questionnaire is submitted, there is no possibility to withdraw your data.

If you make the decision to participate, please be sure that **questionnaire data will be used only for the purposes of the present research and in publications based on the research.**

**Directions** for completing each part of the questionnaire are listed **at the beginning of each section.**

**Please answer the questions honestly.** The study does not aim to get data about your professional competency levels or assess your teaching performance. The research ultimately purports to provide an empirical base of Cypriot elementary school teachers' knowledge of ADHD and their attitudes towards the instruction of this specific group of children. Overall, the findings will indicate whether further INSET on ADHD is needed.

**2<sup>nd</sup> Phase of the Research** For the purposes of the study, qualitative data will also be derived through **semi-structured personal interviews and focus groups.**

**Purpose:** To provide **additional data** and **possible explanations** to questionnaire data.

Personal interview and focus group data will be **confidential.**

**If you are interested to arrange a personal interview or/and a focus group**, please register your contact details on the **“Statement of the second phase of the research”**.

↓

Thus, I will have the opportunity to send you via email a second **Information Sheet** with all the necessary details and give you **time to make an informed and voluntary decision.** If you are still willing to participate in the second phase of the study, you will be invited to read and sign the corresponding Informed Consent Form. Please be sure that **no connection** between questionnaire data and personal interview/focus group data will be possible.

If you have any queries about the study, please do not hesitate to contact me at **[ed09m2d@leeds.ac.uk](mailto:ed09m2d@leeds.ac.uk)**. If you have any broad queries, you can contact my supervisor Dr Phil Jones at **[p.h.jones@leeds.ac.uk](mailto:p.h.jones@leeds.ac.uk)** or at **+44 113 3433210**.

If you are interested to get informed about the findings of the present PhD study, please email Maria Doukanari at **[ed09m2d@leeds.ac.uk](mailto:ed09m2d@leeds.ac.uk)**.

Thank you in advance for your cooperation and your valuable contribution to the completion of this study.

Yours sincerely,

Maria Doukanari

[ed09m2d@leeds.ac.uk](mailto:ed09m2d@leeds.ac.uk)



## Appendix 4 - Information sheet for teacher interviews

Dear teacher,

The present information sheet aims to ensure that you have a clear understanding of the second phase of the PhD study entitled “**Cypriot elementary school teachers’ knowledge, attitudes and in-service training (INSET) regarding children with Attention Deficit Hyperactivity Disorder (ADHD)**”.

**2<sup>nd</sup> phase of the study** → 30-minute personal interviews with elementary school teachers

### Purpose

To get an insight into Cypriot elementary school teachers’ experiences with, and attitudes towards:

- 1) The instruction of children with ADHD
- 2) The in-service training provision on ADHD

### Useful information for making your decision

Your participation does <b>not</b> involve any kind of <b>risk, harm or deception</b> .
Your decision to participate is <b>completely voluntary</b> and you have <b>the right to withdraw at any time</b> without giving any explanation.
The <b>interview will be audio-recorded and transcribed</b> . Thus, the researcher will be able to carefully examine the data after the completion of the interview, during the data analysis phase.
If you wish <b>to review the transcript of your interview</b> , you should contact the present researcher.
Your <b>anonymity</b> will be ensured. Identifying details will be erased immediately after the data transcription. No names or locations will be included, nor do any comment that might indicate identity or location of any individual. *
The <b>data</b> collected by each interviewee will be <b>analysed and published</b> in combination with the data gained by other interviewees <b>with complete anonymity</b> .
The <b>material</b> collected from interviews <b>will be used only for the purposes of the present research and in publications based on the research</b> .
<b>Interview recordings and transcriptions</b> will be kept <b>locked</b> in a secure place that nobody can access beyond the present researcher.
<b>Interview recordings and transcriptions will be destroyed</b> within 10 years after the completion of the PhD.

If you have any queries about the study, please do not hesitate to contact me at [ed09m2d@leeds.ac.uk](mailto:ed09m2d@leeds.ac.uk). If you have any broad queries, you can contact my supervisor Dr Phil Jones at [p.h.jones@leeds.ac.uk](mailto:p.h.jones@leeds.ac.uk) or at +44 113 3433210.

If you are interested to get informed about the findings of the present PhD study, please email Maria Doukanari at [ed09m2d@leeds.ac.uk](mailto:ed09m2d@leeds.ac.uk).

Thank you in advance for your cooperation and your valuable contribution to the completion of this study.

Yours sincerely,  
 Maria Doukanari  
[ed09m2d@leeds.ac.uk](mailto:ed09m2d@leeds.ac.uk)

\* If any child protection issue arises, the researcher will report it to the head of the school.

## Appendix 5 - Information sheet for teacher focus groups

Dear teacher,

The present information sheet aims to ensure that you have a clear understanding of the second phase of the PhD study entitled “**Cypriot elementary school teachers’ knowledge, attitudes and in-service training (INSET) regarding children with Attention Deficit Hyperactivity Disorder (ADHD)**”.

**2<sup>nd</sup> phase of the study** → 45-minute focus groups with elementary school teachers

### Purpose

To get an insight into Cypriot elementary school teachers’ experiences with, and attitudes towards:

- 1) The instruction of children with ADHD
- 2) The in-service training provision on ADHD

### Useful information for making your decision

Your participation does <b>not</b> involve any kind of <b>risk, harm or deception</b> .
Your decision to participate is <b>completely voluntary</b> and you have <b>the right to withdraw at any time</b> without giving any explanation.
The <b>focus group will be audio-recorded and transcribed</b> . Thus, the researcher will be able to carefully examine the data after the completion of the focus group, during the data analysis phase.
<b>Focus group recordings and transcriptions will be destroyed</b> within 10 years after the completion of the PhD.
Your <b>anonymity</b> will be ensured. Identifying details will be erased immediately after the data transcription. No names or locations will be included, nor do any comment that might indicate identity or location of any individual. *
The <b>data</b> collected by each participant will be <b>analysed and published</b> in combination with the data gained by other participants <b>with complete anonymity</b> .
The <b>material</b> collected from focus groups <b>will be used only for the purposes of the present research and in publications based on the research</b> .
<b>Focus group recordings and transcriptions</b> will be kept <b>locked</b> in a secure place that nobody can access beyond the present researcher.

If you have any queries about the study, please do not hesitate to contact me at [ed09m2d@leeds.ac.uk](mailto:ed09m2d@leeds.ac.uk). If you have any broad queries, you can contact my supervisor Dr Phil Jones at [p.h.jones@leeds.ac.uk](mailto:p.h.jones@leeds.ac.uk) or at +44 113 3433210.

If you are interested to get informed about the findings of the present PhD study, please email Maria Doukanari at [ed09m2d@leeds.ac.uk](mailto:ed09m2d@leeds.ac.uk).

Thank you in advance for your cooperation and your valuable contribution to the completion of this study.

Yours sincerely,  
 Maria Doukanari  
[ed09m2d@leeds.ac.uk](mailto:ed09m2d@leeds.ac.uk)

\*If any child protection issue arises, the researcher will report it to the head of the school.

## Appendix 6 - Informed consent form for teacher interviews

### Research Topic:

Cypriot elementary school teachers' knowledge, attitudes and in-service training (INSET) regarding children with Attention Deficit Hyperactivity Disorder (ADHD)

I, ....., agree to take part in the second phase of the above-named PhD study, conducted by Maria Doukanari, which includes a 30-minute interview about my experiences with, and attitudes towards: 1) The instruction of children with ADHD and 2) The in-service training provision on ADHD.

**Please read carefully each point and place a check in the case you have understood and accepted each statement**

1. I confirm that I have read and understood the purpose and the nature of the second phase of the study as they are described in the relevant information sheet.	<input type="checkbox"/>
2. I certify that I have had the opportunity to ask questions before making the decision to participate.	<input type="checkbox"/>
3. I understand that my participation is completely voluntary and that I have the right to withdraw at any time without giving any explanation.	<input type="checkbox"/>
4. I understand that interview data will be confidential. *	<input type="checkbox"/>
5. I understand that the interview will be audio-recorded.	<input type="checkbox"/>
6. I understand that I should avoid the reference to other people's names (educators, principals, students).	<input type="checkbox"/>
7. I understand that if I wish to review the transcript of my interview, I should contact the present researcher.	<input type="checkbox"/>
8. I understand that my anonymity will be ensured. *	<input type="checkbox"/>
9. I understand that the material collected from interviews will be used only for the purposes of the present research and in publications based on the research.	<input type="checkbox"/>
10. I understand that interview recordings and transcriptions will be kept locked in a secure place that nobody can access beyond the present researcher.	<input type="checkbox"/>
11. I understand that interview recordings and transcriptions will be destroyed within 10 years after the completion of the PhD.	<input type="checkbox"/>

Participant's Signature: ..... Researcher's Signature: .....

Date: .....

\*If any child protection issue arises, the researcher will report it to the head of the school.

## Appendix 7 - Informed consent form for focus groups

### **Research Topic:**

Cypriot elementary school teachers' knowledge, attitudes and in-service training (INSET) regarding children with Attention Deficit Hyperactivity Disorder (ADHD)

I, ....., agree to take part in the second phase of the above-named PhD study, conducted by Maria Doukanari, which includes a 45-minute focus group about my experiences with, and attitudes towards: 1) The instruction of children with ADHD and 2) The in-service training provision on ADHD.

**Please read carefully each point and place a check in the case you have understood and accepted each statement**

1. I confirm that I have read and understood the purpose and the nature of the second phase of the study as they are described in the relevant information sheet.	<input type="checkbox"/>
2. I certify that I have had the opportunity to ask questions before making the decision to participate.	<input type="checkbox"/>
3. I understand that my participation is completely voluntary and that I have the right to withdraw at any time without giving any explanation.	<input type="checkbox"/>
4. I understand that focus group data will be confidential. *	<input type="checkbox"/>
5. I understand that the focus group will be audio-recorded.	<input type="checkbox"/>
6. I understand that I should avoid the reference to other people's names (educators, principals, students)	<input type="checkbox"/>
7. I understand that my anonymity will be ensured. *	<input type="checkbox"/>
8. I understand that the material collected from focus groups will be used only for the purposes of the present research and in publications based on the research.	<input type="checkbox"/>
9. I understand that focus group recordings and transcriptions will be kept locked in a secure place that nobody can access beyond the present researcher.	<input type="checkbox"/>
10. I understand that focus group recordings and transcriptions will be destroyed within 10 years after the completion of the PhD.	<input type="checkbox"/>

Participant's Signature: ..... Researcher's Signature: .....

Date: .....

\*If any child protection issue arises, the researcher will report it to the head of the school.

## Appendix 8- Information sheet for stakeholder interviews

Dear participant,

The present information sheet aims to ensure that you have a clear understanding of the third phase of the PhD study entitled “**Cypriot elementary school teachers’ knowledge, attitudes and in-service training (INSET) regarding children with Attention Deficit Hyperactivity Disorder (ADHD)**”.

**Third phase** → 30-minute interviews with specialists and representatives of organisations responsible for teacher in-service training

### Purposes

- 1) To receive information about the in-service training opportunities currently available to Cypriot elementary school teachers with regards to ADHD.
- 2) To consider your recommendations for the development of future teacher in-service training on ADHD.

### Useful information for making your decision

Your participation does <b>not</b> involve any kind of <b>risk, harm or deception</b> .
Your decision to participate is <b>completely voluntary</b> and you have <b>the right to withdraw at any time</b> without giving any explanation.
The <b>interview will be audio-recorded and transcribed</b> . Thus, the researcher will be able to carefully examine the data after the completion of the interview, during the data analysis phase.
If you wish to <b>review the transcript of your interview</b> , you should contact the present researcher.
Your <b>anonymity</b> will be ensured. Identifying details will be erased immediately after the data transcription. No names or locations will be included, nor do any comment that might indicate identity or location of any individual.
The <b>material</b> collected from these interviews <b>will be used only for the purposes of the present research and in publications based on the research</b> .
<b>Interview recordings and transcriptions</b> will be kept <b>locked</b> in a secure place that nobody can access beyond the present researcher.
<b>Interview recordings and transcriptions will be destroyed</b> within 10 years after the completion of the PhD.

If you have any queries about the study, please do not hesitate to contact me at [ed09m2d@leeds.ac.uk](mailto:ed09m2d@leeds.ac.uk). If you have any broad queries, you can contact my supervisor Dr Phil Jones at [p.h.jones@leeds.ac.uk](mailto:p.h.jones@leeds.ac.uk) or at +44 113 3433210.

If you are interested to get informed about the findings of the present PhD study, please email Maria Doukanari at [ed09m2d@leeds.ac.uk](mailto:ed09m2d@leeds.ac.uk).

Thank you in advance for your cooperation and your valuable contribution to the completion of this study.

Yours sincerely,  
 Maria Doukanari  
[ed09m2d@leeds.ac.uk](mailto:ed09m2d@leeds.ac.uk)

## Appendix 9 - Informed consent form for stakeholder interviews

### **Research Topic:**

Cypriot elementary school teachers' knowledge, attitudes and in-service training (INSET) regarding children with Attention Deficit Hyperactivity Disorder (ADHD)

I, ....., agree to take part in the third phase of the above-named PhD study, conducted by Maria Doukanari, which includes a 30-minute interview about: 1) the in-service training opportunities currently available to Cypriot elementary school teachers with regards to ADHD and 2) my recommendations for the development of future teacher in-service training on ADHD.

**Please read carefully each point and place a check in the case you have understood and accepted each statement**

1. I confirm that I have read and understood the purposes and the nature of the third phase of the study as they are described in the relevant information sheet.	<input type="checkbox"/>
2. I certify that I have had the opportunity to ask questions before making the decision to participate.	<input type="checkbox"/>
3. I understand that my participation is completely voluntary and that I have the right to withdraw at any time without giving any explanation.	<input type="checkbox"/>
4. I understand that my anonymity will be ensured.	<input type="checkbox"/>
5. I understand that the interview will be audio-recorded.	<input type="checkbox"/>
6. I understand that I should avoid the reference to other people's names.	<input type="checkbox"/>
7. I understand that if I wish to review the transcript of my interview, I should contact the present researcher.	<input type="checkbox"/>
8. I understand that the material collected from this interview will be used only for the purposes of the present research and in publications based on the research.	<input type="checkbox"/>
9. I understand that interview recordings and transcriptions will be kept locked in a secure place that nobody can access beyond the present researcher.	<input type="checkbox"/>
10. I understand that interview recordings and transcriptions will be destroyed within 10 years after the completion of the PhD.	<input type="checkbox"/>

Participant's Signature: ..... Researcher's Signature: .....

Date: .....

## Appendix 10 - Questionnaire

<b><u>PART 1: GENERAL INFORMATION</u></b>			
Please consider each of the following items and record the answer that best describes you, by placing a check in the appropriate box or by writing in the space provided.			
1.1	<b><u>Gender:</u></b> Male	<input type="checkbox"/>	Female <input type="checkbox"/>
1.2	<b><u>Age:</u></b>	<input type="text"/>	
1.3	<b><u>Teaching Experience:</u></b>	<input type="text"/>	years
1.4	<b><u>Qualifications:</u></b> Bachelor	<input type="checkbox"/>	Master <input type="checkbox"/> PhD <input type="checkbox"/> Other <input type="checkbox"/>

Have you ever heard about ADHD? YES <input type="checkbox"/> NO <input type="checkbox"/>
If the answer is <u>YES</u> , please turn to <b><u>PART 2</u></b> . If the answer is <u>NO</u> , please return the questionnaire.

<b><u>PART 2: PRIOR EXPERIENCE WITH ADHD</u></b>	
The following questions consider your prior experience with ADHD. Please respond to each of these questions by writing your answer in the space provided or by placing a check in the appropriate box.	
2.1 Do you have personal experience with children having ADHD (family members/ friends)?	YES <input type="checkbox"/> NO <input type="checkbox"/>
2.2 Have you ever taught students with an ADHD diagnosis?	YES <input type="checkbox"/> NO <input type="checkbox"/>
2.3 If YES, how many students with an ADHD diagnosis have you taught during your teaching career?	<input type="text"/>
2.4 How many students have you taught, whom you thought met the criteria for ADHD but did not have a diagnosis?	<input type="text"/>

**PART 3: KNOWLEDGE OF ADHD**

**The following items consider your knowledge of ADHD. Please read each item carefully and circle T (True) if you believe that it is correct or F (False) if you believe that it is incorrect. If you are not sure, please circle the response option DK (Don't Know) and avoid guessing.**

3.1 ADHD is not a valid disorder; it is a label used to justify naughty and lazy children.	T	F	DK
3.2 ADHD can be diagnosed medically by doctors, using specific medical tests.	T	F	DK
3.3 Scientific evidence indicates that approximately 15.0% of school age children are diagnosed with ADHD.	T	F	DK
3.4 Chaotic and dysfunctional family environments (e.g. frequent family conflicts, abuse) can cause ADHD.	T	F	DK
3.5 There is no known cure for ADHD.	T	F	DK
3.6 Research evidence suggests that only males can be diagnosed with ADHD.	T	F	DK
3.7 There are different subtypes of ADHD.	T	F	DK
3.8 Children with ADHD tend to have low self-esteem and poor motivation.	T	F	DK
3.9 Children that present ADHD-related behaviours for 3 months can be validly diagnosed with ADHD.	T	F	DK
3.10 Children with ADHD outgrow the disorder approximately at the age of 15.	T	F	DK
3.11 Many times, children with ADHD are overly talkative.	T	F	DK
3.12 Children that present only symptoms of inattention can be diagnosed as ADHD.	T	F	DK
3.13 The administration of medication can cure ADHD.	T	F	DK
3.14 Poor parenting practices (e.g. parental disinterest, absence of consistency, permanent rules and routines) can hinder the management of ADHD-related behaviours.	T	F	DK
3.15 Children with ADHD tend to be popular in the classroom due to their outgoing character.	T	F	DK
3.16 Stimulant drugs are the most common type of medication used to manage ADHD behaviours.	T	F	DK
3.17 Current research suggests that too much sugar, food additives, colourings and preservatives often cause ADHD.	T	F	DK
3.18 Many times, children with ADHD do not think before acting and they are described as having intense impatience.	T	F	DK
3.19 If medication is prescribed, educational interventions are often unnecessary.	T	F	DK
3.20 Genetic factors, structural differences and chemical imbalances in the brain can lead to the manifestation of ADHD.	T	F	DK
3.21 A diagnosis of ADHD is always associated with educational underachievement.	T	F	DK
3.22 Children with ADHD behave better in classroom environments that are well-organised, with definite rules, permanent routines,	T	F	DK

predictable and consistent learning procedures.			
3.23 The use of antidepressant drugs has shown to be an effective pharmacological intervention for children with ADHD.	T	F	DK
3.24 Dietary modifications are usually not effective to manage ADHD-related behaviours.	T	F	DK
3.25 Children with ADHD who are on medication may experience appetite loss, insomnia, mood disturbances and headaches.	T	F	DK
3.26 Research evidence has shown that electroconvulsive therapy is an effective intervention for severe cases of ADHD.	T	F	DK
3.27 Children with ADHD usually come from single-parent families.	T	F	DK
3.28 A child that is extremely hyperactive and inattentive at home but not in another setting can be diagnosed with ADHD.	T	F	DK
3.29 Pharmacological interventions have negative effects on children's cognitive development.	T	F	DK
3.30 The difficulty recognising danger makes children with ADHD prone to accidents and injuries.	T	F	DK
3.31 More intelligent children are more able to control themselves and manage ADHD-related behaviours.	T	F	DK
3.32 When a child can concentrate, playing videogames or watching T.V., then it is impossible to be diagnosed as ADHD.	T	F	DK
3.33 ADHD can be inherited (e.g. it may be more common among first degree biological relatives).	T	F	DK
3.34 Children with ADHD tend to develop Oppositional Defiant Disorder (ODD)/ Conduct Disorder, depression and anxiety, 10, 5.5 and 3 times respectively more than children without ADHD.	T	F	DK
3.35 Instructional, behavioural and physical accommodations cannot reduce ADHD-related behaviours.	T	F	DK

#### **PART 4: SELF-EFFICACY TO TEACH STUDENTS WITH ADHD**

**The following items consider your sense of self-efficacy to teach students with ADHD. Please respond to them honestly. The purpose is not to get data about your professional competency levels or assess your teaching performance. Rather, the items aim to reveal whether you feel ready to manage ADHD-related behaviours and teach this specific group of children or you need further information and support to do that. Please circle the response option that best describes you.**

<b>Strongly Disagree</b>	<b>Disagree</b>	<b>Neither agree nor disagree</b>	<b>Agree</b>	<b>Strongly Agree</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>

4.1 With the knowledge and skills I have, I consider myself capable to teach in mainstream school classrooms.	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
4.2 With the knowledge and skills I have, I consider myself capable to teach in mainstream school classrooms including students with ADHD.	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>

4.3 With the knowledge I have, I consider myself able to adjust the teaching procedure in order to meet the needs of students with ADHD.	1	2	3	4	5
4.4 I am aware of the behavioural and physical accommodations that may contribute to the management of ADHD-related behaviours.	1	2	3	4	5

**PART 5: ATTITUDES TOWARDS THE INSTRUCTION OF STUDENTS WITH ADHD**

5.1 I am interested to teach students with ADHD the next school year.	1	2	3	4	5
5.2 I feel reluctant to teach students with ADHD.	1	2	3	4	5
5.3 The presence of students with ADHD in the classroom makes me feel stressed.	1	2	3	4	5
5.4 I feel excited about teaching in a classroom that includes students with ADHD.	1	2	3	4	5
5.5 Students with ADHD should be educated in the mainstream classroom.	1	2	3	4	5
5.6 One-to-one instruction is the most appropriate educational approach for students with ADHD.	1	2	3	4	5
5.7 The education of students with ADHD is primarily responsibility of special teachers.	1	2	3	4	5
5.8 Mainstream school teachers are not the proper persons to undertake the education of students with ADHD.	1	2	3	4	5
5.9 A precondition for the education of students with ADHD in the mainstream classroom is their supervision by companions.	1	2	3	4	5
5.10 The management of ADHD-related behaviours absorbs valuable instructional time and thus the lesson purposes remain unfulfilled.	1	2	3	4	5
5.11 Students with ADHD, who distract the smooth functioning of the lesson, must be kept away from the mainstream classroom for the benefit of the other children.	1	2	3	4	5
5.12 Students with ADHD constitute positive role models for the other children in the classroom.	1	2	3	4	5
5.13 The extra educational support that students with ADHD may need is detrimental to the learning of their classmates without ADHD.	1	2	3	4	5
5.14 I would avoid teaching in classrooms with students having an ADHD diagnosis.	1	2	3	4	5
5.15 In order to treat all students fairly, I would use the same discipline rules for students with and without ADHD.	1	2	3	4	5
5.16 I would delegate less homework to students with ADHD, according to their pace of work.	1	2	3	4	5

5.17 I would avoid group work in classrooms including students with ADHD in order to avoid the distraction of the other children from the learning procedure.	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
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**PART 6: PRIOR EXPERIENCE WITH IN-SERVICE TRAINING ON ADHD**

**The following section considers your experience with formal in-service training on ADHD. Please read each question or statement carefully and record the answer that best represents you. If you have not attended in-service training on ADHD, ignore the questions concerning in-service training.**

<b>Strongly Disagree</b>	<b>Disagree</b>	<b>Neither agree nor disagree</b>	<b>Agree</b>	<b>Strongly Agree</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>

6.1 There is adequate information about ADHD and ways to manage ADHD-related behaviours in the classroom.	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
---	----------	----------	----------	----------	----------

6.2 Have you ever participated in formal in-service training on ADHD?

**YES**       **NO**

6.3 If **NO**, what is the reason for non-participating in any relevant in-service training opportunity?

.....  
 .....

6.4 If **YES**, how many hours of formal in-service training did you receive?

6.5 Which organisation or person had the responsibility for this in-service training opportunity?

- a) The Cyprus Pedagogical Institute (CPI)
- b) The Ministry of Education and Culture (MoEC)
- c) A private organisation
- d) The Cyprus Organisation of ADHD (ADD-ADHD CYPRUS)
- e) The special teacher of the school
- f) Other: .....

6.5 The formal in-service training I received was adequate for effectively managing and teaching students with ADHD.	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
6.6 I need more formal in-service training in order to manage ADHD-related behaviours and create an inviting learning environment for students with ADHD.	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>

### **PART 7: PRIOR AND FUTURE IN-SERVICE TRAINING ON ADHD**

**Please use the rest of the paper to complete the following statements in your own words. If you have not participated in in-service training on ADHD, please complete only the statement 7.2.**

#### **7.1 The in-service training I received...**

- a) **Formal** - Please give a description of the form, the content, the orientation of this in-service training opportunity (theoretical/practical) and note down any strengths and areas that in your opinion need further development
- b) **Informal** - Please report informal forms of in-service training you might have experienced (e.g. personal study, collaborative planning and teaching with colleagues trained on this disorder, discussions during staff meetings or breaks) and evaluate whether these have been beneficial.

#### **7.2 In my opinion, the in-service training that would make me more competent, confident and positive in teaching children with ADHD should...**

Please focus on your expectations of future in-service training, the preferable place, time, form, content, legal framework and aspects you would like to receive more information about.

## Appendix 11 - Protocol for teacher interviews/focus groups

**Introductory questions** to get the participants relax (e.g. how many years of teaching experience do you have? How long have you been working in this school?)

### Main Questions

1. Have you ever taught students with ADHD? Can you tell me some of your experiences with these students?

- Do you have experiences of students with ADHD working with colleagues?

**(Experiences with students having ADHD)**

2. In the literature, there are two opposite views in terms of the validity of ADHD. On the one hand, a group of scholars argues that ADHD is a valid disorder; one of the most common disorders in childhood. On the other hand, it is believed that ADHD is a label that has no real justification and what is really happening is that children are naughty and lazy. From your experiences, do you agree with any of the abovementioned views or do you consider things differently?

**(Attitudes towards the validity of ADHD)**

3. Teachers' attitudes towards the appropriate educational setting for children with ADHD have been inconsistent across studies. A group of elementary school teachers believes that children with ADHD should be educated in the mainstream classroom along with their peers while a second group believes that they should be educated in a different educational setting. What do you believe?

- Can you explain why?
- What do you think is the most appropriate educational setting for children with ADHD?

**(Attitudes towards the appropriate educational setting)**

4. If you had the right of choice, would you select classrooms including children with ADHD?

- Please provide explanations for your answer.

**(Attitudes towards the instruction of students with ADHD)**

5. Have you participated in in-service training (INSET) on ADHD?

- **If YES**

Can you please give a description and evaluate the effectiveness of this INSET opportunity?

Any strengths/areas that in your opinion need further development?

- **If NO**

Why you have not participated in any relevant INSET opportunity?

**(Prior experiences and attitudes towards INSET on ADHD)**

6. If you participated in the team that is responsible for the design of teacher INSET on ADHD, what would be your recommendations? Why?

**(Recommendations for future INSET)**

## Appendix 12 - Training, workshops, conferences attended

### Researcher Skills Training and Development

- *“How Vital Are Your Statistics: Part 1”*, Staff and Departmental Development Unit, University of Leeds, 08/04/2013 – 09/04/2013
- *“How Vital Are Your Statistics: Part 2”*, Staff and Departmental Development Unit, University of Leeds, 10/04/2013 – 12/04/2013
- *“SPSS for Beginners”*, Information Systems Services, University of Leeds, 11/11/2011
- *“SPSS Intermediate”*, Information Systems Services, University of Leeds, 07/05/2013
- *“Excel 2007 for Research ‘Fundamentals’”*, Information Systems Services, University of Leeds, 10/10/2011
- *“Excel 2007 for Research ‘Analysing and Manipulating Data’”*, Information Systems Services, University of Leeds, 18/10/2011
- *“Working with MS Word for Thesis and & Long Documents”*, Information Systems Services, University of Leeds, 03/11/2011
- *“NVivo9 Fundamentals”*, Information Systems Services, University of Leeds, 27/10/2011
- *“EDUC 5031M Making Sense of Numeric and Non-numeric Data”*, University of Leeds, September – December 2011
- *“EDUC 5029M Foundations of Educational Research 2”*, University of Leeds, January – May 2010
- *“EDUC 5025M Introduction to Educational Research Methods and Approaches to Data Collection”*, University of Leeds, September – December 2009
- *“Giving Effective Seminar and Conference Presentations”*, Staff and Departmental Development Unit, University of Leeds, 28/02/2013
- *“Effective Poster Presentations”*, Staff and Departmental Development Unit, University of Leeds, 06/11/2012
- *“Data Protection and Research”*, Staff and Departmental Development Unit, University of Leeds, 11/02/2013
- *“PGR Researcher Poster Clinic”*, Staff and Departmental Development Unit, University of Leeds, 13/11/2012
- *“Finding PhD dissertations and theses”* workshop, Skills@Library, University of Leeds, 14/02/2011

- “*Introduction on EndNote*” workshop, Skills@Library, University of Leeds, 28/02/2011
- “*A Balancing Act – Dealing with the Stress of Doing a Research Degree*”, Staff and Departmental Development Unit, University of Leeds, 24/01/2011
- “*Time Management during your research degree*”, Staff and Departmental Development Unit, University of Leeds, 01/06/2011
- “*Speed Reading (with Mind Mapping)*”, Staff and Departmental Development Unit, University of Leeds, 02/06/2011
- “*Starting your Research Degree*”, Staff and Departmental Development Unit, University of Leeds, 25/01/2011
- “*Preparing for your Transfer or Upgrade*”, Staff and Departmental Development Unit, University of Leeds, 14/03/2011
- “*Preparing for your Viva*”, Staff and Departmental Development Unit, University of Leeds, 24/10/2013
- “*Scientific Research Philosophy: Putting Theory into Practice*”, Staff and Departmental Development Unit, University of Leeds, 08/03/2011
- “*Language Education Research students’ seminars*”, facilitated by Dr James Simpson every Tuesday, University of Leeds, January – May 2011 and September – November 2011

### **Conferences/Presentations**

- *11<sup>th</sup> International ADDISS Conference: ADHD Hearts and Minds*, Liverpool, UK, 10/10/2013 – 12/10/2013
- *Showcase University of Leeds Postgraduate Research Conference*, 03/12/2012 **presented a poster** (Title: Attention Deficit Hyperactivity Disorder (ADHD): One of the most common and controversial lifelong disorders)
- *10<sup>th</sup> School of Education Research Students’ Annual Conference (RSAC) 2013*, 09/05/2013, **presented a paper** on Attention Deficit Hyperactivity Disorder (ADHD): Cypriot elementary school teachers’ knowledge, attitudes and in-service training (INSET)
- *Children’s Rights in Practice*, 01/10/2011
- *School of Education Research Conference 2011*, 05/07/2011
- A 30-minute **presentation** was given to new postgraduate students during the induction week, 21/09/2012

## Appendix 13 – Approval from the AREA Faculty Research Ethics Committee

Performance, Governance and Operations  
Research & Innovation Services  
Charles Thackrah Building  
101 Clarendon Road  
Leeds LS2 9LJ Tel: 0113 343 4873  
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Maria Doukanari  
School of Education  
University of Leeds  
Leeds, LS2 9JT

**AREA Faculty Research Ethics Committee**  
**University of Leeds**

22 March 2015

Dear Maria

**Title of study:** Cypriot elementary school teachers' knowledge, attitudes and training regarding the instruction of children with ADHD in the mainstream classroom

**Ethics reference:** AREA 11-070

I am pleased to inform you that the above research application has been reviewed by the ESSL, Environment and LUBS (AREA) Faculty Research Ethics Committee and I can confirm a favourable ethical opinion as of the date of this letter. The following documentation was considered:

<i>Document</i>	<i>Version</i>	<i>Date</i>
Ethical Review Form - Maria Doukanari (200499274).doc	1	12/10/11
Attachments 1 - 13	1	12/10/11

The Committee made the following comments about your application:

- Clear consideration has been given the ethical implications of this research. The coverage and reflection is comprehensive, detailed, and of a high quality.

Please notify the committee if you intend to make any amendments to the original research as submitted at date of this approval. This includes recruitment methodology and all changes must be ethically approved prior to implementation.

Please note: You are expected to keep a record of all your approved documentation, as well as documents such as sample consent forms, and other documents relating to the study. This should be kept in your study file, which should be readily available for audit purposes. You will be given a two week notice period if your project is to be audited.

Yours sincerely

Jennifer Blaikie

Research Ethics Administrator, Research & Innovation Services

On behalf of Dr Anthea Hucklesby, Chair, AREA Faculty Research Ethics Committee

## Appendix 14 - Predetermined codes

### Prior experiences

- Diagnosed students
- Undiagnosed students
- Behavioural profile
- Educational needs
- Interventions

### Feelings

### Validity of ADHD

- Valid disorder
- Non-valid disorder

### Appropriate educational setting

- Mainstream
- Special

### Predisposition to choose classrooms with ADHD

- Negative predisposition
- Positive predisposition

### INSET

- INSET – YES
- Positive experiences
- Less positive experiences
- Strengths
- Limitations
- INSET – NO
- Reasons

### Recommendations

- Time
- Place
- Type
- Focus on
- Legal framework

## Appendix 15 - Coding system (initial and emergent)

**Bold** – initial ideas/coding

**Bold underline** – emergent ideas/coding

Typical font – expansion of initial and emergent ideas based on the data

### Prior experiences

- **Diagnosed students**
- **Undiagnosed students**
  - ✓ Very difficult
  - ✓ Terrible problem
  - ✓ Tragic situation
  - ✓ Extreme case
  - ✓ Problematic
  - ✓ Challenging
  - ✓ Hell
  - ✓ Insufferable behaviours
- **Behavioural profile**
  - ✓ Focus on hyperactivity/impulsivity
  - ✓ Focus on inattention
  - ✓ Focus on both
  - ✓ Each child unique
  - ✓ Aggressiveness
  - ✓ Over-talkativeness
  - ✓ Egocentricity
  - ✓ Depression
  - ✓ Low self-esteem
  - ✓ Mood disturbances
  - ✓ No sense of danger
  - ✓ Prone to accidents/fights
- **Challenges - Impact**
  - ✓ **Teaching procedure**
    - Noise
    - Interruptions
    - Fights
    - Remarks
    - Confusion
    - No cooperation
    - No concentration
    - Rules/routines not followed

- Focus on discipline issues
- De-emphasis on pedagogical issues
- Repetitions
- Learning time is lost
- Lesson purposes unfulfilled
- Attention to ADHD/at the expense of peers
- ✓ **Safety**
  - Students' with ADHD safety
  - Peers' safety
  - Teachers' safety
  - Focus on safety issues
  - De-emphasis on pedagogical issues
- ✓ **Tense/unfriendly relationships with peers**
  - Aggressiveness towards peers
  - Fights
  - Social isolation
  - Rejection
  - No friends
  - Complaints for discrimination
  - Focus on discipline/safety issues
  - Focus on normalising peer relationships
  - De-emphasis on pedagogical issues
- **Parents**
  - ✓ Parents of children with ADHD
    - Lack of knowledge
    - Challenge the validity of ADHD
    - Difficulty accepting the disorder
    - Fear of stigmatization
    - Hinder the diagnosis
    - Hinder the intervention
    - No cooperation with school
    - ADHD promotion/facilitations
  - ✓ Parents of classroom peers
    - Complaints
    - Worries about safety
    - Worries about learning
    - Rejection
    - Against inclusion
- **Medication**
  - ✓ Against medication
    - Side-effects
    - Non-responsive

- Lethargy
- Depression
- No interaction
- Against learning
- Against interpersonal development
- ✓ For medication
  - Positive effects (lesson/discipline/safety)
  - Management of ADHD
  - Less fights
  - Better peer relationships
  - More receptive to learn
- **Feelings**
  - ✓ Negative feelings
    - Anger
    - Anxiety
    - Distress
    - Confusion
    - Disappointment
    - Discontent
    - Tiredness
    - Panic
    - Guilt
    - Pressure
    - Worry
  - ✓ Positive feelings
    - Relief
- **Validity of ADHD**
  - ✓ **Valid disorder**
    - Behaviours not consciously controlled
    - Distinct segregation – naughty/lazy and ADHD
    - ADHD always existed
  - ✓ **Non-valid disorder**
    - Excuse for naughty/lazy/spoiled children
    - Unsuccessful school functioning
    - Failure to introduce technology
    - Excuse for poor parenting practices
  - ✓ **Validity of diagnosis under dispute**
    - Over-diagnosis/ADHD as a trend
    - Misdiagnosis
    - No precise diagnostic procedures
    - Subjectivity
    - No proper investigation
    - No diachronic assessment

- Financial interests
  - No hyperactivity (misconception)
  - Excuse for poor parenting practices – no guilt
  - Facilitations
    - Extra support
    - Extra time for testing
    - Less workload
  - Tolerance on the part of teachers
  - Excuse to desist effort
- **Origins of ADHD**
    - ✓ Biological/genetic factors
    - ✓ Heritability
    - ✓ Dietary factors
      - Sugar
      - Colourings
      - Additives
      - Preservatives
      - Artificial ingredients
    - ✓ Family factors
      - Dysfunctional family environment
      - Fights
      - Abuse
      - Poor parenting practices (no discipline/boundaries/rules/routines)
      - No emotional bonds with parents
    - ✓ Modern ways of entertainment
      - TV
      - Computers
      - Video games
      - Tablets
      - Mobile phones
    - ✓ Combination of biological/genetic and living/dietary factors
  - **Appropriate educational setting**
    - ✓ **Mainstream**
      - For socialisation/friendships
      - To avoid stigmatization
      - To imitate classroom peers' behaviour
      - Preconditions
        - Teacher INSET
        - Support/cooperation with specialists
        - Trained companions
        - One child with ADHD in each class
        - Smaller classroom sizes

- ✓ **Special**

- One-to-one instruction
- Special unit
- Special school
- Reasons
  - Exhausting/stressful for the teacher
  - At the expense of peers
  - Lack of teacher INSET/support
  - Big classroom sizes
  - Inflexible curriculum
  - Time constraints
  - Safety of peers
  - Learning of peers
  - Focus on pedagogical/not discipline issues
  - Covering gaps/concentration
  - Difficulty following the typical schedule
  - Difficulty meeting the demands of a mainstream classroom

- ✓ **Combination mainstream-special**

- Mainstream classroom - special unit
- Mainstream classroom - one-to-one education
- Hours per setting accordingly

- ✓ **Appropriate setting - type/severity**

- Mainstream for inattentive children
- Special for hyperactive/impulsive children

- **Companions**

- ✓ Positive experiences/For companion
  - Without companion, out of control situation
  - Beneficial/Valuable support
  - Management of ADHD
  - Less fights
  - Less interruptions
  - Better peer relationships
  - Equal support to all children
  - Inviting learning environment
- ✓ Less positive experiences/Against companion
  - Non-qualified
  - Lack of knowledge/skills
  - More harmful than beneficial outcomes
  - Stigmatization
  - Against socialisation
  - Against academic progress

- **Predisposition to choose classrooms with ADHD**

- ✓ **Negative predisposition**

- Exhausting/stressful for the teacher
    - Lack of teacher INSET/support
    - Lack of motivation
    - Low sense of self-efficacy
    - Focus on difficulties/challenges (pedagogical/discipline/safety issues)
    - Big classroom sizes
    - Inflexible curriculum
    - Time constraints
    - Teacher evaluation

- ✓ **Positive predisposition**

- Preconditions
      - INSET/support by specialists
      - Trained companions
      - Part-time education in the mainstream classroom
      - Smaller classroom sizes

- **INSET**

- ✓ **INSET – YES**

- **Positive experiences**

- ADD-ADHD CYPRUS

- **Less positive experiences**

- CPI

- **Strengths**

- Participation of parents
      - Focus on the management of ADHD
      - Practical workshops
      - Continuity
      - Cooperation with trainers/specialists
      - Knowledge background

- **Limitations**

- Inconvenient time
      - Inconvenient place
      - Not tailored to the classroom reality/needs of each teacher
      - Theoretical orientation
      - Lack of practical recommendations
      - Boring
      - Lack of continuity
      - General information
      - Superficial

- ✓ **INSET – NO**

- **Reasons**

- Not interested in ADHD
    - Inadequate INSET opportunities
    - INSET primarily to special teachers

- **Recommendations**

- ✓ **Time**

- Working hours

- ✓ **Place**

- School

- ✓ **Type**

- Against single informative events
    - Against theoretical information (e.g. causes)
    - Combination of theory and practice
    - Seminars
    - Conferences
    - Workshops
    - Sample lessons
    - Video-recorded sample lessons
    - Systematic cooperation/information/support by specialists
    - Individualised guidance
    - Support in developing individual intervention plans
    - Communication/support between teachers
    - Websites/forums

- ✓ **Focus on**

- Management of ADHD
    - Physical/instructional accommodations
    - Practical examples
    - Experiences and challenges of participants
    - Referrals for evaluation
    - Assessment procedure
    - Diagnostic instruments
    - Diagnostic criteria

- ✓ **Legal framework**

- Compulsory
    - Voluntary