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**The Effects of Differentiated Instruction on Students' Language
Attitude and Critical Thinking in an ESL Context**

By:

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AUTHOR'S DECLARATION

I declare that the work in this thesis was carried out in accordance with the Regulations of the University of Sheffield. The work is original, except where indicated by reference in the text, and no part of this thesis has been submitted for any other academic award. Views expressed in the thesis are those of the author.

Signed:

Date: 2 April 2019

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ABSTRACT

Acknowledging the inevitable differences between learners in terms of learning capabilities, readiness, and aptitudes, some educators have strived for a more responsive teaching practice. The approach, which is labelled *differentiated instruction*, aims to help teachers to accommodate all types of learning needs in a single classroom. The present study investigates the effects of an English language module developed using the differentiated instruction framework in an ESL (English as a Second Language) context in Malaysia. Much of the impetus to integrate differentiated instruction as a teaching framework in the Malaysian classroom stems from the requirement for differentiated teaching as stated in the Malaysia Education Blueprint 2013-2025, a Ministry of Education's document seeking to improve the country's education system.

The study was designed to promote evidence-based classroom practice in Malaysia by developing a differentiated teaching module and measuring its effects on students from an intact classroom of 16-year-old students at a government-funded school. The research design was facilitated by the mixed methods approach; the data collection was conducted through pre- and post-tests and later through a series of semi-structured interviews. Prior to the intervention period, the study began by developing a differentiated lesson checklist based on the literature. The differentiated module was then created in accordance with the national curriculum and the student-participants' language learning style preferences and implemented for 13 weeks.

The first part of the data collection and analysis measured the student-participants' language attitude and critical thinking through pre- and post-tests. The two-tailed paired-samples *t-test* on language attitude suggested that the participants scored significantly higher in the post-test with a large effect size ($d=0.89$). On measuring critical thinking, it was also revealed that the participants scored significantly higher in the post-test but with a medium effect size ($d=0.58$). Meanwhile, the interview data were discussed around three main themes: a) similarity and differences between differentiated instruction and conventional teaching approach, b) impact of differentiated instruction on students' language attitude and critical thinking, and c) future of differentiated instruction in Malaysia. The study suggested positive effects albeit of varying degrees on students' language attitude and critical thinking with encouraging feedback from both teacher and students. The effects concurred with previous studies in that differentiated instruction had induced autonomous learning experience and it resulted in a student-centred classroom. The findings were in line with the government's vision for the education sector, suggesting the possibility for further similar studies to be carried out gradually across the nation to increase the generalizability of the reported finding

CHAPTER 1

INTRODUCTION

1.1 OVERVIEW AND STRUCTURE OF CHAPTER

It is generally and not unreasonably regarded as the sign of a good teacher that he should be able to differentiate between the abilities of his respective pupils and to know their natural bent. The gifts of nature are infinite in their variety, and mind differs from mind almost as much as body from body.

(Quintilian, 95 CE, trans. Butler, 1922: 265)

Awareness of innate differences between individual learners is an incredibly longstanding notion that was recognised by Quintilian in 1st century Rome among other philosophers. The situation thus necessitates teachers to respond sensitively to varying learning needs either by students across classrooms or within a single classroom and consequently differentiate their lessons. In the modern education system, the earliest mention of the term *differentiation* in teaching is in the late 1970s and early 1980s by education authorities in the UK. In an attempt to evaluate teaching effectiveness in secondary schools, Her Majesty's Inspectorate began to acknowledge "differentiation" in teaching as "a discourse of good practice" (Hart, 1996: 10). Subsequently in the 1990s, differentiated instruction (differentiated instruction) as a teaching philosophy received widespread attention in the United States of America which in turn triggered other teachers across the globe to embrace the notion of pedagogical differentiation. However, success stories related to differentiating lessons are mostly anecdotal and the field still "lacks empirical validation" (Subban, 2006: 936) and differentiated instruction is a teaching concept that has not been sufficiently researched (Bender, 2012; Smit and Humpert, 2012).

A growing number of studies have provided empirical evidence on differentiated instruction to date but only three studies (see 2.2.3) were found that reported the effects of differentiated lessons on Malaysian learners as follows:

- 1) Hamidah et al., 2011 – a case study involving English instructors of a writing programme developed for gifted learners that looked at the implementation of differentiated instruction in ESL writing classroom;
- 2) Mohd Hasrul, Hazita, and Azizah, 2015 – a qualitative study involving English teachers at PERMATApintar, Malaysia’s School for Gifted Learners, to examine the effects of differentiated instruction on students’ performance and document the challenges faced by the teachers when designing their lessons; and
- 3) Najibah et al., 2014 – a quantitative study involving learners of the Arabic language at a premier boarding school to investigate the effect of differentiated learning on the students’ motivation using a pre- and post-test design.

Thus the originality of this research lies in its design which was based on a mixed methods approach to provide further evidence on the effects of differentiated lessons in the Malaysian context. Moreover, it examines ESL learners’ language attitude and critical thinking, two variables which have not been widely studied in relation to pedagogical differentiation and have not been covered in the three studies cited above. Although the end result of the study revealed the positive changes accrued by differentiated lessons, the intention of this study, however, is not to pronounce the superiority of differentiated instruction over other pedagogical beliefs and teaching strategies. The study only aimed to demonstrate if differentiated instruction would produce similar success in a Malaysian ESL classroom as other previous studies conducted in the different parts of the world. The study also aimed to help Malaysian teachers to expand their teaching repertoire by employing successful teaching strategies as supported by empirical evidence and to encourage more evidence-based classroom practice at Malaysian government-funded schools.

Before moving on to an in-depth discussion of differentiated instruction later in the thesis, this chapter provides various introductory information, namely the research context (1.2), research motivation (1.3), research aims and questions (1.4), operational definitions of key terms (1.5), and finally the thesis organisation (1.6).

1.2 RESEARCH CONTEXT

Secondary education in Malaysia comprises five compulsory years of study from the First Form to the Fifth Form (students aged 13 to 17) before students may progress to take optional advanced academic qualifications. The national secondary schools, which are government-funded, educate more students in Malaysia than other types of schools. Enrolment into national secondary schools is open to all types of achievers and consequently, these schools contain a heterogeneous community of learners with varying learning abilities, motivation, and thinking skills and the school under study in this project is a national secondary school. For the purpose of comparison, out of 2408 secondary schools in Malaysia, only 69 are classified as boarding schools by the Ministry of Education Malaysia (MoE) and admission is exclusive to academically outstanding students who are relatively similar in terms of their academic excellence and possibly learning motivation.

English is taught as one of the compulsory subjects at secondary schools throughout the five years of study to prepare students to “meet their needs for English in everyday life, for knowledge acquisition, and for future workplace needs” (MoE, 2003:1) as described in the national curriculum specifications. Even though English is accorded the status of a second language in the country, its actual status differs from one individual to another. The necessity to learn English and the success in doing so are dependent on several factors. As a rule, most non-Malays in Malaysia learn English as a third language alongside bahasa Malaysia (the national language) and their native language, which varies depending on the student’s ethnicity, whereas the Malays learn English as a second language. In addition to ethnicity, socio-economic status and the educational background of their parents play major roles in determining a student’s exposure to English. In a

more affluent household, English is used quite early and frequently and exposure may begin before the children are enrolled into primary education (age 7 to 12). English status is also dependent on its frequency of use by different learners. Some use it as a first language in every aspect of their lives despite English not being their heritage language and they become more fluent and expressive in English than any other language, while some learners use it as a second language on a regular basis. However, there are those to whom English is an uncommon language as they rarely or never use it beyond the English classroom and their learning English is merely to pass the national examination. The situation poses a great challenge to English teachers in designing their lessons. Due to the varying amount of exposure to and usage of English before entering primary schools, each classroom may comprise students with markedly different levels of English competence - from fluent speakers who use English as a first or second language to those who are only introduced to English as they enter primary school. This is especially accurate of national schools where the student body is composed of all types of socioeconomic status and parental educational background status.

At the end of the Fifth Form, all students are subjected to a centralised assessment known as SPM (*Sijil Pelajaran Malaysia*), equivalent to the GSCE (General Certificate of Secondary Education) in the United Kingdom. SPM is a prerequisite for enrolment to tertiary education or for securing employment (with the exception of menial jobs). For the SPM English paper, students are assessed only on their reading and writing skills, while speaking and listening skills are tested only at the school level with no contribution to the official SPM English grade (Vethamani, 2014; Suryani et al., 2015).

1.3 RESEARCH MOTIVATION

The first motivation for this study is related to the demand for differentiated teaching as officially stated by the MoE. At present, two curricula developed by the MoE are used in secondary schools in Malaysia, namely KSSM which is implemented for First and Second Form learners (age 13 and 14), and KBSM for Third to Fifth Form learners (age 15 to 17). KSSM (*Kurikulum Standard Sekolah Menengah/Secondary School Standards-based Curriculum*) is a new curriculum

introduced to replace the existing KBSM (*Kurikulum Bersepadu Sekolah Menengah/Integrated Secondary School Curriculum*) which was first introduced in 1989. KSSM only began to be implemented in 2017 which explains why it affects only the First and Second Form students and the curriculum cycle will be complete when these students enter the Fifth Form in 2021 and 2022. By then, KBSM will be obsolete. KBSM was designed by the MoE as a skill-based curriculum as a guide for secondary school teachers to implement the Communicative Language Teaching approach in their lessons. The curriculum reflects an underlying demand for student-centred learning on these teachers (Tengku, 2012) that highlights the students as active participants at the heart of learning. In a student-centred classroom, a teacher's role progresses from questioning techniques that are cognitively undemanding, e.g., memorisation and regurgitation of facts, to ones that make a greater cognitive demand, e.g., for reasoning and synthesising information. On the other hand, KSSM was introduced to equip the students with the skills needed for the 21st-century and the curriculum places emphasis on higher order thinking skills. It is designed in line with the standards-based curriculum that has been introduced in various countries on a global scale (MoE, 2016), a curriculum that is characterised by the need for teachers to adhere to a specified set of content standards, teaching and learning standards, and assessment standards.

As a guide for teachers from government-funded schools when planning their lessons, the MoE has developed standardised English language curriculum specifications to be adhered to. On analysing the document, I realised that the MoE (2003: 2) has requested teachers to design their lessons by catering to three tiers of English language learning proficiency (beginning, intermediate, and advanced). Based on the curriculum specifications, students who belong to different tiers of language proficiency were recognised to require different sets of expectations and learning activities. Hence the notion of differentiation was evidently already recognised by the education authority before it was articulated explicitly by the end of 2012 through the *Malaysian Education Blueprint 2013-2025 (MEB)*. Clear references to the necessity for differentiated instruction, unlike in previous official government documents, can be found in the blueprint which states that 'the school curriculum at both primary and secondary levels will be

revised. This curriculum will still stress student-centred and differentiated teaching, but have a greater emphasis on problem-based and project-based work, a streamlined set of subjects or themes, and formative assessments' (MEB Executive Summary: 22). The blueprint has been utilised to drive education reform in the country through KSSM. Thus, the requirement for pedagogical differentiation by the MoE has consequently motivated this study in exploring the effects of a differentiated teaching module on Malaysian students. As research to date has only documented three studies on differentiated instruction involving academically superior Malaysian learners and the demand for differentiation has only recently been mentioned at the national level, there is a gap that needs to be addressed. Although classrooms in other parts of the world have provided evidence on the effectiveness of differentiated instruction (e.g., Baumgartner, Lipowski & Rush, 2003; Fisher & Frey, 2001; Hertzog, 1998; Lewis & Batts, 2005; Noble, 2004; Odgers, Symons & Mitchell, 2000; Tieso, 2001 & 2005), more empirical studies need to be carried out involving Malaysian learners to understand the extent of effectiveness of differentiated modules which will assist its implementation and improvement in the Malaysian context.

Even though the policy of differentiating lessons to accommodate students' learning differences is praiseworthy, ensuring that it is received well and carried out efficiently by schoolteachers requires attention to several aspects such as material development and time constraints. Particularly when teachers are expected to produce their own teaching modules or lesson plans, the quality of the material may vary from one teacher to another depending on their material searching and development skills (Afitska, 2015) which raises issues of fairness; it seems the likely variation in learning aids would mean a lack of consistency in learning opportunities between schools with experienced and highly skilled teachers and schools with novice teachers who are still in the process of adjusting themselves to professional demands. In addition, teachers in Malaysia have been reported to be overloaded with mounting administrative responsibilities and clerical tasks and to consequently be spending less time catering for students' needs (Winifred, 2014). As teachers are required to spend a considerable amount of time on administrative duties in addition to preparing lessons and teaching, diagnosing individual students' needs is not always manageable.

Efforts to customise lessons to meet different learning needs of the students are rare as indicated by local scholars' findings on the prevalence of teacher-centred classrooms across Malaysia (MoE, 2003; Normazidah et al., 2012; Tengku, 2010; Thang, 2010). A teacher-centred lesson is characterised by teacher dominance and classroom teaching is typically conducted using the *chalk-and-talk* and drilling method (MoE, 2003) by using past examination questions, worksheets, and exercise books. Although a teacher-dominated lesson may not lead to a lively and interactive session, it is most likely preferred as it is straightforward to plan and lesson objectives can ostensibly be covered quickly since it rarely involves extensive sharing of opinions and ideas by the students. As such, this type of lesson is easier to manage regarding ensuring all the content of the national syllabus is covered and completed on time to prepare the students for the final examination each year. However, undifferentiated lessons developed based on a "one-size-fits-all" (Gregory and Chapman, 2003: 1) approach which impose identical learning strategies and activities on different students from a single classroom might limit active classroom participation. The current busy schedule among Malaysian teachers in national secondary schools prompted me to conduct a collaborative project by designing a differentiated teaching module to be implemented in the classroom instead of requesting a teacher to develop the module on his/her own. I aimed to also encourage more active collaboration between university researchers and schoolteachers in the long term, gathering more empirical data from classrooms and I look forward to more university researchers in the English Language Teaching field collaborating with schoolteachers.

The second motivation for the study relates to the need for promoting the mastery of cognitive skills which is also highlighted in the new curriculum (KSSM) including critical thinking, reasoning, creative thinking, and innovation. The MoE (Preliminary Report MEB, 2012: 10) acknowledges the critical thinking skill as "an area where the system has historically fallen short, with students being less able than they should be in applying knowledge and thinking critically outside familiar academic contexts". Although KBSM also addressed the demand on teachers to encourage thinking skills, KSSM is more concerned with the higher order thinking skills (HOTS) from Bloom's taxonomy. Malaysian thinking skills

researchers (e.g. Choy & Oo, 2012) have suggested that HOTS refer to the top three skills in the original taxonomy, namely analysis, synthesis, and evaluation. The new shift brought about by the KSSM also involves efforts to revamp the national examinations to include a higher percentage of higher order thinking questions assessing students on HOTS. The format of the exam remains but questions will be more challenging which require more analytical and problem-solving skills and less memorisation and regurgitation of facts.

As indicated in MEB (2012:12) by 2016, higher-order thinking questions will comprise “at least 40% of questions in UPSR and 50% in SPM” (UPSR is a national exam at the end of primary school for candidates aged 12 across the nation, whereas SPM is a national exam to mark the end of secondary school years involving candidates aged 17). This change in the nature of questions tested would, in theory, allow teachers to spend less time predicting what topics and questions will appear in the examination and drilling students for content recall. These reforms are influenced by local reports of an alarmingly low level of critical thinking and a lack of ability to apply critical thinking at school or in real life situations among Malaysian learners (e.g. Fah, 2009; Kiong, Jailani, Razali, Heong, Atan & Mimi, 2012; Mohd Majid, Khatijah, & Sidek, 2007; Rosnani & Suhailah, 2003). The recent emphasis on higher order thinking skills as well as the claim by local scholars that critical thinking in ESL or EFL contexts is still in its infancy (e.g. Rosyati & Rosna, 2008) have motivated me to examine critical thinking as a dependent variable in this study.

The final motivation to conduct the study is the continuous adverse public reaction to government efforts to make English the language of technology-driven knowledge. PPSMI was a government policy introduced in 2003 to teach Mathematics and Science in English and it reinstated the position of English which was once used as a medium of instruction in Malaysia, circa 1970. However, the policy has been a subject of much debate and controversy among the public. Such is the strength of feeling engendered by this debate that a coalition of 40 non-governmental and political parties in January 2009 successfully sought to marshal 100,000 followers to protest against the decision to teach Science and Mathematics in English. The main reason for the resistance was the claim that the decision would uphold English but

affect the learning of the National Language (Tunku Munawirah, 2012). The policy was reversed in 2012, schools being required to teach Science and Mathematics in Bahasa Malaysia. The public outcry was not surprising. Although the colonial period is long past, attitudes towards the English language are mixed, with some seeing it as representative of the colonial era, particularly in nationalistic circles. Furthermore, Asmah (1992) notes negative attitudes towards English by students and a more recent study by Ismail et al. (2014: 201) also reports a similar situation as some research participants at the university level referred to English as the “language of colonialists”. Realising that English is an international language that is used extensively for knowledge, mastering it has a functional purpose, particularly as the nation is expected to achieve a high-income nation status by 2024 (Adam, 2018) and the Malaysian studies that documented negative language attitudes towards English have motivated me to examine if the study intervention would influence the participants’ attitudes positively. If proved to be of use, similar intervention may be carried out on a larger scale in future studies to help curb the English language phobia in some members of the Malaysian society.

1.4 RESEARCH AIMS AND RESEARCH QUESTIONS

In light of the recent shift in the curriculum that encourages pedagogical differentiation and the motivation to investigate English language attitudes and critical thinking among Malaysian learners, I aimed to examine if a differentiated module would bring about positive results as indicated by research findings in other parts of the world. The differentiated module would be designed with a teacher-participant in a collaborative classroom intervention study comprising 13 weeks of lesson plans and classroom activities using the differentiated instruction framework on Fourth Form students (age 16). The module developed was expected to fulfil three requirements, namely:

- i. to cover the content of the standard national curriculum using a research-based approach; that is, differentiated instruction;
- ii. to be student-centred and diverse enough to accommodate differences in students’ learning style preferences in order to discourage the “one-size-fits-all” teaching practice; and

- iii. to prepare students for the national examination while also accommodating the students' differences.

By fulfilling these general research aims, this study attempted to answer the following research questions:

1. What are the student-participants' language learning style preferences?
2. What are the student-participants' English language attitudes pre-intervention?
3. What is the student-participants' critical thinking competence pre-intervention?
4. Has the introduction of a differentiated English module affected the student participants' language attitudes? If so, how and why?
5. Has the introduction of a differentiated English module affected the student-participants' critical thinking? If so, how and why?

1.5 OPERATIONAL DEFINITIONS

Three main key terms in the study are defined as follows:

1.5.1 Differentiated Module

The differentiated module refers to the intervention part of the study comprising teacher's lesson plans and student activity sheets. It was developed in accordance with the REACH framework, William and Maker's model, and Bloom's taxonomy (see Chapter 4). The versatility of differentiated instruction enables it to minister to a wide range of abilities: from slow students in need of extensive support and attention to the able ones in need of further refinement of their skills (Pham, 2012). With this type of accommodation, differentiated instruction is an opportunity for students to experience success, regardless of their learning capabilities (Chick & Hong, 2012) or learning style preferences. Pedagogical differentiation can occur at three levels: content, process, and product. This study concentrated more on process and product differentiation as content is predetermined by the MoE in the curriculum as indicated in a monthly calendar of

teaching lesson content created by the English Language Department at the research site.

1.5.2 Language Attitude

Attitudes are learned predispositions that vary from favourableness to unfavourableness which are claimed to be relatively stable and persistent (Baker, 1988). Researchers have acknowledged that attitude towards the target language to be of paramount importance in influencing successful learning of the language (Fakeye, 2010; Gardner, 1985; Kara, 2009; Mohamad Jafre, Majdi & Hanan, 2012; Momani, 2009; Shams, 2008).

Dittmar (1976) and Lambert (1967) categorise language attitudes into three components: cognitive, behavioural (conative), and affective (more details in 2.3.1). Thus, the student-participants' attitudes towards the English language in this study were measured by using a language attitude inventory that covers the three categories as categorised by Dittmar and Lambert. The inventory was used as a pre- and post-test to compare score difference for each student to measure the effect of the intervention.

1.5.3 Critical Thinking

Critical thinking as defined by the MoE refers to the competence and abilities to reason and evaluate the suitability of an idea, to scrutinise the maturity, strength and drawbacks of arguments, and to draw conclusions judiciously based on reasons and evidence (MoE, 2012a). Bloom's taxonomy of cognitive domain has been recognised by the MoE as the framework to adhere to when teachers inculcate critical thinking in their lessons. It is made up of six levels of thinking skills: memorisation, comprehension, application, analysis, evaluation, and synthesis (see 4.6 for details). The Malaysian Critical Thinking Test was used as a pre- and post-test to measure score differences by the student-participants. The localized test was developed by a team of experts in psychometry from *Universiti Kebangsaan Malaysia* (National University of Malaysia) for Malaysian students aged 16 and 17.

1.6 THESIS ORGANISATION

This thesis is arranged into six chapters. Chapter 1 comprises the background information of the study including the research context and research motivation, aims, and questions to help situate the study. Key terms are also defined in the chapter. Chapter 2 reviews relevant literature in the field of differentiated instruction, language attitude, and critical thinking. Theoretical frameworks that anchor the study are also discussed in the second chapter. Discussion of the research methodology is presented in chapter 3 which mainly elaborates details of the participants, design, and research instruments. Chapter 4 comprises a description of the English teaching and learning module as governed by selected differentiated frameworks and the chapter also contains a checklist created from findings of previous studies to determine the extent that each lesson plan is successfully differentiated. Chapter 5 contains both quantitative and qualitative findings while discussions of these findings are included in chapter 6, the final chapter, which also discusses the conclusions of the findings, research significance, research limitations, and future research recommendations.

CHAPTER 2

LITERATURE REVIEW

2.1 STRUCTURE OF CHAPTER

Following a brief definition of the concept in section 1.5, this chapter further elaborates the concept of differentiated instruction (2.2) and past studies that employed differentiation either as intervention in the classroom to investigate its effects on students or attitudinal studies to expand existing literature on and thus knowledge about teaching differentiation (2.2.3). In the second part of the chapter I discuss the concepts of language attitude (2.3) and critical thinking (2.4) and my rationale for their selection as the two dependent variables in the study with support from some related studies.

2.2 EXPLAINING DIFFERENTIATED INSTRUCTION

The following section addresses some important aspects of differentiated instruction as a teaching philosophy by describing its brief history, definition, and past studies that document its effects on teachers and learners.

2.2.1 A Brief History of Differentiated Instruction

Diversity among learners has long been acknowledged and consequently educators were reported to have adapted their teaching accordingly (Corno, 2008). However, scholars have expressed perpetual concern with the belief in the standardised expectations of student learning achievement and the way different students in the same classroom are treated. Washburne (1953: 139), for example, criticises the grading system at schools that was developed with a belief that “all children could learn the same things at the same chronological age if they tried hard enough” and he argued that despite the never ending dismay of student failures and grade repetitions,

no actual solution was discovered, let alone implemented. Thus, Washburne offers a premise that school programmes must be adjusted in recognition of the differing qualities between children in terms of their cognitive maturity rate although he did not specifically use the term “differentiation” or “differentiated instruction”.

In the late 1970s and early 1980s in the United Kingdom (UK), Hart (1996) reports some concerns by Her Majesty’s Inspectorate (HMI) following their observation of teachers at secondary schools. The teachers were found to have too low an expectation of the students and their teaching approaches were too narrow, overly directive, and exam-oriented. Another important finding by the HMI was the practice of teachers who did not attempt to cater to a wide range of student achievement and background knowledge but rather to aim to teach at the middle regardless of the pupils’ groupings. The term “differentiation” was used by HMI to refer to what they thought to be lacking, namely catering for the more advanced and lower than average students in the same classroom, as defined by estimate learning ability. Since then, Hart notes that the term has gradually entered educators’ professional vocabulary and the practice has become a priority at many schools.

Meanwhile in the United States, beginning 1999 when Carol Tomlinson wrote the first book on differentiated instruction, she reignited discussion about the concept of catering to individual students’ differences and inspired teachers across the US to tailor their classes in line with the “DIal paradigm” (Bender, 2012: 1). However, it is baffling to note that many current scholars (e.g. Bender, 2012; de Jager, 2017; Subban, 2006) give credit to and cite Tomlinson for the differentiated philosophy without mentioning Hart or any scholars from the UK despite the use of the term by HMI in their report which predated Tomlinson. Snyder (2009), for example, in recounting the brief history of differentiated instruction makes no mention of the UK scholars.

Nevertheless, the effort paved by these scholars has inspired many educators around the world to differentiate their lessons sufficiently to provide anecdotes of teaching and learning success stories (e.g., Baumgartner, Lipowski & Rush, 2003; Fisher & Frey, 2001; Hertzog, 1998; Lewis & Batts, 2005; Noble, 2004; Odgers, Symons & Mitchell, 2000; Tieso, 2001 & 2005). While empirical evidence is still arguably

limited (Bender, 2012; Smit & Humpert; 2012; Subban, 2006), it is steadily increasing. In 2013 differentiated teaching officially entered the mainstream Malaysian teaching and learning context as it was mentioned in the MEB. Efforts to deploy a differentiated approach in Malaysia, however, began several years prior to this as the programme for gifted learners was initiated in 2009 and PERMATApintar, the School for Gifted and Talented Learners, was set up in Malaysia in January 2011 (Noriah, 2018). Realising that gifted learners required a different syllabus from the national syllabus, teachers at the school have been trained to differentiate their lessons which led to the first study on differentiation in the Malaysian context by Hamidah et al. (2011).

2.2.2 Defining Differentiated Instruction

Recent awareness of the diversity of learning needs present in most classrooms has brought an additional responsibility to teachers in meeting these needs besides working to improve learning outcomes (Rock et al., 2008). Due to the wide range of backgrounds of students in the same classroom, a traditional instruction that of “teaching to the middle” (Haager & Klinger, 2005: 19) can be seen as of limited potential. Learners do not only differ culturally and linguistically but also in their cognitive abilities and learning preferences (Huebner, 2010; Jokinen, Heikkinen, & Morberg, 2012). The situation suggests that it would be difficult to meet most, let alone all, learning needs in the classroom (Rock et al., 2008), particularly in a context where learning abilities are not similar. Having realised this, it is therefore unsurprising that educators around the world have experimented with an alternative form of learner-centred instruction that centres on better adapting to groups of heterogeneous students (Smit & Humpert, 2012); and this has resulted in a call from policymakers and researchers to implement a differentiated teaching approach into the classroom. Corno and Snow (1986: 621) introduce a closely related concept to differentiated instruction, namely ‘adaptive teaching’ in which they suggest teachers adapt their teaching to cope with diversity by arranging “environmental conditions to fit learners’ individual differences”. However, Smit and Humpert (2012) posit that differentiated instruction is newer and more detailed.

The label “differentiated instruction” was first advocated by Tomlinson (1999) to refer to a student-centred form of teaching that encourages educators to adjust the curriculum and instructional strategies as well as learning output based on individual students’ learning profiles, motivation, interests, and readiness levels to maximize students’ growth (De Neve, Devos, and Tuytens, 2015; Levy, 2008; Stradling & Saunders, 1993; Tomlinson, 1999). Effective teachers integrate numerous techniques in their instruction, assessment, and grouping of students based on the notion that not everyone learns the same concept at the same pace with the same approach (Tomlinson, 1999). The definition is in line with an earlier definition by HMI which suggests that differentiation is about providing students of differing notional abilities with entitlement and opportunities at two levels, i.e. teaching method and learning expectation; at the teaching method level, differentiating lessons is an attempt ‘to introduce greater variety and flexibility’ into teaching approaches so as to accommodate diversity among learners and at the learning expectation level, it is about challenging students sufficiently by neither underestimating their abilities nor placing unattainable demands on them that could thwart their performance (Hart, 1996: 12).

As is evidenced by the literature, *flexibility* and *responsiveness* (Rock et al., 2008; Tieso, 2003; Tomlinson, 1999) have become recurring characteristics of differentiated instruction. Teaching and learning differentiation requires educators to display their acceptance of diversity among learners through flexibly making changes either in the form of the lesson content or the process of carrying it out and in the means of students’ displaying their comprehension to accommodate the inevitable and natural various learning predispositions. Meanwhile, Rea-Dickins (2007) in defining good teaching, proposes an implicit concept of differentiation by suggesting that teachers be responsive when giving feedback to their students. To respond to learners’ different language learning needs, Rea-Dickins emphasizes the importance of giving appropriate and different types of feedback, involving learners through collaborative activities and self- and peer-assessment, and providing enough room for language practice. Providing choices of instruction and assessment, which is one of the fundamental features of differentiation, also proves to positively impact learners. Afitska (2014) concludes that when teachers adopt self- and peer-assessment, students become the contributors to their peers’ and their own learning by emulating a

teacher's role. Adopting these strategies will eventually develop autonomous learners who are in charge of their learning, resulting in a teachers' role change from being an authority in the classroom to being a facilitator who validates students' decisions and learning discoveries. The idea of teachers being a facilitator in the classroom is in line with the student-centred approach which is one of the aims of differentiated instruction. Meanwhile, Piggot (2002) highlights *acceptance* as a fundamental of differentiation in teaching because learners have different learning backgrounds and varying levels of achievement; and educators must therefore accept that the learners are naturally going to progress at different rates and they will need different learning tasks to fulfil their potential. Some other recurring general principles that can be adopted by educators and researchers who intend to differentiate are to:

- a) focus on important ideas and skills in the respective content area (Rock, Gregg, Ellis & Gable, 2008; Tieso, 2003; Tomlinson, 1999)
- b) modify learning content, process, and products to match students' needs (Bender, 2012; Piggot, 2002; Subban, 2006; Tomlinson, 1999)
- c) ensure space to respond to individual students' differences to help all students experience success (Chick & Hong, 2012; Pham, 2012; Rock, Gregg, Ellis & Gable, 2008; Tieso, 2003; Tomlinson, 1999)
- d) allow flexible groupings (Ernst & Ernst, 2005)
- e) provide a student-oriented environment where students are meaningfully challenged (Ernst & Ernst, 2005; Subban, 2006)
- f) employ formative assessment by integrating assessment and instruction to allow for adjustments in instruction (Ernst & Ernst, 2005)
- g) cater for students' prior knowledge, critical thinking, and preferred styles of expression (Rock, Gregg, Ellis & Gable, 2008; Tieso, 2003; Tomlinson, 1999)

2.2.3 Past Studies of Differentiated Instruction

In searching for studies that investigated differentiated instruction in the classroom, the University of Sheffield STARPlus database was used. The journals where these studies were taken from were checked against SCImago Journal Rank (a public portal that draws on information in the Scopus® database). This was carried out so as to

select articles from journals with a high impact factor. However, there were articles from lower-ranked journals which are still included because they described studies in the Asian context with participants who matched the ESL status of participants in my own study. These studies comprise survey studies that collected teachers' and students' perceptions on differentiated instruction, followed by important studies featuring empirical evidence regarding differentiated lessons.

I. Survey Studies of Differentiated Instruction

Some studies were useful as they were conducted to add to the dimension of teaching and learning differentiation while capturing insights from and perspectives of key players in the classroom, i.e. teachers and students on what constitutes a successful differentiated classroom.

In identifying essential components towards successful differentiation among teachers, De Neve, Devos, and Tuytens (2015) surveyed 746 teachers from 65 Flemish primary schools in Belgium. The researchers suggest that collegiality is essential to improve novice teachers' professional learning pertaining to differentiation and it is a type of support that schools had to strive for. The support could be achieved through a) teacher-teacher conversations which would serve as a channel for them to exchange ideas and share accounts of classroom experience with differentiation, and b) appointing mentors to help novice teachers differentiate their lessons. Their suggestions were in line with Tomlinson (2003) who suggests that transformation towards differentiated instruction requires a joint effort from a collegial group of teachers as a way forward to create a school environment that respects and accommodates learner variance. Teacher-participants in the study who displayed autonomy in their job were found to be more likely to differentiate their lessons than less autonomous colleagues.

Similarly, Smit and Humpert (2012) claim that the culture of team collaboration which includes the discussion of pedagogical/teaching topics with one another would enhance teaching differentiation at the school. The scholars who conducted a combined research and school improvement project which was part of a larger project in Alpine regions in Switzerland surveyed 162 teachers and 1180 students to learn

about existing differentiated instruction practice in the region. They used teacher questionnaires and student achievement tests in a study that looked into leadership and the role of a professional team culture in implementing differentiated instruction. The results from this research influenced the school improvement processes and have been instrumental in evaluating developments in the instructional practices of schools and teachers. The study also managed to adapt a model by Hall (2002) with five key components in teaching differentiation, namely (Smit and Humpert, 2012: 1153-1154):

- a. **Attitude** to refer to the necessity of a teacher with a constructivist view of learning, believing that each learner has unique needs and that the learner needs to be in charge of his/her learning by sharing the responsibility for learning with the teacher. It is also important for the teacher to pre-assess each student's prior knowledge and to plan for the student's individual needs and way of learning.
- b. **Content** to refer to aligning the proximal educational goals with prior knowledge and learning profiles of the individual students or groups of students being taught. The teacher also needs to clarify the final goals with examples of successful work from other students to illustrate these goals.
- c. **Process and products** to refer to aligning the individual goals with students' interests and structuring these goals in a way that allows students to work at their own pace. The allocated tasks need to offer different ways to explore the educational content and allow for varied products by the students to demonstrate their understanding and abilities.
- d. **Communication, collaboration, and/or coaching** to refer to the support by the teacher of the students' learning processes as he/she monitors them and provides feedback. The students are also asked to self-assess their own learning processes as the teacher helps to diagnose their learning difficulties. In providing feedback, the teacher coaches the students by suggesting remedial learning strategies and reflecting on the students' perceptions of their learning processes.
- e. **Formative assessment** to refer to the crucial need for formative assessment in identifying each student's next steps in learning and in adapting instruction accordingly.

The most interesting and apparently new component as suggested by Smit and Humpert is the “attitude” component; the other four components are similar to what previous scholars (e.g. Tomlinson, 2001; Tomlinson and Allan, 2000) have suggested. The attitude component relates to the necessity of a teacher with a constructivist learning view (as described above) which seems to be missing from previous studies. Smit and Humpert’s inclusion of the *agent* (teacher) in the process is an appropriate move considering that the teacher is indeed the most influential component. Their attitudes will significantly influence the dynamics of the classroom and will shape students’ roles throughout the lesson. The effects that collegiality and team collaboration bring in creating successfully differentiated classrooms, as suggested by these studies, have thus motivated me in designing this collaborative project with an actual teacher.

McQuarrie, McRae, & Stack-Cutler (2008) provide valuable insights into differentiated instruction in reviewing 25 projects that brought about positive impact on student learning under the auspices of the Alberta Initiative for School Improvement (AISI) in Canada. The projects were successfully carried out between 2003 and 2006. Their review was carried out to inform Alberta Kindergarten to Grade 12 school jurisdictions and Alberta Education about future efforts that will enhance and support differentiated instruction to improve student learning. In addition to reviewing reports from the 25 projects, they also conducted interviews with a focus group of representatives from 18 schools and districts from the projects as well as telephone interviews with schools and districts that could not attend the focus group in person. Their major findings include the view that differentiated instruction was found to have a) enhanced students’ self-confidence and engagement in classrooms, b) helped students to become more self-directed and to improve their metacognitive thinking, and c) enhanced teachers’ ability to reach out to all learners. Another key finding was that differentiated instruction seemed to benefit at-risk students and those with mild or severe learning disabilities more than the mainstream student population.

In a study of an ESL context, Brown (2012) examined two English teachers at secondary schools to reveal effective and responsive strategies in catering to the diverse cultural and linguistic needs of their students. Through a qualitative study, Brown collected research data from three types of sources: a) interviewing two ESL

teachers, their students, the school principal, and education authorities in the state of North Carolina, United States; b) conducting classroom observation on both teachers during their instructional time, and; c) reviewing document analysis of student work samples and documents by education authorities at the state, district, and school levels. The data were used by the researcher to look for emergent themes to inform her about the characteristics of culturally responsive practices in ESL classrooms. The study discovered how these strategies were said to have a positive impact on the academic and social development of the diverse learners. From the study it was suggested that responsive teaching, which is a similar concept to differentiated instruction, results in better academic achievement for all learners of any classroom settings.

Wan's (2017) study of 69 in-service teachers from two schools in Hong Kong offers useful findings related to pre-service teachers' perspectives on differentiated instruction. Findings from a series of interviews indicated a higher preference for teacher-led activities in addressing students' individual needs, including cognitive-processing instruction, tiered task sheets, and questioning. Wan suggests that this keenness for teacher-centred strategies may be influenced by traditional Confucian teaching values where students are expected to be respectful listeners. At the same time, teachers' wish to use student-centred approaches was hindered by contextual factors, such as large class sizes and the lack of teacher professional development. The teachers claimed to feel uncomfortable with and were reluctant to use the student-centred approach in helping students learn; they also believed that measuring the effectiveness of the approach is challenging and its implementation likely to be time consuming when compared with conventional approaches. Nevertheless, Wan noted a generally positive attitude towards the use of differentiated strategies. Despite complaining about the challenges to move towards student-centred classroom, they were aware that differentiated strategies might have benefited the students more.

In response to these findings (the dilemma between wanting to do something but not being motivated enough to carry it out), Wan puts forward several suggestions for supporting teachers through: a) reformulation of curriculum management, restructuring of timetable and reallocation of resources and manpower, b) ample opportunities for embedded professional development, namely collaborative lesson

planning where teachers get to construct knowledge, collaborate and share differentiated teaching practice with one another in their professional learning community, and c) curriculum modifications to develop teachers' capacities in addressing students' learning needs.

II. Empirical studies of Differentiated Instruction

Empirical studies have been of great value in influencing the decisions I made in the study regarding the selection of research variables, methodology, and analysis. These studies involved mostly participants from primary/elementary and secondary/high schools and some tertiary-level classrooms that have demonstrated mixed findings of differentiated instruction, from significant impact to no statistically significant achievement gains.

At the primary education level, Reis, McCoach, Little, Muller, and Kaniskan (2011), conducted an experimental study to investigate the effects of a differentiated reading programme called schoolwide enrichment model-reading (SEM-R). The study revealed positive effects on students' oral reading fluency and comprehension. The participants were 63 teachers and 1,192 second to fifth grade students across five elementary schools in the United States were randomly assigned to form treatment and control groups during a five-month intervention programme. Significant differences in favour of the SEM-R were found in 1) reading fluency in two schools as reflected by Cohen's $d=.33$ and $.10$ and in 2) reading comprehension in one of the school with Cohen's $d=.27$. However, no achievement differences in the remaining schools were found. The results suggest that an enrichment reading approach with differentiated instruction that promoted a lower degree of whole group instruction was more effective than or as effective as a traditional whole group approach.

Tieso (2005), through a quasi-experimental design, collaborated with elementary school (grade four or five) teachers in the United States to examine the effects of ability grouping (whole-, between-, and within-class) and curricular practices (textbook, revised, and differentiated) on their students' achievement in mathematics. Tieso defines whole-class instruction as a method characterised by the utilization of a

traditional, text-book dominated teaching method, the teacher moving through the curriculum at the same pace using the same methods and materials and instruction for the entire class at the same time. Within-class or flexible grouping referred to the grouping of students within the same class into smaller groups for specific activities and purposes; the teacher presents a lesson to the whole class and in turn places students into small groups based on demonstrated performance, interests, levels of prior knowledge, and others. Through a pre- and post-test on 645 students, the study suggested that the combination of differentiated instruction and flexible groupings over whole-class instruction made a positive impact on students' achievement in Mathematics.

Tieso's finding was similar to Slavin's (1988), who records moderate effect sizes ($ES=.41$) for flexible groupings while Kulik (1992) notes small effect sizes ($ES=.25$). Kulik, while noting higher overall achievement levels with flexible grouping arrangements, also argues that the subject matter used in the grouping did not appear to impact the resulting effect sizes. Baumgartner, Lipowski, and Rush (2003) also report positive findings while experimenting with flexible grouping along with an adjustment to learning by offering students a choice of various tasks and reading materials, and increasing self-selected reading time. Their study was to investigate the effect of differentiation on students' reading skills. As a result of differentiation, they also recorded improvements in the students' reading levels and mastery of phonemic and decoding skills, a more positive attitude towards reading and the students also indicated a more frequent use of comprehension strategies.

In another impressive study at 13 elementary schools (grade four) in Cyprus, Valiandes (2015) conducted a quasi-experimental study with 24 teachers and 479 students from 24 classrooms. The study examined the implementation and effect of differentiated instruction for all students and evaluated its potential to result in learning equality and thus improve the quality of the learning process. The study was conducted by comparing the effect between classes where differentiation was systematically employed against the classes that were not. The students in the differentiated classes were found to be making better progress. The study's quantitative data suggested a statistically significant difference between achievement by students who were exposed to differentiated instruction and those who were not,

with a small effect size of $d=.34$ for the literacy test and $d=.31$ for the comprehension test. Another important finding of Valiandes' study is the confirmation of learning outcome maximization by using differentiated instruction. Despite the students' socioeconomic status (SES) which displayed a correlation with their academic performance, no effect of SES on students' progress was found. Valiandes further suggests that differentiation can be used to provide equal learning opportunities for all students across all socioeconomic groups, a finding that was not evidenced in the control group. Over the course of the year-long intervention programme, differentiated instruction managed to bridge the achievement gap between low achievers and high achievers in the experimental group as opposed to the control group where the achievement gap was reported to widen.

Karadag & Yasar (2010) conducted a 15-week differentiated programme on a Turkish language course for 30 elementary school students to determine its effects on their attitudes. Data were collected through a pre- and post-test in the form of an attitude scale, complemented by semi-structured student interviews. The quantitative analysis suggested significant post-test mean as opposed to the pre-test and the interview analysis revealed that the differentiated lessons had a positive effect on the students' attitudes. Tieso (2001) also reports a more positive attitude in learning by students in a qualitative study of a three-week enhanced curriculum unit in Mathematics. The students were also found to display a higher level of engagement and motivation.

Meanwhile, in a longitudinal study of differentiated instruction, Lewis and Batts (2005) found that after elementary teachers in North Carolina, United States integrated differentiated instruction in their lessons for five years, 94.8% of their students excelled, being classified in the proficient range of the state-mandated end-of-year tests as compared to only a 79% proficiency rate when they relied on undifferentiated approaches to instruction. Similarly, Frey and Fisher (2013) report that after four years of differentiated instruction the average student in their high school (secondary school) in California, United States read at an 8.2 grade level as opposed to only a 5.9 grade level when not using differentiated instruction.

Studies at higher learning institutions revealed mostly positive findings with some negative findings from a single study. Lightweis (2013), in reviewing existing

empirical evidence of differentiated classrooms, presents a discussion on the theory, implications, and use of differentiated learning in higher education. The implementation of the differentiated strategy by instructors in higher education was mainly inspired by the success of the instruction when conducted in grades K-12 in America. Lightweis concluded that differentiated instruction at the higher education level encouraged individual student growth and resulted in positive student achievement, study habits, social interaction, co-operation, attitudes towards school, self-worth, motivation, and engagement. Lightweis also claims that even though there have been promising results in K-12 and higher education studies using differentiated instruction, empirical research in tertiary contexts is still sparse.

Another study at a tertiary institution is by Chamberlin & Powers (2010) who conducted a quasi-experimental pre-test and post-test control-group mixed methods study in an undergraduate mathematics course involving students in their freshman year from two universities in the United States. The study employed a pre-test and post-test control-group research design, and drew on data from interviews and student work using differentiated instruction. Both control and treatment group participants answered the same tests and quizzes (post-tests). The quantitative results from the study revealed that the experimental group scored higher in the post-tests than the control group, suggesting the effectiveness of differentiated instruction over regular whole class instruction. The positive effect was further corroborated by the qualitative results from the experimental group that suggested that differentiated instruction supported student learning.

Butler & Lowe (2010) investigated the effect of using differentiated instruction in Mathematics education for pre-service teachers who enrolled in a Concepts of Math for Teacher course which was open to students with a plan to major in elementary education. The study assigned 39 research participants into two groups: treatment group (n=20) and control group (n=19). All the participants were given a pre-test before the course ensued and participants in both groups were assessed on two post-tests including their final examination to measure learning gains between the treatment and control groups. They were also surveyed before and after the intervention period. Although the surveys showed that some students felt negatively about the differentiated lessons, students in the experimental group who received

differentiated instruction still outperformed students in the control group in the final exam. One of the study's finding that guided my own study was the report that some students were unhappy when they were treated differently according to their ability; in the study, some of the students who received differentiation were grouped based on their notional ability and preparedness in learning the content. Being undergraduates, some of them quickly noted the criterion used by the instructor to group them and these students felt hurt for being judged based on their ability. Therefore, I decided to group students in my study according to their learning style preferences and not their notional ability.

Alavinia & Sadeghi's (2013) experimental study investigated the effect of task-based differentiated instruction on 47 (n=24 in the treatment group and n=23 in the control group) freshman-year students' English proficiency gains in Iran who learnt the language as a foreign language. The study was conducted throughout the spring semester in 2012 although the researchers did not specify the exact contact hours with the participants. Through convenience sampling, the participants were rearranged to be in distinct groups based on their learning styles. The study reported no significant proficiency differences resulting from differentiated task-based instruction between the experimental and control groups. However, the study identified a) some degree of gain in the experimental groups between the pre-test and the post-test, albeit not statistically significant and b) lower mean scores on the post-test among participants in the traditional instruction control group. The researchers concluded that the experiment did not yield any statistically significant result on the treatment group as the class size was large; they quoted Arnold and Brown (1999) who believe that learning styles research is most successful in small group situations where individual attention can more easily be given to the learners by their instructor. Furthermore, compared to other longitudinal studies (e.g. Baumgartner et al., 2003; Reis et al. 2011) that lasted several years and reported positive results, the duration of Alavania and Sadeghi's study was not particularly long.

III. Malaysian Studies of Differentiated Instruction

As mentioned in section 1.1, to date only three studies have been conducted in the Malaysian context that involved classroom intervention between 2011 and 2015.

Hamidah et al. (2011) investigated the effects of a differentiated English writing course “Crafting the Essay” on 15 gifted learners’ writing skills. This case study involved interviewing instructors and teaching assistants of an English classroom that was comprised of 13-year-olds as well as classroom observation and document analysis of the students’ essays. The researchers conclude that, despite the challenges revealed by the instructors when differentiating lessons, the differentiated lessons had managed to improve students’ writing skills with varying degrees of success and their creative thinking skills and the study presents a basis for more experimentation with differentiated lessons in the country. However, the findings of the study were limited to the instructors’ beliefs about the effectiveness of teaching differentiation as opposed to featuring measurements of learning gains as a result of differentiation.

Najibah et al. (2014) investigated the effects of a differentiated learning method on students’ motivation in learning Arabic as a foreign language in Malaysia. The study recruited 100 Fourth form students attending a secondary religious school and featured an experimental and control group. The experimental group was taught with a differentiated learning programme, whereas the control group was taught with the traditional teacher-centred approach. Changes in the research variable were measured through score gains in the post-test and a comparison group design was used to determine if there were significant differences between the experimental and control groups. The researchers claim that the statistical results indicated a significant change in the post-test in the case of the experimental group ($M=155.740$, $SD=12.663$) and the control group ($M=145.280$, $SD=14.405$); $t(3.856)$; $p<.05$), suggesting the success of the differentiated programme. The experimental group was also found to be more motivated than the control group and based on the evidence the researchers suggest that differentiation was an effective approach to improve students’ motivation in studying Arabic as a foreign language in Malaysia. Nevertheless, the study was not explicit at describing how the differentiated lessons were validated by content experts which made it difficult for readers to decide if the intervention had been successful. Moreover, the study made no attempt at explaining the difficulties encountered by the instructors when executing the differentiated lessons.

Mohd Hasrul et al. (2015) explored the effects of differentiation at PERMATApintar, the school for gifted learners in Malaysia, on the English language learning of the

students from their teachers' perspectives. Three English teachers participated in the qualitative study with an aim to explore the teachers' experience in developing differentiated lessons for the gifted and talented students. Several important findings emerged from the teacher interviews and these have influenced the designs and decisions made in my own study. The participants agreed that differentiated lessons had given rise to a student-centred classroom with plenty of opportunities for active involvement. By attending to the students' needs while planning the lessons and while executing them in the classroom, the teachers claimed students became more engaged and more interested. This reported outcome is in line with the MoE's demand for teachers to develop lessons that would enable students to become actively involved and communicate their ideas. Despite receiving several training sessions on differentiation, the teachers admitted finding it challenging to prepare and implement differentiated lessons due to a lack of guidelines by the education authority and time constraints. Similar to teachers at regular schools, the teachers at the school for gifted learners were also expected to keep up with administrative tasks in addition to teaching. The teachers stated that they needed training in implementing differentiation but they also believed that they were lacking ready-made resources which could make implementing differentiation easier. One of the teachers explained that “. . . preparation for teaching would be easier if we could choose from existing materials, or tasks” and another spoke of the need for a “*template to differentiate*” to mean a pattern in the form of a lesson plan that can be adjusted to produce their other lesson plans without having to produce one from scratch. When the researchers probed further, the teacher explained that she preferred to have a step-by-step guide to produce differentiated lessons. The teachers also claimed that a great amount of time would be saved by having enough resources on differentiating lessons as the time spent brainstorming activities and developing materials for these activities could have been used to work on another lesson plan.

However, a surprising finding was that the English language performance of the gifted and talented students was not as high as expected even though differentiated ESL lessons were provided. The teachers claimed that only a few performed well in the examination while the rest delivered only average performances—albeit that what was considered good or average performance was not clearly defined in the study. The researchers also claim that the challenges as depicted by the teachers might be

due to a lack of established differentiated techniques provided by the Malaysian education authority and time was limited for the teachers to produce appropriate differentiated lessons; having to cope with these constraints might have meant that some of the lessons were not differentiated sufficiently or the activities not appropriately challenging for the learners.

From some of these studies, *time* was considered one of the biggest constraints that left teachers struggling to differentiate lessons which could demotivate them in the long run. Some teacher-participants suggested the need for a module that would facilitate them to differentiate as it was felt that this would make the preparation for differentiated lessons less time consuming. Reference books on how to differentiate, even though are in abundance on the market, are not designed to align with Malaysian curriculum requirements. Thus, requiring Malaysian teachers to rely on these books in order to create their own differentiated lessons is a counter-productive strategy if they have not received ample training. Even when equipped with some training, the increasing workload (including administrative duties) as depicted in some of the studies may reduce these teachers' time to design a differentiated module effectively on their own. The studies reviewed have mostly described positive effects of differentiated instruction on the following variables among others: student achievement, learning motivation, study habits, social interaction, learning attitude, writing and reading skills, and creative thinking. Inspired by these insights, I was keen to propose a project that would enable a teacher to save time by designing a differentiated teaching module and implement it in his classroom to investigate if differentiated instruction would bring about improvements in students' language attitude and critical thinking. These two dependent variables were chosen as they have not been widely studied following a differentiated programme in non-Malaysian contexts and to date have not been examined in Malaysia at all.

2.3 LANGUAGE ATTITUDE

The following section describes the importance of language attitude in learning English as a second or foreign language with support from studies that investigated it as a research variable.

2.3.1 Defining Language Attitude

Attitude is a manifestation of favourable emotions and feelings towards something (Brown, 2001) and thus, attitude in language learning signifies a learner's degree of favourability of a target language, the community of native speakers who speak the language, and their culture (Santana et al., 2017). Adhering to the classifications by Dittmar (1976) and Lambert (1967), attitudes towards language learning comprises three components: cognitive, behavioural (conative), and affective and are discussed as such. The cognitive component involves a learner's beliefs about the knowledge he/she receives and personal understanding when learning a language. It can be classified into four steps: connecting previous knowledge with new knowledge, creating new knowledge, checking new knowledge, and applying new knowledge in other situations (Mohamad Jafre et al., 2012). The behavioural aspect deals with the way a person behaves and reacts in a particular language learning situation. Successful language learners are usually able to acquire or adopt various language behaviours which characterise the members of the target language community (native speakers). Meanwhile, the affective aspect refers to a learner's ability to express his/her likes and dislikes towards a language situation or learning material. As indicated in 1.5, language attitude by the research participants in this study were measured according to these three components.

Several key factors influence the learning of a second or foreign language and help to shape the overall learning experience that include motivation, attitudes, anxiety, learning achievements, aptitudes, intelligence, age, and personalities (Lehmann, 2006, Shams, 2008). However, studies have shown that it is attitude that has an impact on some of these variables. For example, attitude is shown to have enhanced learning by fuelling motivation (Holmes, 2008; Gardner & Lambert, 1972; Shamsiah et al., 2009; Spolsky, 1989). When learners feel positive towards the native speakers and their community, they will be more motivated to learn and as a consequence are often more successful in learning than those with negative attitudes (Holmes, 2008; Samsiah et al., 2009; Thang et al., 2011). Attitudes also have a direct impact on the language learning process. Students with negative language attitudes will lose interest in learning and consequently this interferes with the learning process by preventing students from obtaining new knowledge and skills of a foreign language (Littlewood,

1983). Negative attitudes were also suggested to result in higher anxiety (Ratnawati and Ismail, 2003) and low cognitive achievement in the classroom.

2.3.2 Past Studies of English Language Attitude in an ESL or EFL Context

There have been a number of studies in various ESL and EFL contexts deploying attitudinal questionnaires to investigate learners' language attitudes. From these studies English seems to be viewed generally positively by ESL and EFL learners (Atef & Munir, 2009; Liu, 2007; Meenaz, 2008; Salem & Khalaf, 2017; Santana et al., 2017; Shahrzad, 2016), albeit with several studies documenting negative findings (e.g. Asmah, 1992; Lee, 2003; Ismail et al., 2014; Jafre et al., 2012; Ratnawati, 2005). However, a similar pattern that is apparent yet baffling from most of these studies is having positive perception (cognitive component) and high enthusiasm (affective component) in learning English does not necessarily translate into actions to improve the learners' own proficiency (behavioural component).

In the Malaysian context, Siti and Melor (2014) found that although their survey of 40 young children aged 10 to 12 years suggests these students were highly motivated and with positive attitudes towards English, they were not keen on making efforts to improve their language proficiency. Their data were collected through a survey questionnaire adapted from Gardner's (1985) Attitude and Motivation Test Battery (AMTB) that was translated into the Malay language. In the later part, the respondents were also interviewed to find out further about the students' motivation in learning English. Their findings suggest that efforts to learn and improve English were confined to the classroom and no significant efforts were made at home to be exposed to English input either in the form of reading or auditory stimuli. In relation to this, Thang et al. (2011) through a quantitative study that employed a questionnaire survey found that ironically it was the proficient students among their research participants who exerted more efforts to improve their English than the weak learners. The study involved 143 male students from a secondary boys' school with varying levels of proficiency. Similar to Siti and Melor (2014) the respondents in the study were asked to answer a survey questionnaire adapted from Gardner's AMTB that was translated into bahasa Malaysia to investigate the students' attitudes and motivation. Data from the questionnaires were tabulated and analysed by ranking the mean

scores, one-way analysis of variance (ANOVA) and correlation coefficient. The researchers found a similar pattern in that the participants' attitude was highest in the cognitive component, followed by the affective and finally behavioural.

In an EFL context in Libya, Mohamad-Jafre, Majid, and Hanan (2012) conducted a quantitative study involving analyses of descriptive and inferential statistics. The instrument employed was an attitude questionnaire with some items adapted from Boonrangsari et al. (2004), some items from Gardner's (1985) AMTB, and some self-developed items based on the researchers' teaching experience. The participants were comprised of 180 students who were randomly recruited from several secondary schools. As boys and girls are educated separately at the secondary level in Libyan schools, different schools were chosen to represent both sexes to investigate their attitudes towards learning the English language. In total, 58 students were in the first form, 68 students in the second form, and 54 students in the third form and they were from three fields of study: Basic Sciences, Life Sciences, and Social Sciences. Even though the study reported a negative display of attitudes among the participants, the researchers found that out of the three components (i.e. cognitive, affective, and behavioural), the behavioural component was still with the lowest mean.

Reviews of past studies also revealed that several factors such as gender, study specialization, parental support, perceived language relevance to the learner, and classroom pedagogical strategies have some effects on language attitudes. Across several studies in Asia, female ESL or EFL learners' attitudes were found to be more positive than their male counterparts' (e.g. Meenaz, 2008; Mohamad-Jafre, Majid, and Hanan, 2012; Shahrzad, 2016). In a comparative study between 30 EFL male and female undergraduates in Iran, Shahrzad found that the female participants showed higher mean scores of the affective and cognitive components, although their behavioural attitude was slightly lower than the male participants. In a study to investigate students' attitudes, motivation, and anxiety in learning English as a second language in a multilingual context in Pakistan, Meenaz (2008) also reports that out of the 77 student-participants from a private secondary, the female students displayed a slightly higher degree of positive attitude. All the participants, however, were found to display positive attitudes and were enthusiastic in learning English. Mohamad-Jafre, Majid, and Hanan (2012) record a similar finding with 180 secondary school

student-participants in Libya. Even though they were found to have negative attitudes towards English as evidenced by their low mean scores across the three attitudinal components (affective, behavioural, and cognitive), the female students in the study displayed slightly higher mean scores of attitudes than the male students.

Scholars have also suggested that students' study specialization has an influence on their language attitude. Science-stream students were found to favour English better than their counterparts. Thang et al. (2011) in comparing students from the Science and Art classes noted a more positive attitude by the Science students than Art students. The participants' attitudes towards English were generally positive although they admitted that English is difficult and they would rather learn a different language, they did not consider learning it a waste of time and they even intended to improve their English when they left school. Similarly, working with Science Stream Malaysian students at four secondary schools to examine their readiness to learn Mathematics in English, Racha (2003) reports that even though the students found English challenging, the majority of them became highly motivated and their attitudes became increasingly positive to learn the subject. Mohamad-Jafre, Majid, and Hanan (2012), when exploring the correlation between students' field of study, among other variables, and their language attitude, found that the Social Science students displayed the highest mean score of attitudes towards English, followed by the Life Science students, and finally the Basic Science students.

In terms of correlation between language attitude and motivation with English proficiency, Liu (2007) notes some positive attitudes among all 202 participants from non-English majors in a Chinese university. Liu also notes that the more favourable the participants' language attitude was, the higher their proficiency would be as indicated by their scores in a proficiency test. Samsiah et al. (2009) investigated the relationship between three variables, i.e. students' motivation, attitude, and English language achievement at a local Malaysian university. The mean scores analysis of motivation and achievement revealed a higher value of extrinsic than intrinsic motivation in learning English but the relationship between the three variables was weak, implying that extrinsic and intrinsic motivations do not directly influence students' English achievement. However, students' attitudes towards learning English were found to have influenced their language achievement.

A study by Nair et al. (2014) suggests that parental support positively correlates with students' language attitude. All 150 participants were upper six students (aged 19) from the east coast of Malaysia with low socioeconomic status (SES) but with varying levels of English proficiency. However, the study reported that regardless of the participants' level of proficiency, they displayed a positive attitude towards learning English language. Although the parents were neither financially well-endowed nor highly educated, the study reported a high awareness of the importance of the English language as manifested by their constant encouragement and support of the English language learning by their children which in turn influenced their children's positive attitude. The finding suggests that parental support plays a more influential role than students' proficiency and the SES in shaping learners' English language attitude.

Studies have also suggested that language attitudes may change favourably when ESL and EFL learners realise the importance of and need for English in their everyday life. Nair et al. (2014) suggests a finding that is in accordance with Thang et al.'s (2011) results as they claim that students had positive attitudes towards the learning of the English language when they were able to sense the usefulness of the language in their school curricula. The realization of this importance boosts attitudes and this in turn spurs the desire to learn the language. Another Malaysian study by Choy & Troudi (2006) looked at the transition years after Malay-medium secondary school, as students entered the early phase of English-medium tertiary education, echo the above findings. They investigated 100 college students' language attitude changes who were Certificate and Diploma students in their first year enrolled for 2-year courses in business studies and computer science. The participants took a fundamental English course in their first semester at the college and data were collected through qualitative measures, i.e. weekly journal entries and interviews. The participants were asked to write on guided topics over a ten-week period for their journals and a total of six students were selected from this sample to be interviewed. The results suggest a change in their attitudes as the participants seemed to be more positive when learning English at tertiary education as they perceived the college social and classroom environment to be more conducive for learning English.

Learners' language attitude is also highly influenced by the teacher's pedagogical strategies in the classroom. Salem and Khalaf (2017) studied a random sample of 144 ninth-grade Jordanian students from public and private schools through a questionnaire survey and semi-structured interview to explore factors influencing students' attitudes in learning English as a foreign language. The findings suggest that methods of teaching, the physical environment and the educational setting of schools were the main factors that affected students' attitudes towards learning. The students claimed that having been provided with opportunities to collaborate with other students and exchange ideas during classroom activities positively affected their attitudes in learning. The study also suggests that the overall mean of attitudes of public and private schools' students towards learning in EFL is positive; however, the results indicated that students of private schools have more positive attitudes towards learning EFL than students of public schools. Although the class size was not explicitly mentioned, it is safe to assume that the number of students per class is lower in private schools than public schools. With a smaller group of students to manage, the teachers may have more time to focus on the students and regularly experiment with new teaching strategies on their students.

A more recent Malaysian study by Ismail, Hazlina, and Muhammad Faizal (2014) was also in line with the above findings. The participants who were language teachers from a public university initially observed negative attitudes towards English by their students who enrolled on a programme at the university. The claim was made after studying the students' behavioural displays, e.g. learning habits, participation in class, language learning interest, and learning expectation in class. The students came from religious stream secondary schools and admitted to having found little use for English except to pass the national examination. However, there appeared to be a shift of attitude as they spent weeks learning the language intensively – the medium of instruction at the University is English and thus, students had no choice but to use the language frequently. However, the students were noted to view the importance of English only in terms of instrumental reasons (e.g. for a job and for passing examinations), rather than for other more integrative reasons. The study also claimed that with the right teaching methods, learners who were initially negative towards English managed to slowly improve. The researchers documented, as gathered from their teacher-interviewees, a shift in learners' attitudes a few weeks into the semester;

the students appeared to be more motivated and their attitude had become more positive, suggesting that negative attitudes towards English can be changed by means of the teaching approach and also through meaningful learning and purpose – as the medium of instruction is English at the university the students spent more time being exposed to it. The researchers also suggest that identifying the most suitable methods to manage students with negative attitudes is worthwhile (although it might be time-consuming) because the methods may also be applicable to students with negative attitudes from other settings.

Similar to Malaysian studies, scholars from other ESL or EFL countries have also found that their English learners were extrinsically motivated to learn English. Their attitude was frequently driven instrumentally (e.g. to communicate when travelling) as reported by Liu (2007), for academic purposes (Atef and Munir, 2009), or for career development (Meenaz, 2008). The findings of a study by Atef and Munir (2009) on 81 Engineering students' motivation and attitudes towards learning English revealed that they had positive attitudes towards the use of English in the Yemeni social and educational contexts. The majority of the participants viewed English's social value and educational status positively and they also showed positive attitudes towards cultural aspects associated with English due to influence of English films. However, their findings indicated that the participants learned the language mostly for instrumental reasons, especially for academic purposes (behavioural), not for personal reasons (affective).

Several Malaysian studies that document negative language attitudes towards English offer some useful pointers on how to improve pedagogical methods. Choy and Troudi's (2006) interpretive analysis has revealed important insights as to why English was viewed unfavourably by the student-participants during their secondary education. They note six negative themes and one positive theme that explained the participants' attitudes. Compiled from the student-participants, the reasons that contributed towards negative attitudes were (arranged from most to the least responses): 1) high dependence on teachers when learning English, 2) perception about English being a difficult language to learn, 3) refusal for speaking the language, 4) feeling of being forced to learn English as it was a mandatory subject at school, 5) anxiety over the use of the language for fear of committing errors, and 6) little or no

opportunities to use English as a medium for communication outside the classroom. However, one theme explained the reason why they still paid attention to English lessons, i.e. because English is recognised as an international language. Out of the 100 participants, 98% admitted to being dependent on their teachers in various aspects of classroom routine, from receiving instructions up to being given appropriate strategies to learn English. The students were noted to perceive their teachers as authorities in the language and due to this, they would seldom attempt to learn the language on their own.

Ismail, Hazlina, and Muhammad Faizal (2014) present a different contribution to the literature on language attitudes by investigating it from the point of view of teachers. The researchers claim that most studies on language attitude in the country were done quantitatively. Therefore, in their study, three English language teachers serving an Islamic-based public university in Malaysia with an average of twelve years of teaching experience were interviewed in-depth. The teachers were chosen as they dealt with a group of students from an Islamic background: earlier findings by Ratnawati (2005) and Asmah (1992) suggest students from Islamic settings were found to have lower English proficiency as compared to their counterparts from non-Islamic settings. The reasons for negative attitudes towards the English language according to the participants stemmed from three issues: 1) inherent linguistic challenges as the students claimed that English is a difficult language to master, 2) limited use of the language as they were in the religious line where Arabic is dominant and English is of little use, and 3) an irrational fear that learning English would make them less patriotic to the country and to the national language and would make them to become less religious. Interestingly, the same argument was noted by Asmah (1992) and two decades after, as noted by Ismail et al. (2014), the same reasons persist, albeit not as strong.

The first issue of struggling with the linguistic challenges of English resulted in a low level of confidence and inferiority among the students when making mistakes, leading them to revert to their first language when learning English. The students were noted to display a great degree of over-reliance on the teachers to improve their language skills and at times seemed to be lacking the drive to improve even with the teacher's assistance. Even as adults learning at the tertiary level, autonomy is still an elusive

concept among some Malaysian learners. The teacher-participants in the study suggest the need for English instructors in the country to take the students' socioeconomic backgrounds into account when planning English lessons as those with low income household have limited exposure to English.

The second issue of limited use of English outside the classroom study highlights the immense difference between students from religious and non-religious school backgrounds. The former population was noted to have lower motivation and proficiency and to seem less excited about learning the English language. This was due to the relevance of the L2 in their context, and also because of the poor English language proficiency as suggested by all the informants.

The third and the most disturbing issue is the fear that can be traced back to the colonial times but apparently remains today in the case of some learners. Before independence, two types of English-speaking schools were established in Malaya: the government school and missionary schools. As missionary schools were run by evangelists, the schools were seen as vehicles of Christian indoctrination. Learning English was thus equated to embracing Christianity and this drove the Malays, who were Muslims, away. The same fear has evidently not altogether lost its grip in present day Malaysia in spite of the fact that English is currently used for international communication, business, technology as well as the information technology. The study also revealed that the non-acceptance of the English language might have stemmed from negative ideas imposed by non-English language teachers who discouraged students from learning English wholeheartedly as the remaining subjects at schools are taught in the national language.

The fear of English leading to a diluting of nationalistic and religious zeal is similar to Asmah's (1992) finding that learning an additional language will turn the learner into a different person. It is a common perception that after acquiring a new language a person is no longer the same individual that he or she was prior to acquiring the language. The situation can either be perceived positively or negatively. When perceived positively, the person is considered to be culturally enriched besides all the other advantages of knowing a new language; but when perceived negatively, the person is deemed to have forgotten his or her roots. Asmah notes that the notion

primarily influences Malay Muslims even though the attitude exists across ethnic groups in Malaysia. Her claims are supported by findings from Lee Su Kim (2003) who found that her bilingual or trilingual participants of Chinese and Malay descent to possess a wide range of identities; due to these multiple identities, participants would switch identity according to the context and reference groups to fit in and to fulfil the identity expectations by the reference groups. Lee's study also documented the experiences of marginalization by the Chinese participants as they could not speak Mandarin fluently and as they appeared to be "too westernized".

2.4 CRITICAL THINKING

The following section describes the importance of investigating critical thinking as a research variable in the ESL and EFL setting with discussion of some insightful findings from past studies.

2.4.1 Defining Critical Thinking

Critical thinking is considered a mental and rational activity that involves processes such as remembering, understanding, applying, analyzing, evaluating, creating (Hernandez & Rodriguez, 2016; Paul, Elder & Bartell, 1997) and reasoning which leads to important dialogues with oneself (Cederblom & Paulsen, 2006). Scholars in the field of critical thinking believe it to be a skill that needs to be nurtured to be fully developed and it is closely associated with the development of a person's learning autonomy (Mulnix, 2012). Many scholars believe that the ability to think critically can be made possible by training students to respond to information that is gathered from observation or generated by experience and communication (Facione, 2007; Paul, Elder & Bartell, 1997). Facione (2007) also believes that the ability is useful in everyday activities as achieving it will transform a person from being a passive individual who accepts and believes every single piece of information that they receive to being a meticulous thinker who approaches problems and issues in life objectively. Despite the usefulness of critical thinking in our daily lives, Walker (2003) claims that not everybody uses critical thinking when solving problems and she suggests that there is a threshold of self-awareness and other qualities to enable a person to execute the processes involved when thinking critically and thus, Walker

defines critical thinking as a purposeful act which involves a systematic and habitual imposition of criteria and an intellectual standard when thinking.

2.4.2 Past Studies of Critical Thinking in an ESL and EFL Context

The concern about the low levels of critical thinking is not a novel issue in Malaysia. Employers have been reported to lament newly hired graduate workers' critical abilities (Rosyati & Rosna, 2008), while at the school level, researchers have also reported low levels of critical thinking among students. For instance, Kiong et al. (2012) tested 384 secondary school students throughout Malaysia with the SEA test (X-form) developed by a team of specialists in educational measurement and evaluation, namely Callahan, Covert, Aylesworth and Vanco (1988). The test was translated into the Malay language and some items were adjusted to accommodate the local culture. The researchers found that all three higher order thinking skill levels based on the cognitive domain of Bloom's Taxonomy were very low (analysis = 27.34%, synthesis = 28.64% and evaluation = 30.31%). The data displayed a higher reading for "evaluation" than "analysis" and "synthesis", suggesting that students were exposed to more evaluation questioning during homework and examinations in primary school.

Another study conducted at a large scale by Aida Suraya et al. (2005) to determine the critical thinking ability and skills of undergraduates in seven public universities in Malaysia reported that the critical thinking ability of the undergraduates was between a low and moderate level. Meanwhile, a study by Rosyati & Rosna (2008) revealed that Malaysian undergraduates displayed a lower critical thinking capacity which was lower than American Senior High School students. The 280 undergraduate student-participants were tested with the Malay language version of the Cornell Critical Thinking Test (CCTT) Level X to examine their critical thinking ability and its relationship to language proficiency. The findings were in line with a previous study by Shaharom (2004) who used the same instrument (CCTT) to measure 112 Malaysian undergraduates' critical thinking ability. Shaharom found that the undergraduates had a much lower level of critical thinking ability ($M=41.80$, $SD=5.25$) when compared to their American counterparts.

The problem is unsurprising as scholars have suggested that Malaysian students are continuously pressured to excel as a result of the examination-based education system (Shakir, 2009). The teaching and learning methods at most schools overemphasize good examination results and consequently teachers were found to adopt rote learning and spoon-feeding as strategies to prepare students for tests and examinations (Shakir, 2009; Tengku, 2012) more than they spend time to train students with generic skills. In striving to reach the desired level of attainment, they neglect the development of soft skills, such as critical thinking, as most of their time is spent on tuition classes, exam preparatory classes, and examination workshops (Shakir, 2009). Students are therefore conditioned to memorise facts and regurgitate them in examinations. These have influenced their attitude and learning styles by maintaining the traditional studying patterns even at the university level (Chan & Mousley, 2005).

Studies have also shown that teaching strategies have a direct impact on students' critical thinking. For instance, Espeland & Shanta (2001) report that when university professors select lecture formats as their main teaching method it eliminates the possibility for students to decide on their own which information is important to know, suggesting a case of high dependency on the instructors. Paul and Elder (2001), on the other hand, claim that when lecturing professors present a body of knowledge in a sequence of lectures they were encouraging students to internalize the knowledge outside the lectures on their own. Unfortunately, Walker (2003) suggests not all students are equipped with the thinking skills to analyse and synthesize information without practice and consequently, they require explicit training on it. Realising that creating knowledgeable workers is key to staying competitive in a global market, the Malaysian government have demanded that generic skills such as critical thinking be embedded in the syllabus of teacher education programme at universities since 2006 (Tengku, 2012).

Scholars have reported mixed findings on whether critical thinking is teachable. Advocates of promoting critical thinking skills in the classroom have claimed its possibility to cultivate thinking excellence (e.g. Hernandez & Rodriguez, 2016; Walker, 2003; Wang & Zheng, 2016), whereas opponents have found little success after students were trained in critical thinking (Bransford, 2000; Dunn, Halonen & Smith, 2009; van Gelder, 2005; Kuhn, 1991).

Wang and Zheng (2016) question whether critical thinking is a skill that can be successfully taught particularly in an EFL classroom. Their concern stemmed from their review on the difficult episodes faced by practitioners to turn theories into practice, although it is generally acknowledged that critical thinking would help to solve a great range of social and political problems. However, Saiz, Rivas, & Olivares (2015), for instance, argue that a number of experimental studies have reported an improvement in critical thinking through instruction tailored to assess EFL learners' competence in analysing and evaluating arguments. Some scholars have claimed that explicit teaching of critical thinking is necessary to encourage learners in analysing subject matter and arguments based on contextualization (e.g. Dunn, Halonen, & Smith, 2009; Emerson, 2013) while others (e.g. Yang, 2008; Heijltjes, Gog, & Paas, 2014) found that teaching critical thinking implicitly can also be successful.

On the contrary, Kuhn (1992) suggests that critical reasoning capability may elude a certain number of people as their capability is confined to only following or producing basic inferences and the claim is supported by Dunn, Halonen and Smith (2009) who suggest that there is a threshold to critical thinking ability. These scholars claim that even students who have the skills to think critically in general may not be always capable to use the skills regarding every issue while some may just be unmotivated to do so. Van Gelder (2005) argues that by nature humans are not inherently critical, suggesting that it is a skill to be acquired and even after successful acquisition of the skills, some humans struggle to master higher-order thinking skills. Van Gelder's claim can be further supported with a study by Bransford (2000) who compared critical thinking ability between a group of fifth graders and college students. The participants were found to propose similar solutions when asked to create a recovery plan to protect bald eagles from extinction, implying that the college students' critical thinking abilities were no more developed than the fifth graders.

Since there is no conclusive evidence to suggest that promoting critical thinking skills among students is bound to fail as evidenced by the mixed findings, scholars need to continue helping students to develop their critical thinking, which is particularly important in EFL classrooms. The following studies have indicated that critical thinking could be improved with some pedagogical intervention in ESL/EFL settings and have influenced me to believe there was a possibility that the intervention in my

study could change the student-participants' critical thinking. Hernandez and Rodriguez (2016) in their study suggest that having students' critical thinking improved would impact language learning by helping them to a) become better readers and critics b) improve their writing and speaking proficiency when expressing opinions and presenting arguments in a foreign language, and c) achieve communicative goals as they learn language meaningfully.

Jaya (2017) employed a quasi-experimental study of non-equivalent pre-test/post-test control group design to investigate the use of debate in an EFL classroom in Indonesia and found that the activity significantly improved the students' critical thinking and speaking skills. The findings indicated a significant mean difference between the experimental and control groups, suggesting that the intervention contributed to the success by the experimental group participants. In addition to improving critical thinking, debate activities as conducted in Jaya's study contributed to improvement of speech fluency, grammar, pronunciation, comprehension, and vocabulary.

Hernandez and Rodriguez (2016) document positive findings of an action research study on the effect of eleventh graders' critical thinking skills. Through the means of structured discussion about American urban legends in an EFL classroom, the participants displayed an improvement in their ability to evaluate, critique, and create while also honing their linguistic skills. Wang and Zheng (2016) concur with scholars who claim that critical thinking skills were teachable through an intervention programme in an EFL classroom by suggesting that their study had a positive impact on improving students' critical thinking skills. The intervention was in the form of a course design where students were exposed to content-based instruction that incorporated critical thinking skills. In the pre- and post-intervention stages, students were required to produce an essay on the same topic. The post-intervention essays by the students indicated an improvement as they were found to comprehend the structure of argumentation better by managing to corroborate their arguments and viewpoint. The researchers also noted that the students wrote more clearly and used more appropriate and sufficient explanation besides using convincing examples to support their points. Positive effects were also evidenced in the students' linguistic development as they were found to make fewer grammatical, syntactic, and

morphological errors. The literature on teaching critical thinking appears to favour the infusion teaching approach by integrating thinking skills into the subject matter so as to reinforce and retain learners' thinking skills (Willis, 1992). Thus, driven by this and other claims, I was determined to examine if critical thinking as the second dependent variable would improve with the introduction of a differentiated module, particularly since limited studies on teaching differentiation have looked into its effects on learners' critical thinking.

2.5 SUMMARY

In this chapter, past studies related to the three research variables are discussed, beginning with differentiated instruction, followed by language attitude, and finally critical thinking. Studies on differentiated instruction are mainly attitudinal with only a few reporting empirical evidence. The attitudinal studies are useful to pave the way for how best to differentiate and to highlight the key aspects that need to be taken into account when differentiating lessons. However, only through empirical evidence can we be certain that the said intervention is effective and to what extent. To date, studies that report empirical evidence were conducted in the United States and several other countries in the global north but not in the ESL or EFL context. The lack of such evidence establishes a research gap that calls for more studies to provide empirical evidence in such contexts. In Malaysia, of the few studies investigating differentiated instruction, only one employed a quasi-experimental design but this focused on learning of the Arabic language. This gap has thus motivated the use of a pre-test-post-test design that is further triangulated with a qualitative approach in my own study to investigate the effects of differentiated instruction on two less examined variables in other empirical and perception studies, namely language attitude and critical thinking.

Upon reviewing the literature on language attitude in ESL and EFL contexts, several studies posit a correlational effect of language attitude on successful language learning. Similarly, perception studies in the form of survey designs dominate the literature on language attitude in countries where English is an additional language such as the Western Asia countries (Iran, Jordan, and Yemen) as well as Libya, Pakistan, China, and also Malaysia. Some of the studies documented negative

language attitudes towards English. However, even for some that report positive language attitude towards English for the majority of the students, belief in the importance of English does not translate into efforts to improve language proficiency; students with positive attitude still had the lowest mean score in the behavioural component. Several studies have also reveal an interesting finding that students' negative attitude could be changed when the English language is taught in context which helped students to see and experience its importance, rather than simply being told that it is important. The critical thinking when reviewed as a research variable reveals an alarmingly low level of mastery among Malaysian learners. Some scholars blame the teaching and learning system in the country where students are perpetually conditioned to follow instructions, to memorise facts, and regurgitate them during tests and examinations. The practice is said to have led to high dependence of students on their teachers. Meanwhile, when reviewing past studies in an ESL or EFL context on whether critical thinking is teachable, scholars are found to have contrasting opinions. Some suggest that the ability to think critically may be beyond some people's reach while other scholars argue that it can be taught successfully. In light of the studies, I believe that critical thinking can be taught albeit with varying degrees of success. Although some students may display only a small degree of change, teachers need to try and inculcate the skill, nevertheless, in the spirit that each one of us is entitled to an opportunity to experience it even if it may not be as impactful.

Thus, my first aim was to investigate the level of the student-participants' attitude and if differentiated instruction with its liberating and respectful traits would serve as one of the ways to foster more positive attitudes towards, and interest in learning English. Besides, previous studies have suggested that differentiated lessons lead to meaningful learning and as such, the element of critical thinking is inculcated and my second aim was to investigate if the differentiated lessons would improve the student-participants' critical thinking. More importantly, driven by the numerous perception studies, the present study expects to be able to contribute a less frequent type of data – empirical evidence – to the existing literature of second language learning through a classroom research design. Details related to the research design and procedures are discussed in the next chapter.

CHAPTER 3

RESEARCH METHODOLOGY

3.1 STRUCTURE OF CHAPTER

This chapter comprises details of the research methodology beginning with a discussion of the research design (3.2), followed by a description of research aims and research hypotheses (3.3). The chapter continues with descriptions about the research procedures (3.4), research instruments (3.5), and research participants (3.6). At the end of the chapter, I present a detailed description about piloting the quantitative instruments (3.7) along with discussion of data analysis methods for both the quantitative and qualitative data of the study (3.8).

3.2 RESEARCH DESIGN

The study takes the form of ‘classroom research’ (Dörnyei, 2007: 176) and is concerned with teaching and learning in context to answer pedagogical-related questions (Dörnyei, 2007; Nunan, 1990). In the context of this study, the research site was an ESL (English as second language) classroom using a single group pre-test–intervention–post-test design. The following section describes the term ‘second language classroom research’ and provides the rationale for its selection.

3.2.1 Rationale for Choosing Classroom Research

Chaudron (1988: 13) identifies four traditions in second language classroom research to be adopted by researchers: (1) psychometric, (2) interaction analysis, (3) discourse analysis, and (4) ethnographic. Chaudron claims that the psychometric tradition involves comparison treatment groups and proficiency tests outcome measurement and it follows the standard educational psychometric procedures. The second tradition

is influenced by sociological investigations which result in the system that monitors a deduced classroom climate based on observations and classroom interaction analysis. Meanwhile, the third tradition originates from the linguistic perspective as it analyses classroom discourse to a great extent in line with the structural-functional linguistic terms. The fourth and final tradition - the ethnographic tradition – is developed according to the sociological and anthropological moulds to rely on participants' perspectives in interpreting their behaviours, rather than making conclusions based on the observer's interpretation. However, Chaudron claims that the four traditions are not mutually exclusive and one or more tradition can be adopted in tandem to varying degrees as they were further elaborated and modified by second language researchers.

This study was mostly psychometric; it was concerned with product outcomes by measuring the pre- and post-test score differences as it involved numerical measurement and statistical analysis and inference. However, it also involved the ethnographic paradigm, albeit to a minor degree, in the sense that the study attempted to investigate if Malaysian participants would have different level of acceptance and if findings related to differentiated classrooms, as reported by scholars from other parts of the world, were applicable to the Malaysian setting. By doing so, it evaluated the classroom intervention (i.e. the differentiated module) from the perspectives of a Malaysian educator and learners.

Influenced by mostly psychometric and a minor degree of ethnographic tradition, this study combined the quantitative and qualitative approaches, leading to the mixed methods design. The use of mixed methods has been urged by several methodologists (e.g. Allwright and Bailey, 1991:68; Dörnyei, 2007; Mackey and Gass, 2005: 186) to balance the possible limitations of the two research designs (quantitative and qualitative) when used independently. Mackey and Gass (2005) suggest that in order for second language classroom researchers to appreciate and gain a deeper understanding of second language learning complexity, studies must be carried out in different contexts and with a range of different approaches.

Language classrooms are designed to facilitate language learning, and thus, they become the platform for interesting social and cultural insights and a medium to document human behaviours. Particularly, in Malaysia where it is not a native

language, English is mostly learnt in a formal setting of language classroom and the classroom is the best place to obtain insights. My motivation to study a second language classroom was influenced by Nunan's (1990) argument that there is comparatively little research that has taken place in language classrooms despite the growing attention the second language acquisition field is receiving. Although Nunan's suggestion was made almost three decades ago, it is still highly relevant in Malaysia as argued by Malaysian experts in the area of English Language teaching (e.g. Normazidah, Khoo & Hazita, 2012). These researchers argue that more studies in actual classroom settings are needed in Malaysia to understand students' wants and needs and how best to incorporate these elements into the teaching and learning processes. In light of these suggestions, the central premise of this study was that differentiation in classroom instruction could bring about promising effects on students' learning, an idea that has some support in the literature but requires further empirical validation, particularly in the context of Malaysian learners.

The demand for evidence-based teaching practice at schools is not new. The Malaysian MoE, for instance, published the publication of a manual on how to execute action research in 2008, promoting the practice of a research project among Malaysian teachers (Educational Planning and Research Division, 2008). Although some scholars consider only research conducted by the teacher him/herself is 'action research proper' (Dörnyei, 2007: 191), more are becoming less restrictive by allowing the involvement of researchers; the freedom was introduced after realising that it is often unfair to expect teachers to be acquainted with the rigour of research. Teachers' core business after all remains mostly within the domain of pedagogy, and not research.

Burns (2005) explains that the teacher-researcher collaboration can take several forms, from the researcher owning the project and co-opting a participating teacher to real collaboration where researchers and teachers participate equally in the research agenda. I personally believe that having researchers collaborate with teachers is helpful and should be promoted extensively across the nation. Successfully executing lessons while accommodating diverse needs in a classroom in itself is challenging enough, let alone having to handle other administrative tasks and planning a research project independently. Thus, I aimed to contribute to the growth of evidence-based

classroom practice where researchers and teachers work collaboratively in order to investigate learners' particular needs prior to developing lesson plans, co-designing the lesson, and measuring the success and drawbacks of the lesson on students' learning using systematic procedures. By working together in projects such as this, Malaysian researchers get to contribute to the teaching field by managing aspects related to theories and research methodology while teachers get to focus more on carrying out the intervention programme and monitor aspects related to students' learning gains.

3.2.2 Rationale for Choosing a Mixed Methods Approach

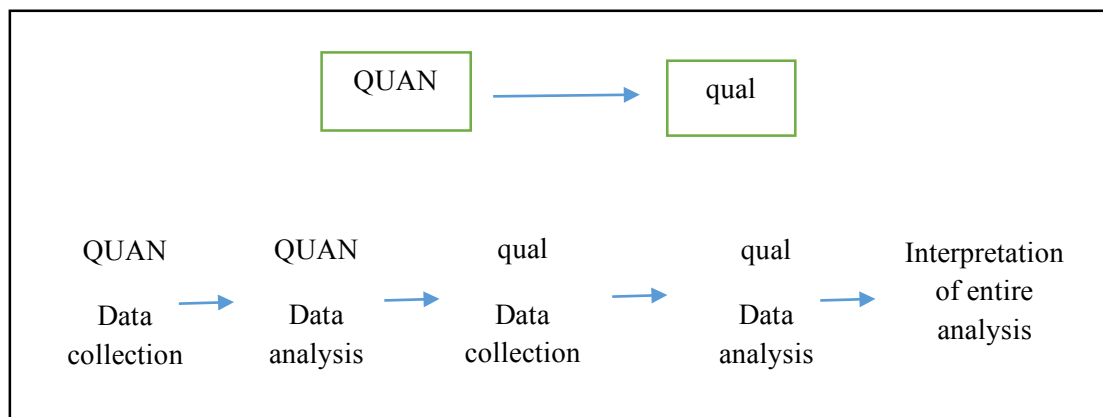
With two primary research purposes, namely i) measuring the effects of differentiated instruction through comparison between pre- and post-test scores and ii) gathering feedback from the research participants to investigate their level of acceptance of differentiated instruction, the mixed methods approach was considered most appropriate to “capture the best of both quantitative and qualitative approaches” (Creswell 2003: 22). This included examining and testing hypotheses as well as exploring and understanding the underlying reasons behind the effects. Using a singular research design may be confining and can only provide part of the bigger picture. It is also common for classroom researchers to conduct mixed methods to understand “the intricate tapestry of classroom events” (Dörnyei, 2007: 176-7). The mixed methods approach was chosen so as to 1) overcome any potential bias when using a singular method (Creswell, 2003), 2) capitalise on the strengths of each approach (Dörnyei, 2007), and most importantly 3) acknowledge and respect the multifaceted nature of educational outcomes which are influenced by a variety of factors (Wiersma & Jurs, 2005). These purposes have motivated the choice of a mixed methods approach in this research.

Creswell (2003) suggests six main strategies for a mixed methods approach and this study fell into the category of Sequential Explanatory. Its sequence of implementation is characterized by a preceding phase of quantitative data collection and analysis (pre- and post-test) prior to the collection and analysis of qualitative data (semi-structured interviews). Priority was given to the quantitative data and the study relied on the qualitative data to understand the underlying reasons regarding the effects of

differentiated instruction on the research participants. The two methods are first discussed separately and later compared and integrated during the discussion of the findings. Although the sequential explanatory strategy, as claimed by Creswell, may or may have no specific theoretical perspective, this study was driven by the REACH inventory (see 4.4) developed by Rock et al. (2008), an evidence-based framework, to differentiate lessons to be used during the intervention period.

The design for the sequential explanatory strategy as adapted from Creswell (2003: 213) is presented in Figure 3.1. The abbreviations “quan” and “qual” refer to quantitative and qualitative respectively. However, emphasis on the quantitative approach is indicated by capitalization of the letters. The arrows are used to signify a sequential form of the data collection process. The notations related to the design are adapted from Morse (1991) and Tashakkori and Teddlie (1998).

Figure 3.1 Design for Sequential Explanatory Strategy



Being an intervention study to be implemented in English classrooms at a Malaysian secondary school, it embodies 1) the quantitative approach of a pre-experimental design through pre-tests and post-tests on a single group and 2) the qualitative approach of a case study through the development of a teaching module and semi-structured interviews. The quantitative part of the research was set out to investigate the effects of an English teaching module using frameworks of differentiated instruction (see 4.4) and Bloom’s Taxonomy (see 4.5) on students’ language attitudes and critical thinking in an EFL context. The qualitative part aimed to analyse

feedback regarding the module and its implementation. It is useful to note that despite the recent use of the term “mixed methods”, many labels have been used such as integrating, synthesis, quantitative and qualitative methods, multimethod, and multimethodology (Tashakkori & Teddlie, 2003) to refer to the approach that incorporates both quantitative and qualitative approaches within a single study.

3.2.3 The Pre-Experimental Design

True experimental design is believed to be capable of establishing unambiguous cause-effect relationships (Dörnyei, 2007) through its rigorous characteristics and if employed in an intervention study, is capable of generating unparalleled data findings. Relying on it would enable researchers and practitioners to benefit from empirically-based insights, highly desirable for a developing nation such as Malaysia in moving towards becoming a nation driven by scientific standards of excellence. The common practice of most researchers employing true experimental design is to involve a treatment group (also known as an experimental group) that receives the treatment and a control group that provides a baseline for comparison to examine the effectiveness and relevance of a given intervention programme. Because of its quantitative nature, experimental design normally seeks to generalise the findings from a sample of participants from the research population which necessitates random participant selection and assignment.

The random assignment of sufficient participants to the experimental and control groups can provide a way of making the average participant in one group comparable to the average participant in the other group. This is usually conducted prior to the implementation of treatment and it is considered one of the significant breakthroughs in experimental design (Cook & Campbell, 1979). Nevertheless, in most cases in educational settings, randomness is rare as participants are usually taken from an entire class and they often need to be kept intact. This non-random quality of the participants has led to the emergence of the quasi-experiments which are similar to an actual experiment but without the random assignment or selection. The lack of random participant assignment has not allowed quasi-experiments to rise to the level of sophistication of true experiments (Thyer, 2012), but empirical evidence has convinced researchers to believe that when two equally rigorous experimental and

quasi-experimental designs are compared, they would yield comparable results (Dörnyei, 2007).

This study however could only employ a group of students from an intact classroom using the one-group pre-test-post-test design which falls under the category of pre-experimental design due to several reasons which are discussed here. The pre-experimental design adheres to basic experimental steps without the inclusion of a control group and the random assignment of research participants (Thyer, 2012). In other words, a single group is often studied but no comparison between equivalent non-treatment groups is made. Heffner (2014) describes three general types of study under the pre-experimental design label: the one shot case study design, the one-group pre-test-post-test study, and the static group comparison study. The one-group pre-test-post-test design assesses participants' before and after exposure to a treatment to investigate if there has been a change in the dependent variable(s) of the study.

My initial study design was the non-equivalent (pre-test and post-test) control-group quasi-experimental design with treatment and control groups from two schools. Due to the length of research (spanning seven months for the quantitative phase), I had begun searching for interested and viable research-participant candidates prior to designing the study. Informal verbal consent had already been obtained from two teacher-participants who were interested. However, on presenting the project to the University of Sheffield Confirmation Review¹, suggestions were made for me to reduce the size of the participants so as to allow the study to be more manageable and ensure completion of the research and writing up of the thesis would be plausible within the doctoral programme time limit. I accepted the suggestion and was happy to oblige, particularly because the study was carried out on a tight financial budget and concentrating on a single research site would be more economical, involving fewer travel expenses. Because the teacher-participant chosen taught only one class of Fourth Formers, I had to change the design of the research to a single-group pre-test-post-test design without the use of a control group.

¹ The confirmation review, among other purposes, is held during a doctoral student's first year to confirm whether his/her project has the potential for successful research at doctoral level within his/her study time limit. Source: Research Services, The University of Sheffield

The critical thinking test adopted was developed by Malaysian scholars (see 3.5.3) for the Fourth and Fifth form students (aged 16 and 17). After applying for access to the research site from the prime minister's office, the permission letter specifically forbade involvement of the fifth form students in the study as they would be taking a national public examination at the end of the year. Introducing an intervention programme is considered a huge imposition on teachers and schools especially in the context of pressures like high-stakes examinations. Thus, I could only recruit Fourth Form students and both viable candidates (teachers) taught one class of Fourth Form students with several classes of Fifth Formers. With only one accessible class of Fourth Formers, the design became a one-group pre-test-post-test design as described earlier.

The variables of the study fall under the independent and dependent variables. The independent variables in the study are the teaching approach and the module. Using this variable, I aimed to measure the dependent variables, which were the students' language attitudes and critical thinking scores as affected by the implementation of the teaching approach and module.

3.3 RESEARCH AIMS AND HYPOTHESES

The study was a classroom research project to investigate the effects of a self-developed differentiated instruction module in an ESL context in Malaysia. The quantitative phase set out to measure the impact of the module on two variables in the study, i.e. students' language attitudes and critical thinking. The impact was measured by calculating the p-value of the scores to identify if the changes were significant (brought about by an external factor, e.g. the intervention, and not arising from chance). After calculating the p-value, I aimed to calculate the effect size of the study using Cohen's *d*. Coe (2002) defines effect size as a way to quantify the difference between two groups or in my study between two sets of scores (pre-test and post-test) and it has many advantages over the mere report of statistical significance. Coe claims that effect size is the most important aspect of an intervention and it encourages a more scientific approach to knowledge accumulation. Coe further argues that primary reports rarely calculate effect sizes which motivated my decision to include the effect size of the quantitative phase.

Meanwhile the qualitative phase was conducted by exploring the strengths, drawbacks, and potential of the differentiated module, to understand how and why it had affected the teacher- and student-participants throughout the study. Thus, the research hypothesised that a positive relationship exists between differentiated instruction and English language attitude and critical thinking scores among Fourth Form students from a national secondary school in Malaysia. However, since the research involves inferential statistics (as depicted by my concern to test for statistical significance of the quantitative data), it necessitated the use of null hypotheses (Wiersma & Jurs, 2005) as follows:

H₀: As a result of the differentiated English module, there will be no significant difference in the mean score of the student-participants' language attitude.

H₀: As a result of the differentiated English module, there will be no significant difference in the mean score of the student-participants' critical thinking.

These hypotheses were tested against the alternative hypotheses:

H₁: As a result of the differentiated English module, there will be a significant difference in the mean score of the student-participants' language attitude.

H₂: As a result of the differentiated English module, there will be a significant difference in the mean score of the student-participants' critical thinking.

3.4 RESEARCH PROCEDURE

The data collection for the study involved seven stages as follows: a) pre-research, b) needs analysis, c) intervention planning, d) intervention implementation, e) post-intervention. Details of each stage are presented in Table 3.1 with further clarifications following the table.

The intervention phase was arranged to take place between July and October 2016 due to the nature of the school programme calendar. It was the only time span where intervention could be possibly carried out without interruption for 12 consecutive weeks. The academic calendars of government-funded schools are arranged to include several pre-determined main events – in January, classes are busy with orientation programmes and registration for students' clubs and associations, and distribution of textbooks; February is reserved for the first test of the academic year to take place; between the end of April and mid-May is the period for the midterm examination; and finally early July is reserved for annual sporting events. Carrying out the intervention programme (for 12 weeks) during these months would result in a gap between lessons as the lessons would not run for 12 consecutive weeks, and interrupted lessons would mean more time and exposure to factors that may influence the two dependent variables. Therefore, the intervention was planned to be carried out from the end of July until early October 2016 as I envisioned minimum interruption during this time frame.

Table 3.1 Summary of research procedure

Stage	Description	Period
Pre-research	<ol style="list-style-type: none"> 1) Getting research ethics approval from University of Sheffield (UoS) 2) Getting research approval from confirmation review committee of UoS 3) Getting research site access permission from the Economic Planning Unit, Prime Minister's Office, Malaysia 4) Analysing the teacher's teaching approach through a video recording 	January 2016
	<ol style="list-style-type: none"> 5) Getting school access permission from the school principal 	February 2016
Needs analysis	<ol style="list-style-type: none"> 1) Meeting the teacher-participant to discuss yearly teaching schedule and plan for next visits 2) Distributing consent forms to teacher and students 3) Administering the language learning style preference (LLSP) test to the student-participants to create a differentiated module based on their preferences 	February 2016
Needs analysis	<ol style="list-style-type: none"> 4) Analysing the LLSP test 5) Designing checklists for a differentiated lesson and critical thinking inculcation 6) Designing a sample lesson plan with student activity sheets 7) Making necessary changes based on supervisors' feedback for the checklists 	March to April 2016
	<ol style="list-style-type: none"> 8) Having the checklists validated by educational experts in the field 9) Making necessary emendation 	May 2016
Intervention planning	<ol style="list-style-type: none"> 1) Designing the module (lesson plans for 12 weeks along with student activity sheets) 	April to May 2016
	<ol style="list-style-type: none"> 2) Getting the module checked for differentiation against the validated checklists by two teacher-raters 3) Showing the module to the teacher-participant to check for content to comply with the national syllabus 4) Making necessary changes to the module 	May 2016

	5) Discussing complete module with the teacher-participant	June 2016
Intervention implementation	1) Administering language attitude inventory (pre-test) 2) Administering critical thinking test (pre-test) 3) Demonstrating the first lesson 4) Implementation of the module by the teacher-participant	July 2016
Post-intervention	1) Administering language attitude inventory (post-test) 2) Administering critical thinking test (post-test) 3) Wrapping up school visit – thanking the school administrators, and compensating the teacher and student-participants	October 2016
	4) Submitting a preliminary report of the quantitative data to the Prime Minister’s Office	December 2016
	5) Conducting semi-structured interviews with student-participant volunteers 6) Conducting semi-structured interview with teacher-participant	January 2017

3.4.1 Pre-research Stage

The study began by applying for research ethics approval from the University of Sheffield (UoS) in November 2015 with the official approval given in January 2016 (see Appendix A). After obtaining the approval, I presented my research proposal to the Confirmation Review Committee from the School of English, UoS in January 2016 and this was approved—although with suggested research design revisions, as explained in 3.2.3. Following this was the application for research site access permission to the Economic Planning Unit, Prime Minister’s Office (PMO) Malaysia (all researchers from a foreign university or institution have to obtain approval by the PMO to enter research sites in the country). A letter of permission was produced in February 2016 (see Appendix B).

From my conversation with the teacher-participant prior in 2015, I realised that he was not aware of the differentiated instruction teaching approach. As the concept was explained to him, he claimed that he had never differentiated lessons for different learners in the same classroom. Instead, the practice was reserved for learners from different classrooms as he adjusted the teaching content to match the class rank (e.g. most advanced class, least advanced class). However, after consulting my supervisors, I realised the need to ascertain whether the teacher had unknowingly been differentiating instruction within a single lesson because it would determine the direction of the study. If he had already been differentiating his lessons, the study would aim to provide empirical evidence of the differentiated lessons on his students, whereas if the teacher had not differentiated, I would need to develop a teaching module to be implemented by the teacher and document the empirical evidence for the intervention.

Even though the teacher refused to be observed directly by me at first, he agreed to show me a video of the lessons that he recorded on his laptop. The laptop was positioned so as to display only the teacher's face and the students' back as at this point no official consent had been requested from the students to participate in the study. The 49-minute video was analysed against the general characteristics of differentiated instruction from the literature. The lesson was on writing a complaint letter and after analysing the video, I was convinced that the lesson was not differentiated based on identical learning outcomes, student learning activities, and homework across all learners in the classroom. Thus, I was convinced the module would need to be designed first as I had envisioned it would in the beginning. With letters of ethical approval and permission from the PMO, I booked an appointment with the school principal and visited the school in February 2016 to explain the project and show her all the necessary documents, i.e. ethics approval letter, permission letter from PMO, research pass/tag to be worn within the school site, and copies of my research instruments in order to get her permission for collaboration with the teacher-participant and his students.

3.4.2 Needs Analysis Stage

With permission granted by the school principal to proceed with my research, I met the teacher-participant in person to give her copies of my research pass/tag, letters of approval from both UoS and PMO, and the research instruments. He briefed me on the school academic calendar to help me plan my future visits and also showed me the yearly teaching plan as determined by the school's English panel. The plan consisted of all the topics and skills to be taught for the whole year. Guided by the teaching calendar, I explained to him my research plan and the duration of each data collection stage so that we could identify and agree on the topics and skills that needed to be covered in the teaching module. During his teaching period of the day, the teacher took me to the class to introduce me to the students and I also explained what I needed from them in the project – those who decided to participate had to answer several questionnaires while those who wished not to participate would learn like the rest of the students but they did not have to fill out any questionnaires. However, I did not specifically inform them the project was interventional to avoid the acquiescence effects, but instead I told them the project was expected to describe their feedback whether it be positive or negative. I also explained that the study was not judgmental in nature with no right or wrong answers and that the responses would not be graded by their teacher but only I would keep copies of their filled out questionnaires.

Later, with help from the teacher, I administered the consent form for students to sign. Using the ethics guideline by the University of Sheffield as described in the consent form (see Appendix C), I verbally explained that they were not obliged to participate in the study even though the teacher had agreed to it and explained what that entailed – students who wished not to participate would still learn using the module and would not suffer the risk of being left behind by their peers from other classes because the module was designed to be in line with the national syllabus and the school teaching calendar. As such, they were all required to fill out the Language Learning Style Preference Questionnaire (LLSPQ) regardless of their participation status in the study so as to identify their preference for learning activity planning in the module. All 29 students were compensated with a pen after filling out the LLSPQ. The students were also asked to get their parents' signatures on the consent form to indicate their permission and I also explained that the decision to participate was entirely theirs –

even though their parents agreed to their participating in the study, they were not obliged to do so if they did not want to. I ended up with 26 consenting student-participants out of 29 students in the class. As I was away to analyse the LLSPQ, the teacher-participant collected the consent form on my behalf to be passed to me during my next visit.

The analysis of the PLPSQ was completed in March 2016 and the results were tabulated (see 3.6) and presented to my supervisors. I was also asked to design a sample lesson plan with student activity sheets for an estimate to give us a sense of how long the entire module development would take. On the completion of the analysis of the PLPSQ, I began creating checklists of a) differentiated instruction as gathered from the literature describing the characteristics of a differentiated classroom along with best practices from educators in ESL/EFL classrooms and b) critical thinking inculcation in the classroom with reference to cognitive taxonomies (see 4.5). The idea of having a checklist was suggested by the confirmation review panel. To draw valid conclusions as to how the differentiated module impacted on the students, the level of differentiation had to be determined first. Meanwhile, the checklist on critical inculcation was designed to ensure that the students were appropriately challenged with a balance of higher order and lower order critical thinking skills. Upon completion, the checklists were shown to my supervisors for their feedback and finally the checklists were shown to two educational experts in the field (see 3.6) for validation. Based on the supervisors' and experts' comments, changes were made to refine both checklists.

3.4.3 Intervention Planning Stage

The first step in the intervention planning stage was designing the module of lesson plans along with student activity sheets for 12 weeks based on the yearly teaching calendar obtained from the teacher and the curriculum specifications by the MoE. The completed module was then checked for differentiation against the validated checklists by two teacher-raters. Descriptions of the raters are provided in 3.6. The first appointment with the two teacher-raters was to thank them for their participation and to brief them about their roles in the project. I presented them with all the lesson plans and student activity sheets and we began the rating process by evaluating two

lesson plans (of week 1 and 2) together as samples. The raters were then given four copies of the same lesson plans (week 3 to week 6) for them to evaluate individually. We met again later in the evening and the raters began comparing their assessment on each lesson plan. There were only minor discrepancies between the raters' judgements involving the two lesson plans but these were solved during the meeting without any problem. At the end of the meeting, the raters were each given three different sets of lesson plans to evaluate at their own convenience and the evaluation of the sets was not compared as they were sent direct to my email. They both took two days to complete the assessment and for their time and contribution, they were paid an honorarium each. The process proved to be useful as they gave a number of comments which assisted me in making the necessary changes. Soon the validated and amended module was shown to the teacher-participant to confirm compliance with the national syllabus in terms of content by the teacher-participant and also to get his feedback on the activities. Overall he was comfortable with the activities but shared his concern about some of them which he feared could be above the students' abilities. He, thus, suggested some ways to simplify the activities which I accepted. However, these suggestions were related to modifying the degree of difficulty and did not change the characteristics of differentiation that had been validated earlier. As the module was now complete, the teacher and I met one last time before the intervention took place. We looked through it together and I made use of the opportunity to make sure that he understood how to carry out each lesson. Despite his understanding, we came to an agreement that I should demonstrate the first lesson during the intervention phase.

3.4.4 Intervention Implementation Stage

Prior to the implementation of the intervention, the students who volunteered to participate in the study were asked to answer two sets of pre-tests – the first on language attitude and the second on critical thinking (see 3.5.2 and 3.5.3). The three students who chose not to participate were given the freedom to complete exercises of their choice in the workbook. Following the session was the start of the intervention implementation at the end of July 2016. As planned, I demonstrated the first lesson to the teacher with the student-participants but after the class ended, he requested another demonstration. So, I took over the second lesson and the consecutive lessons

were managed by the teacher himself. We kept in regular contact and he called at the end of the day after every lesson to report about the lesson to ensure that he conducted it the way I envisioned it and I attended two lessons to ensure that he had no confusion with the module and that he was executing the differentiated instruction faithfully. In total, he could only conduct eight lessons out of ten (excluding the first two which were handled by me) as he had other engagements to attend to: the first time he had to skip the lesson and had another teacher sit in was during a visit by the District Education Office to the school and the second time he had to represent his school at a state-level education meeting. Even though I thought of taking over these lessons initially without the presence of the teacher-participant, I was advised against it for legal reasons because I was not an official teacher at the particular school. The intervention ended in the first week of October 2016.

3.4.5 Post-intervention Stage

Following the final lesson with the differentiated module were the post-test that were administered to the 26 student-participants in the second week of October 2016. After collecting all the filled-out tests, I wrapped up the session by compensating the students and teacher for their time; the teacher was paid an honorarium of approximately GBP40, while the students received a stationery set worth approximately GBP7 each. I also met the school administrators one final time to thank them and make a small cash donation to the Parent-Teacher Association. Data from the pre-tests had already been collated and stored on a password-protected computer during the intervention and after the project wrapped up, I began the same process with the data from the post-test to analyse both sets of data using a statistical tool (see 3.7). Helpful books and tutorial videos were used in the data analysis and to ensure correct methods and calculations were employed, the final results were shown to the team from Mathematics and Statistics Help (MASH) of UoS, a service offered by MASH for UoS staff and PhD researchers. A summary of the quantitative findings was also submitted to the PMO as researchers are required to return research passes along with a preliminary report upon the expiry of the pass.

The final phase in the post-intervention stage involved collecting qualitative data from the teacher and some student-participant volunteers to explore the strengths,

drawbacks, and potential of the differentiated module to understand how and why it had affected the teacher- and student-participants throughout the study. It began with the development of the semi-structured interview protocols that went through several rounds of refinement based on comments and feedback given by my supervisors. Finally, the semi-structured interviews were conducted beginning January 2017 over a period of three weeks. The process began with a series of interviews involving six students through Skype. Preparation for the venue and technical settings at the students' end were managed by the teacher-participant. The students attended the school computer lab when available during relief classes (classes taken over by another teacher to monitor the students when the subject teachers are on sick leave or are temporarily away from school). The students could only be interviewed during relief classes to avoid interrupting their normal lessons. Although originally nine students from the 26 participants volunteered to help, due to a hectic schedule at the beginning of the school year in 2017 and after three failed rescheduling attempts for three participants, I decided to stop at six participants. Each interview varied from approximately 20 minutes to 37 minutes. After the interviews were done, I continued by interviewing the teacher in February 2017. The interview took almost one hour.

3.5 RESEARCH INSTRUMENTS

All the research instruments related to the study are discussed in this section except the differentiated module and checklists which are explained in chapter 4.

3.5.1 Language Learning Style Preference Test

Researchers (e.g. Butler and Lowe, 2010) have suggested that differentiating lessons based on student abilities can give rise to negative findings as the practice was shown to hurt some learners' feelings and as such, I decided to develop a module according to students' language learning styles. One of the key characteristics of differentiated instruction is for teachers to respond to different types of learning styles in an attempt to create activities that will be meaningful and of interest to the students. Thus, in line with this requirement, a self-reporting language learning style preference questionnaire (LLSPQ, see Appendix D) was administered to the student-participants prior to the intervention stage.

The questionnaire was adapted from the Perceptual Learning-Style Preference Questionnaire by Reid (1987). The motivation to adapt the instrument stemmed from its purpose: to identify the perceptual learning style preferences of non-native speakers of English and thereby positively impact the areas of curriculum design, materials development, student orientation, and teacher training. The questionnaire was administered by Reid (1987) to 1234 ESL students in 39 intensive English language programmes and to 154 native-speaking university students, and the responses were statistically analysed to identify the relationship between learning style preferences to several variables such as language background, major field of study, level of education, age, sex, and length of time in the United States. Reid's questionnaire has also been used by other researchers in an ESL context to either merely identify the predominant learning style preference among participants (e.g. Karthigeyan & Nirmala, 2013; Obralić & Akbarov, 2012) or to examine the relationship between participants' learning styles and overall academic achievement (e.g. Mohamad Jafre, Abbas Ali, Helan Nor & Kiranjit Kaur, 2011).

Considering the participants of my study were either second or foreign language speakers of English, the instrument was deemed suitable. The instrument was also chosen due to its reliability. In Reid's (1987) study, the instrument was validated by the split-half statistical method. Previous researchers (e.g. Karthigeyan & Nirmala, 2013; Mohamad Jafre et al., 2011) who adapted the instrument for use with ESL speakers at secondary schools found the reliability of the instrument through Cronbach's alpha to be high, ranging from 0.61 to 0.82 (from Mohamad Jafre et al.'s study) and 0.72 (from Karthigeyan & Nirmala's study). A construct or variable value exceeding 0.60 is suggested to be reliable (Nunnally, 1978). A pilot study involving a sample similar to the target participants in this study revealed that the translated items are highly reliable with a value of 0.821 (the process of translation discussed at this section end). The results from the pilot study are discussed further in Section 3.6.

The LLSPQ was comprised of items that reflect six learning styles preferences, namely 1) visual, 2) auditory, 3) kinaesthetic, 4) tactile, 5) group learning, and 6) individual learning. With 5 items covering each category, there are a total of 30 items in the instrument. However, the items were not arranged in groups but instead

randomly across the six typologies. For ease of reference, the items arranged according to their respective sets by Reid are shown in Table 3.2.

Table 3.2 Items in the LLSPQ re-arranged according to the 6 typologies

Visual	
Item	
6	I learn better by reading what the teacher writes on the chalkboard.
10	I remember instructions better when I read them.
12	I understand better when I read instructions.
24	I learn better by reading than by listening.
29	I learn more by reading textbooks than by listening to lectures.
Tactile	
Item	
11	I learn more when I can make a model of something.
14	I learn more when I make something for a class project.
16	I learn better when I make drawings as I study.
22	When I build something, I remember what I have learned better.
25	I enjoy creating something for a class project.
Auditory	
Item	
5	I understand better when the teacher explains the instructions verbally.
7	I learn better by listening to explanation in class on how to do something.
9	I remember things I have heard in class better than I remember things I have read.
17	I learn better in class when the teacher gives a lecture.
20	I learn better in class when I listen to someone.
Group	
Item	
1	In class, I learn best when I work with others.
3	I get more work accomplished when I work with my peers.
4	I learn more when I study with a group.
21	I enjoy working on an assignment with two or three classmates.
23	I prefer to study with other students.
Kinaesthetic	
Item	
2	I prefer to learn by doing or experimenting in class.
8	I learn better by doing or experimenting in class.
15	I enjoy learning in class by doing experiments.
19	I understand things better in class when I participate in role-playing.
26	I learn best in class when I can participate in activities.
Individual	
Item	
13	When I study alone, I remember things better.
18	When I work alone, I learn better.
27	In class, I work better when I work alone.
28	I prefer working on projects all by myself.
30	I prefer to work by myself.

The self-reporting questionnaire contains a five-point Likert scale, arranged in a decreasing degree of intensity of “strongly agree”, “agree”, “undecided”, “disagree”, and “strongly disagree” and students were requested to circle one response for each item. The questionnaire was also translated into Malay to facilitate the student-participants’ comprehension as Malay is spoken as either a native language or the national language (by non-Malay students). The decision to translate was driven by the wish to minimise errors which could otherwise have arisen if items in a second or foreign language were misinterpreted by the participants. The translation was completed using one of the widely used procedures, i.e. the translation–back-translation procedure (van der Vijver & Leung, 1997) by using multiple translators; the instrument is first translated into the target language by one translator and later translated back to the source language by a second translator. Thus, in implementing the procedure, I first translated the original questionnaire into Malay and the translated questionnaire was given to an independent translator. The independent translator was a graduate researcher with a master’s degree in Linguistics at the School of Language Studies and Linguistics of Universiti Kebangsaan Malaysia (UKM) who had no previous knowledge of the questionnaire. Finally, a licensed translator and lecturer in the translation field at UKM was also appointed to finalise the instrument.

The questionnaire is accompanied by a self-scoring sheet (see Appendix E). Every selected response is assigned a numerical value ranging from 1 to 5. At the end of the test, the values were tallied and multiplied by 2 to obtain a total score in order to identify one of the following learning style categories: major, minor or negligible (Reid, 1995). Major is a learner’s preferred leaning style, whereas minor indicates one in which the learner can still nevertheless function well. However, negligible suggests a learning style that may impede the learning process as it is a style that is difficult for the learner to adapt.

3.5.2 Language Attitude Inventory

Two tests were used before the intervention (pre-tests) and following the intervention (post-tests). The first test, an inventory of language attitude towards the English language, was administered to measure the language attitude variable. It was adapted

from the well-known Attitude and Motivation Test Battery (AMTB) by Gardner (1985) used to measure language attitude among secondary school students studying English as a foreign language. Many other scholars in an attempt to investigate ESL learners' attitude have adapted the AMTB (e.g. Mohamad Jafre, Majid & Hanan, 2012; Siti Sukainah & Melor, 2014; Thang, Ting & Nurjanah, 2011). The decision was governed by the target research participants – secondary school students who learn English as a foreign language. Nevertheless, changes were made as the researcher relied on scholars such as Oppenheim (1992), Korb (2012a), and Uebersax (2006) on the procedures of writing effective questionnaire items. Similar to the learning style preference test, this instrument was also translated into Malay and underwent the translation–back-translation procedure by the same translators (see 3.4.1).

The inventory comprises 36 items that covers three aspects under language attitude: affective, cognitive, and behavioural (Mohamad Jafre et al., 2012). The 'affective' or 'emotional' aspects are interrogated through statements that measure the participants' feelings towards English as well as their likes and dislikes. The cognitive aspect comprises statements related to beliefs, thoughts, and viewpoints about English. The final aspect, the behavioural or conative aspect, covers statements pertaining to the participants' tendency to adopt a specific learning behaviour. Each aspect contains 8 positive and 4 negative statements where students need to indicate agreement or disagreement on a four-scale Likert point (see Appendix F). The positive and negative statements were arranged randomly in order to avoid acquiescence bias (Korb, 2012b; Oppenheim, 1992) where participants have the tendency to agree with every statement. It is also an effective way to ensure that the participants maintain alertness when reading all the items, resulting in a more careful manner of response throughout. Since the instrument was translated into Malay and modifications were made to the original instrument, a pilot study was conducted to measure the reliability of the questionnaire items. The alpha value of the 36 items was 0.716, indicating that the items were reliable. To avoid the bias that arises when using a different test as the post-test, the same instrument was used, albeit the items were rearranged.

3.5.3 Critical Thinking Test

In measuring the second variable in this study – critical thinking – among the student-participants, the Malaysian Critical Thinking Skills Instrument (MyCT) was used (see Appendix G). Several critical thinking tests available on the market were considered such as the Cornell Critical Thinking Test, the Ennis-Weir Critical Thinking Test, and the Watson-Glaser Critical Thinking Appraisal prior to selecting the MyCT. However, these tests are English medium and adopting them would have required a process of translation into Malay as well as a process of item validation. Since MyCT has been tested on Malaysian students from a variety of localities and conducted in Malay, it was deemed appropriate for the participants in the study and it was adopted without any modification.

With a total of 62 items, the instrument was developed to measure the critical thinking of secondary school students aged 16 to 17 years on four sub-constructs, namely 1) reasoning, 2) analytical and logical, 3) disposition, and 4) assumption. The instrument has been tested on 1511 students from urban and rural areas alike and had undergone the Gender Differential Item Functioning test, a test to remove gender bias items in an attempt to improve its quality.

The instrument contains multiple response analysis or mixed rating scales as follows:

Sub-construct	Number of items	Type of items
Reasoning	36	Multiple choice (dichotomous)
Analytical and logical	10	Multiple choice (dichotomous)
Disposition	12	Likert scale (polytomous)
Assumption	4	Objective (dichotomous)

3.5.4 Semi-structured Interview

The final stage of the study involved collecting data using the qualitative approach to complement the preceding quantitative phase. The first round of interviews was carried out with six students. Based on their language proficiency as evidenced by their two previous test grades, one was a high achiever (A in both tests), three were

average students (a combination of B and B+), and the remaining two were low achievers (a combination of C and C+). I started the interview by mixing codes (using both Malay and English) to indicate to the students that they had a choice to use whichever language they were most comfortable with. Whenever I realised that a particular student was having difficulty expressing him/herself in English at some point during the interview, I probed with questions and comments in Malay. However, it was interesting to note that all six of them refused to use Malay and kept using English albeit the use of incorrect English from time to time (although their utterances were all comprehensible to me).

A framework by Dörnyei (2007: 137) was adapted to form the interview questions so as to keep the interview on track (see Appendix H). There were three basic phases in the interview: an introductory, main, and concluding phase. The introductory phase began as I welcomed the participants, outlined the purpose of interview, set the parameters of the interview in terms of length and confidentiality, and read the ethical guidelines in the consent form to record their consent verbally. In an attempt to elicit honest feedback, I also reminded the participants that the discussion was about personal views and experiences, and thus, no answers were considered right or wrong. In the main phase, 21 questions were asked and based on the feedback from my supervisors on the interview protocols during the item refinement process each question was followed by open-structured reaction options (see Appendix I) to facilitate the session. The option given in the form of prompt cards proved to be useful to guide the participants to speak. The session was ended by expressing my gratitude to interviewees and providing reassurance regarding their responses to avoid the participants leaving the interview feeling unhappy with themselves or with the social image that they think they might have projected. Meanwhile, the second type of interview involved the teacher-participant which followed similar basic phases in the student interviews but with 19 questions (see Appendix J). This was conducted wholly in English even though the teacher had the choice of using Malay.

3.6 RESEARCH PARTICIPANTS

There were two categories of research participants in the study: a) expert respondents who were recruited during the pre-intervention stage to assist with instrument validation and b) main participants who were studied and who contributed to the data in the research project.

The participation of the expert respondents was minimal although equally important. Their involvement was at the level of validating either the checklists or the module against the validated checklists. Two professors from the Faculty of Education, *Universiti Kebangsaan Malaysia* were recruited to validate the differentiated checklist and critical thinking inculcation checklist that I designed based on the literature. The checklists, besides the national curriculum specifications, became the guide for me in designing the differentiated module. The first professor was an expert in the ELT field in Malaysia and has been well-trained in the area of differentiation in classroom instruction. She has attended formal training on teaching differentiation in the United States and Australia. The second professor was an expert in the area of thinking skills (both critical and creative thinking) at the faculty and has been in service for more than 20 years. She had also served the Ministry of Education prior to her appointment at the faculty and was thus well-versed with the cognitive taxonomies used by the MoE for the development of critical and creative thinking skills in Malaysian schools.

Upon its completion, the module was evaluated by two teacher-raters who were not involved in the study but were recruited for their wide experience in the ELT field and were familiar with the national English language curriculum, being senior teachers with a master's degree who have attended courses on critical thinking by the ministry and various other pedagogical courses. They were also familiar with Bloom's cognitive taxonomy which was the framework used to design the lessons as required by the MoE. Although these raters were not familiar with the formal concept of differentiation in a single classroom as it was only proposed by the MoE in 2013, they managed to readily grasp the concept of differentiation and have in fact been reportedly practising it with learners from different classes with varying abilities.

These two independent raters had 5 years and 11 years of teaching experience respectively.

As this study was designed to be a classroom intervention programme, participants at the school level involved an English teacher along with his students. The study required a convenience sampling approach with a teacher-participant who would commit to teaching using this approach to a Fourth Form class over a period of 6 months due to the design of the critical thinking test (see 3.5.3). Therefore, recruiting a teacher that I knew personally was necessary to obtain a higher degree of cooperation to ensure that the module would be taught in its entirety and that the project would be seen through to its conclusion. The teacher-participant had been in service for four years and taught one class of Fourth Form students alongside students from other forms. The research site was a national secondary school in the state of Johor, Malaysia, specifically in an area outside the city centre where English is not used extensively.

The student-participants consisted of 26 (male n=6, female n=20) Fourth Form students (16-year-olds) from one single class. The figure is deemed acceptable considering that a minimum number of 15 participants is required for a quantitative classroom research project (Dörnyei, 2007). The class turned out to be the most advanced class in the entire form. This was the highest ranked class out of ten in the Fourth Form based on cumulative academic performance across all subjects in the previous year's final examination. Getting cooperation from these students throughout the project was easy and the entire quantitative data collection was executed with zero attrition rate (none of the students withdrew from the study).

Their demographics are presented as follows. Three first languages (L1) were identified, namely the Malay language (n=3), Mandarin (n=22), and Tamil (n=1). When asked to rate how much they like English, the responses ranged from scales 3 (*I neither like it nor dislike it*) to 5 (*I like it very much*). 19.2% (n=5) of the sample indicated a neutral position (Scale 3), 34.6% (n=9) displayed a positive inclination (Scale 4), and the majority 46.2% (n=12) showed a strong positive inclination (Scale 5). With regard to the frequency of English use per week outside the classroom, 26.9% (n=7) admitted to an absence of usage beyond the classroom setting, 7.7%

(n=2) used English between 1 to 3 times, and 34.6% (n=9) used it between 4 to 6 times. Meanwhile, 15.4% (n=4) of them used English between 7 to 9 times, and the remaining 15.4% (n=4) used the language extensively, 10 times and more. Although merely self-reporting and not backed up with observation, the figures suggested that the majority of the students have had a positive general attitude towards English with some participants admitting to using it outside the classroom.

Sex					
Male			Female		
6			20		
First language					
Malay	Mandarin	Tamil	Malay	Mandarin	Tamil
2	4		1	18	1
Predisposition towards liking English (Scales 5 to 1)					
5 Strongly Like	4 Like	3 Neutral	2 Dislike	1 Strongly Dislike	
12	9	5	–	–	
Frequency of use outside classroom (times per week)					
0	1-3	4-6	7-9	10 and more	
7	2	9	4	4	

3.7 PILOT STUDY

A pilot study in social science research may refer to two conditions as described by van Teijlingen and Hundley (2001): 1) a feasibility study which is a small scale version as a preparation prior to the main study or 2) a pre-testing of a particular research instrument. In the context of this research, it refers to the latter as I conducted my pilot study at two Malaysian two schools to determine the reliability of the translated research instruments.

3.7.1 Administering the Pilot Study

Two classes from two schools with similar characteristics to the target schools in the actual study were recruited to pilot 1) the language attitude inventory and 2) the language learning style preference test. I had requested assistance from an English language teacher from each school whom I knew on a personal basis. Both teachers were briefed on the research protocols because I was not present during the administering of the instruments. Anonymity of the school, teachers and students was promised and participants were reassured that the responses given would only be analysed to improve the instruments and the research protocols without public dissemination of the findings.

I. First Instrument

The first instrument was tested out by a group of Form 2 (14-year-old) students at a suburban school in the state of Selangor (with a similar type of locality to the school in the actual study). The class comprised students with mostly low proficiency in English and who were mostly low academic achievers. The teacher explained their main tasks: to fill in the questionnaire and to provide feedback on vague or incomprehensible items by leaving comments in the questionnaire. A total of 29 students took approximately 20 minutes to complete the 36-item questionnaire.

i. Item Reliability

An analysis of item reliability was determined through the reliability coefficient test using SPSS version 19. The value of alpha of the 36 items was 0.716 which indicates that the items are reliable; when the inter-correlations among items increase, the value of Cronbach's alpha will generally increase up to 1.00, a condition known as an internal consistency.

ii. Problematic Items

Despite the original number of 29 participants, 10 responses from the questionnaires were excluded as their responses seemed to fit into a careless or dishonest pattern, according to one of the four methods used to identify this type of response (Wrona, Sanborn, and Constantine, 1992) which is: unlikely response combinations. Because

the questionnaire consists of positive and negative statements randomly to query opinions about the same construct (as a way to cross-check response consistency), contradictory views suggested that the questionnaire had not been filled out honestly (or conscientiously).

Apart from the Cronbach's alpha value to determine the internal consistency of the participants' responses, further analysis was conducted to look for problematic items from the 19 participants. Four items and two distinct problems were identified as shown in Table 3.3. The participants either 1) were not able to comprehend the meaning or idea in the sentence or 2) were simply challenged by a specific term used in the statement.

Table 3.3 Problematic items in the language attitude inventory

Item	English Version	Malay Version	Type of problem
15	I am impressed with non-native speakers who speak English fluently.	Saya merasa takjub dengan penutur bukan berbangsa Inggeris yang fasih berbahasa Inggeris.	Word (takjub) and (penutur)
21	Learning English leads me to new information which can be linked to my previous knowledge.	Mempelajari bahasa Inggeris membuka jalan kepada pengetahuan baru yang boleh dikaitkan dengan pengetahuan sedia ada saya.	Whole sentence
25	I am NOT impressed when a non-native speaker manages to have near native-like English pronunciation.	Saya TIDAK berasa takjub sekiranya penutur bukan berbangsa Inggeris mampu bercakap dengan sebutan seperti penutur Inggeris yang sebenar.	Word (penutur) and whole sentence
31	I believe the knowledge gained from the English class is not applicable to my real life.	Saya percaya bahawa pengetahuan yang diperoleh dalam kelas bahasa Inggeris tidak dapat digunakan dalam situasi kehidupan sebenar.	Whole sentence

Both items number 21 and 31 were found difficult at the whole-sentence level by two participants, while item 25 was unclear to one participant. These items were left unchanged since they affected only a small number of the participants. However, to avoid similar problem, I would be present during the data collection of the actual study as the student-participants filled in the questionnaire.

Meanwhile, problem 2 at the word level was much simpler, albeit involving a higher number of participants. 6 students indicated to be unfamiliar with the meaning of the word 'takjub' which is equivalent to 'impressed' in item 15 and item 25 respectively and one participant admitted to not knowing the meaning of 'penutur' (equivalent to 'speaker') in item 15. The first word 'takjub' was substituted with a simpler and more common word to assist the students' understanding. The second word 'penutur' hardly has a simpler one-word substitute, and so I planned to explain this concept to any confuse participants in the actual study.

II. Second Instrument

The second instrument was tested out with a group of Form 2 students at another suburban secondary school in the state of Johor (with a similar locality to the second school in the actual study). The class comprised students with a combination of low and average proficiency in English. A total of 33 students took approximately 15 minutes to complete the 30-item learning style preference test.

i. Item Reliability

The value of alpha of the 30 items was 0.821 which indicated that the items were reliable with a good level of internal consistency.

ii. Problematic Items

Unlike the pilot participants of instrument 1, none of these student-participants was identified to have filled in the items lackadaisically or dishonestly. All 33 of them managed to respond to the instrument cooperatively and left helpful comments to describe items or words that they were not familiar with. Only 3 items were left

unanswered without any comments. Thus, no questionnaire was removed from the analysis. A total of 12 items as indicated in Table 3.4 appeared to have been problematic. Similar to instrument 1, the participants were either confused with the meaning or idea in the whole sentence or they simply did not understand some terms. A total of 12 out of 33 participants had problems with the 12 items – some were challenged by only one item, while a few found several items confusing.

Items which were problematic due to a single word were item 1 and 2, affecting quite a number of participants. 5 participants commented that they were not familiar with the word “maksimum” (equivalent to “best”). I decided to substitute the word with a simpler word, “sepenuhnya”. Meanwhile 3 participants indicated of having no knowledge of the word “demonstrasi” in item 2 and 1 participant did not understand the words “secara lisan” in item 5. Considering that there were no obvious simpler alternatives, I decided to provide an explanation in person to those who have trouble understanding them.

Item 6 was left unmarked by one participant without any comments, as was item 7 by another participant. Since item 6 was not identified as problematic by the remaining participants, the researcher figured that the participants might have overlooked the items. No changes to item 6, thus, was deemed necessary. Item 7, however, was identified by another student to be incomprehensible which I considered an item that needed to be refined. This item was refined after a discussion with a certified translator.

Item 10 was not understandable to one participant; other participants found items 12 and item 14 problematic. After looking at the translated items, I decided to retain them unaltered but would give explanation to confused participants when the need arose. Meanwhile, item 16 was left unmarked but without comments by one participant. Because no other participants had had a problem with the item, I decided to retain it.

Item 21 appeared to be difficult for one participant, but I believed that the problem could be due to a lack of prior knowledge as opposed to the complexity of the structure. After all, it is uncommon for Malaysian students to complete a project or

homework with other students. Most homework is often completed individually. Therefore, an explanation would be provided to participants who faced difficulty in making sense of the item. Item 24 was incomprehensible to one participant and left unmarked with no further comment by another, while item 25 was also left unmarked by yet another participant. However, there seemed to be no necessary changes to be made but, once again, an explanation would be provided to confounded participants.

Table 3.4 Problematic items in the LLSPQ

Item	English Version	Malay Version	Type of problem
1	In class, I learn best when I work with others.	Semasa di dalam kelas, saya dapat belajar dengan maksimum apabila berpeluang bekerjasama dengan pelajar lain.	Word (maksimum)
2	I prefer to learn by doing or experimenting in class.	Saya lebih suka untuk belajar melalui kaedah tunjuk cara atau demonstrasi atau eksperimen di dalam kelas.	Word (demonstrasi)
5	I understand better when the teacher explains the instructions verbally.	Saya lebih faham apabila guru menerangkan arahan secara lisan.	Phrase (secara lisan)
6	I learn better by reading what the teacher writes on the chalkboard.	Saya dapat belajar dengan lebih baik dengan membaca apa yang ditulis oleh guru pada papan hitam.	Left unmarked
7	I learn better by listening to explanation in class on how to do something.	Saya dapat belajar dengan lebih baik dengan mendengar penjelasan di dalam kelas tentang cara-cara atau prosedur melakukan sesuatu.	Whole sentence
10	I remember instructions better when I read them.	Saya dapat mengingati arahan dengan lebih baik apabila membacanya.	Whole sentence
12	I understand better when I read instructions.	Saya dapat memahami sesuatu dengan lebih baik apabila saya membaca arahan.	Whole sentence
14	I learn more when I make something for a class project.	Saya dapat belajar dengan lebih baik apabila menghasilkan sesuatu untuk projek kelas.	Whole sentence

16	I learn better when I make drawings as I study.	Saya dapat belajar dengan lebih baik apabila membuat lakaran atau lukisan semasa belajar.	Left unmarked
21	I enjoy working on an assignment with two or three classmates.	Saya seronok menyiapkan tugas/kerja sekolah dengan dua atau tiga orang rakan sekelas.	Whole sentence
24	I learn better by reading than by listening.	Saya dapat belajar dengan lebih baik dengan membaca berbanding mendengar.	Whole sentence
25	I enjoy creating something for a class project.	Saya gemar mencipta sesuatu untuk projek dalam kelas.	Left unmarked

3.7.2 Solutions to Identified Problems

The pilot study proved to be a significant learning opportunity in analysing flaws and potential problems with the research instruments and logistical problems with the research protocols, apart from testing the inter-item reliability. As far as problems with the research instruments are concerned, three ways to rectify the situation were identified: 1) substitute with a simpler word for items at the word-level problem, 2) retain the original structure (in the event of no simpler or equivalent substitute) but provide further explanation when a research participant encounters difficulty, and 3) modify the sentence with help from a certified translator.

By identifying potential logistical problems with the research protocols, I decided to make my presence mandatory throughout the questionnaire-completion session. Doing so would provide a channel for immediate assistance to the participants who lack prior knowledge of certain aspects measured in the items and those who have difficulties making sense of unfamiliar vocabulary. This would help to minimise the risk of unreliable responses caused by misinterpretation of the items. I was also informed by the teachers that the pilot study participants had never completed a research questionnaire prior to doing so for this project. They advised that detailed instructions should be given considering that students in the actual study might be in a similar position. The session should also be conducted in Malay as it is expected to be either a native language or a more familiar language to all of the students than English.

The careless feedback received from some of the participants which was removed from analysis further emphasised the importance of voluntary participation. Despite the reminder by the teachers that the students could choose not to fill in the questionnaire, it was easy to imagine why some of them felt the need to pretend to cooperate and be interested in answering the questionnaire. In a culture where declining a request directly is generally considered a serious face-threatening act, the lackadaisical participants might have been afraid to appear rude and opt to not answer the questionnaire. Therefore, I would need to start the questionnaire-completion session by reading the instructions and promising that their anonymous identities would be preserved and that non-participation by choice in the study would be respected.

3.8 DATA ANALYSIS

This section describes the analysis carried out for both quantitative and qualitative data. The quantitative data refers to the results of pre- and post-tests while the qualitative refers to the interview data from the teacher and student-participants.

3.8.1 Quantitative Data Analysis

The quantitative data of the study from the pre- and post-tests were analysed to accept or reject the research hypothesis. The software package used to assist in keying in and analysing the data was the Statistical Package for the Social Sciences (SPSS) Version 23.0. The data were first typed and coded before going through the data screening process to correct as many errors and inaccuracies as possible. Possible errors are usually the result of errors when entering the data. The screening also dealt with outliers – values that were inconsistent with the remaining dataset. As they can distort statistical results particularly when running a paired sample t-test, outliers need to be identified and corrected to avoid reaching unreliable conclusions from the findings.

The completion of these steps led to the beginning of data analysis. The quantitative data in the study were analysed using the paired sample t-test to look for the $p\text{-value} < 0.05$ which would determine if the change from pre-test to post-test was

significant enough to suggest that the changes did not happen by accident but rather by an external stimulus (the intervention).

The paired sample t-test is used to compare two population means where researchers have two samples in which the observation in one sample can be paired with another observation in the second sample. Shier (2004: online) suggests that the situation may occur in one of these examples:

- a. Before-and-after observations on the same group of subjects
- b. When a comparison of two different methods of measurement or two different treatments is made where the measurements/treatments are applied to the same subjects

Thus, the first situation described the quantitative phase of the study where the same group of participants were measured twice, before and after a treatment. One of the ways to carry out a paired sample t-test is through SPSS by computing the differences (using Transform, Compute) and then carrying out a one-sample t-test as follows: — *Analyze — Compare Means.*

The confidence interval for the true mean difference was also calculated. Even though the difference between pre- and post-test might be statistically significant, the size of the increase needs to be calculated via confidence interval to inform readers within what limits the true difference is likely to lie. The formula for a 95% confidence interval for the true mean difference is:

$$*sd*-d \pm t \sqrt{\frac{sd^2}{n}} \text{ or, equivalently } d \pm (t \times SE(d))$$

where t^* is the 2.5% point of the t-distribution on $n - 1$ degrees of freedom.

Another means that was used to calculate the impact of the mean difference is the effect size. Cohen's d is a common tool and the effect size can be calculated using the paired t- test value as recommended by Rosenthal (1991).

3.8.2 Qualitative Data Analysis

The qualitative data, on the other hand, were managed manually. Despite an initial plan to use Qualitative Data Analysis Software (QDAS), the number of volunteers who participated in the interview was small (6 student-participants) in addition to the teacher-participant and would be manageable without any special software programme.

The interview protocol was developed using the deductive approach as the items were developed to confirm and double-check issues that arose in the quantitative part of the study. In other words, the structure of the interview had already been predetermined that allowed only a slight addition to the interview items. There were four phases involved in the qualitative data analysis. It began with the process of transcribing the data. The interviews were type-written in full as they were recorded. However, in the second phase as I organised the data, the parts where the participants and I were engaged in small talks were removed, leaving only the part related to the interview questions and responses.

In the third phase, the processed data were perused for themes. The students' responses were tabulated and arranged according to each question to be compared side by side. The themes were initially driven by the conceptual framework of the study formulated from the literature of differentiated lessons, but the data gave rise to several other themes when analysed using the constant comparison approach as suggested by Glazer and Strauss (1967). In the end these were merged into only four main themes: observable behavioural changes in the classroom, learner autonomy, equity, and potential of differentiated instruction in Malaysia. The constant comparison approach was employed because a) there were two different points of view – from the teacher and students and b) there were six students who answered the same questions, and thus the responses were compared. Even though the teacher was asked a different set of questions, the same themes (as driven by the literature) were embedded throughout the interview protocol. In the fourth and final phase, the data were summarised and linked to the research aims and questions as the data were arranged according to the themes and where relevant, supported with excerpts from the interview transcripts.

3.9 SUMMARY

In this chapter I reviewed several key components related to the methodology of the research. The first part describes the research design and the rationales for choosing classroom research and the mixed methods approach before explanation about the pre-experimental design and recapitulation of the research aims and hypotheses are given. The second part deals with discussion of the practical aspects beginning with the research procedures, from the needs analysis stage up to the post-intervention stage. The research instruments are later described and followed by a discussion of how two instruments (language learning style preference test and language attitude inventory) were piloted. The two instruments were piloted first with a group of Malaysian students who resembled the characteristics of the actual research participants to check for the test internal consistency reliability and solutions for item improvement were discussed where relevant. The chapter ends with a description of analysis for both the quantitative and qualitative data. In the following chapter, a key part of the study – the intervention is discussed where the teaching module is described along with the checklists for differentiated lessons and critical thinking inculcation.

CHAPTER 4

THE DIFFERENTIATED MODULE

4.1 STRUCTURE OF CHAPTER

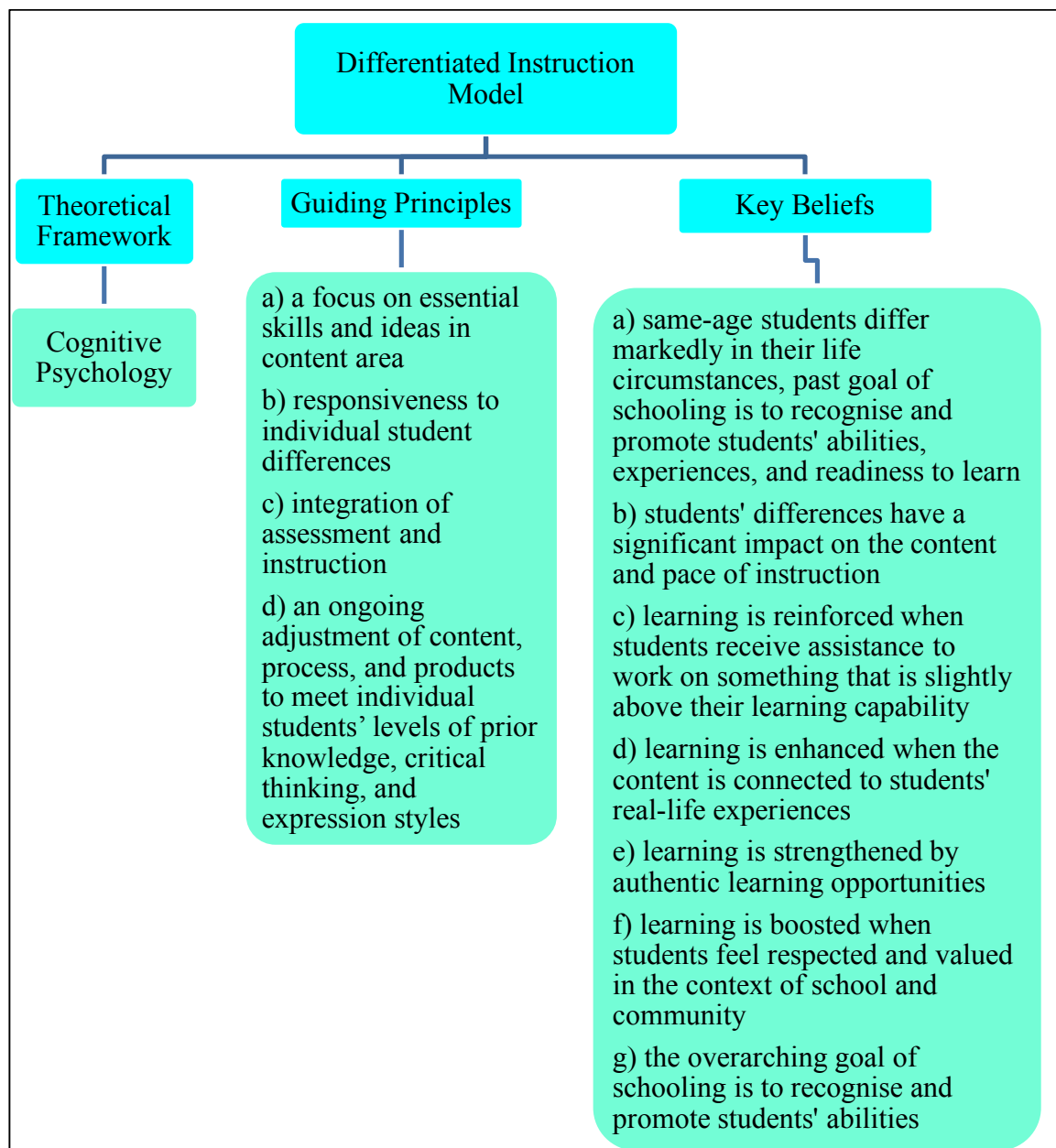
The chapter is dedicated to the discussion of outputs that I created for the study: a) a differentiated checklist, b) a higher-order thinking skill checklist, and c) a sample lesson plan from the teaching module. The first two outputs (checklists) were developed from the literature and they served as tools to assess if each lesson plan in the differentiated module was truly differentiated and to ensure that the components of critical thinking skills were integrated.

Prior to discussing the outputs, the frameworks and models that were used to facilitate their development are discussed. I began by elaborating the REACH framework (see 4.2) and how its content was used to facilitate some part of the overall design and structure of the study. In 4.2.1 the checklist for teaching differentiation is introduced and discussed to assist readers in understanding the components. The critical thinking integration is discussed in 4.3 by explaining the Bloom's taxonomy and the two thinking models that are used to develop the checklist for critical thinking in assisting me to integrate critical thinking skills across the lessons. In the final parts of the chapter, I discussed the national English language syllabus in the curriculum specifications, designed by the Curriculum Development Centre under the Ministry of Education Malaysia in terms of the components that teachers at government-funded schools have to adhere to when planning lessons (see 4.4) before discussing a sample of lesson plan from the differentiated module (see 4.5) to help readers understand how I integrated all the components of differentiation, critical thinking, and components as directed by the MoE.

4.2 TEACHING DIFFERENTIATION

The blueprint developed by Rock, Gregg, Ellis, and Gable (2008) was one of the standards used in facilitating the study intervention. The authors, in reviewing the existing model for differentiated instruction, argue that differentiated instruction as a model is governed by the cognitive psychology theoretical framework, four guiding principles, and seven key beliefs as indicated in Figure 4.1.

Figure 4.1 Components in the existing differentiated model



The model indicates that differentiated instruction is driven by the cognitive psychology theoretical framework with four guiding principles. The first is a focus on the essential skills and ideas in content area. When implemented in English classrooms, a teacher who aims to differentiate would need to identify the specific and important skills in the lesson. In the Malaysian national school context, these skills are pre-determined by the MoE as specified in the Curriculum Specifications and is discussed in 4.3. The second principle is responsiveness to individual student differences. Through differentiation, teachers acknowledge that these differences exist and should be addressed accordingly. Whether or not the gap of difference is wide it requires teachers to carry out tests to measure a specific domain and in the context of this study, the individual difference being catered to is their learning style. Using the LLSPQ as described in 3.X, these differences are identified and learning activities customised to honour the differences. The third principle is the integration of assessment and instruction and the final principle is an ongoing adjustment of content, process, and products to meet individual students' levels of prior knowledge, critical thinking, and expression styles.

The seven key beliefs are important to be cherished by teachers and school administrators who attempt to differentiate lessons or enforce lesson differentiation at schools. The first is the belief that even though students from a single classroom are of the same age, they differ in terms of their life circumstances which may have otherwise influenced their abilities, experiences, and readiness to learn. They come to school with varying levels of attitude towards life which will impact their motivation in general.

Due to these differences, it is important for teachers to accommodate accordingly and this is reflected on the teaching content and pace of how the content is delivered. Adjusting the two is time-consuming but the results will be more rewarding. Teacher will be spending precious time not for nothing. Creating a series of identical lesson content, pace, and activities will in fact be easier but it will definitely not reach out every student in the classroom as it is quite impossible to get a group of heterogeneous students in every single one within the same classroom.

The third key belief states that students get to learn something if they are given support to learn something that is slightly above their learning capability. This reflects the key feature of the scaffolding concept in the Zone of Proximal Development by Vygotsky. Assistance can be either from the teacher or the more capable peers.

The fourth belief is related to the meaningfulness of a learning content. Naturally, students are more interested to learn something that will benefit them in their daily lives. Sometimes the content as stipulated by the MoE will not appear meaningful immediately to the students such as credit management and it might even appear pedestrian to some, but a good teacher will attempt their best to reason with the students that some skills are best learnt while they are young even though it might only affect them after their tertiary education.

The fifth belief refers to the authenticity of learning opportunities. Instead of the traditional “chalk and talk” (MoE, 2003) method where teachers explain the learning content verbally, it could benefit students if they get to experience learning activities in the natural setting through field trips, site visits, and so on.

The sixth belief highlights the need for preserving the students’ personal emotion. As they feel they are being respected and valued by the school authority, learning is expected to boost. It is also possible that if instructions to students are juxtaposed with reasons instead of mere order, they might be able to cooperate and in return the situation may create a mutual sense of respect between students and school authorities.

The final belief is important to be changed especially in the present days where the overarching goal of schooling is not to become a factory that creates identical products but rather as a platform to recognise and promote students' abilities. This entails recognising that these abilities may vary and may not necessarily conform to the teachers’ expectations.

The model has guided other researchers to further carry out empirical studies and the blueprint by the authors is driven by some of these studies and approaches of successful lessons for “high performing, typically performing, poor performing, and

disabled” (p. 34) students in the classroom. It is the quality of being comprehensive and relevant to all types of learners that motivated me to choose the blueprint to be applied in my own study.

The blueprint is a general plan that comprises major benchmarks of effective instruction to reach out to students with diverse learning needs. To create it, the authors have identified five quality indicators of major variables linked to differentiated instruction, namely: 1) teacher, 2) content, 3) learner, 4) instruction, and 5) assessment and each indicator is followed by a step involved when applying differentiated instruction in the classroom. The blueprint is called REACH as an acronym to represent the steps accompanying each indicator, i.e. **R**eflect on will and skill, **E**valuate the curriculum, **A**nalyse the learners, **C**raft research-based lessons, and **H**one in on the data. Discussions to each quality indicator and step are presented below:

Quality Indicator 1: The Teacher

The first quality indicator focuses on the teacher who is the implementer of differentiated instruction. Some of the imperative values that drive differentiating instructions are:

- i. An appreciation of individual students’ learning and behavioural differences
- ii. A commitment towards effective instruction
- iii. Dedication to lifelong professional growth and development
- iv. Valuing students’ strong points and competencies

In order to achieve this, the first step that is proposed in the blueprint is for the teacher to reflect on his/her will and skills by taking into account his/her current knowledge and skills and searching for what it takes to improve existing classroom practices. The teacher also needs to identify his/her teaching preference and subject-area skills, and to eventually draw up achievable goals while at the same time develop a realistic timeline when introducing differentiated instruction in class.

In the context of the study, the teacher-participant was not fully aware of differentiated instruction especially since it is a concept that entered the vocabulary of teaching profession in Malaysia in 2013. However, he certainly displayed the third value out of the four values as described in this quality indicator (*dedication to lifelong professional growth and development*) as evidenced by his willingness to be part of the study which took nine months to complete. It was a quality that I had to look for in a teacher-participant as the study lasted for several months with a number of meetings and there was a brief session when I needed to train him with the module for several hours prior to its implementation. Since the study involved collaboration between the teacher and me, I consider myself to be part of the first variable. The study stemmed from my own questioning of the teaching practice that I experienced as a student and observed as a co-supervisor to several trainee teachers in 2009-2012 the practice that I myself carried out for several years when teaching students at a primary school, a secondary school as well as the university which I am currently serving. The practice that I experienced, observed, and carried out made no conspicuous efforts to attend to varying learners' capabilities within the same class.

Uniformity of activities to refer to the identical teaching and learning activities that I experienced as a secondary school student has now made me realise that some teachers in their attempt to create a livelier lesson conducted fun and creative activities such as dancing, singing, and acting. However, the fun and creative elements were from their point of view without consulting the students on what they like or allowing the students to choose from a set of activities that they like. Thus, the fun activities were appreciated by some students but not all. It hit me that I did not share the same passion with most of my friends - what was considered fun to some or most of my friends such as dancing and playing games in the class caused me to be nervous or frustrated. The uniformity of teaching and learning activities that I had witnessed and carried out myself made me question if activities in the classroom could be designed by getting individual students' perspectives or by giving them several choices to choose from according to their preferences.

Quality Indicator 2: The Content

In the blueprint, the content refers to the curriculum. Rock et al. (2008) argue that one of the teacher's goals is to encourage cognitive access to the curriculum. It leads to an effort to match the prescribed curriculum and students' interests and abilities. Thus, the teacher needs to evaluate the curriculum and identify the themes in the topic to be taught. It is an important stage where the teacher surveys the students about their prior knowledge to analyse their learning schemata and the required subsequent knowledge. The students, however, are not expected to progress at a similar pace. Although they receive the same instruction, the teacher needs to be aware that the standards and time of mastery may vary.

In the context of this study, the content is already spelt out by the MoE through the curriculum specifications which includes the themes of topics, specific topics, learning outcomes, and language skills to achieve. Teachers are expected to follow through but they are allowed to choose learning materials independently in addition to the textbook. The module was designed to include activities either tailored according to the students' learning style preference or ones that they choose independently (for their homework). Although I was not able to provide additional time to the students to complete their tasks (students are usually asked to submit their homework during or before the next lesson) as the teacher and I had to keep up with the teaching calendar as arranged by the school's English department, giving choices to students to demonstrate their comprehension and learning abilities proved to be useful because it allowed students to choose the topics and genre for homework and level of complexities that they were most comfortable with.

Quality Indicator 3: The Learner

The focus when differentiating the lesson is the learners. In spite of the importance of curriculum, the content needs to be altered to meet and fulfil learners' learning needs. It may necessitate a shift from a content-centred to a student-centred classroom. Rock et al. (2008) encourage teachers to analyse the learners by identifying their learning readiness, interests, preferences, strengths, and needs. It requires an individual teacher to be critical in recalling or investigating the causes of poor classroom performance.

Although some teachers might be hesitant to carry this task out when dealing with a large class size, the huge amount of time spent will finally pay off as the students will be able to follow the lesson more easily and continue to be motivated for a longer duration. The student-participants in my study were surveyed on their learning style preference (see 3.3.2) during the needs analysis phase. After finalising the results of the learning test, I designed activities which were in line with the students' interests so as to keep them interested.

Quality Indicator 4: The Instruction

This indicator refers to the teacher's teaching tool kit. Although teachers are constantly looking for new teaching ideas, Rock et al. (2008) suggest that all strategies or procedures need to be research-validated. This phase requires teachers to strike a balance between instruction, remediation for failing learners, and enrichment activities for struggling learners. They are advised to begin by devising a plan of instruction and specify supplementary activities before adjusting the plan to match different levels of difficulty. In order to create interesting research-based lessons, variety is key and the approach needs to be direct and strategic.

Quality Indicator 5: The Assessment

differentiated instruction emphasises ongoing assessment as an essential component. However, the role of assessment transcends the mere aim to give grades; it is supposed to determine the impact of instruction on the students' knowledge and skills. In order to assess effectively, planning is mandatory. The teacher needs to make data-informed decisions about students' learning by analysing student-performance data as well as by critically analysing their behaviour. This could be carried out through formative or summative evaluation. Rea-Dickins (1994) states that formative evaluation is distinguishable from summative evaluation in that the former is associated with the aim to refine and create a particular aspect of the curriculum including student learning while the latter emphasizes the outcomes of the teaching and learning process. However, Rea-Dickins also suggests that the distinction is not as straightforward and at times the two types of evaluation overlap as formative evaluations could feed into summative ones just as summative

evaluations could initiate further work which has thus assumed formative characteristics.

An assessment conducted prior to the instruction is typically called pre-assessment or diagnostic assessment. Rock et al. (2008) suggest that it usually involves evaluating learning interests, thinking styles, and readiness for content or skill. In the context of my study, the students were surveyed on their learning style preference to guide selected activities to be included in the module and they also had to answer two sets of pre- and post-tests. The learning style preference survey fits the formative characteristic while the pre- and post-tests were summative in nature as they were carried out to measure the outcomes of the intervention.

These five indicators describe a thorough dimension that begins with the teacher and ends with students' assessment for a differentiation to take place in the classroom. However, they do not define the specifics that describe the different types of differentiation, namely content, process, and product. Thus, in order to facilitate my designing a checklist to ensure that each lesson was adequately differentiated in either one of the types, definitions by scholars were used and is discussed further in 4.2.1.

4.2.1 Self-developed checklist for teaching differentiation

As the study intended to investigate the effects of an intervention programme (differentiated teaching module) on the students' language attitude and critical thinking, it was imperative that the intervention was measured for its differentiation level to draw valid conclusions from it. Thus, the module was checked against two self-developed checklists based on the literature. The first was a differentiated checklist (see Figure 4.2) comprising descriptors in the form of characteristics of differentiated lessons and best teaching practices, and the second was a higher order thinking skill checklist (see Figure 4.6) drawn up based on three thinking skill models, i.e. Revised Bloom's Taxonomy (2001), the Maker Model (1982), and the Williams Model (1993). The checklists were screened several times by both my supervisors. After they were refined, they were sent to two local experts in the field (see 3.6) for validation. After considerable refinement was made, the checklists were used as tools for two independent raters to evaluate the lesson plans. The process was

carried out to determine if the lessons were adequately differentiated and if they would adequately promote critical thinking. For the lesson to be considered adequately differentiated it had to meet all the criteria of at least one type of differentiation and for it to be considered a lesson that would promote critical thinking, it had to fulfil at least half of the traits characterised in the checklist. Results of the review are discussed in 3.4.3.

The checklists began with a set of instructions and brief explanation of differentiated instruction to guide the raters. The differentiated checklist comprises descriptors for three types of differentiation: content, process, and product (see Figure 4.2). Descriptors of each type is preceded by its definition and followed by the descriptors. Next to the descriptors are the “yes” and “no” columns for reviewers to mark after reviewing each lesson plan. The “yes” column is measured by three degrees of intensity – clear, fair, and weak. To recap, a lesson can be said to have been adequately differentiated at the end of the review if it fulfils all the criteria of at least one type of differentiation. Changes were meant to be carried out if the reviewer identifies any criterion as *weak* or *fair*. The descriptors of differentiation are also supplemented by a list of best practice identified from the literature to suit the specific type of differentiation as indicated at the end of the table for each type of differentiation. Specific sources from the literature are also provided as each step is driven by empirical evidence as indicated by Quality Indicator 4. Despite the numerous traits available from the literature, the checklist was designed by choosing only the main traits for it to be succinct and user-friendly.

Under the *content* differentiation, two main traits that define the concept were chosen, namely i) the use of varying instructional materials used for the classroom and ii) the use of varying levels of material difficulty to accommodate students with different proficiency levels. The best practice criterion chosen was related to the learning objectives to indicate whether the number is achievable within the lesson period and whether they are stated to and discussed with the students explicitly. This quality is in line with the aim of differentiation in which students are given the autonomy to be partially in charge of their learning. Students need to be aware of what they are going to be learning. The second criterion under the best practice related to content is a quick survey carried out by the teacher to tap his/her students’ background knowledge

so as to be responsive to the students' needs in the lesson. By knowing the extent that the students are ready about the content of the lesson, the teacher will be able to provide more examples or could slow down the teaching pace.

Under process differentiation, three main criteria were chosen. The first was related to the teaching methods, the second to the classroom tasks, and the third to the students' groupings in the classroom. Meanwhile, two criteria identified by scholars were chosen to be included as part of the best practice related to the process and they are related to the aspect of providing assistance during the lesson. Teachers have to provide immediate feedback where appropriate to ensure that the students fully understand the concepts being taught. If their confusion is not cleared and the lesson resumes, it might thwart their understanding and jeopardize success of the overall lesson for each individual student. The students also need to be provided a form of scaffolding that refers to guidance either by able peers or the teacher.

Finally, the product differentiation highlights one outstanding criterion of differentiation that is the freedom to choose their preferred assignments or homework. Conventional classrooms usually involve teachers assigning students with the same assignment. Under the best practice related to learning product, homework needs to involve exhibition of the products to real audience where students' work gets to be appreciated and the homework also needs to comprise tasks with real purposes, and not just serving the purpose of merely fulfilling homework. For example, students are taught to write a letter of complaint to the authority with a final aim to post them and not only for the purpose of writing practice.

Figure 4.2 Checklist of descriptors for differentiated lesson

Component I CONTENT						
Differentiation of content Differentiating what is being taught by using a variety of learning materials to explain the same concept/main ideas or by using similar materials with varying levels of complexity						
No.	Descriptors	Yes			No	Source
		Clear	Fair	Weak		
1.	Varied instructional materials are used for different groups of students in the same classroom, rather than using the same materials with all students.					Tomlinson et al. (2003)
2.	Levels of material difficulty are varied (e.g. simple, average, and difficult) to accommodate students in the same class with different language proficiency levels (e.g. low, intermediate, and advanced).					Taylor (2015)
Best teaching practice related to content						
1.	A reasonable number of learning objectives is presented in the lesson plan (e.g. between 2 to 3 objectives depending on topic complexity).					Dahlman et al. (2008)
2.	Learning objectives of the lesson are explicitly discussed with the students at the beginning					Rock et al. (2008)

	of the lesson.					
3.	Students' background knowledge related to the learning content is surveyed at the beginning of the lesson.					Rock et al. (2008) Dahlman et al. (2008)
Component II PROCESS						
Differentiation of process Differentiating how teaching and learning takes place by varying types of classroom activities or teaching methods for different students in the same class based on their interests or learning styles						
No.	Descriptors	Yes			No	Sources
		Clear	Fair	Weak		
1.	Various methods of learning are promoted (e.g. co-operative learning, inquiry-based learning, problem-based learning, and active learning).					Taylor (2015) Tomlinson (2014) Dahlman et al. (2008)
2.	Various classroom tasks are given based on variables such as students' learning style preferences or language proficiency (i.e. varied tasks for different groups based on their preferred mode of learning, rather than using identical set of tasks across all groups).					Bender (2012) Tomlinson (2014)
3.	Several grouping styles in a single lesson are used (e.g. individual task, pair work, small groups, whole class).					Taylor (2015) Tomlinson (2014)

Best teaching practice related to teaching process						
1.	Student responses are followed by immediate teacher feedback where appropriate.					Taylor (2015) Tomlinson (2014)
2.	When students struggle to produce expected answers, scaffolding (guidance by either teacher or other peers) is provided , instead of presenting them with answers immediately.					Taylor (2015) Tomlinson (2014)
Component III PRODUCT						
Differentiation of product Differentiating evidence of learning by providing multiple choices for students to demonstrate what they have learned						
No.	Descriptors	Yes			No	Sources
		Clear	Fair	Weak		
1.	Freedom to choose preferred assignments to demonstrate understanding of a subject matter is given to students (i.e. by allowing different types of products such as pictures, creative writing, or videos to elaborate on a concept learned in class or by allowing different modes such as individual and pair work).					Taylor (2015) Tomlinson (2014) Bender (2012) Dahlman et al. (2008) Maker (1982)

Best teaching practice related to learning product						
1.	Exhibition of final products of homework to real audience other than the teacher is encouraged (e.g. parents, virtual friends on social media networks).					Dahlman et al. (2008) Maker (1982)
2.	Homework with real-life purposes is assigned (i.e. tasks that are performed in real life such as writing a thank you note to a friend, creating a Mother's Day poem, discussing issues with virtual friends to get their opinions).					Dahlman et al. (2008) Maker (1982)

4.3 Critical Thinking Inculcation

The second checklist, which was developed to inculcate critical thinking in the lessons, was driven by Bloom's revised taxonomy by Anderson and Krathwohl in 2001 (see Figure 4.3) and models by Maker (1982) and Williams (1993). Both the models are presented as Figure 4.4 and Figure 4.5 respectively. Each descriptor was created by choosing and synthesizing great overlapping qualities across the three guiding models. Before embarking on the discussion of the checklist, the taxonomy and two models are first discussed.

In 1956 Bloom and a group of measurement specialists developed taxonomy of educational objectives to serve as a framework that classified statements of students' learning expectations as a result of instruction. The framework was initially conceived as a way to create a bank of test items among academics at numerous universities. For the items to be exchanged they must measure the same educational objectives and by referring to the same framework would the items be developed within the same set of learning expectations. However, Krathwohl (2002) claims that Bloom viewed the taxonomy as more than a tool for measurement but rather as a unifying language that

can be used by different educators across grade levels and subject to communicate about common learning goals, among other purposes.

The first column in Figure 4.3 presents the original taxonomy which was developed by Bloom and the committee in 1956 alongside the revised taxonomy by Anderson and Krathwohl in 2001. The original taxonomy was comprised of six hierarchical categories in terms of complexity, i.e. knowledge as the most basic requirement of learning expectation, followed by comprehension, application, analysis, synthesis, and evaluation. Mastery of a prior level is a prerequisite before moving on the next more complex skill. Almost always, these analyses have shown a heavy emphasis on objectives requiring only recognition or recall of information, objectives that fall in the Knowledge category. However, it is objectives that involve the understanding and use of knowledge, those that would be classified in the categories from Comprehension to Synthesis that are usually considered the most important goals of education. Such analyses, therefore, have repeatedly provided a basis for moving curricula and tests toward objectives that would be classified in the more complex categories.

Figure 4.3 Comparison of taxonomies of the cognitive domain

(Source: Wilson, 2013: online)

Bloom's Taxonomy 1956	Anderson and Krathwohl's Taxonomy 2001												
<p>1. Knowledge: Remembering or retrieving previously learned material. Examples of verbs that relate to this function are:</p> <table border="1" data-bbox="295 1608 826 1792"> <tr> <td>know</td> <td>define</td> <td>record</td> </tr> <tr> <td>identify</td> <td>recall</td> <td>name</td> </tr> <tr> <td>relate</td> <td>memorize</td> <td>recognize</td> </tr> <tr> <td>list</td> <td>repeat</td> <td>acquire</td> </tr> </table>	know	define	record	identify	recall	name	relate	memorize	recognize	list	repeat	acquire	<p>1. <u>Remember</u>: Recognizing or recalling knowledge from memory. Remembering is when memory is used to produce or retrieve definitions, facts, or lists, or to recite previously learned information.</p>
know	define	record											
identify	recall	name											
relate	memorize	recognize											
list	repeat	acquire											
<p>2. Comprehension: The ability to grasp or construct meaning from material. Examples of verbs that relate to this function are:</p> <table border="1" data-bbox="295 1937 826 2011"> <tr> <td>restate</td> <td>identify</td> <td>illustrate</td> </tr> </table>	restate	identify	illustrate	<p>2. <u>Understand</u>: Constructing meaning from different types of functions be they written or graphic messages or activities like interpreting, exemplifying, classifying,</p>									
restate	identify	illustrate											

<table border="1"> <tr> <td>locate</td> <td>discuss</td> <td>interpret</td> </tr> <tr> <td>report</td> <td>describe</td> <td>draw</td> </tr> <tr> <td>recognize</td> <td>discuss</td> <td>represent</td> </tr> <tr> <td>explain</td> <td>review</td> <td>differentiate</td> </tr> <tr> <td>express</td> <td>infer</td> <td>conclude</td> </tr> </table>	locate	discuss	interpret	report	describe	draw	recognize	discuss	represent	explain	review	differentiate	express	infer	conclude	summarizing, inferring, comparing, or explaining.												
locate	discuss	interpret																										
report	describe	draw																										
recognize	discuss	represent																										
explain	review	differentiate																										
express	infer	conclude																										
<p>3. Application: The ability to use learned material, or to implement material in new and concrete situations. Examples of verbs that relate to this function are:</p>	<p>3. <u>Apply</u>: Carrying out or using a procedure through executing, or implementing. <i>Applying</i> relates to or refers to situations where learned material is used through products like models, presentations, interviews or simulations.</p>																											
<table border="1"> <tr> <td>apply</td> <td>organize</td> <td>practice</td> </tr> <tr> <td>relate</td> <td>employ</td> <td>calculate</td> </tr> <tr> <td>develop</td> <td>restructure</td> <td>show</td> </tr> <tr> <td>translate</td> <td>interpret</td> <td>exhibit</td> </tr> <tr> <td>use</td> <td>demonstrate</td> <td>dramatize</td> </tr> <tr> <td>operate</td> <td>illustrate</td> <td></td> </tr> </table>	apply	organize	practice	relate	employ	calculate	develop	restructure	show	translate	interpret	exhibit	use	demonstrate	dramatize	operate	illustrate											
apply	organize	practice																										
relate	employ	calculate																										
develop	restructure	show																										
translate	interpret	exhibit																										
use	demonstrate	dramatize																										
operate	illustrate																											
<p>4. Analysis: The ability to break down or distinguish the parts of material into its components so that its organizational structure may be better understood. Examples of verbs that relate to this function are:</p>	<p>4. <u>Analyse</u>: Breaking materials or concepts into parts, determining how the parts relate to one another or how they interrelate, or how the parts relate to an overall structure or purpose. Mental actions included in this function are <i>differentiating, organizing, and attributing</i>, as well as <i>being able to distinguish between</i> the components or parts. When one is analysing, he/she can illustrate this mental function by creating spreadsheets, surveys, charts, or diagrams, or graphic representations.</p>																											
<table border="1"> <tr> <td>analyse</td> <td>differentiate</td> <td>experiment</td> </tr> <tr> <td>compare</td> <td>contrast</td> <td>scrutinize</td> </tr> <tr> <td>probe</td> <td>investigate</td> <td>discover</td> </tr> <tr> <td>inquire</td> <td>detect</td> <td>inspect</td> </tr> <tr> <td>examine</td> <td>survey</td> <td>dissect</td> </tr> <tr> <td>contrast</td> <td>classify</td> <td>discriminate</td> </tr> <tr> <td>categorize</td> <td>deduce</td> <td>separate</td> </tr> </table>	analyse	differentiate	experiment	compare	contrast	scrutinize	probe	investigate	discover	inquire	detect	inspect	examine	survey	dissect	contrast	classify	discriminate	categorize	deduce	separate							
analyse	differentiate	experiment																										
compare	contrast	scrutinize																										
probe	investigate	discover																										
inquire	detect	inspect																										
examine	survey	dissect																										
contrast	classify	discriminate																										
categorize	deduce	separate																										
<p>5. Synthesis: The ability to put parts together to form a coherent or unique new whole. Examples of verbs that relate to this function are:</p>	<p>5. <u>Evaluate</u>: Making judgments based on criteria and standards through checking and critiquing. Critiques, recommendations, and reports are some of the products that can be created to demonstrate the processes of evaluation. In the newer taxonomy, <i>evaluating</i> comes before creating as it is often a necessary part of the precursory behaviour before one creates something.</p>																											
<table border="1"> <tr> <td>compose</td> <td>plan</td> <td>propose</td> </tr> <tr> <td>produce</td> <td>invent</td> <td>develop</td> </tr> <tr> <td>design</td> <td>formulate</td> <td>arrange</td> </tr> <tr> <td>assemble</td> <td>collect</td> <td>construct</td> </tr> <tr> <td>create</td> <td>set up</td> <td>organize</td> </tr> <tr> <td>prepare</td> <td>generalize</td> <td>originate</td> </tr> <tr> <td>predict</td> <td>document</td> <td>derive</td> </tr> <tr> <td>modify</td> <td>combine</td> <td>write</td> </tr> <tr> <td>tell</td> <td>relate</td> <td>propose</td> </tr> </table>	compose	plan	propose	produce	invent	develop	design	formulate	arrange	assemble	collect	construct	create	set up	organize	prepare	generalize	originate	predict	document	derive	modify	combine	write	tell	relate	propose	
compose	plan	propose																										
produce	invent	develop																										
design	formulate	arrange																										
assemble	collect	construct																										
create	set up	organize																										
prepare	generalize	originate																										
predict	document	derive																										
modify	combine	write																										
tell	relate	propose																										
<p>6. Evaluation: The ability to judge, check, and even critique the value of material for a given</p>	<p>6. <u>Create</u>: Putting elements together to form a</p>																											

purpose. Examples of verbs that relate to this function are:			coherent or functional whole; reorganizing elements into a new pattern or structure through generating, planning, or producing. Creating requires users to put parts together in a new way, or synthesize parts into something new and different creating a new form or product. This process is the most difficult mental function in the new taxonomy.
judge assess compare evaluate conclude measure deduce	argue decide choose rate select estimate	validate consider appraise value criticize infer	

Meanwhile in 2001, Anderson and Krathwohl (the co-authors of the original taxonomy) and a new group of scholars revised the taxonomy (see the second column of Figure 4.3) and came up with a two-dimensional framework: a) knowledge and b) cognitive processes. In the new taxonomy “knowledge” resembles the subcategories (i.e. knowledge of specifics, knowledge of ways and means of dealing with specifics, and knowledge of universals and abstractions in a field) that were formulated to explain the original *Knowledge* category and “cognitive processes” resembles the six categories of the original taxonomy, i.e. knowledge, comprehension, application, analysis, synthesis, and evaluation. However, in the new taxonomy, all the nouns were replaced with verbs and knowledge was re-labelled “remember”, comprehension as “understand”, application as “apply”, analysis as “analyse”, synthesis “create”, and evaluation “evaluate”. In the revised version, the fifth and sixth skills which were “synthesis” and “evaluation” were switched as the committee believes “create” (the new “synthesis”) is more complex than “evaluate” (the new “evaluation”). Krathwohl also claims that even though the categories are arranged in a hierarchal structure, they were not as rigid as in the original taxonomy.

Freeman (2014), in reviewing EFL textbooks to examine reading texts, argues that only few taxonomies in the literature of questioning types are available on the market and out of these few they depended either directly or indirectly on Bloom’s Taxonomy of Educational Objectives (Bloom, Engelhart, Furst, Hill, and Krathwohl, 1956). The situation demonstrates the prevalent and everlasting influence that Bloom’s Taxonomy has brought upon and Freeman claims that it has been used across numerous educational disciplines leading to the development of new and slightly more focused taxonomies such as Sanders (1966) who relied on Bloom to

form a taxonomy of classroom questions that offers a practical framework for teachers on how to formulate questions that accommodate the different levels of Bloom's taxonomy. It was then when I realized due to its significant influence in the thinking field that the framework was selected by the Ministry of Education as a framework for Malaysian teachers to rely on when designing critical thinking activities in the classroom (Ghazali, 1997). The element of critical thinking was first introduced in the Malaysian curriculum back in 1994. It was, however, re-emphasised in 2010 with the inclusion of new components, i.e. innovativeness and creativity across school subjects.

The extent of the effort was further augmented with an emphasis on Higher Order Thinking Skills (HOTS) from the revised Bloom's Taxonomy by Anderson and Krathwohl (2001) as described in the Malaysian Education Blueprint 2013-2025. The MoE (2013a: 5) defines the higher order thinking skills in the context of what is expected from Malaysian students as a thinking ability that is capable of a) applying knowledge, skills, and values when drawing conclusions and making reflections to solve problems, b) making innovative decisions, and c) producing new creations. The original levels by Bloom et al. (1956) were arranged from the simplest to the most complex level of thinking as follows: knowledge, comprehension, application, analysis, synthesis, and evaluation. However, Anderson and Krathwohl (2001) redefine Bloom's original concepts by taking into consideration many of Bloom's own concerns and criticisms of his original taxonomy. One of the revisions made was to change the position of the most complex level of thinking from evaluation to creation (synthesis). Learning outcomes were generated in each lesson plan of the differentiated teaching module to match these types of thinking and prepared questions posed by teachers were also in line with the thinking types.

Meanwhile, the Maker model and William model were added in line with the local experts' suggestions as these models were employed by the Australian government in designing curriculum for their gifted and academically superior learners. although the student-participants were not identified as gifted learners, they were still from the first-ranked class with excellent academic record. Therefore, only some of the criteria stated in the two models were chosen and integrated in the lessons.

The Maker model posits means to modify teaching and learning content, process, and product. At the content modification level, six strategies are suggested for a teacher to differentiate their lessons and these strategies are abstraction, complexity, variety, organisation, study of people, and methods of inquiry. Six elements are suggested at the process modification level higher-order thinking skills, open-ended processing, discovery, proof and reasoning, freedom of choice, and group interactions of like-ability peers. The characteristics of product modifications are used to design the homework assigned to the student-participants. Criteria included in the model are real-world problems, real audiences, evaluations, and transformation.

Figure 4.4 The Maker Model (1982): A practical model of curriculum differentiation

CONTENT MODIFICATIONS	
Abstraction	The focus of discussions, presentations and reading materials should be on abstract concepts, themes and theories.
Complexity	Complexity is determined by examining the number and difficulty of concepts and disciplines that must be understood or integrated.
Variety	Students can work on their areas of different aspects of a broad theme and in their areas of interest.
Organisation	Content is organised around key concepts or abstract ideas.
Study of people	Students research the lives of creative and productive individuals.
Methods of inquiry	Students study the methods of inquiry used in different disciplines.
PROCESS MODIFICATIONS	
Higher-order thinking skills	Instructional methods should stress the use rather than the acquisition of information.

Open-ended processing	Questions are provocative in that they stimulate further thinking and research into a topic.
Discovery	Activities stimulate inductive reasoning to find patterns and underlying principles.
Proof and reasoning	Students are required to explain the reasoning that led to their conclusions. Students learn about other students' approaches and learn to evaluate reasoning processes.
Freedom of choice	Choice of activities can be motivating and independent learning can meet the gifted student's preference for self-regulation. Some students need support to become independent learners.
Group interactions of like-ability peers	Structured and unstructured activities should be provided to enable both intellectual and socio-affective goals.
PRODUCT MODIFICATIONS	
Real-world problems	Products should address problems that are meaningful to the students.
Real audiences	Gifted students are not developing products that are evaluated only by the teacher.
Evaluations	Gifted students' products should be evaluated by appropriate audiences, their peers and themselves.
Transformation	Original work is produced when students are engaged in higher-order thinking.

The William model on the other was used to facilitate the infusion of critical thinking into lessons to be carried out. The model comprises nine traits that when infused into lessons, a teacher will have promoted students' critical thinking. The traits are paradox, attribute listing, analogy, discrepancy, provocative question, organised random search, skills of search, tolerance for ambiguity, and lastly evaluation of situations.

Figure 4.5 The Williams Model (1993): A model for infusing critical thinking

Paradox	At first glance this is something that appears to be counter-intuitive. Paradoxes can be used to evaluate ideas and challenge students to reason and find proof
Attribute listing	This involves the skill of analysis. Students can be asked to list the attributes of or list the properties of something.
Analogy	Students find the similarities between things and compare one thing to another.
Discrepancy	Williams is referring to the exploration of deficiencies in a person's understanding. Students should be challenged to discuss what is not known or understood.
Provocative question	These are questions that require thoughtful consideration to clarify meaning or develop new knowledge. Many types of challenging questions can be posed to elicit higher-order thinking using Bloom's taxonomy, e.g. questions that require analysis, synthesis and evaluation.
Organised random search	Given a situation or body of knowledge possibly from an historical context ask students to search for other information to answer questions such as, what would you do or what would you have done? Justify your response.
Skills of search	This involves searching for ways that something has been done before or searching for the current status of something. For example, looking for cause and effect, analysing results, drawing conclusions.
Tolerance for ambiguity	In other words, an observation could mean one thing or it could mean something else. Pose open-ended questions, provide situations that puzzle. This is a good technique that leads to self-directed learning.
Evaluation of situations	Evaluate solutions and answers in terms of their consequences and implications — pose the question "what if?"

4.3.1 Self-developed Checklist for Critical Thinking Integration

Based on the taxonomy and two models, six qualities are chosen as a set of requirements to form a checklist for higher order thinking (see Figure 4.6) and it was used to check the content of each lesson in ensuring that the questions asked reflect the qualities. With an adherence to the checklist, a lesson can be said to have been designed to promote higher order critical thinking.

The first descriptor is application of information that is guaranteed if teachers' questions are beyond the second level (understanding) of the revised Bloom's taxonomy. Application of information is key to ensuring that students are engaged in higher order thinking as mere retention and recall of information as well as understanding information cannot fairly describe students as active contributors to the thinking process.

The second descriptor in the checklist is inductive reasoning that is facilitated by the teacher which refers to the process of presenting examples and guiding students to draw conclusions based on the given examples. By doing so, the teacher will be training students to be active thinkers instead of merely feeding them with rules and explanations only to be followed by relevant examples.

The third descriptor stresses on the appropriate transition of question complexities according to Bloom's taxonomy. As each level in the taxonomy increases hierarchically in terms of complexity, it is pertinent for the teacher not to demotivate students by starting discussion with difficult questions at the beginning of the lesson.

The fourth descriptor highlights the necessity for provocative questions to be asked in the classroom which would require serious and thoughtful consideration before the students are able to answer them. To successfully meet this requirement, teachers are advised to ask questions that would allow them to evaluate or create.

The fifth descriptor is related to the instillation of reflection on students' answers and decision-making process to encourage them to justify their answers and articulate what goes on in their mind as they make their choices. Through this, students are

indirectly through to support their arguments with reasons and provide rationales in explaining their logic.

The sixth and final descriptor is the discussion about the practical use of any skill or knowledge they have learnt in class to their daily lives. The quality is expected to motivate students in learning as they are directly enlightened about the importance of learning the content taught in the lesson.

Figure 4.6 Checklist of descriptors for higher order thinking skills inculcation

HIGHER ORDER THINKING SKILLS Thinking ability to apply knowledge, skills, and values in reasoning and reflecting when solving problems, making decisions, and introducing innovations						
No.	Descriptors	Yes			No	Sources
		Clear	Fair	Weak		
1.	Application of information is emphasized by posing questions beyond the understanding level in Bloom’s revised taxonomy , rather than mere acquisition of information (<i>remembering</i>)					Maker (1982): Higher-order thinking skills Bloom’s Revised Taxonomy (2001)
2.	Inductive reasoning (i.e. students draw conclusions on patterns and underlying principles from specific examples) is carried out before presentation of actual rules/principles by the teacher.					Maker (1982): Discovery
3.	Appropriate transition of question complexities according to Bloom’s taxonomy is made (i.e. questions always begin with the less complex level and move gradually to the more complex levels).					Maker (1982): Complexity Bloom’s Revised Taxonomy (2001)

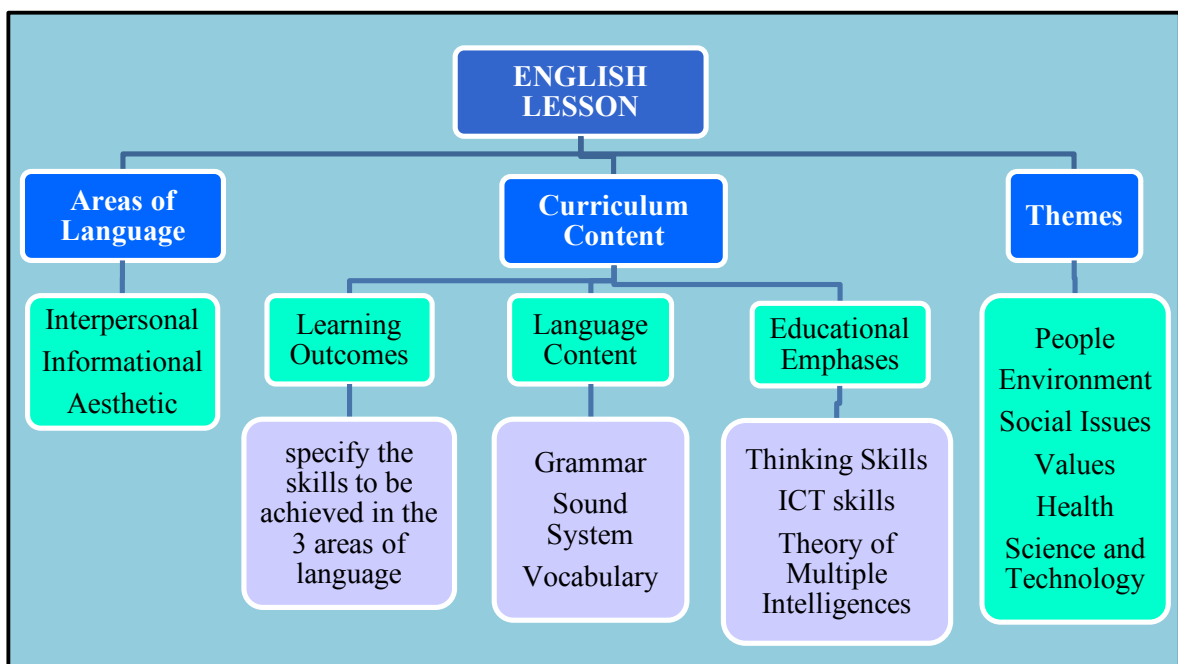
4.	Provocative questions that require thoughtful consideration to clarify meaning or develop new knowledge are asked (e.g. by posing questions that require them to <i>evaluate</i> or <i>create</i>).					Williams (1993): Provocative question
5.	Reflection on answers or decision-making is instilled (i.e. students are encouraged to explain what makes them choose the answers that they have chosen).					Williams (1993): Evaluate situations Maker (1982): Reasoning Bloom's Revised taxonomy (2001): Metacognitive
6.	Practical use of knowledge/skills learnt during lesson to student daily life is discussed .					Maker (1982): Transformation

4.4 NATIONAL ENGLISH LANGUAGE SYLLABUS AS OUTLINED IN THE CURRICULUM SPECIFICATIONS

The Malaysian English Language syllabus is a guide to teachers across the nation in planning their lessons and executing learning activities in line with the government's vision. The syllabus is detailed out in the curriculum specifications (known locally as *Huraian Sukatan Pelajaran*) and is prepared as a separate document available for students of each year at primary and secondary schools. In general, the document enumerates all the skills that students are expected to achieve, the topics or themes of discussion to be carried out in class, and the vocabulary, grammar items, and also the sound system to be acquired. Teachers are also required to plan their teaching based on the curriculum specifications because the national examinations are set against these specifications.

Three main components form the entire content of the syllabus, namely the a) areas of language, b) curriculum content which further specifies the learning outcomes, language content, and educational emphases, and c) themes for classroom discussions (see Figure 4.7).

Figure 4.7 Guiding components for English lesson plan in Malaysia



The areas of language in the curriculum are tailored to reflect how English is used in the society for everyday activities which include interpersonal, informational, and aesthetic purposes. As stated in the curriculum specifications (MoE, 2003b) language for interpersonal purposes refers to the need for establishing and maintaining friendships as well as for collaborating with other people to fulfil certain tasks. Meanwhile, language for informational purposes refers to the need to obtain, process, and give information and language for aesthetic purposes is intended to assist learners in enjoying literary texts which are within their language comprehension and in expressing themselves creatively.

The curriculum content is outlined by three key sections, namely the learning outcomes, the language content, and the educational emphases to be embedded into teaching materials and learning activities. The learning outcomes are used to specify the language skills that are expected to be fulfilled by the students in three areas of language use. The language content highlights the grammar, sound system, and word list for students to learn, whereas educational emphases refer to educational areas that are gaining worldwide attention, such as thinking skills, Information and Communication technology skills, and the theory of Multiple Intelligences.

Finally, the themes refer to the topics stipulated for each form to encourage students to read, write, and talk about them. Students are not expected to learn the topics extensively as they may not be tested on the same topics in the examination but the topics are merely the platform that teachers use to teach the three areas of language and create learning activities against. Topics of suggestions for the Fourth Form as suggested by the MoE are:

- a) **People** which may include helping students to appreciate intercultural respect and understanding in a national and international setting
- b) **Environment** which may cover discussions about earth conservation and pollution
- c) **Social Issues** to include issues such as consumerism and caring for the elderly
- d) **Values** that may involve patriotism and citizenship issues
- e) **Health** by discussing specific diseases and illnesses, their impact on the society, and consequently preventive measures

- f) **Science and Technology** by integrating technological advancement and how it affects the country and the world in general

4.5 SAMPLE LESSON PLAN FROM THE TEACHING MODULE

The intervention in the research refers to a differentiated module designed by the researcher but implemented by the teacher-participants. The module contained a compilation of 13-week lesson plans developed using REACH (see Figure 4.8 for a sample lesson plan; remaining lesson plans see Appendix K), a differentiated inventory (discussed in 4.2.1) and three models of thinking skills (discussed in 4.3). In creating the lesson plans which comprised the module, the components covered in the curriculum specifications were taken into account.

From initial quick check with the teacher (discussion prior to creating the module) and from concerns raised by local scholars (e.g Zarina, 2010), English classrooms across the country have been found to favour writing and reading activities besides drilling students to answer past year examination papers. However, on analysing the English language specifications, a glaring demand for productive skills' competence is evident besides the demand for receptive skills which motivated my emphasis on speaking activities in the teaching module. The MoE, through the English language syllabus (MoE, 2003b: 1), aims to “extend learners’ English language proficiency in order to meet their needs for English in everyday life, for knowledge acquisition, and for future workplace needs” and so, the curriculum specifications are developed to enable learners to:

- i. form and maintain relationships through **conversation** and correspondence; take part in **social interactions**; and obtain goods and services;
- ii. obtain, process and use information from various audio-visual and print sources; and present the information in **spoken** and written form;
- iii. listen to, view, read and respond to different texts, and **express ideas**, opinions, thoughts and feelings imaginatively and creatively in **spoken** and written form;
- iv. and show an awareness and appreciation of moral values and love towards the nation.

Each lesson plan is preceded by a rubric that with basic information (class, day and date, time, class size, and the students' level of proficiency). It will also enlist specific information related to the lesson as guided by the curriculum specifications, i.e. language skills to be taught in the lesson, theme of lesson, topic of the day, learning specifications, and educational emphases. There is also some additional information that I added (mostly based on what I was taught at the University during my training as a trainee teacher) such as formulating a set of specific and measurable learning outcomes based on the general outcomes in the curriculum specifications, listing the teaching aids for the lesson, specifying the thinking skills as well as the grammar/vocabulary items based on the curriculum specifications, and indicating the type of differentiation.

In the second part of the lesson plan is a table that specifies the teaching and learning procedures. The basic format is taught at teacher training institutes and thus, it is safe to assume that it is a format that the teacher-participant and independent raters will be familiar with. It contains separate columns on the teaching stages (e.g. set induction/opening, development, and closure), the teacher's activity, and students' activity. At the end of the lesson plan, there is an optional section for self-reflection in which teachers would comment on what they think or how they feel about the lesson's success and to list shortcomings that need to be rectified in the next lesson. However, I had added additional features which are: a) the rationale in the teaching stage column to justify activities being conducted in the lesson, and b) the time duration to guide the teacher-participant in his teaching pace for each stage.

One sample lesson plan (see Figure 4.8) is discussed to help readers understand how the components in the curriculum specifications as well as the principles of differentiation and critical thinking were integrated in each lesson. The remaining differentiated lesson plans are enclosed in Appendix K.

The theme chosen in line with the MoE's requirement (see Figure 4.7) was a combination of *People* and *Value* and in commemoration of the national independence day in August, I decided that the first lesson should become a medium for discussing the history of Malaya's independence. In line with the first theme *People* students were introduced to the key public figures who helped fought for the

national independence and for the second theme *Value*, activities were tailored to invoke the element of patriotism.

The students are expected to be familiar with Malaya's Independence as they have covered it in their Third Form (age 15) History class. They may have also been exposed to the recount of the event (either heard or spoke about it) by parents or the mass media. However, they may have only heard or talked about it in their native language. Speaking about a familiar topic can dramatically increase confidence, hence the choosing of this topic. It is also expected that the stress of speaking in a foreign language (English) will be reduced.

Reading skill was the main language skill in the lesson in which a reading text was used as a stimulus only to lead to listening and speaking skills that were instilled in the execution of the remaining learning activities, such as group discussion and later, presentation. The lesson's learning outcomes were as follows:

- 1.1 Taking part in conversation and discussion
 - 1.1 (d) Exchanging ideas, information, and opinions on topic of interest
- 1.2 (b) Discussing plans and arrangements
- 2.1 (c) Reading materials in print
- 2.2 (a) Skimming and scanning

The specific numbering preceding each outcome was taken from the national curriculum specifications. The five outcomes covered two areas of language in the curriculum, namely interpersonal and informational with the first outcome meant to fulfil the *interpersonal* purpose and the remaining four to serve the *informational* purpose.

In the lesson, two types of differentiation were applied – process and product. The process differentiation requirement was met when varying types of activities were used throughout the lesson for different students as demonstrated in Activity II. The student-participants were asked to form small groups according to their preferred learning style that was indicated in the language learning style preference test. As a result of this arrangement, the students had to complete different sets of tasks and

they would need to share their answers with the whole class upon completion. Product differentiation, on the other hand, was carried out by offering varying types of homework for the students to choose from. They were requested to produce a piece of creative work to represent what they thought “freedom” meant to them and they were free to determine the type of creative work as they liked.

The element of critical thinking was embedded in the lesson through questions asked as the students completed their tasks and also posed verbally by the teacher. Bloom’s taxonomy of cognitive domain was used. At the beginning of the lesson, students were asked three simple questions which belonged to the first level of taxonomy (remembering), namely a) *When did the event take place?*, b) *Where did the event take place?*, and c) *Who led the event?*. In the development phase of the lesson, the students were taught about skimming and scanning an article. The complexity of questions was apparently transitioning from simple memory recalling questions to include questions of *comprehensive nature (What is the mood of the article?)*, *analytical nature (Is the article relevant if a foreign student wishes to learn about Malaysian patriotism?)*, and *evaluative nature (Why or why not?)*.

At the end of the lesson, the teacher was asked to pose more challenging questions for a whole class discussion, namely a) *What does independence mean to you?* and b) *Some countries in the world gained independence through war while Malaysia gained hers through negotiations. Does the way of gaining independence matter to you? Please explain.* These questions would require the students to evaluate and synthesize what they have learnt during the lesson and relate it with their prior experience and knowledge. It also aligns with the fourth descriptor in the critical thinking checklist – provocative question – as students are expected to be able to contemplate whether or not they agree with war and bloodshed for a nation to gain independence.

Figure 4.8 Sample daily lesson plan

DAILY LESSON PLAN 1

Class	:	4 Science 1
Language skill(s)	:	Reading (main activity) Listening Speaking
Level of proficiency	:	Lower to upper intermediate
Theme	:	People and Values
Topic	:	The Independence of Malaya (old Malaysia)
Expected prior knowledge	:	Advanced knowledge regarding the history of Malayan Independence as acquired from history classes
Learning specifications	:	1.2 (b) Taking part in conversation and discussion 1.2 (d) Exchanging ideas, information, and opinions on topic of interest 1.3 (b) Discussing plans and arrangements 2.1 (c) Reading materials in print 2.2 (a) Skimming and scanning Educational emphases: i. Express oneself accurately ii. Analyse information

Based on these general guidelines, a self-formulated set of learning objectives are as follows:

At the end of the lesson, the students are expected to be able to:

- i. skim and scan a newspaper article by answering specific questions;
- ii. analyse a reading stimulus in a small group;
- iii. answer questions based on the stimulus elaborately; and
- iv. delegate tasks to complete within a specified duration

- Teaching aids : YouTube video, newspaper article, music video of “Hati”, poster of past Malaysian leaders
- Types of differentiation : Process and product
- Thinking skills : Bloom’s domain (analysing, evaluating, and creating)
- Vocabulary and pronunciation items : independence, proclamation, reminiscent, reminiscence, spearhead, haven, negotiation, skimming, scanning

TEACHING AND LEARNING PROCEDURES

STAGES	TEACHER'S ACTIVITY	STUDENTS' ACTIVITY	REMARKS
<p>Set induction Duration: 10 minutes</p> <p>Rationale:</p> <p>The use of a video is meant to be an interactive way to tap students' schemata while the follow-up questions are meant to survey their knowledge of the national independence and their attentiveness to the video.</p>	<p>Teacher (T) greets students in the computer lab.</p> <p>T shows a video about the 1957 Independence Proclamation by Tunku Abdul Rahman, the father of Independence of Malaysia.</p> <p>T calls random students and asks simple questions related to the video as follows:</p> <ol style="list-style-type: none"> <i>i. When did the event take place?</i> <i>ii. Where did the event take place?</i> <i>iii. Who led the event?</i> <p>T structures the lesson and presents the learning objectives of the lesson.</p>	<p>Students (Ss) watch the video on the projector screen as displayed from the teacher's computer.</p> <p>Ss respond by giving answers to reflect what they remember about the Independence day of Malaysia. Other students may agree or provide a different answer if they disagree.</p> <p>Ss may enquire further about the objectives that seem unclear to them.</p>	<p>Video from YouTube (duration: 3:37)</p> <p>https://www.youtube.com/watch?v=7FanRgYhbiY</p> <p>Answers:</p> <ol style="list-style-type: none"> <i>i. 12.01 a.m., 31 August 1957</i> <i>ii. Stadium Merdeka, Kuala Lumpur</i> <i>iii. Tunku Abdul Rahman</i>
<p>Development Duration: 35 minutes</p> <p>Activity I (15 minutes)</p> <p>Language for informational use: 2.1 (c) Reading materials in print 2.2 (a) Skimming and scanning</p>	<p>T presents the definition of skimming vs. scanning and discusses them by giving examples as follows (as outlined in the PowerPoint slide):</p> <p>a) Skimming: when a student who wishes to find out if a newspaper article is relevant to help him/her research about obesity skims through the article content by, for</p>		<p>PowerPoint slide to be projected to the class</p>

<p>This stage is meant to train students to read a material quickly using the skimming and scanning strategies. Students will demonstrate their comprehension by skimming and scanning a stimulus – an old newspaper article from year 1957. The use of the article is interesting in the sense that it gives the students an opportunity to analyse the sample of writing by columnists from the old Malaysia, those who had been in close contact with the native speakers of English.</p>	<p>example, reading the subheadings (provided that the article is broken down into several subheadings, e.g. definition of obesity, obesity in Malaysia, obesity in the rest of the world, genetic influence on obesity)</p> <p>b) Scanning: when the student wishes to read something of a particular interest in the elaborate article that he/she jumps to the particular section and reads extensively, e.g. genetic influence on obesity</p> <p>T distributes a copy of the Malay Mail article on 1 September 1957 that covers the news of the independence proclamation ceremony.</p> <p>T asks students to work with a partner for 10 minutes in order to skim and scan the text by answering these questions:</p> <p>Skimming:</p> <ol style="list-style-type: none"> i. <i>What is the mood of the article?</i> ii. <i>Is the article relevant if a foreign student wishes to learn about Malaysian patriotism? Why or why not?</i> 	<p>Ss choose their own partner.</p> <p>Ss type their answers in PowerPoint slides to be displayed on the projector screen.</p>	<p>Newspaper article from the Malay Mail entitled “The big moment: storm clouds roll away as new nation is born”</p>
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<p>Activity II (20 minutes)</p> <p>Language for interpersonal use:</p> <p>1.1 (b) Taking part in conversation and discussion</p> <p>1.1 (d) Exchanging ideas, information, and opinions on topic of interest</p> <p>1.2 (b) discussing plans and arrangements</p> <p>Rationale:</p> <p>The visual and auditory learners are expected to appreciate the opportunity to listen to music, watch its video, and discuss the content with other members of the group. The questions posed are expected to encourage the students to envision the particular state and emotion of the people before and during the</p>	<p>Scanning:</p> <ol style="list-style-type: none"> i. <i>Who attended the ceremony?</i> ii. <i>How many times did Tunku Abdul Rahman repeat the call of Independence during the ceremony?</i> <p>T calls on a pair of students to share their answers with the class as example.</p> <p>T asks the students to form small groups according to a list (guided by the results of their learning style preference test). They have a choice to either work with a music video (meant for the visual and auditory learners) or a poster (meant for the tactile and kinaesthetic learners).</p> <p>T briefs the Ss on the presentation rubric.</p> <p>T informs the class that they need to delegate tasks within their respective group. They will also have to present their findings and share the plan of work delegation among members.</p> <p>T informs the Ss that the session for classroom presentation will take place during next lesson.</p>	<p>Other students may agree or disagree and may add their own answers. They will copy these answers in their exercise book.</p> <p>Ss break into group accordingly.</p> <p>Visual and auditory learners will work with a music video entitled “Hati”. Ss in these groups will answer these questions:</p> <ol style="list-style-type: none"> i. <i>What is the song about?</i> ii. <i>What is the tone of the song?</i> iii. <i>In your opinion, is there any connection between the tone of the song to the experience of gaining Independence? Why do you say so?</i> <p>Meanwhile, the tactile and kinaesthetic learners will be working by searching the World Wide Web</p>	<p>Music video entitled “Hati” by Dato’ Siti Nurhaliza which is also the original soundtrack of the movie “Hati Malaya” The movie was inspired by the effort spearheaded by Tunku Abdul Rahman, Tun Tan Cheng Lock, and Tun Sambanthan for the independence of Malaya.</p>
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<p>Independence.</p> <p>On the other hand, the tactile and kinaesthetic learners are expected to appreciate the opportunity to move around and use the computers to search for information. The questions that they need to answer deal with the ability to reflect on efforts made by present Malaysians to celebrate past leaders.</p> <p>When working with materials that suit their learning styles, the students is expected to learn by doing as they master the learning experience directly. Nevertheless, the presentation also forms an integral part in their learning as it allows them to listen to the experience and findings from other students. It will enable them to learn vicariously by listening.</p>	<p>T monitors the progress of the group discussion.</p>	<p>for information about three figures: Tunku Abdul Rahman, Tun Tan Cheng Lock, and Tun Sambanthan and answer this question:</p> <p><i>i. What were these figures known for? Please elaborate.</i></p> <p>The students will then need to find at least 9 specific places in Malaysia that bear the names of these leaders. This could be in the form of street or building names.</p> <p>They will then discuss this question with their teammates:</p> <p><i>i. What do you think about the effort of naming places in the country after prominent figures?</i></p>	
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<p>Conclusion Duration: 25 minutes</p> <p>Rationale:</p> <p>The closure is devised to stimulate the students' thinking. Although they may know the history of the Independence, they might be less likely to have defined the concept from their own perspectives. In addition, it is interesting to hear their opinions on how the way a country gained its independence affect the country as a whole.</p> <p>The students are also offered with a choice of assignments to acknowledge the diversity of their talents and preferences.</p>	<p>T poses questions for a whole class discussion as follows:</p> <p>Briefly answer these questions:</p> <ul style="list-style-type: none"> <i>i. What does independence mean to you?</i> <i>ii. Some countries in the world gained independence through war while Malaysia gained hers through negotiations. Does the way of gaining independence matter to you? Please explain.</i> <p>T ends the lesson by recapping what had been learned in the lesson and also by giving a preview of the next lesson content.</p>	<p>Ss share their answers with the whole class.</p>	<p>Homework:</p> <p>Students are requested to produce a piece of creative work to express what "Merdeka" means to them. This can be in the form of either a text (e.g. <i>pantun</i>, poem, song) or a non-text (e.g. drawing, portrait, photographs). The text must be in the range of 100 to 150 words while the non-text must be followed by a brief description of approximately 50 words.</p>
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4.6 SUMMARY

As an important section of the entire thesis, the chapter describes the intervention programme that was used to investigate the student-participants' language attitude and critical thinking. It began by introducing the research framework, models, and taxonomy that facilitated the development of the checklists for teaching differentiation and higher order thinking inculcation. The two checklists were later discussed to describe how some items from the guiding frameworks were adopted and the rationales behind it. Upon the completion of it, the national syllabus for English language of the Fourth Form students was discussed to prepare the basis for a discussion of a sample lesson plan. The content of the lesson plan was described and connected to the national syllabus. This is to allow readers to understand how it was developed and why, while the remaining lesson plans can be found in Appendix K. In the subsequent chapter, the research findings comprising both the quantitative and qualitative data are presented along with their analyses.

CHAPTER 5

FINDINGS AND ANALYSIS

5.1 STRUCTURE OF CHAPTER

This chapter presents the findings of data collected via pre- and post-tests and semi-structured interviews, along with their analyses. The analysis involves both quantitative and qualitative methods with the quantitative part aiming to measure the students' language attitude and critical thinking before and after a classroom intervention programme while the qualitative part explores how and why these changes occurred. Following the findings are the analyses using statistical tools (Microsoft Excel 2016 and SPSS version 23.0).

5.2 QUANTITATIVE PHASE: EXECUTION OF PRE- AND POST-TESTS

In order to determine the pre-existing student-participants' language attitude and critical thinking levels prior to the intervention, two pre-tests were carried out and at the end of the intervention programme the post-tests were carried out to measure changes in the two variables as described in Table 5.1. The pre-tests were carried out on 25 July 2016, a week before the intervention programme began to answer RQ2 and RQ3, whereas the post-tests were carried out on 13 October 2016 to partially answer RQ4 and RQ5.

Table 5.1 Details of quantitative data collection phase

DATE	STAGE	PURPOSE
25 July 2016	Pre-tests of: i) language attitude ii) critical thinking	RQ2 What are the student-participants' English language attitudes pre-intervention? RQ3 What is the student-participants' critical thinking competence pre-intervention?
13 October 2016	Post-tests of: i) language attitude ii) critical thinking	RQ4 Has the introduction of a differentiated English module affected the student-participants' language attitudes? RQ5 Has the introduction of a differentiated English module affected the student-participants' critical thinking?

5.2.1 Analysis of First Variable – Language Attitude

The language attitude test comprises three subcomponents, namely affective, behavioural, and cognitive and the scores according to each subcomponent are presented in Table 5.2. As is evident from the table, the cognitive subcomponent recorded the highest score (1022) as opposed to the other two subcomponents with behavioural subcomponent being the lowest (877) and the pattern persists in the post-test despite the score gains. This is further discussed in 6.3.

Table 5.2 Scores of the language attitude test subcomponents

Sub-component	Affective (11 items)	Behavioural (11 items)	Cognitive (11 items)	Total scores (n=26)
Time point				
Pre-test scores	919	877	1022	2818
Post-test scores	1000	933	1047	2980

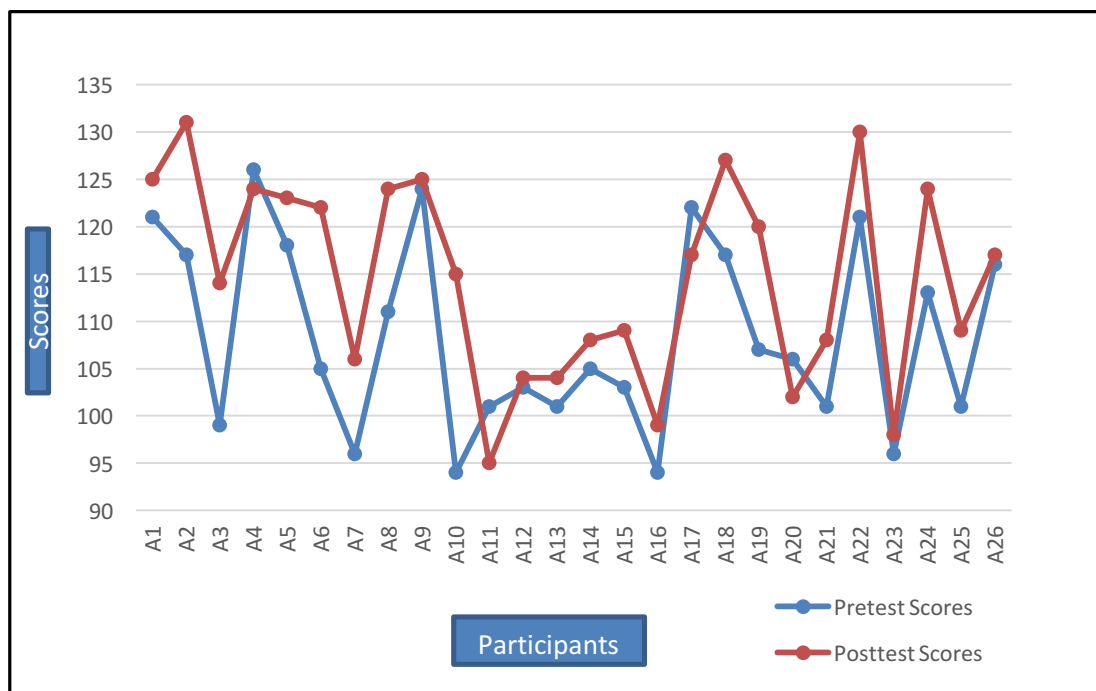
However, pooled scores (combined scores from the three subcomponents in pre- and post-test) as shown in Table 5.3 were used for the quantitative analysis. Only by combining the scores in the three subcomponents can language attitude be identified as positive or negative. After all, the construct (language attitude) is formed by the three subcomponents together. Actual participants' names were removed to protect their identity and replaced with code numbers A1 to A26.

Table 5.3 Pooled raw scores from the language attitude pre- and post-tests

Participant	Pre-test score	Post-test score
A1	121	125
A2	117	131 (Highest)
A3	99	114
A4	126 (Highest)	124 (Drop)
A5	118	123
A6	105	122
A7	96	106
A8	111	124
A9	124	125
A10	94 (Lowest)	115
A11	101	95 (Drop) (Lowest)
A12	103	104
A13	101	104
A14	105	108
A15	103	109
A16	94 (Lowest)	99
A17	122	117 (Drop)
A18	117	127
A19	107	120
A20	106	102 (Drop)
A21	101	108
A22	121	130
A23	96	98
A24	113	124
A25	101	109
A26	116	117
Total score	2818	2980

In the language attitude test, the maximum score possible is 132 (Scale 4 x 33 items) if a student indicated strong agreement to every item. As can be seen in Table 5.3, the highest score in the pre-test was 126 by participant A4 and the lowest was 94 by participant A10 and A16 (range=32). The majority of the students displayed a positive inclination towards the English language as 80.7% (n=21) scored above 100 marks (the cut-off score for positive inclination calculated for the test is 84, if a participant gave 52% Scale-4 positive responses and 48 percent Scale-1 negative responses). Meanwhile in the post-test, the highest score recorded was shown by participant A2 with 131 marks and the lowest by participant A11 with 95 marks (range=36). In the post-test only 3 students scored below 100 marks, indicating an increase of positive inclination as compared to the pre-test data. Figure 5.1 illustrates how the majority of the students (n=22) had a gain score in their post-test as compared to their pre-test while 4 students scored less in their post-test. This is explained further in 5.2.2.

Figure 5.1 Comparison between language attitude pre- and post-test scores



5.2.2 Description of Score Drop

Based on the post-test scores, four participants were found to display a score drop. The first participant who showed a score drop was A4 from 126 to 124 marks. On inspection (although the participants noted some changes in response for a higher value, only items with decreasing value will be discussed), this was due to the student changing response from “strong agreement” to “agreement” on affective item 6 and behavioural items 11, 19, and 22. Participant A11 recorded a higher score drop from 101 to 95 marks and more marked changes; the student changed response from choosing “strongly agree” to “agree” for affective item 4 and cognitive items 23, 24, 25, 27, 28, 29, 31, 33. There was also a change of response from “agreement” to “disagreement” for behavioural component items 16 and 18. The third participant with quite a few changes was participant A17 who indicated a drop of 5 marks (pre-test=122, post-test=117). The student changed the response from choosing “strongly agree” to “agree”, affecting affective subcomponent items 2, 5, 6, 7, 8, behavioural subcomponent item 13 and 18, and cognitive subcomponent items 25 and 26.

The final student with a score drop was participant A20 (pre-test=106, post-test=102) who changed responses from “strongly agree” to “agree” involving affective items 6, 7, 8, 9, and 10 and cognitive item 28. The student also changed response on behavioural item 12 from “agree” to “disagree”. Possible reasons for the score drop are discussed in 6.2 with plausible explanation gathered from the semi-structured interviews involving 6 participants from the sample.

5.2.3 Identifying Distribution of Normality

Before the data were to be analysed further using a parametric test (the paired-samples *t*-test), they needed to be checked for a) standard normal distribution, and b) potential outliers. The normal distribution was determined using the Shapiro-Wilk’s test (1965) and measures of skewness and kurtosis, while potential outliers were calculated using the Outlier Labelling rule (Tukey, 1977). Failing to meet the normal distribution requirement

would require the data to be analysed using a nonparametric test while identified outliers would be removed from the analysis.

I. Confirming the Distribution of Normality

The null hypothesis for the test of normality is that the data are normally distributed. The hypothesis is rejected if the *p*-value is below 0.05. Statistical measures of the pre-test and post-test scores were generated by SPSS as shown in Table 5.4.

Table 5.4 Tests of normality for language attitude scores

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Pre-test Score	.133	26	.200*	.931	26	.080
Post-test Score	.141	26	.195	.945	26	.178

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

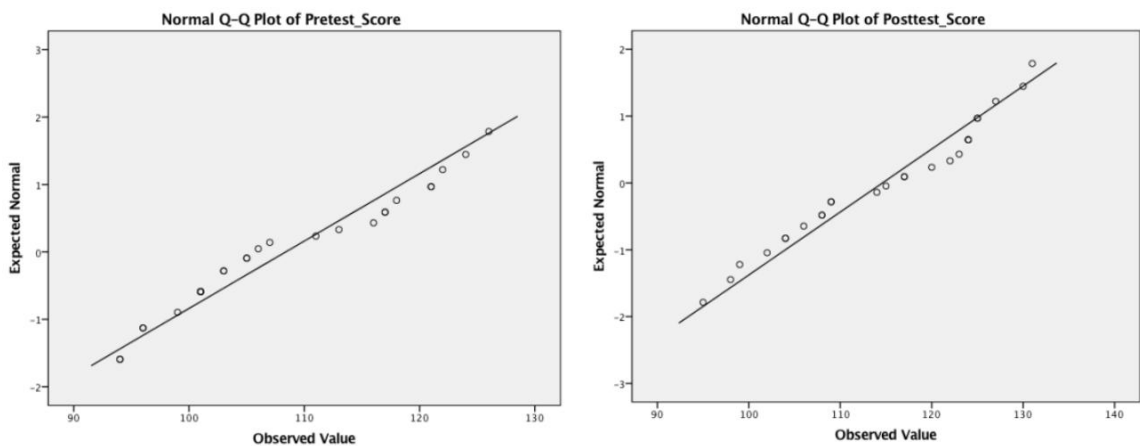
As shown in the table, both sets of scores using the Shapiro-Wilk's test suggest values above 0.05 (pre-test *p*-value, 0.080; post-test *p*-value, 0.178), prompting me to accept the hypothesis that the data are approximately normally distributed. Meanwhile, to identify the data skewness and kurtosis levels, each measure from both pre-test and post-test must be divided by its standard error (SE) as suggested by Löfgren (2013) and the value needs to be in the range of *z* value between -1.96 and +1.96 (Cramer & Howitt, 2004). The output generated by SPSS for the tests' kurtosis and skewness levels is indicated in Table 5.5.

Table 5.5 Descriptives of skewness and kurtosis levels

		Statistic	Std. Error
Pre-test Score	Mean	108.38	1.961
	Skewness	.258	.456
	Kurtosis	-1.268	.887
Post-test Score	Mean	114.62	2.082
	Skewness	-.220	.456
	Kurtosis	-1.184	.887

From Table 5.5, the measures of skewness levels for the pre-test and post-test when divided with their standard errors are 0.57 and -0.48 (SE 0.456) respectively. Meanwhile, the kurtosis levels are -1.43 (pre-test) and -1.33 (post-test) when divided with their standard errors (SE 0.887). All four values (0.57, -0.48, -1.43, and -1.33) fall in the range of the 1.96 rule (Cramer & Howitt, 2004), suggesting that the data for both pre- and post-test are approximately normally distributed in terms of skewness and kurtosis levels. The normal distribution, as suggested by measures from the Shapiro-Wilk's test and the skewness and kurtosis measures, is further supported by a graphical output via the Q-Q plots of both tests shown in Figure 5.2.

Figure 5.2 Q-Q plots from both sets of test scores



In summary, the research data for students' language attitude were found to be approximately normally distributed for both the pre-test and post-test as indicated by Shapiro-Wilk's test ($p > .05$) and a visual inspection of their Q-Q plots with a skewness of 0.57 (SE 0.456) and a kurtosis of -1.43 (SE 0.887) for the pre-test and a skewness of --0.48 (SE 0.456) and a kurtosis of -1.33 (SE 0.887) for the post-test.

5.2.4 Identifying Outliers

The second prerequisite before turning to a parametric test is to remove identifiable outliers which refers to an observation that lies outside the overall pattern of a distribution (Moore & McCabe, 1999). The presence of an outlier suggests, among other reasons, an experimental error and error in measurement. Technically, an outlier refers to the point which "falls more than 1.5 times the interquartile range above the third quartile or below the first quartile" (Renze, 1999). The range can be determined by identifying the upper boundary and lower boundary using formulae as follows:

Upper boundary: $Q3^* + 1.5(Q3 - Q1^*)$

Lower boundary: $Q1 - 1.5(Q3 - Q1)$

*Q3 refers to the 75th percentile of the scores and Q1 refers to the 25th percentile.

Using these formulae, values of the upper and lower boundary for both pre-test and post-test were calculated. The percentiles were generated using SPSS and presented in Table 5.6.

Table 5.6 Percentiles for the language attitude pre- and post-test

		Percentiles						
		5	10	25	50	75	90	95
Weighted Average (Definition 1)	Pre-test Score	94.00	95.40	101.00	105.50	117.25	122.60	125.30
	Post-test Score	96.05	98.70	105.50	116.00	124.00	127.90	130.65
Tukey's Hinges	Pre-test Score			101.00	105.50	117.00		
	Post-test Score			106.00	116.00	124.00		

I. Determining boundaries for pre-test scores

$$\begin{aligned} \text{Upper boundary: } Q3 + 1.5(Q3 - Q1) &= 117.25 + 1.5(117.25 - 101) \\ &= 117.25 + 1.5(16.25) \\ &= 117.25 + 24.38 \end{aligned}$$

$$\begin{aligned} \text{Lower boundary: } Q1 - 1.5(Q3 - Q1) &= 101 - 1.5(16.25) \\ &= 101 - 24.38 \\ &= 76.62 \end{aligned}$$

As the highest score in the pre-test was 126 and the lowest score was 94, no values exceeding the upper boundary or below the lower boundary were detected. Thus, it can be assumed that there was no outlier in the pre-test data.

II. Determining boundaries for post-test scores

$$\begin{aligned} \text{Upper boundary: } Q3 + 1.5(Q3 - Q1) &= 124.00 + 1.5(124.00 - 105.50) \\ &= 124.00 + 1.5(18.50) \\ &= 124.00 + 27.75 \\ &= 151.75 \end{aligned}$$

$$\begin{aligned}\text{Lower boundary: } Q1 - 1.5(Q3-Q1) &= 105.50 - 1.5(18.50) \\ &= 105.50 - 28.13 \\ &= 77.37\end{aligned}$$

As the highest score in the post-test was 131 and the lowest score was 95, no score outside the range was detected to be considered an outlier. Therefore, all the test scores of the study were included in the analysis.

5.2.5 Calculating the Significance of Score Differences

Raw score differences as shown in Table 5.7 (in descending order) between the two tests suggested that a change had taken place with 84.6 percent (n=22) displaying a score gain from 1 to 21 marks and 15.4 percent (n=4) indicating a drop from 2 to 6 marks. However, further analysis was needed to suggest that the score changes were indeed triggered by an external factor and not simply “attributed by chance” (Sauro, 2014: online) or random error. The answers will determine the decision whether to accept or reject the null hypothesis, i.e.: H₀: As a result of the differentiated English module, there will be no significant difference in the post-test mean score of the student-participants’ language attitude. If the null hypothesis was rejected and concluded to be untrue, the alternative hypothesis H₁ would be accepted: As a result of the differentiated English module, there will be a significant difference in the post-test mean score of the student-participants’ language attitude.

Table 5.7 Score difference between language attitude pre- and post-test

Participant	Pre-test score	Post-test score	Score Difference
A10	94	115	21
A6	105	122	17
A3	99	114	15
A2	117	131	14
A8	111	124	13
A19	107	120	13
A24	113	124	11
A7	96	106	10
A18	117	127	10
A22	121	130	9
A25	101	109	8
A21	101	108	7
A15	103	109	6
A5	118	123	5
A16	94	99	5
A1	121	125	4
A13	101	104	3
A14	105	108	3
A23	96	98	2
A9	124	125	1
A12	103	104	1
A26	116	117	1
A4	126	124	-2
A20	106	102	-4
A17	122	117	-5
A11	101	95	-6
n=26			

Guided by other studies with similar methodological designs (e.g. Hong, Lin, & McCarthy Veach, 2008) and statisticians (e.g. Bogdan, 2011; Crowson, 2015; Grande, 2016; Weaver, 2013) the paired-samples *t*-test was run to obtain the *p*-value. This particular type of *t*-test is used when comparing two population means in a study with

two samples so that observations in one sample can be compared with observations in the other sample. An example of a study of this nature is a study that involves “before-and-after observations on the same subject” (Shier, 2004” online). Meanwhile, the p -value obtained as a result of the t -test will determine the significance of the pre-test-post-test score difference by testing the validity of the hypothesis (Rumsey, 2010) made about the student-participants. The p -value is used to weigh the strength of the evidence and is represented by a value between 0 and 1 and the value can be interpreted as follows (Rumsey, 2010):

- i. A small p -value (typically ≤ 0.05) suggests strong evidence against the null hypothesis and as such the null hypothesis will be rejected.
- ii. A large p -value (> 0.05) suggests weak evidence against the null hypothesis, resulting in failure to reject the null hypothesis.

Prior to calculating the p -value, means and standard deviation values from both tests were generated using SPSS Version 23 as displayed in Table 5.8.

Table 5.8 Paired Samples Statistics

	Mean	N	Std. Deviation	Std. Error Mean
Pair 1 Post-test score	114.62	26	10.617	2.082
Pre-test score	108.38	26	10.000	1.961

Paired Differences						t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Post-test score Pre-test score	6.231	6.936	1.360	3.429	9.032	4.581	25	.000

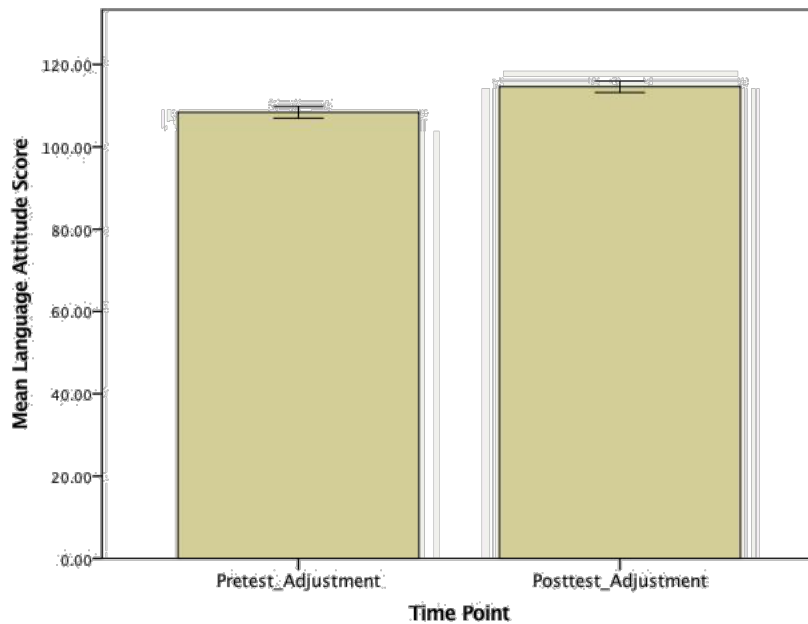
Results of the analysis suggested an increase of 6.24 (SD=6.94) from the pre-test mean scores of 108.38 (SD=10.00) to 114.62 (SD=10.62). From these values, the p -value (in SPSS the p -value is labelled “Sig.”) using a two-tailed direction was calculated and it gave a measure of $p < 0.0001$. Since the value was < 0.05 it is considered strong evidence against the null hypothesis (Hooper, 2013) and statistically highly significant since the value was $p < 0.0001$, suggesting that it has less than one in a thousand chances to be wrong.

Therefore, the two-tailed paired-samples t -test revealed that the participants scored significantly higher in the post-test ($M=114.62$, $SD=10.00$) than the pre-test ($M=108.38$, $SD=10.62$) and the null hypothesis that there was no difference is rejected, $t(25)=4.581$, $p < .005$. Despite the identified statistical difference (score difference mean increase of 6.24), it would be premature to claim that the difference is significant only by using the raw mean difference especially since the p -value only reveals that the changes were not attributed to random error alone. Thus, the next analyses conducted were the calculation of confidence intervals and calculation of effect size to determine the impact of the score differences.

5.2.6 Calculating Within-Subject Design 95% Confidence Intervals

From the calculation, we are 95 percent confident that the population mean of the participants who undergo the intervention is between 3.429 and 9.032 (refer Table 5.8). To display a graphical representation of the means and adjusted confidence intervals of the data, calculations were made to fit the within-subject design as the samples for the pre- and post-test were the same individuals. The graph is shown in Figure 5.3.

Figure 5.3 Language attitude means and 95% adjusted confidence intervals associated with the pre-test and post-test



5.2.7 Finding Effect Size

Statisticians (e.g. Coe, 2002; Sauro, 2014) argue that effect sizes can be used as a systematic way to reveal how large differences are in a pre-test-post-test study and Cohen's d is one of the most common means to calculate a standardized effect size. Cohen (1992) suggested that a value of $d=0.2$ is considered a *small* effect size, while a value of 0.5 represents a *medium* effect size and 0.8 a *large* effect size. This suggests that if the means from the pre- and post-test differ only by 0.2 standard deviations or less, the difference is trivial, even if it is statistically significant (Walker, 2007). After calculation using the procedure by Grande (2016) and Crowson (2015) for a study that uses a paired-samples t -test ($d = \text{mean}/\text{SD}$), the value of d from the data is 0.893 ($=6.154/6.892$) which suggests a large effect size. Therefore, a conclusion that can be made at this point is that the changes of scores that happened did not occur due to chance or random errors and they were largely significant. The conclusion prompted me to reject the null hypothesis H_0 : *As a result of the differentiated English module, there will be no significant difference*

in the post-test mean score of the student-participants' language attitude and accept the alternative hypothesis H1: As a result of the differentiated English module, there will be a significant difference in the post-test mean score of the student-participants' language attitude.

5.3 ANALYSIS OF SECOND VARIABLE: CRITICAL THINKING

The critical thinking test comprises three sub-constructs, namely a) reasoning, b) analytical and logical, and c) assumption. The scores according to each sub-construct are presented in Table 5.9. As indicated by the scores, only the reasoning and assumption sub-construct scores increased in the post-test while the analytical and logical sub-constructs remained unchanged.

Table 5.9 Scores of the critical thinking test sub-constructs

Sub-construct \ Time point	Reasoning (25 items)	Analytical and logical (6 items)	Assumption (4 items)	Total scores (n=26)
Pre-test scores	463	94	64	621
Post-test scores	492	94	71	657

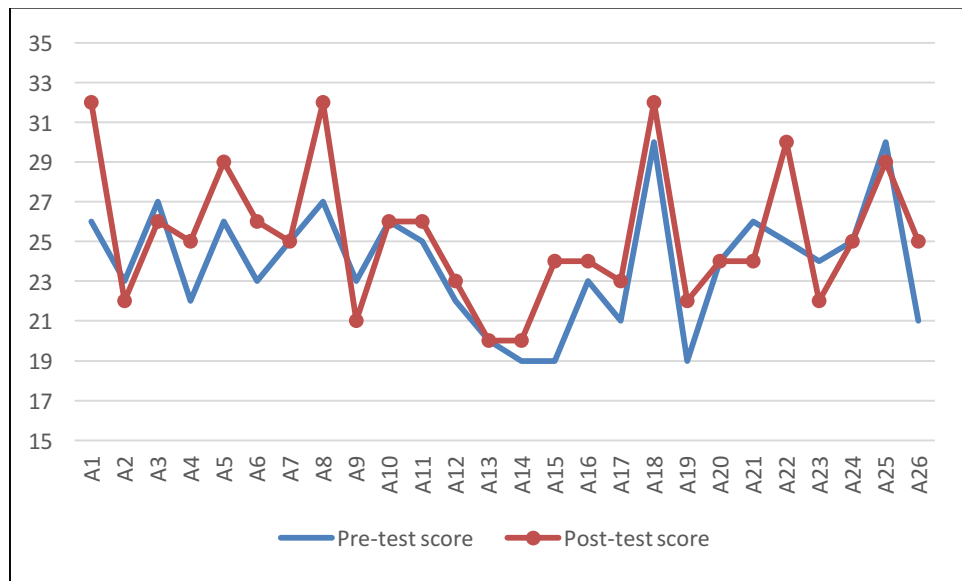
Nevertheless, the pooled scores (combined scores of the three sub-constructs) were used for the data analysis as the construct (critical thinking) is made up of the three. The raw scores of both the pre- and post-test that measured their critical thinking before and after the intervention are presented in Table 5.10 and arranged according to the code numbers A1 to A26.

Table 5.10 Pooled raw scores from the critical thinking pre- and post-test

Participant	Pre-test score	Post-test score
A1	26	32 (Highest)
A2	23	22 (Drop)
A3	27	26 (Drop)
A4	22	25
A5	26	29
A6	23	26
A7	25	25
A8	27	32 (Highest)
A9	23	21 (Drop)
A10	26	26
A11	25	26
A12	22	23
A13	20	20 (Lowest)
A14	19 (Lowest)	20 (Lowest)
A15	19 (Lowest)	24
A16	23	24
A17	21	23
A18	30 (Highest)	32 (Highest)
A19	19 (Lowest)	22
A20	24	24
A21	26	24 (Drop)
A22	25	30
A23	24	22 (Drop)
A24	25	25
A25	30 (Highest)	29 (Drop)
A26	21	25

The maximum score possible in the critical thinking test is 34 if a student answered all the questions correctly (this was then converted to 100% as described in 3.5.3). As indicated in Table 5.10, the highest score was 30 by participant A18 and A25, while the lowest was 19 by participant A14, A15, and A19 (range=11). Meanwhile, results from the post-test recorded 32 as the highest score by participant A1, A8, and A18 and 20 as the lowest score by participant A13 and A14 (range=20). 6 participants experienced a score drop in their post-test and this is explained in 5.3.1. The participants' score differences in both tests are shown in Figure 5.4.

Figure 5.4 Comparison between critical thinking pre- and post-test scores



5.3.1 Description of Score Drop

On inspection, six participants had a decline in scores between 1 to 2 marks. Unlike the language attitude test, the critical thinking test is not perception-based, but rather objective in nature with definite correct answers.

The participants who showed a score decline of 1 mark were participant A2 (pre-test=23, post-test=22), participant A3 (pre-test=27, post-test=26), and participant A25 (pre-test=30, post-test=29). The remaining 3 participants experienced a score drop of 2 marks, namely participant A9 (pre-test=23, post-test=21), participant A21 (pre-test=26, post-test=24), and participant A23 (pre-test=24, post-test=22).

The 6 participants for some reason changed their answers in the post-test, suggesting that the intervention was not affecting these participants positively. It may be either because the nature of the module contradicted their own preference for learning activities or because the intervention was too short to lead to any changes in their critical thinking.

This is further discussed in chapter 6 in comparison with other similar studies and supported by the qualitative data of the study.

5.3.2 Identifying Distribution of Normality

Data for the critical thinking variable was also checked for their a) normal distribution using the Shapiro-Wilk's test (1965) and measures of skewness and kurtosis, and b) potential outliers using the Outlier Labelling rule (Tukey, 1977).

I. Confirming the Distribution of Normality

The null hypothesis for the test of normality is that the data are normally distributed. The hypothesis is rejected if the *p*-value is below 0.05. Statistical measures of the pre-test and post-test scores were generated using SPSS as shown in Table 5.11. From the table, both sets of scores using the Shapiro-Wilk's test suggest values above 0.05 (pre-test *p*-value, 0.364; post-test *p*-value, 0.056), prompting me to accept the hypothesis that the data are approximately normally distributed.

5.11 Tests of normality for critical thinking scores

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Pre-test score	.105	26	.200*	.959	26	.364
Post-test score	.187	26	.020	.924	26	.056

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

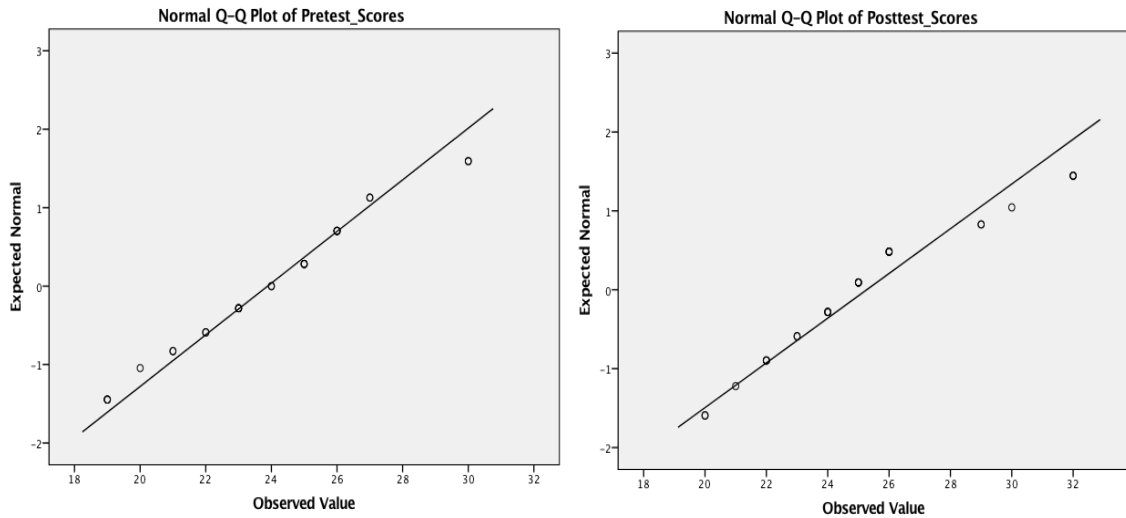
Meanwhile, to identify the skewness and kurtosis level of the critical thinking test scores, the descriptives as generated by the SPSS are displayed in Table 5.12.

5.12 Descriptives of skewness and kurtosis levels

		Statistic	Std. Error
Pre-test Score	Mean	23.88	.596
	Skewness	.137	.456
	Kurtosis	-.305	.887
Post-test Score	Mean	25.27	.692
	Skewness	.611	.456
	Kurtosis	-.333	.887

As can be seen from Table 5.12, the measures of skewness levels for the pre-test and post-test when divided with their standard errors are 0.30 and 1.34 (SE 0.456) respectively. Meanwhile, the kurtosis levels are -0.34 (pre-test) and -0.38 (post-test) when divided with their standard errors (SE 0.887). Therefore, all four values (0.30, 1.34, -0.34, and -0.38) fall in the range of the 1.96 rule (Cramer & Howitt, 2004), suggesting that the data for both pre- and post-test are approximately normally distributed in terms of skewness and kurtosis levels. The normal distribution as suggested by measures from the Shapiro-Wilk's test and the skewness and kurtosis measures is further supported by a graphical output via the Q-Q plots of both tests as generated by SPSS indicated in Figure 5.5.

Figure 5.5 Q-Q plots from both sets of test scores



Thus, in summary, a Shapiro-Wilk's test ($p > .05$) and a visual inspection of their Q-Q plots suggested that the data for the language attitude variable were approximately normally distributed for both pre-test and post-test: a skewness of 0.30 (SE 0.456) and a kurtosis of -0.34 (SE 0.887) for the pre-test and a skewness of 1.34 (SE 0.456) and a kurtosis of -0.38 (SE 0.887) for the post-test.

5.3.3 Identifying Outliers

The ranges for the upper boundary and lower boundary were determined using the following formulae:

$$\text{Upper boundary: } Q3^* + 1.5(Q3 - Q1^*)$$

$$\text{Lower boundary: } Q1 - 1.5(Q3 - Q1)$$

*Q3 refers to the 75th percentile of the scores and Q1 refers to the 25th percentile.

The pre-test and post-test percentiles were generated using SPSS and presented in Table 5.13.

Table 5.13 Percentiles for the critical thinking pre- and post-test

		Percentiles						
		5	10	25	50	75	90	95
Weighted Average (Definition 1)	Pre-test Score	19.00	19.00	21.75	24.00	26.00	27.90	30.00
	Post-test Score	20.00	20.70	22.75	25.00	26.75	32.00	32.00
Tukey's Hinges	Pre-test Score			22.00	24.00	26.00		
	Post-test Score			23.00	25.00	26.00		

I. Determining boundaries for pre-test scores

$$\begin{aligned}
 \text{Upper boundary: } Q3 + 1.5(Q3 - Q1) &= 26 + 1.5(26 - 21.75) \\
 &= 26 + 1.5(4.25) \\
 &= 26 + 6.375 \\
 &= 32.38
 \end{aligned}$$

$$\begin{aligned}
 \text{Lower boundary: } Q1 - 1.5(Q3 - Q1) &= 21.75 - 1.5(4.25) \\
 &= 21.75 - 6.375 \\
 &= 15.38
 \end{aligned}$$

As the highest score in the pre-test was 30 and the lowest score was 19, it can be assumed that there is no outlier in the pre-test data.

II. Determining boundaries for post-test scores

$$\begin{aligned}
 \text{Upper boundary: } Q3 + 1.5(Q3 - Q1) &= 26.75 + 1.5(26.75 - 22.75) \\
 &= 26.75 + 1.5(4) \\
 &= 26.75 + 6 \\
 &= 32.75
 \end{aligned}$$

$$\begin{aligned}
\text{Lower boundary: } Q1 - 1.5(Q3-Q1) &= 22.75 - 1.5(4) \\
&= 22.75 - 6 \\
&= 16.75
\end{aligned}$$

The highest score in the post-test was 32 and the lowest score was 20; no score falls outside the range to be considered an outlier. In conclusion, since no outlier has been detected, all the data appeared to be appropriate to be included in the analysis.

5.3.4 Calculating the Significance of Score Differences

Raw score differences as shown in Table 5.14 between the post-test and pre-test scores suggested that a change had taken place with 57.7 percent (n=15) displaying a gain between 1 to 6 marks, 19.2 percent (n=5) unchanged scores, and 23.1 percent (n=6) experiencing a score drop between 1 to 2 marks. Data analysis to establish the significance of the score differences was conducted to suggest that the score changes were not triggered by chance or random errors. The answers guided the decision whether to accept or reject the null hypothesis: *H₀: As a result of the differentiated English module, there will be no significant difference in the post-test mean score of the student-participants' critical thinking.*

If the null hypothesis was rejected and concluded to be untrue, the alternative hypothesis *H₁* will be accepted: *As a result of the differentiated English module, there will be a significant difference in the post-test mean score of the student-participants' language attitude.*

Table 5.14 Score difference between critical thinking pre- and post-test

Participant	Pre-test score	Post-test score	Score difference
A1	26	32	6
A8	27	32	5
A15	19	24	5
A22	25	30	5
A26	21	25	4
A4	22	25	3
A5	26	29	3
A6	23	26	3
A19	19	22	3
A18	30	32	2
A17	21	23	2
A11	25	26	1
A12	22	23	1
A14	19	20	1
A16	23	24	1
A7	25	25	0
A10	26	26	0
A13	20	20	0
A20	24	24	0
A24	25	25	0
A2	23	22	-1
A3	27	26	-1
A25	30	29	-1
A9	23	21	-2
A21	26	24	-2
A23	24	22	-2
n=26			

Prior to calculating the p -value, means and standard deviation values from both tests were generated using SPSS Version 23 as displayed in Table 5.15.

Table 5.15 Paired samples statistics

	Mean	N	Std. Deviation	Std. Error Mean
Pair 1 Post-test Score	25.27	26	3.528	.692
Pre-test Score	23.88	26	3.037	.596

Paired Samples Test

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Post-test Score Pre-test Score	1.385	2.368	.464	.428	2.341	2.982	25	.006

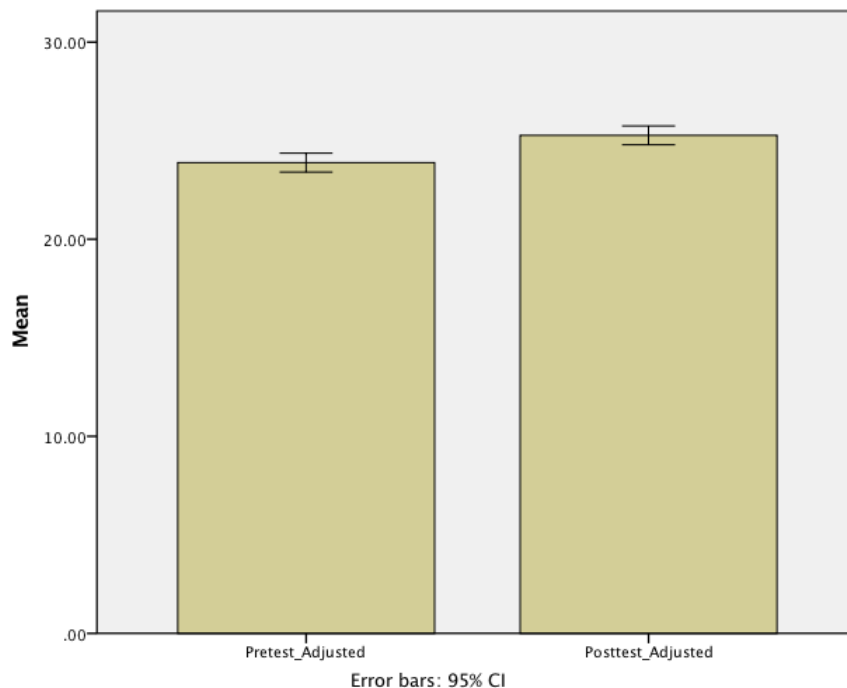
Results of the analysis suggest an increase of 1.385 (SD=2.368) from the pre-test mean scores of 23.88 (SD=3.037) to 25.27 (SD=3.528). From these, the p -value (in SPSS the p -value is labelled “Sig.”) using a two-tailed direction was calculated to give a measure of $p < 0.05$. Since the value is < 0.05 , it is considered very strong evidence against the null hypothesis (Hooper, 2013). Therefore, the two-tailed paired-samples t -test revealed that the participants scored significantly higher in the post-test (M=25.27, SD=3.528) than the pre-test (M=23.88, SD=3.037) and the null hypothesis that there was no difference is rejected, $t(25) = 2.982, p \leq 0.05$.

Despite the mean increase of 1.385 in the post-test, further analyses to calculate the confidence intervals and effect sizes were necessary to estimate the population mean and impact that the intervention brought.

5.3.5 Calculating Within-Subject Design 95% Confidence Intervals

From the calculation, we are 95 percent confident that the population mean of the participants who undergo the intervention is between 0.428 and 2.341 (refer Table 5.15). The graph which was made to fit the within-subject design is shown in Figure 5.6.

Figure 5.6 Critical thinking means and 95% adjusted confidence intervals associated with the pre-test and post-test



5.3.6 Finding Effect Size

After calculation using the similar procedure run for the first variable (5.2.8), the value of d from the data was found to be .58 ($=1.385/2.368$) which suggests a medium effect size. Therefore, a conclusion that can be made at this point is that the changes of scores that happened did not occur due to chance or random errors and they were averagely significant. The null hypothesis was thus rejected and the alternative hypothesis “ H_2 : As a

result of the differentiated English module, there will be a significant difference in the post-test mean score of the student-participants' critical thinking" was accepted.

5.4 ANALYSES OF QUALITATIVE DATA

The semi-structured interviews for both teacher-participant and 6 student-participants proved to be useful in describing their experience with the differentiated module and in providing explanations on the possibility for changes in the entire sample's change on the language attitude and critical thinking variables. Details of the 6 student-participants are discussed in 3.5.4. After the coding process, three themes were identified as follows: a) attributes of similarities and differences between the whole-class instruction and differentiated instruction, b) effects of the classroom intervention programme, and c) the future of differentiated instruction in the ESL setting in Malaysia.

5.4.1 Theme 1: Attributes of similarities and differences between approaches

Data from the interview with the teacher-participant were analysed to compare attributes between the two teaching approaches for similarities and differences. When asked how his usual style of starting the lesson, the teacher explained:

‘I always start the lesson with an explanation of the topic to the students. I feel by giving explanation to the students, they would understand the topic and ready to get the task for that day’.

He also added that brainstorming of ideas when tackling classroom activities was reserved for students from the first-ranked class and thus, was not considered to be a common activity. Because the majority of the students from the low-ranked classes have limited English proficiency, the teacher believed that brainstorming ideas would be time-consuming as it would be difficult for these students to express themselves in English and some were not even motivated to learn the subject.

‘For the first class students, yes. It is harder to give that chance to students with low-achieving learners. It would be time-consuming. They have difficulty to

express themselves in English and most of them have low motivation to learn the language’.

In terms of allowing students to work together on learning tasks, the teacher claimed that it happened only when the need arose and it was not a common practice as most learning activities were completed by individual students independently. During the interview, the teacher-participant was also given a list of lesson planning strategies to associate with as follows:

- a. Looking for worksheets of student activities from online resources
- b. Creating own worksheet for activities
- c. Matching selected activities to the syllabus requirement
- d. Integrating specific learning theories into the lesson
- e. Carrying out diagnostic test on the students
- f. Surveying individual student’s needs against particular lesson learning objectives
- g. Developing a work schedule for the students’ group work presentation
- h. Developing scoring guideline for students’ homework or presentation

These strategies are common in differentiated classrooms so as to customise the lesson to meet learners’ needs. The teacher could associate to strategies a, b, and c. He also added that strategy h (developing scoring guideline for students’ homework or presentation) was common but instead of developing the scoring guideline, he had to use the scoring scheme which was in line with the national examination assessment. However, strategies to: i) integrate learning theories to facilitate learning, ii) pre-assess students through diagnostic tests, and iii) develop a customised work schedule to guide students for group presentation were foreign to him.

An additional teaching strategy used by the teacher was drilling students with past years’ examination questions as a form of practice to familiarise the students with the examination format and question difficulty level. The national examination English papers were archived by the school’s English Language Department to be analysed for

the teachers to reflect if they were on the right track in teaching and preparing the students for the national exam.

The teacher was also asked specifically to review one differentiated lesson that he implemented to be compared against his usual teaching style. He admitted that showing videos at the beginning of the lesson was something that he would consider but pertaining to the task, he would have given the same task for all the students. He also considered the freedom that his students enjoyed in the differentiated lessons to be positive as the students got to choose the type of project that they preferred. He also admitted that by choosing the task for the students would not have the same positive effect on the students as some might not be happy with the task.

Another strategy that he had never considered but felt positively about was the experience of having to explain the learning objectives before the lesson began. He believed that it ‘made the lesson smooth and clearer’ and he believed that the students ‘were also clear and they knew what they would learn on that day’.

5.4.2 Theme 2: Effects of Intervention

The second theme relates to the effects of study intervention and is manifested through three subthemes which are observable changes in the classroom, development of learner autonomy, and acceptance of different learning task between students.

When asked, the teacher-participant noticed a great deal of positive changes in the students’ attitudes towards English. The students were claimed to be more confident in using English and had shown a promising progress in their exam scores especially in writing. He had also noticed the students’ change of attitude; they seemed to favour English by using the language outside the classroom.

‘They are more confident to use English. They scored well in their final exam especially in writing part and the best part is they tried their best to speak English whenever they met me outside of the class’.

As far as their critical thinking is concerned, the students had shown some positive changes as evidenced by their essays on tests. They were claimed to be more critical when arguing ideas and managed to support their points with good examples. The new format of the national exam has required students to integrate two points in their essay that demonstrate a thinking ability that is in line with the Higher Order Thinking Skills by Bloom (1956). According to him, the students, unlike before the intervention programme, had managed to fulfil it to a standard that met his expectation.

‘I noticed some positive changes in their critical thinking. They were asked to give two extra points in their essay (H.O.T.S – Higher Order Thinking Skills), based on the new SPM format. This was not a problem for me as they can give ideas which are related to the question asked. Other than that, when they were asked about *Friendship* in a drama that they studied in the exam, they wrote the answer well. This for me shows that they are thinking critically’.

The student-participants were also asked about observable changes in their friends. However, getting information from them was rather challenging due to the fact that the students admitted to rarely having had academic-related conversations beyond the classrooms. Only two participants claimed that they spoke about academic affairs and thus, were capable to share some details related to behavioural changes as they could observe. The first participant noted that her friends had been using English more regularly outside the classroom, indicating a better sense of language attitude particularly in the behavioural component. The fourth student noted a better emotional change as she claimed that:

‘Each person gets a chance to speak up in the group and we certainly worked together to carry out tasks. The teacher taught topics that were more interesting than usual and we played more games. Even the assignments were all done with fun’.

The third student also noted that the differentiated English lessons ‘have more frequent presentations’ and that ‘students are separated based on our learning styles’. However, changes directly related to critical thinking were not noticeable from the students’ point

of view. This was not surprising given the fact that, unlike teachers, students are not trained to note or even mind these changes especially if the changes had not been significant. Meanwhile, in terms of their learning experience, as from what the participants could recall, it can safely be assumed that all the students were neither explicitly trained to be autonomous nor had they been given regular space to lead or decide the classroom activities. In the interview, they were asked if they were trained to analyse examples and form their own explanations on grammatical rules before listening to teacher's explanations (a case where teachers teach inductively) and none of the interviewees acknowledged it. The recount of classroom activities suggests that the lessons were mainly teacher-led with the mention of presentations, discussion of scoring guidelines, and problem solving activities. When asked if they would appreciate the opportunity to decide on their own, all of the participants agreed albeit to two varying degrees: four participants indicated strong agreement to being given the chance to make their own decision while the remaining two indicated only fairly strong agreement. The four participants claimed that they would really prefer the chance to choose their own task to work on. It would allow them to "carry their tasks very well" (participant 3) and in "a more creative way" (participant 5) for having the chance to choose task based on their preferences. Another participant suggested that the opportunity of choosing her own task would make her "feel good", suggesting that the practice could be used to empower students and increase their motivation.

P01: Like I said, we need change at times. Most of the time before this we just follow the teacher. So it's good to work on something that we get to choose from.

P02: I like, to a certain extent, to have the chance to choose my own task to work on. At first it would feel strange but after a while it's ok. it would feel unfamiliar for a while because mostly we do the same task and the marks are compared but we can try to adapt and it's wonderful you know because we have our will to pick the way, the things we want to do . . . Yes, that's it. I want to be free to choose.

P03: We managed to carry out our tasks very well because we can choose the task based on our preference.

P04: I love the idea of being allowed to choose but sometimes when we run out of ideas, we need something to help us – a direction by the teacher.

P05: I love the idea of being given the chance to choose. The work will be done in a more creative way and we are more interested to do it.

P06: I love the chance to choose. It makes me feel good as it will make it easier for me to complete the given task.

The two who were in fairly strong agreement to the idea claimed that they envisioned the feeling of “strangeness” (participant 2: *at first it would feel strange*) to refer to her unfamiliarity with the practice and the need for help when out of ideas (participant 4: *I love the idea of being allowed to choose but sometimes when we run out of ideas, we need something to help us – a direction by the teacher*). Despite these concerns, they still indicated that they “*like to a certain extent*” to have the chance to choose their own tasks to work on. This indicates a potential for learner-automated, learner-driven classroom in the future when dealing with academically superior students where the role of the teacher is more of a facilitator who encourages students to take charge of their own learning.

The students were also asked whether they would accept a teacher’s practice of introducing non-identical tasks to students in the classroom. None of the participants had shown any sign of protest or dissatisfaction if the activities handled were different. The majority indicated a strong preference that they ‘really like working on a different case . . . instead of working on a task that is identical . . .’. They attributed the practice to being ‘fun’ and ‘more interesting if everyone does a different thing’. One of the participants further claimed that ‘classes will be dull if every student does the same thing over and over again’.

Nevertheless, I was able to note slight hesitation when participant 5 (Dora) confessed to the situation being ‘unfamiliar for a while’ because that was not a usual practice. She could be quoted saying that ‘mostly we do the same task and the marks are compared’. Despite her initial reluctance, she explained that she quickly and willingly adjusted to the practice. Only one participant indicated agreement to only liking to work on a different task (option B in the prompt card). Despite acknowledging that the practice would be “fun”, the slightly less strong response is due to her belief that completing non-identical tasks can be quite challenging as according to her “it needs the students to do more

research on them”. She implied that having to complete identical tasks would allow students to share answers with their friends, whereas working on a different task would require them to find their own answers to present to the teacher and the rest of the class.

5.4.3 Theme 3: Future of differentiated instruction in the ESL setting in Malaysia

The third theme was generated by data from the teacher-participant on three subthemes: 1) his personal preference for future teaching style in light of the implementation of the differentiated lessons, 2) challenges encountered while conducting differentiated lessons, and 3) personal perception of Malaysian teachers' and students' acceptance of differentiated lessons.

Response to subtheme 1 suggests the extent of influence of differentiated instruction - whether or not he had been positively influenced by the module/teaching approach. When asked about his teaching style preference for the near future, the teacher admitted to wanting to use the differentiated teaching while reverting to a few activities he had been using before the implementation of the differentiated module. The teacher stated:

‘I think I mostly want to use the differentiated teaching style but I will retain a few activities that I had used in my usual lessons before the implementation of the differentiated module. I have been happy with the differentiated activities but I do need to drill the students with past exam questions explicitly from time to time’

The need for drilling the students with past examination questions stemmed from the state of schools being answerable to the District Education Office on the success of complete coverage of the syllabus each year and the need to produce students with good results. Thus, his decision to drill the students with past examination papers was to familiarise them with the format and types of questions.

‘The PPD first of all would expect us to be able to cover the syllabus entirely before the end of the year . . . then the next thing that is answerable to the PPD is the students' results. So, it is necessary for me to drill the students with past years' exam questions. I need that, they need that to be familiar with the format and types of questions asked in the exam’

He claimed that developing differentiated lessons, although they would yield positive results, would consume time and at the end of the year, teachers are answerable to the local education authorities if the syllabus was not fully covered. Thus, he stated

that if no help was given to him or any other teachers in differentiating lessons, they might revert to a teaching style that they believe would be able to finish the syllabus as quickly as possible and one that would prepare the students sufficiently for tests and examinations.

‘ . . . if I don’t get help when designing the differentiated module, no matter how impressive the class is, I might not be able to do so even if I want to due to time constraint’

In addition to his teaching workload of ‘at least for 2 classes of double period which means I teach a minimum of 2 hours every day’. He was quoted to claim that:

‘I teach five classes each year and the average number of students in each class is probably 32. I teach 5S1, 5U3, 5 P2, 3 LE1 & 3IN and the smallest class is 5S1 with 29 students. So I teach around 15 hours per week’.

When asked directly if he thought that the number of classes he taught would have a direct impact on his teaching style, the teacher-participant claimed:

‘I think the number of classes that I manage does have an impact on the way I plan lessons somewhat. When I have to teach fewer classes I have more time in planning and preparing materials for lesson I teach. I do admit that but then time that I have at school is always halved with non-teaching activities. Life has always been hectic and when there were times I got to handle fewer number of classes, I would be assigned with more activities to manage’.

The claim can be used as a basis to argue for the feasibility of the differentiated module in Malaysian classrooms – even though it has yielded positive results, teachers may not be able to follow through if help is not given. The teacher also believed that differentiated instruction would keep students interested in the classroom because the teaching approach engages the students in the lesson based on their needs and wants in the form of tailoring the lessons to suit their learning preference. It also gives them a new perspective that empowers them in general by being responsible for their own learning.

The second subtheme comprises the teacher's responses on the challenges that he experienced throughout the module implementation. I managed to record three challenges related to the implementation of the module as follows: a) challenging topics and lesson content for the students, b) limited time to carry out the module due to interfering school activities that required involvement from the teacher or students, and c) the extent of preparation needed by the teacher before each lesson. The teacher felt that some of the topics were quite challenging for the students in particular the final lesson on Obsession and Mental Health (see Appendix K); some of the students might lack prior knowledge related to several concepts, namely credit card usage, support group, and online shopping. An addition to the challenging tasks was having to carry them out while pressed against time. The students and teacher at some point during the intervention had to be involved in several activities as stated below:

‘The topic was quite hard for the students. It was like a topic for students who are doing foundation or pre-degree programme. I believe some of the students are not yet exposed to credit card, support group and online shopping. Besides, there was not enough time to have the lessons taught accordingly due to some school activities’.

When asked to review other lessons, the teacher agreed that the content of the module was highly structured and informative but it would require some careful effort and serious reading on the teacher's part prior to its execution.

‘I think the content is rich and highly structured. I need to be fully prepared and do some reading before class unlike before but I do think it's good. It forces me to read and expand my knowledge too before sharing it with the students’.

The last subtheme is related to his perception of the future of differentiated instruction in Malaysia. It may not be representative of the other Malaysian teachers' opinion as teacher's responses were merely based on his perception alone. However, because he has been teaching for five years and has dealt with a great number of students throughout his employment, I believe that I could rely on his insights.

When enquired whether teaching differentiation is a possible approach to be embraced by other Malaysian teachers, the teacher-participant thought it to be highly

possible. He based his opinion on the effectiveness of the approach in helping students' learning and he also thought that because '... students are given a chance to be part of the (decision-making) process ... it will keep them interested in the teaching and learning'. However, he could still envision initial scepticism and reluctance by some teachers.

'I think it is highly possible that they would want to implement differentiated instruction in English classrooms across national schools in Malaysia. Although it might take some time for them to adjust they will eventually turn to the teaching approach because it has just become one of the Ministry's expectations. And although they might be reluctant or sceptical at first, after they realise that the lessons are indeed helping their students they would be on board. The students would feel more appreciated and would motivate them, would keep them looking forward to the next lesson'.

The student-participants were also asked to pinpoint the strengths and drawbacks of the differentiated lessons to envision its practicality and potential in Malaysia. From the six participants, only two admitted having discussed the lessons with their peers after class. The other four participants claimed that they did not normally reflect on what took place during the lessons with their friends outside the classroom. As such, only two participants could share feedback and anecdotes by their friends who went through the lessons. One of the participants (P04) mentioned that her friends were '... pretty impressed with it (the lessons)' but the other participant (P03) explained that some of her friends were pressed for time to finish the homework. She mentioned that they felt the 'new lessons are good' and that she liked that they had more presentations and that the activities were matched against their preferences but she also claimed they did not have ample time to prepare for the presentations as they had to prepare for other school projects simultaneously. This claimed corroborated the teacher-participant's claim that at times, they were feeling the pressure of working against time. P03 also pointed out that they thought they were not prepared for the exam enough.

'Yes, although they (her friends) felt the new lessons are good, we have more frequent presentations and students are separated based on our learning styles, sometimes we don't have enough time to prepare the presentations. We also don't have enough exercises for the preparation of exam'.

When asked about their personal views on the differentiated lessons, I was happy to note that they were quite transparent as they managed to share the good and the bad. They described the lessons as ‘fun’, ‘interesting’, ‘the right way to learn English in the 21st century’.

P01: I think it was fun. So, I like all of it.

P02: No, I think it was fun . . . The activities were fun and unique to lure students’ interest on English. The homework is quite challenging but sometimes it is simple.

P03: I think it is appropriate to all secondary learners.

P04: I think most of it was fun and entertaining. Each person gets a chance to speak up in the group and we certainly worked together to carry out tasks. The teacher taught topics that were more interesting than usual and we played more games. Even the assignments were all done with fun.

P05: The activities helped me to think out of the box and not just focussed on the syllabus. We watched a lot more videos and had more discussions. We had more presentations done in different ways. I think we gained knowledge differently. Before this we learned through explanations given by the teacher. Recently we learned by finding out by ourselves. We become the master of our learning.

P06: I think it is the right way to learn English. It makes us think more maturely. The way the teacher taught was very good. It allowed us to learn more general knowledge. The activities were fun and easy to understand.

At the same time, they were also able to share the part they did not like. The second participant believed that the fun element had caused some of his friends to lose concentration by being laid back and for not being required to jot down notes most of the time like they used to:

P02 (Fred): The teachers were very good but they can’t gain students’ attention to follow all the time.

Speaking from experience as a learner in a typical English classroom in Malaysia, we have been trained to be serious when learning and thus, it is expected that a lesson would consist of drilling activities of past years’ exam questions. Thus, to a certain extent I could relate to his claim. As students had the opportunity to choose which is rather rare, a fraction of the teachers’ authority is transferred to the students.

The practice gave those students who took their responsibility less seriously the opportunity to withhold their attention and cooperation. The other students also believed that a) much time was spent on correcting their grammatical mistakes, b) some of the topics such as comparing two online shopping platforms (Amazon UK and Lazada Malaysia) were not as interesting, and c) homework could get difficult as quoted below:

P03: but the teacher took too long to explain the grammar mistakes.

P04: Some topics like the online shopping was (sic) quite dull as I don't shop online. I also did not get to group up with my close friends.

P05: Some topics could be more interesting.

P06: . . . Some of the homework were quite tough. We need to do it in a group. That will make it easier to complete.

When asked about their preference for learning (i.e. in the conventional style or the differentiated instruction style), five participants claimed they preferred to be taught using differentiated instruction. One participant (P02) whose mother was a mathematics teacher even claimed that 'this is how we need to learn English in the 21st century'. However, one of them (P03) preferred a combination of the newly introduced lessons with some drills of exercises to prepare them for the exams.

5.5 SUMMARY

Embodied in the chapter are the findings of the study that comprise another important section of the entire thesis. The first half reports the quantitative findings for the two dependent variables (language attitude and critical thinking). As the data for both variables were found to be normally distributed, a parametric test was used to calculate the *p* value to determine if the mean score changes between the pre-test and post-test for both dependent variables were statistically significant only to be corroborated with estimates of effect size to describe the impact of the intervention on both dependent variables. It was revealed that the intervention elicited statistically significant mean score changes with a large effect size for language attitude and a medium effect size for critical thinking. In the second half of the chapter, findings

from the semi-structured interview led to discussions circling around three themes, namely a) the attributes of similarities and differences between the differentiated teaching and conventional teaching approaches, b) effects of the differentiated intervention, and c) future of differentiated instruction in the ESL setting in Malaysia. As a whole, the qualitative findings supported the positive findings from the quantitative data while also revealing aspects that need to be taken into account to improve the differentiated lessons for future studies. In the next and final chapter, the findings are discussed in comparison with the previous studies, setting the basis for discussions of the research strengths, limitations, and implications for policy, practice, and research.

CHAPTER 6

DISCUSSION AND CONCLUSION

6.1 STRUCTURE OF CHAPTER

This chapter comprises discussion of findings related to the dependent research variables a) language attitude and b) critical thinking as well as to the study intervention, namely the differentiated module. The discussion is expected to enlighten readers on how the research aims are fulfilled to understand the effects that the differentiated module has affected the dependent variables. A general review of the module (6.2) in comparison to other studies on differentiated instruction precedes the more specific discussion about the effects of the differentiated module on language attitude (6.3) and on critical thinking (6.4) in accordance with the research questions. To recap from 1.4, this study was devised to answer the following questions:

- 1) What are the student-participants' language learning style preferences?
- 2) What are the student-participants' English language attitudes pre-intervention?
- 3) What is the student-participants' critical thinking competence pre-intervention?
- 4) Has the introduction of a differentiated English module affected the student-participants' language attitudes? If so, how and why?
- 5) Has the introduction of a differentiated English module affected the student-participants' critical thinking? If so, how and why?

Also comprised in this chapter are some discussions about the research strengths (6.5) and its limitations (6.6) along with the analysis of the research implications (6.7). A summary (6.8) that highlights the main findings in the study and also recaps the entire research marks the end of the chapter.

6.2 GENERAL REVIEW OF THE MODULE

As evidenced by the quantitative data analysis, the intervention programme in the study yielded statistically significant positive results with large effect size for the language attitude variable and medium effect size for the critical thinking variable. The qualitative data further supported these findings by corroborating the positive results while also providing valuable feedback as to why the module was challenging and thus, could be resisted by at least some learners in the classroom. Prior to designing the differentiated module, the student-participants' language learning style preferences were analysed to answer *RQ1: What are the student-participants' language learning style preferences?*

As far as the learning modalities (kinaesthetic, auditory, visual, and tactile) are concerned, the majority of the students were found to be dominantly kinaesthetic (n=13), some were auditory (n=9) and a few were visual (n=4). Tactile was found to be the least preferred style by the participants and more importantly, to be unfavourable to one participant. Armed with this knowledge, the module did not include any tactile-based learning activities. However, the others were not found to indicate any unfavourable learning style and they were able to function using the three learning styles (kinaesthetic, visual, and auditory) as either their major or minor style. Their flexibility in adjusting to the different learning modalities is presumably the reason why they became top students who were assigned to the first-ranked class in the form. The learning modes (individual vs. group), however, indicated a more discernible sign of preference. The majority were inclined to learn in a group (n=16) and only 6 participants preferred to learn individually. 6 students indicated *group* learning mode as unfavourable while another 6 indicated *individual* learning mode unfavourable.

In general, positive feedback was gathered from the participants on the promotion of learning autonomy and student-centredness which aligns with some of the necessary characteristics of differentiated instruction as identified in the literature (see 2.2.2). One of the major findings by McQuarrie et al. (2008) was that students who received differentiated instruction became more self-directed and Mohd Hasrul et al. (2015)

also concur that differentiated lessons led to a student-centred classroom with plenty of opportunities for active classroom involvement. Tailoring the module according to the differentiated framework also managed to emulate similar positive findings in line with other Malaysian studies by Hamidah et al. (2011), Najibah et al. (2014), and Mohd Hasrul et al. (2015). The positive changes reported led me to believe that differentiated instruction has the potential to be explored further with a larger sample size in the country.

During the intervention period, classroom activities were tailored according to the students' preferred learning modalities, resulting in different sets of activities to be fulfilled by them. Despite my initial concern that the students would consider the practice of my assigning different learning tasks to different students unfair, all the participants during the interviewee confirmed that it was not an issue. On the contrary, the practice turned out to be something they appreciated as they claimed completing identical activities would be pedestrian. Nevertheless, I also managed to capture one participant's slight hesitance which stemmed from her not being able to compare correct answers with her peers when the questions in learning activities between the kinaesthetic groups and auditory groups were different. The culture of comparing marks is still prevalent in the Malaysian education system which suggests either the students' trait of being highly competitive or their need to check if they are doing better, progressing at a similar rate, or performing worse than their peers.

However, four challenges were recorded after the implementation of the module (see 5.4.3): a) challenging topics and lesson content for the students, b) limited time to carry out the module due to interfering school activities that required involvement from either the teacher or the students, c) the scrupulous extent of preparation needed by the teacher before each lesson, and d) the lack of explicit discussion about past examination questions which triggered concern among some students. One of these challenges was possibly the reason to explain the score drop between pre- and post-test) as shown by the four student-participants in the study (see 5.2.2).

In realisation of these challenges, I would like to propose some possible strategies in rectifying them. With regard to the challenging topics and content, the teacher suggested that '... perhaps we could adjust the level of difficulty and make some of

them a little less difficult'. Even though I agree that some students might not be fully ready for some of the topics, such as online shopping and mental health that proved to be more challenging than other topics (e.g. national independence, business transaction, effective business communication), I personally think that these topics need to remain. The more technical topics are highly relevant to prepare the students in the near future when they grow to be young adults. Therefore, one way to improve the module when comprising challenging topics is by introducing the content to the students little by little and by ensuring that the lesson progresses at a slower teaching pace. Possible unfamiliar concepts can be taught prior to the main learning activity during the lesson introduction and this is when the students will benefit from scaffolding activities, either guided by the teachers or the more capable peers. Assistance can also be given in the form of several consolidation activities to supplement their understanding before moving on to the more intricate components of the same topic.

The second challenge was the problem with time constraint. It is seen to be a common problem that teachers and students face at school as identified by other researchers (e.g. Mohd Hasrul et al., 2015; Wan, 2017). A solution to this problem is not as simple because, in addition to the pre-arranged activities at the beginning of the school academic calendar, there are also events not scheduled in the school calendar that may take place, e.g. visits from education authorities and meetings that require teacher's presence during the school learning hours. Thus, having a teaching module designed in advance at the beginning of the year and making sure that other English teachers go through the same training may be helpful. If a particular teacher has to attend to another engagement, a teacher who is trained with the same teaching module is able to help out. Time constraint was also recorded to be an issue with some student-participants as they admitted to being pressed for time in completing the activities during the module intervention. Most of the lessons came with an assignment for the students to complete and the final assignment required the students to collaborate in a small group to produce a creative project. As the intervention was executed only in 12 weeks, what I did not thoughtfully account for when planning for the activities and assignments was the fact that the students might have to deal with assignments from other subject teachers. Therefore, future planning for the module needs to consider students' additional workload assigned by

other subject teachers to avoid them from feeling overwhelmed and unhappy with assignments which would otherwise be counter-productive. The learning pace needs to also take students' mental fatigue into account and provide them with time for a break. I now realise the need to alternate technical content with subtopics which seem to be rather leisure and fun is key to maintaining students' interest.

The third challenge relates to the great amount of preparation needed by the teacher before each lesson can be reduced with careful and early planning and preparation. When daily lesson plans are prepared at the beginning of the year, teachers would have more time to prepare. All this while, government-funded school administrators have been keen on insisting teachers to produce their lesson plans manually by writing. However, at present an increasing number of school principals are giving their teachers freedom to prepare the lesson plans using word processor (e.g. Microsoft Word) which will eventually reduce the preparation time. Support from the principals and other teachers is key which is why many previous studies (e.g. De Neve, Devos, and Tuytens, 2015; Smit and Humpert, 2012; Tomlinson, 2013) described team culture and collegiality as the contributing factors as to why some teachers managed to successfully differentiate their lessons. In light of this finding, I would continue to propose a wider and more frequent support and collaboration with University researchers across the nation. As it is with any other jobs, differentiating lessons might seem difficult initially but in time as teachers become familiar with the techniques, it would become more manageable. The fourth and final challenge was recorded from one of the students as she claimed that she was not adequately prepared for the examination. Throughout the intervention period of this study, no separate session was devoted solely to discussing past exam questions. The module was tailored to be already in line with the national syllabus and it embedded quite a number of previous exam topics in the classroom activities. However, this was not explicitly mentioned to the students because of my personal aim to move away from an exam-oriented instructional approach. The student's concern was not without a basis.

From my experience studying and working at government-funded schools, a great number of workshops and classroom drills were devoted to preparing students for the national exam. As a result, some students end up presuming explicit instruction

in preparation of examination by the classroom teacher. Thus, the next intervention programme of differentiated instruction could consider explicitly pointing out to the students where exercises are similar to previous examination questions to help them understand that, in addition to preparing them for the future demands of life, the classroom activities are designed to also be in line with the national examination content.

6.3 EFFECTS OF THE DIFFERENTIATED MODULE ON LANGUAGE ATTITUDE

To answer *RQ2 What are the student-participants' English language attitudes pre-intervention?* the completed language attitude pre-tests were analysed. The student-participants were found to display a positive attitude in each language attitudinal component as suggested by their scores (see 5.2.1). The component with the highest score was the cognitive component, followed by the affective and finally behavioural components.

Meanwhile, to answer *RQ4 Has the introduction of a differentiated English module affected the student-participants' language attitudes? If so, how and why?* data from both post-tests and semi-structured interviews were analysed. After the intervention, changes were duly noted in each component through an increase in raw scores of the post-tests. It was later confirmed by the two-tailed paired-samples *t*-test that the participants scored significantly higher in the post-test ($M=114.62$, $SD=10.00$) than the pre-test ($M=108.38$, $SD=10.62$). To estimate the significance of intervention, Cohen's *d* was used to estimate the standardised effect size which reported a value of $d=0.89$; this suggests that the intervention managed to elicit a *large* effect size on the students' language attitude.

The differentiated module introduced many speaking activities as opposed to the traditional “chalk-and-talk” instructional approach and the finale of the module was when students had to work on a creative project to demonstrate their understanding of “Obsession and Mental Health”. Some groups chose to perform a sketch, while others decided to simulate a talk show.

Towards the end of the intervention period, the class was entrusted by the school to perform during the school assembly. The selected students decided to perform the sketch that they had been preparing for which further helped to give them a sense of meaningfulness for learning English. As a result of the many speaking activities that the students had to fulfil, the teacher-participant noted that the students continued to use English more frequently outside the classroom either with the teacher or among them. Similar observation was noted by one student-participant as she admitted to having realised that her best friend had been using English on a frequent basis than before the intervention. From my own observation during the interview, even though the students struggled at times to express themselves in English, they did not revert to their native language. At the beginning of the interview, I explained that the session could be held in either English or Malay or a combination of both and had specifically told them that they could use the national language if the need arose. During the session itself I purposely paraphrased questions in the Malay language to imply that the use of language other than English was acceptable. Despite these efforts, the students persisted and kept using English until the session ended. The students had also grown accustomed to the idea of using English that they only spoke to me in the language during our casual conversations at the school canteen.

Lessons in the module were also described by the students as “fun and interesting” even though when creating the activities *fun* was not taken into account. As I strived to create the module, I only ensured that the activities would align with the characteristics of a differentiated lesson as depicted by the literature in addition to matching the activities to the students’ language learning style preferences that were identified during the needs analysis phase. However, based on the acknowledgment from the students, I would argue that the element of fun presumably arose when the activities respond to their learning preferences. If this claim was right, it implies that for teachers to encourage a positive learning experience and invoke students’ interest in learning, the lessons must be tailored to match students’ wants and needs. Despite how creative a teacher attempts to be, if the lesson was developed according to the teacher’s own interpretation of “fun and interesting” without consulting the students, an interesting lesson might be elusive or impossible to attain.

The positive results echo the findings by Karadag and Yasar (2010) in that the differentiated instruction intervention managed to promote a more positive attitude in learning a language and contradicts the findings by Alavinia and Sadeghi (2013) who report no significant proficiency differences after an intervention programme with differentiated task-based instruction. Possible explanations for this could be the small number of students in my own study (n=26) as it allowed the teacher to give a higher degree of attention to the students. In addition, the contradicting finding could also be influenced by the measurement of specific research variables (language attitude and critical thinking) in my study, as opposed to language proficiency in Alavania and Sadeghi's study which might require a longer intervention programme to observe significant changes. The positive findings reported from the intervention are also comparable to studies by Nair et al. (2014) and Choy and Troudi (2006), Salem and Khalif (2017) and Ismail et al. (2014), who suggest that language attitude may change favourably when learners realise the practical application of English in real life. The findings particularly by Ismail et al. (2014) are pivotal to other ESL studies about language attitude as the researchers managed to that ESL students' attitude may change from negative to positive when they found the usefulness of the language. The participants in their study who indicated a negative attitude towards English initially became more accepting of English over time as a result of the required consistent use of the language for classroom presentations. Driven by the findings reported by these studies, it is safe to assume that the frequent use of English across speaking activities in every lesson throughout the intervention period in my own study had positively influenced the student-participants' English language attitude.

However, the original pattern of response in the language attitude questionnaire persists post-intervention as the behavioural component was still reported to comprise the lowest score out of the three components and the cognitive component the highest. When compared to other Malaysian studies, the findings are in line with studies by Siti and Melor (2014), Thang et al. (2011), and Parilah (2002) as these studies too reported the same pattern of response as indicated earlier. That the cognitive component fares better than the other two components is understandable, considering the emphasis on the importance of English by the government which I trust has somehow affected the people's perception. The language is accorded status

of the second most important language in the country and the teaching of it is mandatory at schools. The fact that the teaching of English is made mandatory alone would leave an impression on the students that the language is an important subject.

Further to this point, great emphasis is placed on obtaining excellent grade which led to the prevalence of the drilling method in classrooms across the country as reported by the MoE (2003), Shakir (2009), and Tengku (2012). Teachers usually resort to drilling students using past questions to ensure that they are fully prepped for the examination but the practice will limit their language use to the contexts that are tested in the examination (see 1.2). Even the English literature component which has the potential to spark students' interest in learning the culture and enjoy remarkable poetry is subjected to a drilling, exam-driven approach in the classroom. Thus, novels and poems are not only learnt for the sake of appreciating the beauty of the language but also make up a section in the national examination, resulting in the drilling and memorization of the literature texts.

In addition, technological advancement and the issue of globalisation has affected the way students and teachers perceive English as it is learnt as a lingua franca in today's globalised society. Given these circumstances, it is not surprising as to why the student population in the country would rate very highly in the cognitive component in any language attitude tests as they are constantly made to be aware of the importance of English. However, efforts to promote growth in the affective component is not as widespread. Based on my personal experience as a student of national schools, there appears to be less concern and fewer attempts by the teacher to instil passion for the learning of English. It was almost as if the affective component was taken for granted; since the whole nation is made aware of the importance of English there was no urgent need to train the students and the people in general to be passionate about or at least to favour the language. The lack of efforts to motivate the people to "feel" positively about English has resulted in a society of ESL speakers who learn and use the language mostly out of necessity because they think (cognitive component) it is important whether or not they like it (affective component) and this has led to the manifestation of limited efforts in actually conducting activities independently (behavioural component) to improve their language proficiency. This finding has shed light on the importance of a follow-

up study to investigate the correlation between the language attitude components which will help researchers, teachers, and policy makers understand which component would need to be emphasised for changes in learning behaviours to occur.

6.4 EFFECTS OF THE DIFFERENTIATED MODULE ON CRITICAL THINKING

The critical thinking pre-test was carried out to answer *RQ3 What is the student-participants' critical thinking competence pre-intervention?* 46% of the sample (n=12) were found out to score a grade B and below (70 marks or lower) in the test which formed almost half of the sample. The findings echo the same concern of Kiong et al. (2012), Rosyati and Rosna (2008), Aida et al. (2005), and Shaharom (2004) when reporting the cases of low critical thinking skills among Malaysian learners even though the studies did not use the same thinking test.

Following the intervention, the mean score of the student-participants was calculated. It recorded a slight improvement and only 30% of the sample (n=7) scored below 70 marks. The two-tailed paired-samples *t*-test revealed that the participants scored significantly higher in the post-test (M=25.27, SD=3.528) than the pre-test (M=23.88, SD=3.037) with a mean increase of 1.385. The value of Cohen's *d* from the data was found to be estimated at .58 (=1.385/2.368) which suggests a medium effect size. The improvement in their critical thinking test scores was further supplemented with the teacher-participant's acknowledgement that the students had shown some positive changes as evidenced by their essays on tests. The students were claimed to be able to argue more critically and to support their writing points with good examples. In addition, they were claimed by their teacher to be able to integrate writing points in their essay that demonstrated an ability which aligned with the Higher Order Thinking Skills by Bloom (1956). All these details answered *RQ5 Has the introduction of a differentiated English module affected the student-participants' critical thinking? If so, how and why?*

The change as evidenced by the mean scores of the post-test concurred with the findings by Hernandez and Rodriguez (2016), Wang and Zheng (2016), and Jaya (2017) who suggest that critical thinking can be successfully taught to a certain extent. Throughout the module the students were taught implicitly to argue and make conclusions from evidence which turned out to lead to some improvement and the findings add to other studies such as Yang (2008) and Heijltjes et al. (2014) which suggest that teaching critical thinking implicitly can also work. However, based on the medium effect size, the intervention on critical thinking left a less impressive impact as compared to language attitude. The situation led me to assume that either the emphasis given was not adequate for developing students' critical thinking or that critical thinking is a variable that requires a longer intervention programme to produce a larger effect. In other words, critical thinking comprises skills that require time to be developed. On a similar note to the finding about the language attitude variable, this too warrants a future intervention study with more contact hours to examine if it would bring about a better result and possibly yield a larger effect size.

6.5 RESEARCH STRENGTHS

Several main strengths of the study are identified based on its contribution and design as follows:

6.5.1 Contribution of the Study

In terms of its contribution, the study is original in the Malaysian context due to the selection of research participants and the type of evidence it has brought to the ESL literature. As I have argued in 1.1, the implementation of differentiated instruction is not widely researched in the ESL context. In Malaysia only a few studies have been conducted to study the effects of differentiated instruction on gifted learners who are academically superior learners from the rest of the student population in the country. Participants in my study were chosen from a national school, a type of school with the most number of students across the country. In terms of academic capability, my research participants were relatively similar to most other average learners in the country, making the findings to highly resonate with the other learners in the

country. By using students from the mainstream population like no other previous local researchers, it also makes my study to be original.

The study also contributes by adding insights into the existing knowledge in the form of empirical evidence for a differentiated instruction intervention study. Out of the limited number of studies on differentiated instruction in an ESL context, most of them involved attitudinal studies where teachers' and students' perspectives were surveyed. It is understandable considering that access to language classrooms for a prolonged period is not easily gained from local education authority. My study went through several stages of reviews by the local authorities spanning several months before reaching the school principal's desk for consideration. Attitudinal studies are not necessarily able to provide empirical evidence as the data are only to describe the issue under investigation from the respondents' point of view, whereas the empirical data in the study are able to help readers visualise what happens after an intervention programme is introduced.

Findings of the study and the differentiated module is expected to be of great use to Malaysian teachers but they can still be beneficial to instructors from other ESL countries. The module comprises activities which were broadly developed to hone language skills. With an exception to the topic on national independence, the remaining activities were not specific to the Malaysian cultures and can be adjusted to suit their learners' needs and their required teaching topics.

6.5.2 Research Design

Another strength of the study lies within its design. The data of the study were obtained from a natural setting of an intact classroom. Data elicited from human participants are prone to research threats such as the Hawthorne effect where students are found to react in a way that might help them appear in a positive light and this is especially true for survey studies where communication with the participants is based on a one-off basis. This type of data is important when studying human participants as the prolonged intervention period allows the data to reflect who the participants were. By studying the participants in their natural setting I was also able to obtain the participants' insights on the intervention

which results in the data being comprised of authentic feedback. The responses described the participants' preference and this may contribute new evidence of how Malaysian learners view the process in the intervention.

The study also employed a rigorous research approach, albeit involving only a sample from one school. Firstly, this was attained by using mixed methods research approach that fulfilled the need for data triangulation: the quantitative findings from the pre- and post-tests were supported by the interview data. Secondly, outputs of the study, namely the differentiated checklist and the differentiated module went through a validation process by experts. The checklist was presented to experts in differentiated instruction and critical thinking to establish the inter-rater reliability. Meanwhile, the lessons from the module were self-developed and went through a checking process by the teacher-participant to ensure that the content fell in line with the national syllabus. The teacher also gave his suggestions on the activities as to whether they would be too challenging for his students. It led to a minor revision of the module before it was presented to two teacher-raters who lent their insights to ensure that every lesson was sufficiently differentiated.

6.6 LIMITATIONS OF THE STUDY

There are three limitations of the study that I could identify. The first relates to the research design due to the lack of control group, resulting in the study to generate findings from small sample size. As stated in 3.2.3, I had to change the design from involving two research sites to only one site as advised by the panel of Confirmation Review. Thus, I began the study by recruiting an interested teacher-participant who was willing to be involved in a project that lasted 9 months (from the needs analysis survey until the completion of post-tests, excluding the interviews). Judging from his teaching workloads from previous years, we assumed the teacher would once again be assigned several Fourth Form classes. Based on this assumption, the study was initially designed to include a control group in order to compare the research results with the treatment group. Unfortunately, after the term started in January 2016, the teacher was instead assigned one Fourth Form class only, together with several Fifth Form classes. Permission to involve student-participants as granted by the Economic

Planning Unit, Prime Minister's Office did not include the Fifth Form because at the end of the year they would be taking a national examination (SPM) and the authority had reminded me to exclude these students. As the teacher was left with only one Fourth Form class, I had to change the design from the non-equivalent control group design to the single group pre-test-post-test design. Without a control group to compare the results of the treatment with, the positive results must be treated with caution and cannot be overgeneralised to the entire population, particularly if the demographics are different. Although I considered appointing another teacher teaching the Fourth Form and his/her students to serve as the control group, doing so would require another research phase to analyse his/her lessons to ensure that they were not already differentiated. This would result in additional time and an increase of budget (for payment of honorarium to the teacher) for my study. To compensate for the identified limitations, the quantitative data were triangulated by the collection of qualitative data and the research sample was taken from a mainstream classroom of a national school that represents the majority of students in the country.

The second limitation is the length of intervention. Due to time constraints as my study sponsorship was only for three years, the intervention programme could only be carried out for one academic term of study at the research site. Even within the limited time frame, I could not impose on the participants on several occasions, i.e. at the beginning of the year where teachers and students were busy with academic registration and extracurricular event (student clubs) sign-ups, during the midterm examinations (March) and during the final examinations (October to November), and the school holidays. Opportunities to carry out longer intervention might have revealed more insights that what have been obtained and as argued in 6.4 the study might also be able to estimate a higher effect size for the critical thinking variable.

The third limitation relates to the lack of classroom observation as a means for data collection. The pre- and post-tests were self-reporting data and were only corroborated by interview data. Carrying out classroom observation on the student-participants as a form of data triangulation would allow me to interpret the effects of the differentiated module on both dependent variables from my own perspectives. However, convincing teachers and getting permission from the authorities are not easy as classroom observation will definitely pose a huge imposition on teacher and

students with an outsider's presence throughout their lessons. In my study, three sessions of classroom observations were carried out at the beginning of the intervention period but only as a support to ensure that the teacher adhered to and understood the planned teaching and learning procedures.

All these limitations bring about implications on how future studies can be designed or what can be taken into account to improve the study's external reliability. These are further discussed in 6.7.3.

6.7 RESEARCH IMPLICATIONS

By taking into account the findings of the study along with the research strength and limitations several implications are discussed pertaining to three aspects, namely policy, praxis, and research.

6.7.1 Implications for Policy

Implications on policy involve suggestions that can be considered by educational authorities, top administration of schools and also the Faculty of Education at universities across the country. The first implication is the promotion of research collaboration. Collaboration between researchers and schoolteachers in Malaysia, although is evident in some ESL literature, is not frequent. Going through these relevant studies, collaboration in carrying out classroom intervention is scarce and collaborations involve surveys and tests but efforts for a prolonged series of classroom intervention can provide more insights into understanding important variables that influence learning.

At present, various initiatives are being taken by public research universities in the country to collaborate in classroom research and I would like to be part of that effort by collaborating with more teachers to co-develop teaching modules based on the national curriculum. As an alumnus and lecturer at a Faculty of Education at one of the research universities in the country, I have experienced firsthand how the communication between alumni and their alma mater is limited to invitations to attend events and to make donations. When education graduates enter the profession, they are expected to survive independently, with help from colleagues and the

administration of the new school. There has been no networking or outreach programmes that I know of between the faculty and their graduates to assist them in adjusting to their new workplace. Thus, I would like to propose constant contact between faculties and their graduates through collaborative intervention studies as this type of study carries several advantages.

The first advantage is to benefit the graduates by offering help to struggling novice teachers who have to split their time between teaching workload and other clerical and administrative chores. From my own personal experience, I can attest to the fact that the reality at work may not be what new teachers expect as they struggle to make connections between the theories and applications. Therefore, it would be useful to have their contact with their previous trainers (academics at the faculty) flourish which will help the enactment of complementary roles by teachers and educational researchers. Although educational researchers may be more familiar with learning theories, models, and frameworks, teachers are the implementers of the knowledge and skills at the primary and secondary education levels and only by collaborating will they be able to benefit from each other.

A similar form of collaboration can also be achieved by working with several schools in collaborative programmes. Doing so will enable teachers to get help with teaching modules and researchers would be working with the teachers by conducting prolonged classroom observations and experiments. This would lead to large, longitudinal datasets to be analysed systematically in measuring learning gains to improve teaching practice and valuable data in describing effective as well as less effective strategies on Malaysian learners could also lead to dissemination of knowledge through academic publication. All successful anecdotes need to be shared and analysed systematically so that teachers and policy makers are confident that these successes are as a result to the implemented strategies and intervention programmes.

The second advantage is to benefit the faculty by being kept up to speed about the most recent changes in the curriculum and other policies by the MoE. As teachers and schools are under the regulation of MoE and universities under the Ministry of Higher Education, schools have more immediate access to changes of policies and

practice. By being in touch with the graduates, the faculty would also gain insights if the training provided throughout the four years (the length of study for a bachelor's teaching degree in Malaysia) is sufficient and the syllabus can be updated on a regular basis by assessing actual teachers' needs against the syllabus. In the fourth year of training, undergraduates have to complete a teaching practice for one semester at local schools. To a certain extent, the faculty experience difficulties in finding schools that are willing to accept trainee teachers. Most of the time this is achievable, but there are cases where schools refuse to accept trainee teachers and the faculty needs to find other alternatives. Constant communication with their alumni would enable the faculty to reach out to schools where the alumni are and although not always a guarantee, alumni would likely be willing to help out. If this idea was formalised in the form of a mentoring programme, these alumni would take new trainee teachers under their wing as a form of community service by sharing their knowledge and expertise, perhaps leading to a more structured mentoring scheme.

The third advantage is to benefit both the educational researchers and practitioners; the purpose of education besides obtaining knowledge and liberating a person is to maintain a country's survival by preparing quality workers for the workforce or human capital as well as future leaders of the nation. Although these two groups of educators (schoolteachers and lecturers) deal with a group of students at two different learning phases (secondary and tertiary), the final aim is identical in that they need to work on maintaining the quality of our learners who will become the future human capital and/or leaders of the country. In addition to working together towards a common goal, the research collaboration between researchers and schoolteachers is also about collecting valuable empirical evidence. The evidence is important to match a specific group of learners' profile with lesson content and to inform the nation about this process, whether they be other teachers, parents, policymakers, or even students. By documenting classroom practice and sharing it with the whole country and other ESL or EFL countries, the entire community is likely to benefit from talented teachers with effective pedagogical strategies to implement differentiated instruction. Access to these ideas and their implementation can only happen through publications and since publication is not required as part of their job performance evaluation, it would be unfair to expect these teachers to

document their classroom practice for the purpose of disseminating ideas as this would add to their workload. Due to this, classrooms become untapped resources for creative ideas and strategies that could have otherwise benefited other teachers, especially novice teachers either in Malaysia or in other ESL or EFL countries. However, publishing is a mandatory part of a lecturer/researcher's job and through collaboration with classroom teachers, lecturers would have continuous access to these data to report on them.

6.7.2 Implications for Practice

The findings managed to document several advantages of the differentiated module. The main advantage is the element of responsiveness that it elicited from the students. The module was designed to take into account the students' learning style preference. It implied that classroom activities need to be tailored to learners' preference. It is imperative for the participants to feel something as enjoyable that their preference be consulted first in addition to finding out what they need to learn and master through needs analysis.

Classroom teaching and learning practice in the Malaysian context needs to rely on empirical evidence. Teaching strategies need to rely on empirical evidence and have been proven effective with Malaysian learners while also taking the learners' perspectives into account in addition to the teachers'. In line with the demand to be a scientific and progressive nation by the year 2020, day-to-day life needs to be governed by empirical evidence through experiments and observations. Teaching that is driven by empirical findings is expected to be more systematic - results can be compared with the entire ESL communities all over the world to understand if changes occur due to the intervention itself or due to the research participants. Also by adhering to empirical findings, the process of teaching and learning are governed by positive reports rather than by "trial and error". This would save time. Change will take time and quite impossible to be perfect overnight. That teaching can be done systematically and teachers need constant support. The first output of this study which is the checklist drawn from the literature can be used to help guide teachers in differentiating their lessons while the second output that is the module itself can be adapted by teachers in their lessons.

6.7.3 Implications for Research

The limitations of the study give rise to several suggestions for future research so as to extend the research findings or to improve the design of the present study with possible support from a larger research grant and longer intervention period. One suggestion is an extension to an earlier suggestion in the discussion section to extend the research findings by carrying out a correlational study to investigate the relationships between the three language attitude components. More studies are needed to understand the correlation between the three components of language attitude. Results from this finding will help to steer the direction of teaching in order to emphasise a prior component (affective) under language attitude before the following components (cognitive and behavioural). Reporting upon these insights would be useful as they will not be limited to calculating score gains or drops but may also include descriptions of characteristics to define Malaysian learners' capabilities which is expected to help scholars to understand the learning styles and thinking patterns that may make them similar or unique as compared to other learners from different parts of the world and to offer possible explanations for the differences.

6.8 SUMMARY

The study was a research project designed to be in line with the classroom research paradigm that aims to gather empirical evidence for a classroom intervention on some Fourth Form students. The intervention refers to the implementation of a differentiated English lessons designed by me but carried out by the teacher-participant in his classroom. The need for more empirical evidence is suggested by the literature to be imperative due to the limited number of design of such nature and the higher number of reports of perception study and anecdotal data. It employed a mixed methods approach and it was designed to adhere to a certain research rigour in finding out the students' learning style preference prior to the intervention, developing a differentiated module to match the students' preference, and examining the effects of the module on the two dependent variables (language attitude and critical thinking) in the study. Thus, in addition to the empirical evidence contributed to the existing literature, other main contributions of the study include the teaching

module as well as the development of the differentiated lesson checklist and critical thinking infusion checklist that can be utilised by other ESL or EFL practitioners globally. In the final part of the data collection, the interview data were analysed to corroborate the positive findings as reported by the post-tests. The data were also useful to gain insights as to why the intervention had elicited such a response from the participants from both the teacher's and students' perspectives. Given the duration of the intervention, the study suggests that language attitude as a variable is more likely to change by comparison to critical thinking. As a variable that comprises many subskills, critical thinking requires time to be nurtured but the study has suggested that it is a skill that is teachable even when taught implicitly, contradicting some scholars' claim that critical thinking is simply not teachable to everyone.

In light of the study, implications on policy, practice, and research were discussed to articulate clearly how the study has a direct impact on these aspects. Some key issues that the study has highlighted are the need for: a) frequent research collaboration projects between educational researchers and practitioners at school, b) correlational studies of the language attitude variable to investigate the relationship between the three subcomponents (affective, behavioural, and cognitive) which might eventually lead to the possibility of an emphasis on boosting students' affective component of the language attitude to improve their behavioural attitude, and c) studies with a larger sample size to estimate the study's external validity and reliability. With help from the teacher-participant, expert informants, and teacher-raters, the module as the guiding document to be implemented during the intervention period was refined several times. The process was carried out to truly achieve a sufficient level of differentiation across the lessons. As a result, in addition to the observable changes in students' language attitude and critical thinking, the implementation of the module has also promoted learner autonomy, student-centredness, and fun learning among the students; by implementing the module, it has enabled the teacher to become responsive to his students. Despite its success in yielding positive results, the study needs to involve a larger number of participants in the near future and to reach out to a higher number of students to test the module's effects on other important variables to facilitate teaching and learning in the language classroom.

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APPENDIX A
RESEARCH ETHICS APPROVAL



Downloaded: 04/04/2019
Approved: 28/12/2015

Nur Ehsan Mohd Said
Registration number: 130261070
School of English
Programme: English Language and Linguistics

Dear Nur Ehsan

PROJECT TITLE: The effects of Differentiated Instruction on student language attitude and critical thinking skills in an EFL (English as a foreign language) setting

APPLICATION: Reference Number 006962

On behalf of the University ethics reviewers who reviewed your project, I am pleased to inform you that on 28/12/2015 the above-named project was **approved** on ethics grounds, on the basis that you will adhere to the following documentation that you submitted for ethics review:

- University research ethics application form 006962 (dated 26/12/2015).
- Participant information sheet 1013756 version 1 (25/11/2015).
- Participant information sheet 1013735 version 1 (25/11/2015).
- Participant information sheet 1013736 version 1 (25/11/2015).
- Participant information sheet 1013737 version 1 (25/11/2015).
- Participant consent form 1013738 version 1 (25/11/2015).

If during the course of the project you need to [deviate significantly from the above-approved documentation](#) please inform me since written approval will be required.

Yours sincerely

Oksana Afitska
Ethics Administrator
School of English

APPENDIX B

LETTER OF PERMISSION TO ENTER RESEARCH SITE AND CONDUCT RESEARCH

ULASAN TENTANG CADANGAN KAJIAN

Researcher's Name : NUR EHSAN MOHD SAID Research/ Kajian: Ph.D / Sarjana
Kedoktoran Masters
 Am

Name of institution/ Nama institusi : The University of Sheffield United Kingdom

Research Title/ Tajuk Kajian : The Effects of Differentiated Instruction on Student Language Attitude and Thinking in an EFL Context

a) Views concerning the research proposal:
Setelah membaca cadangan kajian seperti yang dinyatakan di atas, pandangan terhadap cadangan kajian adalah seperti berikut:

i) Area of study/ Bidang yang akan dikaji:

Suitable / Sesuai Not Suitable / Tidak Sesuai

ii) Sample and research location / Sampel dan lokasi kajian:

Suitable / Sesuai Not Suitable / Tidak Sesuai

Not Clearly Stated / Kurang Jelas

iii) Benefits of the research or its importance to the Ministry Of Education, Malaysia / Hasil penyelidikan - faedah penyelidikan kepada Kementerian Pendidikan Malaysia

Benefit / Faedah No benefits / Tidak Berfaedah

Not Identified / Tidak Pasti

Findings of this study will be important to the MOE because it informs policy makers on:

"The Effects of Differentiated Instruction on Student Language Attitude and Thinking in an EFL Context"

b) Suggestions made by EPRD, Ministry of Education, Malaysia / Cadangan BPPDP, Kementerian Pendidikan Malaysia:

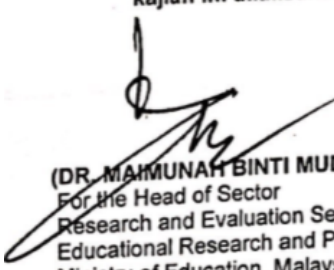
Approved / Diluluskan

Approved with conditions / Diluluskan dengan bersyarat

Not Approved / Tidak diluluskan

* Remarks:

- Murid Tingkatan Lima tidak boleh dilibatkan dalam kajian ini.
- Pemohon perlu berbincang dan mendapatkan persetujuan pentadbir sekolah sebelum kajian ini dilaksanakan.


(DR. MAHMUNAH BINTI MUDA)
For the Head of Sector
Research and Evaluation Sector
Educational Research and Planning Division
Ministry of Education, Malaysia

Tarikh: 5 Februari 2016

APPENDIX C

RESEARCH CONSENT FORM

The University of Sheffield
Research Participant Consent Form
Borang Persetujuan Peserta Kajian

Title of Research Project	The Effects of Differentiated Instruction on Students' Language Attitude and Critical Thinking in an English-as-a-foreign-language (EFL) Setting
<i>Tajuk Projek Penyelidikan</i>	<i>Kesan "Differentiated Instruction" ke atas Atitud Bahasa dan Pemikiran Kritis Pelajar dalam Persekitaran Bahasa Inggeris sebagai Bahasa Asing</i>
Name of Researcher <i>Nama Penyelidik</i>	Nur Ehsan bin Mohd Said

Participant's Initial/ Signature

1.	I confirm that I have read and understood the information sheet that explains the research project above and I have had the opportunity to ask questions about the project. <i>Saya mengesahkan bahawa saya telah membaca dan memahami maklumat borang penerangan yang memerihalkan projek penyelidikan di atas dan telah diberikan peluang untuk bertanya tentang projek berkenaan.</i>	
2.	I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason and without there being any negative consequences. In addition, should I not wish to answer any particular question(s), I am free to decline. <i>Saya faham bahawa penglibatan saya adalah secara sukarela dan saya berhak menarik diri bila-bila masa tanpa sebarang alasan dan tanpa risiko. Saya juga berhak untuk tidak menjawab mana-mana soalan sekiranya perlu.</i>	

3.	I understand that my responses will be kept confidential. I give permission for the researcher to access my responses. I understand that my name will not be linked with the research materials and will not be identifiable in the research report. <i>Saya faham bahawa maklum balas saya akan dirahsiakan. Saya memberikan izin capaian maklum balas saya kepada penyelidik. Saya juga faham bahawa nama saya tidak akan dipaparkan dalam bahan penyelidikan dan laporan hasil penyelidikan tersebut.</i>	
4.	I agree for the data collected from me to be used for future research, i.e. journal articles, seminar papers, proceedings, etc. <i>Saya bersetuju sekiranya data yang dikutip daripada saya digunakan untuk penyelidikan pada masa akan datang seperti artikel dalam jurnal, kertas seminar, prosiding dan sebagainya.</i>	
5.	I give my consent to be recorded, if necessary, and I understand that all recordings, as far as possible, will be anonymized. I also understand that the recordings will not be shared with anyone other than the researcher. <i>Saya memberi keizinan untuk dirakam sekiranya perlu dan saya faham bahawa semua rakaman tidak akan memaparkan identiti saya. Saya juga faham bahawa rakaman ini tidak akan dikongsi dengan pihak lain selain pihak penyelidik.</i>	
6.	I understand that the researcher will compensate my time in taking part in the research with a token of gratitude. <i>Saya faham bahawa pengkaji akan memberi sagu hati sebagai tanda penghargaan atas susah payah dan masa yang saya peruntukkan untuk terlibat dalam kajian ini.</i>	
7.	I agree to take part in the above research project. <i>Saya bersetuju untuk mengambil bahagian dalam projek penyelidikan seperti yang di atas.</i>	

Name of participant
Nama peserta

Date
Tarikh

Signature
Tandatangan

*Name of parent/guardian
**Nama ibu/bapa/waris*

Date
Tarikh

Signature
Tandatangan

Name of researcher
Nama penyelidik

Date
Tarikh

Signature
Tandatangan

*To be filled if applicable
**Diisi sekiranya berkenaan*

APPENDIX D

LANGUAGE LEARNING STYLE PREFERENCE TEST

Dear student,

Please respond to the statements as they apply to your preference in learning the English language. Remember that there is no right or wrong answers. Please read the statements below carefully and circle your response. The responses to the items are arranged in four levels of intensity as follows:

Strongly agree
Agree
Undecided
Disagree
Strongly disagree

Please circle only **ONE** option in its box for each item.

No.	Items	Scales			
1.	I understand better when the teacher explains the instructions verbally.	Strongly agree	Agree	Disagree	Strongly disagree
2.	I prefer to learn by doing or experimenting in class.	Strongly agree	Agree	Disagree	Strongly disagree
3.	I get more work accomplished when I work with my peers.	Strongly agree	Agree	Disagree	Strongly disagree
4.	I learn more when I study with a group.	Strongly agree	Agree	Disagree	Strongly disagree
5.	In class, I learn best when I work with others.	Strongly agree	Agree	Disagree	Strongly disagree
6.	I learn better by reading what the teacher writes on the chalkboard.	Strongly Agree	Agree	Disagree	Strongly disagree
7.	I learn better by listening to explanation in class on how to do something.	Strongly Agree	Agree	Disagree	Strongly disagree
8.	I learn better by doing or experimenting in class.	Strongly Agree	Agree	Disagree	Strongly disagree
9.	I remember things I have heard in class better than I remember things I have read.	Strongly Agree	Agree	Disagree	Strongly disagree

10.	I remember instructions better when I read them.	Strongly Agree	Agree	Disagree	Strongly disagree
11.	I learn more when I can make a model of something.	Strongly Agree	Agree	Disagree	Strongly disagree
12.	I understand better when I read instructions.	Strongly Agree	Agree	Disagree	Strongly disagree
13.	When I study alone, I remember things better.	Strongly Agree	Agree	Disagree	Strongly disagree
14.	I learn more when I make something for a class project.	Strongly Agree	Agree	Disagree	Strongly disagree
15.	I enjoy learning in class by doing experiments.	Strongly Agree	Agree	Disagree	Strongly disagree
16.	I learn better when I make drawings as I study.	Strongly Agree	Agree	Disagree	Strongly disagree
17.	I learn better in class when the teacher gives a lecture.	Strongly Agree	Agree	Disagree	Strongly disagree
18.	When I work alone, I learn better.	Strongly Agree	Agree	Disagree	Strongly disagree
19.	I understand things better in class when I participate in role-playing.	Strongly Agree	Agree	Disagree	Strongly disagree
20.	I learn better in class when I listen to someone.	Strongly Agree	Agree	Disagree	Strongly disagree
21.	I enjoy working on an assignment with two or three classmates.	Strongly Agree	Agree	Disagree	Strongly disagree
22.	When I build something, I remember what I have learned better.	Strongly Agree	Agree	Disagree	Strongly disagree
23.	I prefer to study with other students.	Strongly Agree	Agree	Disagree	Strongly disagree
24.	I learn better by reading than by listening.	Strongly Agree	Agree	Disagree	Strongly disagree
25.	I enjoy creating something for a class project.	Strongly Agree	Agree	Disagree	Strongly disagree
26.	I learn best in class when I can participate in activities.	Strongly Agree	Agree	Disagree	Strongly disagree
27.	In class, I work better when I work alone.	Strongly Agree	Agree	Disagree	Strongly disagree
28.	I prefer working on projects all by myself.	Strongly Agree	Agree	Disagree	Strongly disagree

29.	I learn more by reading textbooks than by listening to lectures.	Strongly Agree	Agree	Disagree	Strongly disagree
30.	I prefer to work by myself.	Strongly Agree	Agree	Disagree	Strongly disagree

THANK YOU FOR YOUR TIME AND COOPERATION.

APPENDIX E

SELF-SCORING SHEET

There are 5 questions for each learning category in this questionnaire. The questions are grouped below according to each learning style. Each question you answer has a numerical value.

Strongly agree	=	4
Agree	=	3
Disagree	=	2
Strongly Disagree	=	1

Fill in the blanks below with the numerical value of each answer. For example, if you answered Strongly Agree for question 6 (a visual question), write a number 4 on the blank next to question 6 – *Visual* 6 = 4

When you have completed all the numerical values for *Visual*, add the numbers. Multiply the answer by 2 and put the total in the appropriate blank. Follow the process for each of the learning style categories. When you have finished, look at the scale at the bottom of the page; it will help you determine your major learning style preference(s), your minor learning style preference(s), and the learning style(s) that are negligible. If you need help, please consult your teacher or the researcher.

Visual		Tactile		Auditory	
Question	Score	Question	Score	Question	Score
6		11		1	
10		14		7	
12		16		9	
24		22		17	
29		25		20	
Total		Total		Total	
Score = total () x 2		Score = total () x 2		Score = total () x 2	

Group		Kinaesthetic		Individual	
Question	Score	Question	Score	Question	Score
3		2		13	
4		8		18	
5		15		27	
21		19		28	
23		26		30	
Total		Total		Total	
Score = total () x 2		Score = total () x 2		Score = total () x 2	

Major learning style preference	30-40
Minor learning style preference	20-29
Negligible	0-19

APPENDIX F

LANGUAGE ATTITUDE INVENTORY

Dear student,

Thank you for your consent to be part of this research project. This questionnaire is designed to find out about your attitude towards the English language. There are 2 parts in this questionnaire: Part A which is related to your background and part B which is designed to investigate your language attitude.

The project is not judgmental in nature and it only seeks to find out the present status of your language attitude before a teaching intervention is introduced.

You will not be identified by your name and your responses will be treated with the strictest confidence.

Part A STUDENT'S PROFILE

Please respond to the questions that apply.

1. Age : _____
2. School location : _____
(e.g. Bandar Baru Bangi, Selangor)
3. First language : _____

Please tick (√) your response.

4. Sex : Male () Female ()
5. How much do you like learning English?
() I like it very much.
() I like it.
() I neither like it nor dislike it.
() I do not like it.
() I do not like it at all.

6. Do you use English outside the classroom?

Yes

If your answer is yes, please continue to 6(a), 6(b) and 6(c).

No

3.

If your answer is no, please continue to part B on page

Please respond to these questions ONLY if you have answered “Yes” to question 6.

6(a) How many times in a week do you use English outside the classroom?

Please tick

only one answer.

() 10 times or more per week

() 7 to 9 times per week

() 4 to 6 times per week

() 1 to 3 times per week

() 0 time per week

For these two questions, you may write more than one answer if necessary.

6(b) Who do you normally use it with?

6(c) Where do you normally use it?

Part B
ATTITUDES TOWARDS ENGLISH

The following items enquire about your attitude towards the English language. There is no right or wrong answer.

The responses to the items are arranged in four levels of intensity as follows:

- Strongly Disagree**
Disagree
Agree
Strongly Agree

Please read the statements carefully and for every item please circle only **ONE** option in its box to indicate your response.

No.	Items	Scales			
1.	English is an important subject in school.	Strongly Disagree	Disagree	Agree	Strongly Agree
2.	English is important to help me in my future academic success.	Strongly Disagree	Disagree	Agree	Strongly Agree
3.	I think English is difficult to learn.	Strongly Disagree	Disagree	Agree	Strongly Agree
4.	I feel proud when learning English.	Strongly Disagree	Disagree	Agree	Strongly Agree
5.	I wish I could have many English-speaking friends.	Strongly Disagree	Disagree	Agree	Strongly Agree
6.	I prefer the teacher to conduct English lessons in my native language rather than using English.	Strongly Disagree	Disagree	Agree	Strongly Agree
7.	I normally volunteer to answer questions in English lessons.	Strongly Disagree	Disagree	Agree	Strongly Agree
8.	When I hear a student in my class speaks English well, I would aim to practice my English with him/her.	Strongly Disagree	Disagree	Agree	Strongly Agree
9.	I normally avoid speaking in English during English lessons.	Strongly Disagree	Disagree	Agree	Strongly Agree

10.	If given the choice, I would rather do something else than attend English lessons.	Strongly Disagree	Disagree	Agree	Strongly Agree
11.	Being good in English promises a high-paying job in the future.	Strongly Disagree	Disagree	Agree	Strongly Agree
12.	Being good in English will gain me respect from people around me.	Strongly Disagree	Disagree	Agree	Strongly Agree
13.	Learning English is a waste of time.	Strongly Disagree	Disagree	Agree	Strongly Agree
14.	I feel happy if I have friends to practise English with me.	Strongly Disagree	Disagree	Agree	Strongly Agree
15.	I am impressed with non-native speakers who speak English fluently.	Strongly Disagree	Disagree	Agree	Strongly Agree
16.	I feel stressed when it is time for an English lesson.	Strongly Disagree	Disagree	Agree	Strongly Agree
17.	When I cannot understand something from an English lesson, I make an effort to find the answer.	Strongly Disagree	Disagree	Agree	Strongly Agree
18.	If I had missed an English lesson, I would consult friends or teachers to find out about what has been taught.	Strongly Disagree	Disagree	Agree	Strongly Agree
19.	If available, I would watch an English programme dubbed into my native language than its English version on the television.	Strongly Disagree	Disagree	Agree	Strongly Agree
20.	I believe it is great if I get more opportunities to learn English after finishing secondary school.	Strongly Disagree	Disagree	Agree	Strongly Agree
21.	Learning English leads me to new information which can be linked to my previous knowledge.	Strongly Disagree	Disagree	Agree	Strongly Agree
22.	I think learning English as a subject is boring.	Strongly Disagree	Disagree	Agree	Strongly Agree
23.	English is one of my favourite subjects in school.	Strongly Disagree	Disagree	Agree	Strongly Agree

24.	I love the English language.	Strongly Disagree	Disagree	Agree	Strongly Agree
25.	I am NOT impressed when a non-native speaker manages to have near native-like English pronunciation.	Strongly Disagree	Disagree	Agree	Strongly Agree
26.	I listen to English songs more frequently than songs of any other languages.	Strongly Disagree	Disagree	Agree	Strongly Agree
27.	I read English materials (books, comics, newspapers etc.) voluntarily.	Strongly Disagree	Disagree	Agree	Strongly Agree
28.	I learn English only because I have to pass the examinations, not because I want to.	Strongly Disagree	Disagree	Agree	Strongly Agree
29.	I think learning English at school helps me to communicate in English outside the school.	Strongly Disagree	Disagree	Agree	Strongly Agree
30.	Learning English helps me to be confident.	Strongly Disagree	Disagree	Agree	Strongly Agree
31.	I believe the knowledge gained from the English class is not applicable to my real life.	Strongly Disagree	Disagree	Agree	Strongly Agree
32.	I feel excited whenever I get a chance to use English.	Strongly Disagree	Disagree	Agree	Strongly Agree
33.	Learning English is fun.	Strongly Disagree	Disagree	Agree	Strongly Agree
34.	I have little interest in learning English.	Strongly Disagree	Disagree	Agree	Strongly Agree
35.	When I have English homework, I will finish it eagerly.	Strongly Disagree	Disagree	Agree	Strongly Agree
36.	I constantly work to improve my English proficiency.	Strongly Disagree	Disagree	Agree	Strongly Agree

THANK YOU FOR YOUR TIME AND COOPERATION.

APPENDIX G

MALAYSIAN CRITICAL THINKING SKILLS INSTRUMENT (MYCT) *INSTRUMEN KEMAHIRAN PEMIKIRAN KRITIKAL MALAYSIA*

ARAHAN MENJAWAB:

Tempoh masa untuk menjawab kesemua 35 soalan ini adalah 30 minit sahaja. Instrumen ini mengandungi tiga bahagian seperti berikut:

- B (I) - Bahagian ini mengandungi 25 soalan aneka pilihan (nombor 1-25). Anda diberi tiga pilihan jawapan dan dikehendaki memilih SATU jawapan yang terbaik.
- B (II) - Bahagian ini mengandungi 6 soalan (nombor 26-31). Anda diberi tiga pilihan jawapan dan dikehendaki memilih satu jawapan yang terbaik.
- B (III) - Bahagian ini mengandungi 4 soalan (nombor 32-35). Anda diberi dua pilihan jawapan dan dikehendaki memilih satu jawapan yang terbaik.

Selamat menjawab!

BAHAGIAN B : KEMAHIRAN PEMIKIRAN KRITIKAL

B (I)	Untuk setiap soalan terdapat tiga pilihan jawapan iaitu: A. YA pernyataan ini memang benar. B. TIDAK pernyataan ini tidak mungkin benar. C. MUNGKIN benar atau tidak benar. Saya tidak mempunyai maklumat lengkap untuk menyatakan YA atau TIDAK secara pasti. Tandakan (✓) di ruangan yang disediakan.			
	Bil.	Soalan	A	B
1.	Andainya anda tahu Ben berada di sebelah Raymond, oleh itu adakah benar Raymond berada di sebelah Ben?			
2.	Andainya anda tahu burung pipit berada di atas burung helang, oleh itu adakah benar burung helang berada di atas burung pipit?			
3.	Andainya anda tahu Yen Peng berdiri dekat dengan Basri, oleh itu adakah benar Basri berdiri dekat dengan Yen Peng?			
4.	Andaikan yang anda tahu biji ceri berada di dalam mulut musang. Buah ceri pula berada di dalam mulut musang. Oleh itu adakah benar biji ceri itu berada pada buah ceri?			
5.	Andaikan yang anda tahu kesemua kereta yang berada di dalam tempat letak kereta adalah kepunyaan Shahrir. Semua kereta Shahrir ialah kereta Ford. Oleh itu adakah benar kesemua kereta di dalam tempat letak kereta ialah kereta Ford?			
6.	Andainya anda tahu semua pensel Agus berwarna biru, oleh itu adakah benar, sekurang-kurangnya terdapat beberapa pensel Agus tidak berwarna biru?			
7.	Andaikan yang anda tahu sekurang-kurangnya terdapat beberapa orang anak dalam keluarga Mthusamy yang mengambil buku keluar dari perpustakaan. Semua orang yang membawa buku keluar dari perpustakaan memiliki kad perpustakaan. Oleh itu adakah benar sekurang-kurangnya terdapat beberapa orang anak dalam keluarga Mthusamy memiliki kad perpustakaan?			
8.	Andaikan yang anda tahu tidak satu pun buku-buku milik Sue adalah bertemakan haiwan. Oleh itu adakah benar tidak satu pun buku yang bertemakan haiwan adalah milik Sue?			
9.	Andaikan yang anda tahu semua Z ialah Y dan semua Y ialah X. Oleh itu adakah benar semua Z ialah X?			

10.	Andaikan yang anda tahu tiada satu pun pelajar lelaki tingkatan empat menyertai pasukan bola sepak. Jamal ialah pelajar tingkatan empat. Oleh itu adakah benar Jamal tidak menyertai pasukan bola sepak itu?			
11.	Andaikan yang anda tahu semua kanak-kanak tahun dua bermain di taman. Oleh itu adakah benar, semua kanak-kanak yang bermain di taman adalah kanak-kanak tahun dua?			
12.	Andaikan yang anda tahu semua binatang peliharaan Goh memenangi kesemua hadiah dalam satu pertunjukan binatang peliharaan. Fido ialah salah seekor binatang peliharaan Goh. Oleh itu adakah benar Fido memenangi hadiah dalam pertunjukan itu?			
13.	Andainya anda tahu tiada binatang yang dipanggil anjing, oleh itu adakah benar tiada anjing yang dipanggil binatang?			
14.	Andaikan yang anda tahu semua kucing boleh terbang. Semua binatang yang boleh terbang berwarna hitam. Oleh itu adakah benar semua kucing berwarna hitam?			
15.	Andainya anda tahu semua pen milik Mariam berwarna kuning, oleh itu adakah benar sekurang-kurangnya beberapa pen milik Mariam tidak berwarna kuning?			
16.	Andainya anda tahu semua anjing berwarna coklat, oleh itu adakah benar sekurang-kurangnya terdapat beberapa anjing tidak berwarna coklat?			
17.	Andainya anda tahu semua binatang yang berwarna coklat berkaki empat, oleh itu adakah benar semua binatang yang berkaki empat berwarna coklat?			
18.	Andaikan yang anda tahu semua ahli pasukan bola sepak mempunyai berat lebih daripada 60kg. Berat Henry tidak melebihi 60 kg. Oleh itu adakah benar Henry ahli pasukan bola sepak itu?			
19.	Andainya anda tahu semua budak lelaki sedang menyanyi, oleh itu adakah benar orang yang tidak menyanyi bukan budak lelaki?			
20.	Andaikan anda tahu kerja rumah Matematik perlu dihantar hari ini. Tidak ada satu pun kerja rumah Johan yang perlu dihantar hari ini. Semua kerja rumah kelas En. Maniam ialah kerja rumah Matematik. Oleh itu adakah benar tidak ada satu pun kerja rumah Johan adalah untuk En. Maniam?			

21.	Andaikan yang anda tahu bahawa semua orang yang tinggal berdekatan dengan tasik boleh berenang. Tidak seorang pun pelajar di dalam kelas En. Samy tinggal berdekatan dengan tasik. Oleh itu adakah benar sekurang-kurangnya terdapat beberapa orang pelajar dalam kelas En. Samy tidak boleh berenang?			
22.	Andaikan yang anda tahu sekurang-kurangnya terdapat beberapa kanak-kanak lelaki di dalam kelas 2A memiliki basikal. Semua orang yang tidak berada di sini tidak memiliki basikal. Oleh itu adakah benar tiada kanak-kanak lelaki 2A berada di sini?			
23.	Andaikan yang anda tahu tidak ada seekor itik pun ialah burung. Yang tidak mempunyai bulu pelepah yang besar dikelaskan sebagai burung. Oleh itu adakah benar sekurang-kurangnya terdapat beberapa ekor itik yang tidak mempunyai bulu pelepah yang besar?			
24.	Andaikan yang anda tahu bahawa semua pelajar yang tinggal di pedalaman memiliki binatang peliharaan. Amira tidak tinggal di pedalaman. Oleh itu adakah benar Amira tidak memiliki binatang peliharaan?			
25.	Andainya anda tahu sekurang-kurangnya terdapat beberapa pelajar En. Cheng menaiki bas ke sekolah. Semua pelajar yang tinggal di Jalan 55 memiliki kucing. Semua pelajar yang menaiki bas ke sekolah tinggal di Jalan 55. Oleh itu adakah benar tidak seorang pun pelajar En. Cheng memiliki kucing?			

Jumlah Skor untuk B (I)

B(II)	<p>Arahan: <i>Assumption</i> ialah suatu yang diandaikan. Apabila anda berkata, "Saya akan tamat pengajian pada bulan Jun ini," anda sebenarnya mengandaikan atau menganggap hidup anda akan panjang sehingga bulan Jun dan juga beranggapan fakulti anda akan menilai anda sebagai layak untuk lulus dan mendapat ijazah pada bulan Jun. Item bernombor 26 dan 27 merupakan dua kenyataan yang diikuti dengan beberapa cadangan andaian yang dilabelkan 1, 2, dan 3. Anda dikehendaki memilih SATU andaian yang paling kukuh. Tandakan (✓) pada kotak jawapan tersebut.</p>		
Bil.	Soalan	Jawapan	
26.	<p>Kenyataan:</p> <p>"Kita perlu menjimatkan masa untuk ke sana. Jadi lebih baik kita pergi dengan kapal terbang."</p>	<div style="border: 1px solid black; width: 30px; height: 30px; margin: 5px auto; display: flex; align-items: center; justify-content: center;">1</div> <div style="border: 1px solid black; width: 30px; height: 30px; margin: 5px auto; display: flex; align-items: center; justify-content: center;">2</div> <div style="border: 1px solid black; width: 30px; height: 30px; margin: 5px auto; display: flex; align-items: center; justify-content: center;">3</div>	<p>Andaian:</p> <p>Pergi dengan kapal terbang akan mengambil masa yang lebih singkat berbanding dengan cara lain.</p> <p>Terdapat perkhidmatan kapal terbang untuk perjalanan tersebut.</p> <p>Pergi dengan kapal terbang lebih selesa berbanding dengan kereta api.</p>
27.	<p>Kenyataan:</p> <p>"Saya ingin mengembara ke Amerika Selatan. Saya hendak memastikan agar saya tidak mendapat jangkitan demam kepialu; jadi saya harus bertemu doktor dan mendapatkan suntikan vaksin demam kepialu sebelum saya memulakan pengembaraan saya."</p>	<div style="border: 1px solid black; width: 30px; height: 30px; margin: 5px auto; display: flex; align-items: center; justify-content: center;">1</div> <div style="border: 1px solid black; width: 30px; height: 30px; margin: 5px auto; display: flex; align-items: center; justify-content: center;">2</div> <div style="border: 1px solid black; width: 30px; height: 30px; margin: 5px auto; display: flex; align-items: center; justify-content: center;">3</div>	<p>Andaian:</p> <p>Sekiranya saya tidak mendapatkan suntikan, saya akan dijangkiti demam.</p> <p>Dengan mendapatkan suntikan vaksin demam kepialu, saya dapat mengurangkan peluang saya dihindangi demam kepialu.</p> <p>Jangkitan demam kepialu adalah lebih meluas terjadi di Amerika Selatan berbanding di tempat saya tinggal.</p>

Arahan: Item-item berikut (nombor 28 dan 29) merupakan kenyataan yang diikuti dengan tiga cadangan kesimpulan atau deduksi. Untuk tujuan ujian ini, anggaplah kenyataan-kenyataan ini sebagai benar. Setiap kesimpulan dilabelkan nombor 1, 2, dan 3. Anda dikehendaki memilih SATU deduksi yang paling kukuh. Tandakan (✓) pada kotak jawapan tersebut.

Bil.	Soalan	Jawapan	
28.	Semua hari bercuaca lembab adalah membosankan. Kadang-kadang hujan ketika hari cuti. Oleh itu:	<input type="checkbox"/> 1	Tidak ada hari yang cerah akan membosankan.
		<input type="checkbox"/> 2	Terdapat hari cuti yang membosankan.
		<input type="checkbox"/> 3	Terdapat hari cuti yang tidak membosankan.
29.	Di sesebuah daerah terdapat 52 kelas bagi tahun lima. Setiap kelas memuatkan antara 10 dan 40 orang murid. Oleh itu:	<input type="checkbox"/> 1	Terdapat sekurang-kurangnya dua kelas di daerah itu yang mempunyai jumlah pelajar yang sama.
		<input type="checkbox"/> 2	Kebanyakan kelas sekolah rendah di daerah itu mempunyai lebih daripada 15 orang murid.
		<input type="checkbox"/> 3	Sekurang-kurangnya terdapat 550 orang murid di kesemua sekolah rendah tersebut.

Arahan: Kisah dalam perenggan pendek ini diikuti oleh tiga cadangan deduksi. Anda perlu menilai sama ada setiap cadangan deduksi yang diberikan itu logik atau sebaliknya berdasarkan maklumat yang diberikan. Setiap deduksi dilabelkan nombor 1, 2, dan 3. Anda dikehendaki memilih SATU deduksi yang paling sesuai. Tandakan (✓) untuk pada kotak jawapan tersebut.

Bil	Soalan	Jawapan	
30.	Mary tidak mempunyai kawan yang ramai, mudah tersinggung, dan tidak bersifat ceria. Pada suatu hari rakan karib Mary mencadangkan supaya Mary bertemu dengan Dr. Nathan iaitu seorang pakar personaliti. Mary menerima cadangan ini. Setelah menerima rawatan selama 3 bulan daripada Dr. Nathan, Mary telah mendapat kawan	<input type="checkbox"/> 1	Tanpa rawatan Dr. Nathan, Mary tidak akan berubah.
		<input type="checkbox"/> 2	Perubahan dalam kehidupan Mary berlaku setelah bermulanya rawatan Dr. Nathan terhadapnya.
		<input type="checkbox"/> 3	Tanpa nasihat kawannya, Mary mungkin tidak akan mengenali Dr. Nathan.

	yang lebih ramai, mudah didekati dan bersifat lebih ceria.		
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Arahan: Soalan di bawah (nombor 31) merupakan kenyataan yang perlu anda anggap sebagai benar. Kenyataan ini diikuti oleh tiga inferens. Setiap inferens dilabelkan nombor 1, 2, dan 3. Anda dikehendaki memilih SATU inferens yang paling kukuh. Tandakan (✓) pada kotak jawapan tersebut.

Bil.	Soalan	Jawapan	
31.	Dua ratus orang pelajar remaja secara suka rela menghadiri perkhemahan pelajar pada hujung minggu yang lalu. Tema perkhemahan ialah "Sayangi Alam Sekitar". Tema ini dipilih kerana tema ini merupakan permasalahan penting pada masa kini.	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3	<p>Kumpulan pelajar yang menghadiri perkhemahan ini menunjukkan minat yang lebih mendalam ke atas permasalahan alam sekitar berbanding dengan pelajar lain yang seumur dengan mereka.</p> <p>Terdapat pelajar remaja yang merasakan perlunya untuk membincangkan permasalahan alam sekitar.</p> <p>Pelajar-pelajar berkenaan datang dari seluruh negara.</p>

Jumlah Skor untuk B (II)

B(III))	<p>Arahan: Untuk soalan 32 hingga 35, setiap kenyataan yang diberikan perlu dianggap benar. Setiap satunya diikuti dengan pilihan jawapan A dan B. Anda perlu memilih sama ada hujahan yang diberikan itu boleh diterima (hujahan kuat) atau tidak (hujahan lemah). Sila bulatkan SATU jawapan sahaja untuk setiap soalan.</p>
<p>Kenyataan berikut digunakan untuk menjawab soalan 32 dan 33.</p> <p>Pendapat: Melancong di Semenanjung Malaysia dengan menaiki kapal terbang adalah lebih berbahaya daripada menaiki kereta.</p>	
32.	<p>Pendapat ini TIDAK BENAR kerana kemungkinan penumpang untuk terbunuh bagi setiap km perjalanan adalah tiga kali lebih dengan menaiki kereta berbanding dengan kapal terbang.</p> <p>A. Hujahan yang kuat. B. Hujahan yang lemah.</p>
33.	<p>Pendapat ini TIDAK BENAR kerana pemandu cuai atau mabuk merupakan penyumbang terbesar kepada kemalangan kenderaan.</p> <p>A. Hujahan yang kuat. B. Hujahan yang lemah.</p>
<p>Kenyataan berikut digunakan untuk menjawab soalan 34 dan 35.</p> <p>Pendapat: Penguatkuasaan untuk memberi kebebasan kepada remaja di bawah 18 tahun untuk melayari mana-mana laman web patut diluluskan.</p>	
34.	<p>Ya, kerana mereka yang berumur 18 tahun memiliki kematangan dan sifat bertanggungjawab sama seperti mereka yang berumur 21 tahun dan ke atas.</p> <p>A. Hujahan yang kuat. B. Hujahan yang lemah.</p>
35.	<p>Tidak, kerana remaja pada umur 18 tahun lebih cenderung untuk melayari laman web yang diharamkan kerajaan berbanding mereka yang berumur 21 tahun ke atas.</p> <p>A. Hujahan yang kuat. B. Hujahan yang lemah.</p>

Jumlah Skor untuk B (III)

APPENDIX H

SEMI-STRUCTURED INTERVIEW PROTOCOL FRAMEWORK

Adapted from Dornyei (2007)

Type of Question	Purpose	Possible Steps
Introductory Questions	<p>As initial ice-breaking period to:</p> <ol style="list-style-type: none"> i. set the tone and create initial rapport ii. help relax and encourage them to open up iii. build trust and influence positive subsequent responses 	<ul style="list-style-type: none"> ▪ Small talk to build rapport with the interviewee ▪ Ask permission to start recording to test that it works ▪ Start the interview with easy personal or factual questions e.g. about family or job ▪ Establish the researcher's credentials ▪ Explain the reason for the interview ▪ Summarise briefly what will happen to the interview data ▪ Emphasise the issue of confidentiality
Content questions	<p>To get a complete description by asking questions that tap into the research dimension</p> <p>6 main types of content question:</p> <ol style="list-style-type: none"> i. Experiences and behaviours ii. Opinions and values iii. Feelings iv. Knowledge v. Sensory information vi. Background or demographic information 	<ul style="list-style-type: none"> ▪ Carry-on feedback via backchannelling signals (nods, utterances to indicate agreement) or small gestures (lean, facial expression, smile) ▪ Reinforcement feedback from time to time to indicate we are pleased with the way the interview is going ▪ For negative reinforcement consider using inoffensive interruption ▪ Encouraging elaboration – use various probes including silent probe (remain quiet to indicate we are waiting for more), echo prompt (repeating the last word spoken), low-inference

		<p>paraphrasing/reflective summary</p> <ul style="list-style-type: none"> ▪ Clarification questions and attention focusing devices – attention-getting comment that precedes the question concerning its importance, difficulty, or any other characteristics ▪ Also useful to have transition announcements and introductory statements before a new issue
Probes	<p>To enhance the emergent nature of qualitative data by using what the interviewee has said as a starting point</p>	<p>May include:</p> <ol style="list-style-type: none"> i. Detail-oriented questions ii. Clarification questions iii. Salient content word used by the respondents to ask for elaboration iv. Contrast probe – to compare a particular experience/feeling/action to some other similar concept
Closing questions	<p>To allow interviewee to have the final say</p> <p>To extract last minute information from the respondents by asking, for example: Is there anything else you would like to add</p>	<ul style="list-style-type: none"> ▪ Use pre-closing moves such as summarising or recapping the main points of discussion ▪ Include a winding down phase by steering towards positive experiences (do not end the interview with a difficult topic) ▪ Re-express gratefulness and respect ▪ Discuss how the materials will be used and how to keep in touch in the future

APPENDIX I

STUDENT-PARTICIPANT INTERVIEW PROTOCOL

Thank the student for his/her consent to be interviewed.

Remind him/her about the purpose of the interview and the guarantee of anonymity.

Emphasize the fact that the interview is not judgmental in nature and s/he is free to speak his/her mind – whether it is positive or negative.

Enquire if s/he is ready to start the interview.

I would like to base some of the following questions on an actual lesson where you discussed mental health and addiction in class during the final week before the exam last October 2016. From this lesson, you were required to carry out a project that was recorded by your teacher and uploaded on your class channel (note: they have a *WhatsApp* group).

*Show them a snippet of the recorded performance, flowchart of work schedule, expected content to include in the presentation, and scoring guideline to remind them of the lesson.

The teacher started the lesson by explaining the lesson objectives. You were also allowed to ask questions.

Introduction: video about a character who is a shopaholic, living in New York.

Teaching and learning activities:

Learning about a portmanteau word – “shopaholic” and the process involved in forming the word

You were guided on how to find evidence from the video and answer several questions
In a group of 5 or 6, you applied the steps you had learned to your unique case to offer possible solutions.

You presented your group’s solutions to get feedback from teacher and peers.

You were given separate group assessment based on your answers.

For the class project:

You were required to work in your group and choose a production of your preference to perform in class – some of you performed a drama, some acted out a talk show.

You were offered a process flowchart to help you get a rough idea of what the project would involve.

You were given key points that needed to be covered in the presentation.

You were given an assessment guideline to give you an idea of how you would be evaluated.

1. How frequently do you experience the things on the card in your regular English lessons?

- a. Having to look for evidence from text/videos before drawing conclusions
- b. Problem-solving activities
- c. Group presentation in class
- d. Being given separate assessment for your own group presentation
- e. Being given different tasks as opposed to other students to complete during a lesson
- f. Being given freedom to choose your own type of homework or group project
- g. Being given scoring guideline

Some of the following questions are followed by a set of scales used to represent some possible responses. I would like to remind you that you are free to modify the sentence structure as you see fit to closely resemble your thought.

2. Which of the following would you say describes you best in terms of having an opportunity/freedom to choose a task for your own group project?

- a. I really like to be given the chance to choose my own task to work on.
- b. I like, to a certain extent, to have the chance to choose my own task to work on.
- c. I neither like nor dislike the chance to choose on my own a task to work on.
- d. I do not like to be given the chance to choose on my own a task to work on.
- e. I really do not like to be given the chance to choose a task on my own to work on.

Why is that so?

3. What about the learning activities when you were asked to complete a unique case instead of the cases that the other groups were dealing with? Which of these describes your preference best?

- a. I really like working on a different case that is tailored to my needs instead of working on a task that is identical to everyone else.
- b. I like to be given the chance to choose a task to work on.
- c. I neither like nor dislike the chance to choose a task to work on.
- d. I do not like to be given the chance to choose a task to work on.
- e. I really do not like to be given the chance to choose a task to work on.

Why?

4. Which of these describes your preference best about the problem-solving activity?

- a. I really liked working on the problem-solving activity.
- b. I liked working on the problem-solving activity.
- c. I neither liked nor disliked working on the problem-solving activity.
- d. I did not like working on the problem-solving activity.
- e. I really did not like working on the problem-solving activity.

Why?

5. When presenting in groups, you were given separate feedback according to your own group – what do you think about this?

- a. I really look forward to receiving separate feedback based on our group performance.
- b. I somewhat like to receive separate feedback based on our group performance.
- c. I neither like nor dislike receiving separate feedback based on our group performance.
- d. I would prefer to receive general feedback that is applicable to all groups who presented.

6. In that lesson, your teacher explained the learning objectives before the lesson began. What do you think about that?

- a. I loved it when the teacher explained the objectives of the lessons as it gave me an idea where the particular lesson is going.
- b. I liked it to a certain extent when the teacher explained the objectives of the lessons as it gave me an idea where the particular lesson is going.
- c. I neither liked nor disliked when the teacher explained the objectives of the lessons as it does not make any difference to me.
- d. I did not like it when the teacher explained the objectives of the lessons as I would prefer if he had introduced the lesson content right away.
- e. I really did not like it when the teacher explained the objectives of the lessons as I would prefer if he had introduced the lesson content right away.

7. Would you still want to have lesson objectives explained at the beginning of the lesson in the future? Please explain.

8. Before you worked on your group project, you were given a process flowchart as a suggestion for the list of things to consider when working with your teammates. (The student will be asked to refer to the flowchart that was given to them during the lesson.)

Which one of these statements closely resembles how you felt about that particular experience and why?

- a. I loved it when the teacher gave us the flowchart of work schedule as it gave me a rough idea of the procedures involved in the project.
- b. I liked it to a certain extent when the teacher gave us the flowchart of work schedule as it gave me a rough idea of the procedures involved in the project.
- c. I neither liked nor disliked it when given the flowchart of work schedule as it did not make any difference.
- d. I did not like it when the teacher gave us the flowchart of work schedule as it felt a little limiting.
- e. I really did not like it when the teacher when the teacher gave us the flowchart of work schedule as it felt a little limiting.

Before now, has this been the usual way things are done in the English classroom? Would you prefer to be given a flowchart of work schedule again in the future? Why or why not?

- 9. Do you and your friends usually talk about what happened during a lesson after class? If you do, what is the discussion usually about?
- 10. Was there anything that your friends liked or did not like about the lesson?
- 11. What about you? Was there anything that you liked or did not like about the lesson?
- 12. Which of these best represent your preference about your upcoming English lessons?

- For my future English classes...
- a. I prefer to learn using the style and nature of activities that were introduced to me from August to October 2016.
 - b. I prefer to learn using the style and nature of activities before August 2016.
 - c. I prefer to have a combined set of activities of both style and nature (before and after August 2016).

For the following questions, I need you to consider two situations in a hypothetical class called 4 Bestari Jaya.

Situation A

The teacher of Class 4 Bestari Jaya asks his students to answer a set of tests at the beginning of the year before lessons begin. Sometimes the students are also asked to answer a test before learning a topic. The tests are expected to inform the teacher about how well the students know about certain topics. After the tests, lessons resume as usual.

Situation B

The teacher of Class 4 Bestari Jaya starts teaching from the first day of school. His students are not required to take any tests at the beginning of the year or before any lessons.

13. Which situation can you relate to? Has either of these situations happened to you before?

13(a) If the student stated that situation A is more common to him/her, ask about the types of test if s/he could still remember.

14. If you were given the chance to choose, which situation would you like better? Why?

Show them a segment from a previously recorded lesson where the teacher taught them how to write a complaint letter (similar video used in the teacher interview protocol).

15. From the video, I can see that you were given the opportunity to answer questions in English. May I ask how frequently do you and your friends get to speak in English in class? Please explain.

16. I also notice from the video that you had to chance to work in groups to complete certain tasks. At some point you were also asked to copy what was written on the blackboard. How frequently do you get to do this? What types of other learning activities do you get to do during your lessons?

17. From the video you were also given a set of grammar rules that was written on the blackboard that you copied in your workbook. Is this the usual way you learn grammar? Is there any other way grammar is taught in class, if you can remember?

18. Anything else you'd like to say about that class?

Let say the school is offering a chance for students to attend free English lessons after school at a time of your preference. Attendance is optional. You will be learning about topics that are not covered in the syllabus and get to practise your conversational skills. However, by attending it you will have less time resting at home.

19. Would you sign up for this class? Why or why not?
20. How important do you think having a good command in English is? Why?
21. Anything else you'd like to say about the lessons or English classes we've been discussing?

Thank him/her for their participation.

Compliment him/her on the ideas – restate how I value their honesty and that there were no right or wrong answers, just answers that reflect their perspectives.

Re-state the promise of confidentiality.

APPENDIX J

INTERVIEW PROTOCOL WITH TEACHER-PARTICIPANT

Thank the teacher for his participation in the study.
Remind him about the purpose of the interview and reassure him of his anonymity.
Enquire if he is ready for me to start the interview.

1. How many classes do you normally teach each year? What is the average number of students in each class?

I would like to base some of the following questions on an actual lesson where you taught the students how to write a complaint letter.

[He will be asked beforehand to refer to specific parts in a video of a lesson (e.g. from minutes 2:34 to 4:37) he recorded in June 2016].

2. Based on this lesson, do you mind telling me a little bit about the steps involved during the pre-lesson phase as you make preparation for the lesson? Are some of these steps applicable to you when planning for this lesson?

- a. Looking for worksheets of student activities from online resources
- b. Creating own worksheet for activities
- c. Matching selected activities to the syllabus requirement
- d. Integrating specific learning theories into the lesson
- e. Carrying out diagnostic test on the students
- f. Surveying individual student's needs against particular lesson learning objectives
- g. Developing a work schedule for the students' group work
- h. Developing scoring guideline for students' homework or presentation

Are there other steps not listed here you have used before?

3. To what extent are these steps carried out when you plan your other lessons?
4. Which of the following statements would you say describe what you feel the best with regards to the number of classes that you have to teach?

- a) The number of classes that I manage does not have any impact on the way I plan my lessons.
- b) The number of classes that I manage does have an impact on the way I plan lessons somewhat.
- c) The number of classes that I manage does have a significant impact on the way I plan lessons.

Why?

5. How do you normally plan lessons for different classes within the same form?
6. In that lesson, I notice you gave your students an opportunity to use English and speak their mind.

Let us talk about giving students the opportunity to use English. How often and why did you give them such an opportunity?

Let us now talk about giving students the chance to speak their mind. How often and why did you give them such an opportunity?

7. In that lesson, you also gave students the opportunity to brainstorm ideas. Is that a common activity across your lessons?
8. In that lesson, you also gave students the opportunity to conduct group discussions. Is that a common activity across your lessons?
9. What other types of learning activities do you also conduct during your lessons? By learning activities, I meant some of the activities such as these: role-playing games, sketches, debate competition, think-pair-share discussion, singing, among others.
10. Can I now ask you to recall a differentiated lesson during the week in which you covered the topic of mental health and addiction?

These details are given beforehand to jog the teacher's memory in conjunction with a copy of the full lesson plan which is to be emailed earlier. This was the most recent lesson that took place during the intervention and perhaps the most significant one, considering that the students' performances were recorded. The performance videos had been uploaded on the class's social media channel.

You started the lesson by explaining the lesson objectives.

Set induction: video about a character who is a shopaholic, living in New York.

Teaching and learning activities:

- a. Learning about a portmanteau word – “shopaholic” and the process involved in forming the word
- b. Students were guided on how to find evidence from the video and answer questions.
- c. In a group of 5, the students applied the steps they had learned to their unique case to offer possible solutions.
- d. Students presented their solutions to get feedback from you and their peers.
- e. Students were given separate group assessment based on their answers.

For the class project:

- a. Students were required to work in their group and choose a production to perform in class – some performed a drama, some acted out a talk show.
- b. They were offered a process flowchart in case they needed a rough idea what the whole process would involve

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| <p>c. They were given the key points that needed to be covered in the presentation,</p> <p>d. They were given an assessment guideline to give them an idea how they would be evaluated.</p> |
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8. Based on the steps involved in this lesson, were the procedures/activities as described on the card any different to your regular lessons, lessons that were before the implementation of the differentiated module? Can you please explain?

9. Were there any similarities?

10. In this example, the students were given the freedom to choose the type of project that they preferred. What do you think about this?

11. What about your experience of having to explain the learning objectives before the lesson began – how did you feel about it?

12. Which of the following statements describes the changes in students' language attitude after being exposed to the differentiated lessons?

I noticed a great deal of positive changes in the students' attitude towards English.
I noticed some positive changes in the students' attitude towards English.
I noticed no differences in the students' attitude towards English.

Can you describe them, please?

13. Which of the following statements describes the changes in students' critical thinking after being exposed to the differentiated lessons?

I noticed a great deal of positive changes in the students' critical thinking.
I noticed some positive changes in the students' critical thinking.
I noticed no differences in the students' critical thinking.

Can you describe them, please?

14. Is there anything else that you would like to say about this lesson?

15. Which of these would you say most closely describe your teaching style preference for the near future and why?

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| <p>a. I would prefer to revert to my regular teaching style. I may not employ the style or activities I've been exposed to when implementing the differentiated module.</p> <p>b. I mostly want to revert to my usual teaching style. However, I may employ a few ideas/activities that I carried out when implementing the differentiated module.</p> |
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APPENDIX K

DAILY LESSON PLANS 2-13

DAILY LESSON PLAN 2

Class	:	4 Science 1
Enrolment	:	29 students
Language skill(s)	:	Listening (main activity) Speaking (student presentation)
Level of proficiency	:	Lower to upper intermediate
Theme	:	People and Values (Patriotism)
Topic	:	The Independence of Malaya (old Malaysia)
Expected prior knowledge	:	Advanced knowledge regarding the history of Malayan Independence as acquired from history classes
Learning specifications	:	1.3 (b) Taking part in conversation and discussion 1.3 (d) Exchanging ideas, information, and opinions on topic of interest 2.3 (c) Responding to questions orally
		Educational emphases: i. Express oneself accurately
		Based on these general guidelines, a set of self-formulated learning objectives is created as follows:
		At the end of the lesson, the students are expected to be able to: i. structure their presentation according to a guideline provided in the previous lesson ii. share their answers with the whole class through a 10-minute presentation iii. respond to questions related to their presentation content from the audience
Teaching aids	:	Presentation slides
Types of differentiation	:	Product
Thinking skills	:	Bloom's domain (evaluating and creating)

TEACHING AND LEARNING PROCEDURES

STAGES	TEACHER'S ACTIVITY	STUDENTS' ACTIVITY
<p>Set induction Duration: 5 minutes</p>	<p>Teacher (T) greets students in the computer lab.</p> <p>T recaps the content of previous lesson.</p> <p>T displays the presentation guideline as discussed in the previous lesson.</p> <p>T calls representatives from each group to draw lots for presentation turn-taking.</p> <p>T announces the sequence of presentation.</p>	<p>Students (Ss) may enquire further about the guideline.</p> <p>Group representatives come forward to draw lots.</p>
<p>Development Duration: 60 minutes</p> <p>Activity I (60 minutes)</p> <p>The presentation forms an integral part in their learning as it allows them to listen to the experience and findings from other students.</p> <p>Listening to the presentations will also enable them to learn vicariously.</p>	<p>T starts the session by calling the first group.</p> <p>T encourages the other students to ask questions and give constructive criticism on the presentation.</p> <p>T continues the session by calling the next group and opens the sessions to questions from the floor after each presentation.</p>	<p>Ss from the first group come forward and present for approximately 10 minutes.</p> <p>Other students may agree or disagree and may like to share their own ideas.</p> <p>Ss proceed as planned.</p>
<p>Conclusion Duration: 15 minutes</p> <p>Rationale: The closure is set for</p>	<p>T calls students to share positive elements that they have learnt from any particular presenter or presentation.</p> <p>T gives general feedback to all presentations.</p>	<p>Ss share their ideas with the whole class.</p> <p>Ss may enquire further about the feedback.</p>

<p>students to learn from each other and from the teacher.</p> <p>It is also important for the teacher to reinforce language forms on the students through discussion of good and erroneous language use by them.</p>	<p>T displays on the projector screen examples of good use of language expressions and also grammatical mistakes from the presentations.</p> <p>T leads the discussion of these examples.</p> <p>T ends the lesson by giving a preview of the next lesson content.</p>	<p>Ss may enquire further about the examples.</p>
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DAILY LESSON PLAN 3

Class	: 4 Science 1
Enrolment	: 29 students
Language skill(s)	: Grammar – active and passive voice (main activity) Speaking (student presentation)
Level of proficiency	: Lower to upper intermediate
Theme	: People and Values (Patriotism)
Topic	: The Independence of Malaya (old Malaysia)
Expected prior knowledge	: Students are familiar with the article used in the previous lesson – 1957: Malaya celebrates Independence. Students are also familiar with active sentence construction.
Learning specifications (as indicated in the curriculum specifications by the MoE)	: 1.4 (b) Taking part in conversation and discussion 2.1 (c) Reading materials in print 2.2 (a) Skimming and scanning Educational emphases: i. Analyse information Based on these general guidelines, a set of self-formulated learning objectives is created as follows: At the end of the lesson, the students are expected to be able to: i. scan a newspaper article to find examples of active sentences ii. differentiate passive sentences from active sentences by a) finding patterns of passive sentence forms and tenses by analysing given examples b) constructing passive sentences based on quoted active sentences from the newspaper article
Teaching aids	: Newspaper article Graphic organizer Notes for revision

TEACHING AND LEARNING PROCEDURES

STAGES	TEACHER'S ACTIVITY	STUDENTS' ACTIVITY
<p>SET INDUCTION Duration: 10 minutes</p> <p>Rationale:</p> <p>The use of a previously learnt article is expected to train students to connect existing knowledge to the new one. Because they are familiar with the article, this lesson could become a less threatening experience.</p> <p>It also helps the teacher (T) to maximise the use of teaching materials and provide ample opportunity for students to master structure and vocabulary items of the article.</p> <p>Apart from being a stimulus to introduce the lesson, this is meant to identify students who have background knowledge about active and passive voice.</p> <p>Teaching inductively (i.e. using specific examples and compare patterns to draw conclusions) is merely an effort to ensure that students are conditioned to think independently before actual answers are presented.</p>	<p>Teacher (T) greets students. <i>Venue: Computer lab</i></p> <p>T calls a volunteer to recount what they learnt in the previous lesson.</p> <p>T projects two sentences taken from the article (see Appendix A) learnt in the previous class on the projector screen.</p> <p>The sentences is created as follows:</p> <p>Sentence 1: Prime ministers of the member countries sent messages recorded in five continents.</p> <p>Sentence 2: The new flag of independence was raised.</p> <p>T asks students to identify the differences in both structures.</p> <p>Expected answer:</p> <p>The first sentence has an agent/doer/active subject. The second sentence has no clear agent, only a passive subject.</p> <p>Note: If no one seems to be able to identify the differences, T needs to scaffold them with these questions:</p> <p>Who is the agent/active subject in sentence 1? (answer: prime ministers of member countries)</p> <p>Who is the agent/active subject in sentence 2? (answer: not mentioned)</p> <p>After discussion about the stimulus, T asks Ss for the sentence organisation that is more common in everyday conversation.</p> <p>Expected answer: sentence 1 (active voice)</p>	<p>Ss make comparison and attempt to answer.</p>

<p>If students appear to be struggling when drawing conclusions, instead of giving the answers right away, it is suggested that the teacher scaffolds students with questions (as indicated in the Teacher’s Activity column).</p>	<p>T introduces the topic (active vs. passive voice), structures the lesson, presents the learning objectives, and explains why the article is still used (refer the rationales stated in the first column under “Set Induction”).</p>	<p>Ss ask questions if necessary.</p>
<p>DEVELOPMENT Duration: 50 minutes</p> <p>Activity I (20 minutes)</p> <p>Language for informational use: 2.1 (c) Reading materials in print 2.2 (a) Skimming and scanning</p> <p>This stage is devised to teach students grammar (active and passive voice) while at the same time to</p>	<p>T asks students how often they encounter passive sentence at school.</p> <p>Expected answer: when referring to experiment procedures. These are students of a science-stream class who learn physics, biology, and chemistry – a great source of exposure to passive sentences.</p> <p>T calls some students to offer an explanation about the general difference between active and passive sentences through their structures.</p> <p>Active sentence: subject + verb + object Subject + be verb + complement</p> <p>Passive sentence: subject + auxiliary verb (be) + main verb (participle)</p>	<p>Ss discuss with a partner or attempt to offer an answer on their own.</p> <p>Volunteers or those whose names are called offer an answer.</p>

<p>enrich their scanning strategies as they are required to quote examples from the newspaper article.</p> <p>Students will, once again, be trained towards inductive learning (as an effort to move away from deductive approach of teaching where teacher is dominant in the classroom). Students will need to rely on their ability to look for patterns to answer the questions posed.</p> <p>Students are also trained to apply their newly acquired knowledge by transforming sentences of a specific context (passive) to an opposite nature (active). This involves the application level in Bloom's taxonomy.</p> <p>Volunteers are called to ensure that they get to move around (to the main computer) and to perform a typing task. As the majority of students in the classroom have been identified as kinaesthetic learners in a previous language learning style test, the opportunity is expected to keep them interested in the classroom.</p> <p>It also helps to implicitly give an impression that they are partly responsible for the teaching and learning processes. By projecting the answer on the screen, the teacher also helps visual learners to follow the lesson more easily.</p> <p>Activity 2</p>	<p>T asks for two examples of active sentences from other students based on the article on Independence (see appendix A).</p> <p>T asks for volunteers to transform the active sentences from the examples into passive sentences.</p> <p>T calls for a volunteer to type and project the answers on the screen.</p> <p>T gives feedback to the answers and makes corrections where necessary.</p> <p>T informs students that there are several common situations in which a passive voice</p>	<p>A volunteer comes forward to help out.</p>
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<p>(30 minutes)</p> <p>Language for interpersonal use: 1.1 (b) Taking part in conversation and discussion</p> <p>It is important that the students are grouped according to a specific variable, not just randomly as part of the attributes of a differentiated lesson. Getting into smaller groups also provides another opportunity for students to move around.</p> <p>This is also another example of teaching inductively. The students need to work in their respective group to analyse examples provided in order to complete the task.</p> <p>It helps to transition the switching of autonomy in the class. Instead of T giving explanation all the time, it is good to allow students to explain so as to provide enough opportunity for speaking practice. They most likely do not practice English outside the classroom. Thus, it is important that teacher provides as much opportunity as possible for language practice in the class.</p>	<p>can occur which they would find out by completing the upcoming task.</p> <p>T asks students to break into a smaller group of 4-5 members each.</p> <p>T distributes a different set of worksheets (see Appendix B – Student Worksheet) to each group.</p> <p>T reminds them to work individually for 5 minutes before discussing with the group members for 5 minutes.</p> <p>Each sheet contains examples of passive voice in different tenses and thus, different forms (the examples are taken from Cambridge Dictionary online but modified to include vocabulary items to be mastered by the students from the list by the Ministry of Education).</p> <p>The tenses involved is created as follows:</p> <ol style="list-style-type: none"> 1. present simple 2. present continuous 3. past simple 4. past continuous 5. present perfect simple 6. past perfect simple <p>T distributes a graphic organizer and reads instructions. <i>Material: Appendix B</i></p> <p>Tips: If T notes any students struggling with the task, please advise them to first change the sentence to active voice. This would help them identify the category of tense in the sentence more easily.</p> <p>T reminds Ss that they need to present their answers in the following lesson.</p> <p>T distributes a copy of note that contains all the forms and tenses from Cambridge Dictionary online for the students' reference.</p>	<p>Students form groups as per instruction.</p>
<p>CLOSURE Duration: 10 minutes</p>	<p>T provides homework.</p>	

<p>Rationale:</p> <p>The students are offered with a choice of assignments to acknowledge the diversity of their preferences.</p>	<p>Students have a choice to either work with a partner or individually.</p> <p>They have to choose a source of their choice, e.g. movie lines, song, poem, magazine article, news article to identify 10 sentences, classify their type (passive vs. active) and provide the opposite structure. They will then transfer the information to the given worksheet. After T has recorded the submission, names will be removed from the worksheet (to keep it anonymous) and will be pasted on the class bulletin board for everyone to read.</p> <p>T responds to students' questions if any regarding homework.</p> <p>T ends the lesson by calling some volunteers to recap what had been learnt in the lesson.</p>	<p>Ss ask questions if necessary.</p>
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DAILY LESSON PLAN 4

Class	:	4 Science 1
Enrolment	:	29 students
Language skill(s)	:	Listening (main activity) Speaking (student presentation)
Level of proficiency	:	Lower to upper intermediate
Theme	:	People and Values
Topic	:	The Independence of Malaya (old Malaysia)
Expected prior knowledge	:	Advanced knowledge regarding the history of Malayan Independence as acquired from history classes
Learning specifications	:	1.5 (b) Taking part in conversation and discussion 1.4 (d) Exchanging ideas, information, and opinions on topic of interest 2.4 (c) Responding to questions orally

Educational emphases:

- i. Express oneself accurately

Based on these general guidelines, a set of self-formulated learning objectives is created as follows:

At the end of the lesson, the students are expected to be able to:

- i. structure their presentation according to a guideline provided in the previous lesson
- ii. share their answers with the whole class through a 10-minute presentation
- iii. respond to questions related to their presentation content from the audience

Teaching aids	:	Presentation slides
Types of differentiation	:	Product
Thinking skills	:	Bloom's domain (evaluating and creating)

TEACHING AND LEARNING PROCEDURES

STAGES	TEACHER'S ACTIVITY	STUDENTS' ACTIVITY
<p>Set induction Duration: 5 minutes</p>	<p>Teacher (T) greets students in the computer lab.</p> <p>T recaps the content of previous lesson.</p> <p>T displays the presentation guideline as discussed in the previous lesson.</p> <p>T calls representatives from each group to draw lots for presentation turn-taking.</p> <p>T announces the sequence of presentation.</p>	<p>Students (Ss) may enquire further about the guideline.</p> <p>Group representatives come forward to draw lots.</p>
<p>Development Duration: 60 minutes</p> <p>Activity I (60 minutes)</p> <p>The presentation forms an integral part in their learning as it allows them to listen to the experience and findings from other students.</p> <p>Listening to the presentations will also enable them to learn vicariously.</p>	<p>T starts the session by calling the first group.</p> <p>T encourages the other students to ask questions and give constructive criticism on the presentation.</p> <p>T continues the session by calling the next group and opens the sessions to questions from the floor after each presentation.</p>	<p>Ss from the first group come forward and present for approximately 10 minutes.</p> <p>Other students may agree or disagree and may like to share their own ideas.</p> <p>Ss proceed as planned.</p>
<p>Conclusion Duration: 15 minutes</p> <p>Rationale:</p>	<p>T calls students to share positive elements that they have learnt from any particular presenter or presentation.</p> <p>T gives general feedback to all presentations.</p>	<p>Ss share their ideas with the whole class.</p> <p>Ss may enquire further about the feedback.</p>

<p>The closure is set for students to learn from each other and from the teacher.</p> <p>It is also important for the teacher to reinforce language forms on the students through discussion of good and erroneous language use by them.</p>	<p>T displays on the projector screen examples of good use of language expressions and also grammatical mistakes from the presentations.</p> <p>T leads the discussion of these examples.</p> <p>T ends the lesson by giving a preview of the next lesson content.</p>	<p>Ss may enquire further about the examples.</p>
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DAILY LESSON PLAN 5

Class	:	4S1
Enrolment	:	29 students
Language skill(s)	:	Listening (main activity) Speaking
Level of proficiency	:	Lower to upper intermediate
Theme	:	Social Issues - Consumerism
Topic	:	Retail experience
Expected prior knowledge	:	Students have shopped online or offline either for themselves or someone else.
Learning specifications	:	1.3 (ii) Making enquiries about a product orally and in writing) of different brand names, making comparisons, and choosing the one that gives value for money and giving reasons 1.3 (iv) Giving feedback about a product or service as a consumer

Educational emphases:

- i. Thinking skills
- ii. Information and Communication Technology (ICT) Skills
- iii. Preparation for the Real World

Based on these general guidelines, a set of self-formulated learning objectives is created as follows:

At the end of the lesson, the students are expected to be able to:

- i. identify features of two online shopping platforms
- ii. compare and contrast their features to answer specific questions; and
- iii. discuss implication of online shopping on the future of retail experience in Malaysia.

Teaching aids	:	YouTube video
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TEACHING AND LEARNING PROCEDURES

STAGES	TEACHER'S ACTIVITY	STUDENTS' ACTIVITY
<p>Set induction Duration: 10 minutes</p> <p>Rationale:</p> <p>The use of a video is meant to tap students' schemata interactively while the follow-up questions are to survey their personal experience. In order to relate to the lesson, the content needs to be meaningful or sufficiently related to the students' prior knowledge.</p>	<p>Teacher (T) greets students.</p> <p>T enquires about students' retail experience in random:</p> <p>Examples:</p> <ol style="list-style-type: none"> i. Have you shopped on your own before? ii. If no, have you seen anyone that you know does his/her shopping or have you accompanied them? <p>T asks them about online shopping.</p> <ol style="list-style-type: none"> iii. Have you ever performed an online shopping? iv. What was the platform? (e.g. Lazada, international website) v. How was the experience? (e.g. enjoyable, confusing, boring) <p>T describes the background of Lazada to those who are not familiar with it through a YouTube video.</p> <p>T structures the lesson by introducing the topic, spelling out the objectives, and describing the activities to be completed in the lesson.</p>	<p>Students (Ss) respond by giving answers to depict their shopping experiences.</p> <p>Ss ask questions if necessary.</p>
<p>Development Duration: 35 minutes</p> <p>Activity I</p> <p>This stage is meant to expose students to two different online shopping platforms in order for them to discuss the changing future of retail experience in Malaysia.</p> <p>Discussing an international online shopping platform (Amazon) and comparing it</p>	<p>T begins the classroom discussion by sharing his personal shopping experiences in Malaysia and the UK – in-store and online.</p> <p>T compares the process of making online purchases on two platforms - Amazon UK and Lazada Malaysia.</p> <p>T briefly explains product delivery and refund policies of these merchants to inform the Ss about consumer rights.</p>	<p>Students ask questions when needed.</p>

<p>to the local platform (Lazada) will lead the students to learn the different features. It serves as a lesson to instil in them the need to learn from the promising features of the other system to be applied in their own lives.</p>		
<p>Conclusion Duration: 35 minutes</p> <p>Rationale:</p> <p>The closure is devised to provide input/selected content to the students. It is also a medium for brainstorming (critical thinking) and student contribution in relation to the topic of the lesson.</p>	<p>T poses two questions (to choose one) for a pair work discussion before opening for a whole-class discussion as follows:</p> <ol style="list-style-type: none"> 1. Why do you think it is important for us to compare the two different systems of online shopping (between Malaysia and UK)? <p>Expected answers:</p> <ol style="list-style-type: none"> i. To identify our present situation ii. To determine if there is room for us to emulate a developed nation's system with an aim of perfecting our own system iii. To provide the best support and convenience to local consumers <p>*T to accept other suitable answers *T to scaffold the Ss if they are not able to provide these answers *These answers are given based on a certain chronology or chain of events. This skill will help them to organise their way of thinking which in turn is tremendously useful when they brainstorm points for their composition.</p> <ol style="list-style-type: none"> 2. What is the implication of learning about this topic? <p>Expected answer: It could expose students to a system that is being implemented in the other parts of the world. This might even motivate/shape their future career, particularly those who might be interested in the retail/business field.</p> <p>T summarizes the lesson and outlines what to be learnt in tomorrow's lesson.</p>	<p>Ss discuss with their partner.</p> <p>Ss share their answers with the whole class.</p>

DAILY LESSON PLAN 6

Class	:	4S1
Enrolment	:	29 students
Language skill(s)	:	Listening Speaking
Level of proficiency	:	Lower to upper intermediate
Theme	:	Social Issues – Business Communication
Topic	:	Effective Business Etiquette
Expected prior knowledge	:	Students have had dining experience at restaurants.
Learning specifications	:	1.3 (iv) Giving feedback about a product or service as a consumer

Educational emphases:

- i. Thinking skills
- ii. Information and Communication Technology (ICT) Skills
- iii. Preparation for the Real World

Based on these general guidelines, a set of self-formulated learning objectives is created as follows:

At the end of the lesson, the students are expected to be able to:

- i. discuss in a group the characteristics of good communication skills by employees
- ii. dramatize a situation to display the results of their discussion

Teaching aids	:	YouTube video
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TEACHING AND LEARNING PROCEDURES

STAGES	TEACHER'S ACTIVITY	STUDENTS' ACTIVITY
<p>Set induction Duration: 15 minutes</p> <p>Rationale:</p> <p>The use of a video is meant to be a fun way to tap students' schemata while the follow-up questions are meant to survey their dining experience and their experience with public service providers.</p>	<p>Teacher (T) greets students.</p> <p>T asks students if they have had any dining out experience with families or friends.</p> <p>T projects on the projector screen a video of rude waitress dealing with customers from YouTube.</p> <p>T asks questions related to the video.</p> <p>T structures the lesson by introducing the topic, spelling out the objectives, and describing the activities to be completed in the lesson.</p> <p>T allows Ss to ask questions related to the lesson structure.</p>	<p>Students (Ss) watch the video on the projector screen as displayed from the teacher's computer.</p> <p>Ss respond by giving answers to describe their dining experience at restaurants.</p> <p>Ss may enquire further about the objectives that seem unclear to them.</p>
<p>Development Duration: 50 minutes</p> <p>Activity I (30 minutes) 1.3 (iv) Giving feedback about a product or service as a consumer</p> <p>The use of video will appeal to auditory and visual learners and in general the video is expected to be an interesting stimulus.</p> <p>Asking a hypothetical question would allow students to give their opinion imaginatively. This type of question belongs</p>	<p>T begins the lesson by discussing the video:</p> <p>i) What would you do if you were a manager? ii) What if you were the customer? iii) What do you expect from a waiter/waitress in treating you as their customers?</p> <p>T brainstorms ideal etiquette by a waiter/waitress and decorum of a customer in the following contexts:</p> <ol style="list-style-type: none"> a. Exchange of greetings b. Facial expression c. Clear order by the customer d. Repeat of order by the waiter/waitress e. Exchange of gratitude 	<p>Students respond to the questions either by drawing upon their experience or by imagining a situation they have never encountered before.</p>

<p>to the higher order of Bloom's taxonomy, i.e. analysing and evaluating</p> <p>Activity II (20 minutes)</p> <p>Dramatization will allow for active learning and an opportunity for students to use the language in a situation that occurs in real life.</p> <p>In addition, the kinaesthetic learners are expected to appreciate the opportunity to move around.</p>	<p>f. Bring order in timely manner g. Apologise and explain if order arrives later than usual</p> <p>T asks students to form the usual group of 5 members.</p> <p>T reads out and explains the required task – students work in group to present a dramatization later.</p> <p>T allows freedom for students to present a situation of their own to be dramatized in front of the class consisting:</p> <ol style="list-style-type: none"> a. a manager b. a waiter/waitress and c. a group of customer <p>The objective of the dramatization is to impart good practice of customer service to the audience.</p> <p>The students are free to characterize the other roles (manager and customer). However, each student needs to describe a personal experience regarding customer service prior. They then work on one situation to be presented.</p> <p>This is to provide them a platform to converse in English before making a public presentation.</p> <p>T informs students that they will need to present their dramatization for 10 minutes per group.</p> <p>T monitors group discussion and helps out by giving ideas when necessary.</p>	<p>Ss break into group accordingly.</p>
<p>Conclusion Duration: 15 minutes</p>	<p>T summarizes the lesson and asks students to work on the dramatization to be presented in the next lesson.</p>	

DAILY LESSON PLAN 7

Class	:	4 Science 1
Enrolment	:	29 students
Language skill(s)	:	Listening (main activity) Speaking (student presentation)
Level of proficiency	:	Lower to upper intermediate
Theme	:	Social Issues – Business Communication
Topic	:	Effective Business Etiquette
Expected prior knowledge	:	Students have had dining experience at restaurants.
Learning specifications	:	1.6 (b) Taking part in conversation and discussion 1.5 (d) Exchanging ideas, information, and opinions on topic of interest 2.5 (c) Responding to questions orally
		Educational emphases: i. Express oneself accurately
		Based on these general guidelines, a set of self-formulated learning objectives is created as follows:
		At the end of the lesson, the students are expected to be able to: i. structure their presentation according to a guideline provided in the previous lesson ii. share their answers with the whole class through a 10-minute presentation iii. respond to questions related to their presentation content from the audience
Teaching aids	:	Presentation slides
Types of differentiation	:	Product
Thinking skills	:	Bloom’s domain (evaluating and creating)

TEACHING AND LEARNING PROCEDURES

STAGES	TEACHER'S ACTIVITY	STUDENTS' ACTIVITY
<p>Set induction Duration: 5 minutes</p>	<p>Teacher (T) greets students in the computer lab.</p> <p>T recaps the content of previous lesson.</p> <p>T displays the presentation guideline as discussed in the previous lesson.</p> <p>T calls representatives from each group to draw lots for presentation turn-taking.</p> <p>T announces the sequence of presentation.</p>	<p>Students (Ss) may enquire further about the guideline.</p> <p>Group representatives come forward to draw lots.</p>
<p>Development Duration: 60 minutes</p> <p>Activity I (60 minutes)</p> <p>The presentation forms an integral part in their learning as it allows them to listen to the experience and findings from other students.</p> <p>Listening to the presentations will also enable them to learn vicariously.</p>	<p>T starts the session by calling the first group.</p> <p>T encourages the other students to ask questions and give constructive criticism on the presentation.</p> <p>T continues the session by calling the next group and opens the sessions to questions from the floor after each presentation.</p>	<p>Ss from the first group come forward and present for approximately 10 minutes.</p> <p>Other students may agree or disagree and may like to share their own ideas.</p> <p>Ss proceed as planned.</p>
<p>Conclusion Duration: 15 minutes</p> <p>Rationale: The closure is set for</p>	<p>T calls students to share positive elements that they have learnt from any particular presenter or presentation.</p> <p>T gives general feedback to all presentations.</p>	<p>Ss share their ideas with the whole class.</p> <p>Ss may enquire further about the feedback.</p>

<p>students to learn from each other and from the teacher.</p> <p>It is also important for the teacher to reinforce language forms on the students through discussion of good and erroneous language use by them.</p>	<p>T displays on the projector screen examples of good use of language expressions and also grammatical mistakes from the presentations.</p> <p>T leads the discussion of these examples.</p> <p>T ends the lesson by giving a preview of the next lesson content.</p>	<p>Ss may enquire further about the examples.</p>
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DAILY LESSON PLAN 8

Class	:	4 Science 1
Enrolment	:	29 students
Language skill(s)	:	Writing (main activity) and speaking
Level of proficiency	:	Lower intermediate to advanced
Theme	:	Social Issues - Consumerism
Topic	:	Consumer's right to genuine products
Expected prior knowledge	:	Students have had retail experience and have been exposed to promotion by retailers
Learning specifications	:	1.3 Obtain goods and services by (b) making complaints and responding to complaints and by iv. giving feedback about a product or service as a consumer
		Educational emphases: i. Preparation for the Real World Based on these general guidelines, a set of self-formulated learning objectives is created as follows:
		At the end of the lesson, the students are expected to be able to: i. suggest possible 'moves' for a complaint letter on a specific situation in a group of 5 students ii. delegate sub-tasks to complete tasks within a specified duration
Grammar items	:	Adjective + prepositions
Vocabulary	:	Evidence-based, research-based, false promise, substantiate, testimonials, empirical evidence
Thinking skills	:	Analysis based on substantiation Analytical decision

TEACHING AND LEARNING PROCEDURES

STAGES	TEACHER'S ACTIVITY	STUDENTS' ACTIVITY
<p>Set induction Duration: 15 minutes</p> <p>Rationale:</p> <p>The use of a video is meant to be an authentic video to tap students' prior knowledge while the follow-up questions are meant to survey their general knowledge.</p>	<p>Teacher (T) greets students in the computer lab.</p> <p>T displays a video from YouTube about counterfeit products by the Department of Homeland Security, USA.</p> <p>T writes down these vocabulary items:</p> <ul style="list-style-type: none"> • Counterfeit • Subpar • False advertisement <p>T enquires students:</p> <ol style="list-style-type: none"> a. What would you have done if you came across counterfeit products? b. What would you have done if you were misled by merchants and ended up buying goods of subpar quality? c. Who do you report to? d. Have you written a complaint letter/email before? <p>T structures the lesson by introducing the topic, spelling out the objectives, and describing the activities to be completed in the lesson.</p> <p>T allows Ss to ask questions related to the lesson structure.</p>	<p>Students (Ss) watch the video on the projector screen as displayed from the teacher's computer.</p> <p>Ss respond by giving answers to describe their stand or experience in dealing with counterfeit products.</p> <p>Ss may enquire further about the objectives that seem unclear to them.</p>
<p>Development Duration: 60 minutes</p> <p>Activity I (30 minutes)</p>	<p>T begins the lesson by giving some input about moves analysis by Swales (1990): brief history, content, use of moves analysis via a PowerPoint presentation.</p> <ol style="list-style-type: none"> i. Who created moves analysis? ii. What is the use of moves analysis? iii. Why do we learn about moves analysis? <p>T enquires Ss about the available channels to lodge report to choose from.</p>	

<p>Activity II (30 minutes)</p> <p>This is to provide them a platform to converse in English before making a public presentation.</p> <p>The students are also offered with a choice of assignments to acknowledge the diversity of their talents and preferences.</p>	<p>Possible answer: KPDNKK, Tourism Malaysia, Ministry of Health, Consumer Tribunal</p> <p>T projects on the projector screen a sample of complaint email.</p> <p>T brainstorms the moves with the students.</p> <p>T distributes different contexts for students to write a complaint letter based on the moves analysis.</p> <ul style="list-style-type: none"> • Context 1: Misleading information at a restaurant – Manhattan Fish Market; waiter providing wet tissues to customers without informing them that the tissues are chargeable • Context 2: No-show repair guy • Context 3: Conflicting information between different branches under the same company and brand • Context 4: Dubious merchant selling counterfeit items on Lazada (online shopping platform) • Context 5: Late food arrival at Islamic Kitchen • Context 6: Misleading price list at Starbucks Coffee <p>T reads out and explains the required task: students need to work in group and present their solutions. They can present through either a sketch, role play, or PowerPoint presentation.</p>	<p>Each student produces his/her answer individually but shares these answers with the whole class.</p> <p>Ss break into group accordingly.</p>
<p>Conclusion Duration: 10 minutes</p>	<p>T summarizes the lesson and ends the lesson by calling upon some volunteers to recap what had been learnt in the lesson.</p>	

DAILY LESSON PLAN 9

Class	:	4 Science 1
Enrolment	:	29 students
Language skill(s)	:	Listening (main activity) Speaking (student presentation)
Level of proficiency	:	Lower to upper intermediate
Theme	:	Social Issues - Consumerism
Topic	:	Consumer's right to genuine products
Expected prior knowledge	:	Students have had retail experience and have been exposed to promotion by retailers
Learning specifications	:	1.3 Obtain goods and services by (b) making complaints and responding to complaints and by iv. giving feedback about a product or service as a consumer

Educational emphases:

- i. Preparation for the Real World

Based on these general guidelines, a set of self-formulated learning objectives is created as follows:

At the end of the lesson, the students are expected to be able to:

- i. structure their presentation according to a guideline provided in the previous lesson
- ii. share their answers with the whole class through a 10-minute presentation
- iii. respond to questions related to their presentation content from the audience

Teaching aids	:	Presentation slides
Types of differentiation	:	Product
Thinking skills	:	Bloom's domain (evaluating and creating)

TEACHING AND LEARNING PROCEDURES

STAGES	TEACHER'S ACTIVITY	STUDENTS' ACTIVITY
<p>Set induction Duration: 5 minutes</p>	<p>Teacher (T) greets students in the computer lab.</p> <p>T recaps the content of previous lesson.</p> <p>T displays the presentation guideline as discussed in the previous lesson.</p> <p>T calls representatives from each group to draw lots for presentation turn-taking.</p> <p>T announces the sequence of presentation.</p>	<p>Students (Ss) may enquire further about the guideline.</p> <p>Group representatives come forward to draw lots.</p>
<p>Development Duration: 60 minutes</p> <p>Activity I (60 minutes)</p> <p>The presentation forms an integral part in their learning as it allows them to listen to the experience and findings from other students.</p> <p>Listening to the presentations will also enable them to learn vicariously.</p>	<p>T starts the session by calling the first group.</p> <p>T encourages the other students to ask questions and give constructive criticism on the presentation.</p> <p>T continues the session by calling the next group and opens the sessions to questions from the floor after each presentation.</p>	<p>Ss from the first group come forward and present for approximately 10 minutes.</p> <p>Other students may agree or disagree and may like to share their own ideas.</p> <p>Ss proceed as planned.</p>
<p>Conclusion Duration: 15 minutes</p> <p>Rationale:</p> <p>The closure is set for students to learn from each other and from the teacher.</p>	<p>T calls students to share positive elements that they have learnt from any particular presenter or presentation.</p> <p>T gives general feedback to all presentations.</p> <p>T displays on the projector screen</p>	<p>Ss share their ideas with the whole class.</p> <p>Ss may enquire further about the feedback.</p>

<p>It is also important for the teacher to reinforce language forms on the students through discussion of good and erroneous language use by them.</p>	<p>examples of good use of language expressions and also grammatical mistakes from the presentations.</p> <p>T leads the discussion of these examples.</p> <p>T ends the lesson by giving a preview of the next lesson content.</p>	<p>Ss may enquire further about the examples.</p>
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DAILY LESSON PLAN 10

Class	:	4 Science 1
Enrolment	:	29 students
Language skill(s)	:	Reading (main activity) Grammar: present perfect tense
Level of proficiency	:	Lower to upper intermediate
Theme	:	People and Values
Topic	:	Retail experience
Expected prior knowledge	:	Students have shopped online or offline either for themselves or someone else.
Learning specifications	:	1.7 (b) Taking part in conversation and discussion 1.6 (d) Exchanging ideas, information, and opinions on topic of interest 1.2 (b) discussing plans and arrangements 2.1 (c) Reading materials in print 2.2 (a) Skimming and scanning

Educational emphases:

- i. Express oneself accurately
- ii. Analyse information

Based on these general guidelines, a set of self-formulated learning objectives is created as follows:

At the end of the lesson, the students are expected to be able to:

- i. skim and scan a newspaper article by answering specific questions;
- ii. analyse a predetermined stimulus according to learning style in a small-group discussion;
- iii. delegate sub-tasks to complete tasks within a specified duration; and
- iv. present findings and task delegation plan to an audience.

Teaching aids	:	YouTube video
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TEACHING AND LEARNING PROCEDURES

STAGES	TEACHER'S ACTIVITY	STUDENTS' ACTIVITY
<p>Set induction Duration: 10 minutes</p> <p>Rationale:</p> <p>The use of a video is meant to tap students' schemata interactively while the follow-up questions are to survey their personal experience. In order to relate to the lesson, the content needs to be meaningful or sufficiently related to the students' prior knowledge.</p>	<p>Teacher (T) greets students in the computer lab.</p> <p>T shows three YouTube videos about shopping obsession.</p> <p>T asks if the students could guess the topic of the day based on the video.</p> <p>T structures the lesson by stating the topic, spelling out the objectives, and describing the activities to be completed in the lesson.</p>	<p>Students (Ss) watch the video on the projector screen as displayed from the teacher's computer.</p> <p>Ss may enquire further about the objectives that seem unclear to them.</p>
<p>Development Duration: 40 minutes</p> <p>Activity I (20 minutes)</p>	<p>T begins the classroom discussion by defining "obsession".</p> <p>T introduces a word coin – shopaholic and explain the process of coining the word.</p> <p>T asks if the woman depicted in the video is suffering from obsession. Evidence? Whenever you make claims whether verbally or in writing, you need to support them with evidence.</p> <p>Answer: Video 1 – she had 12 cards, living beyond her means</p> <p>Video 2 – clearly as she had to freeze her card, she realized that she had a problem – she thawed and broke the ice to finally use the card</p> <p>Video 3 – she got physical just to get what she wanted. Red flag! and ended up buying more than what she intended – I'll walk away strong and frugal.</p> <p>T asks students about other types of obsessions.</p>	<p>Ss choose their own partner.</p>

<p>Activity II (20 minutes)</p> <p>Language for interpersonal use: 1.1 (a) Taking part in conversation and discussion 1.1 (d) Exchanging ideas, information, and opinions on topic of interest</p> <p>Rationale:</p> <p>The visual and auditory learners are expected to appreciate the opportunity to listen to music, watch its video, and discuss the content with other members of the group. The questions posed are expected to encourage the students to envision the particular state and emotion of the people before and during the Independence.</p> <p>On the other hand, the tactile and kinaesthetic</p>	<p>T asks if students have heard about support group.</p> <p>T shows another YouTube video about support group – shopaholic anonymous.</p> <p>T asks students to break into groups. They will be given a situation – to help a shopaholic or any other type of obsession – pokemon go it can be funny but needs to contain all the requirements.</p> <p>They get to choose how to present: either by performing an act, skit, talk show between 5-10 minutes. Give them examples – show videos to give ideas.</p> <p>Show a letter to sample the required moves – aunt agony</p> <p>Give them a presentation move analysis</p> <p>Introducing group members - role Acknowledging the problem – validating why it’s a real problem/addiction – how can you tell</p> <p>Presenting solutions – clear cut solution – elaboration – examples</p> <p>Closure – advice, motivation, etc.</p> <p>They are required to use selected idiomatic expressions and collocations. T explains the functions of each first.</p> <p>Prepare a script to be examined. Need to commit to memory. Preparation is key. Do your best. No halfway</p> <p>Introduce a lot of idiomatic expressions and collocations.</p> <p>In the comfort of your own home At your fingertips Over the top On the edge</p> <p>Give them a set of presentation rubric. They will discuss with their group</p>	
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<p>learners are expected to appreciate the opportunity to move around and use the computers to search for information. The questions that they need to answer deal with the ability to reflect on efforts made by present Malaysians to celebrate past leaders.</p> <p>When working with materials that suit their learning styles, the students is expected to learn by doing as they master the learning experience directly. Nevertheless, the presentation also forms an integral part in their learning as it allows them to listen to the experience and findings from other students. It will enable them to learn vicariously by listening.</p>	<p>members. Each student will share their suggestion and finally they will need to decide on unanimous steps by their group and present.</p> <p>T asks students to form a group of Y members (1 min) based on their learning style preference.</p> <p>T reads out and explains the required task.</p> <p>T informs the class that they need to prepare two preferred questions individually for X minutes. They will then share with their friends during group conversation. This is to provide them a platform to converse in English before making a public presentation.</p> <p>T opens the session for classroom presentation.</p>	
<p>Conclusion Duration: 10 minutes</p> <p>Rationale:</p> <p>The closure is devised to provoke the students' thinking. Although they may know the history of the Independence, they might be less likely to have defined the concept from their own perspectives. In addition, it is interesting to hear their opinions on how the way a country gained its independence affect the country as a whole.</p>	<p>T summarizes the lesson by responding to the students' answers.</p> <p>T ends the lesson by calling upon some volunteers to recap what had been learnt in the lesson.</p>	<p>Ss share their answers with the whole class.</p>

DAILY LESSON PLAN 11

Class	:	4 Science 1
Enrolment	:	29 students
Language skill(s)	:	Listening (main activity) Speaking (student presentation)
Level of proficiency	:	Lower to upper intermediate
Theme	:	People and Values
Topic	:	Obsession
Expected prior knowledge	:	Advanced knowledge regarding the history of Malayan Independence as acquired from history classes
Learning specifications	:	1.8 (b) Taking part in conversation and discussion 1.2 (d) Exchanging ideas, information, and opinions on topic of interest 2.6 (c) Responding to questions orally
		Educational emphases: ii. Express oneself accurately
		Based on these general guidelines, a set of self-formulated learning objectives is created as follows:
		At the end of the lesson, the students are expected to be able to:
		i. structure their presentation according to a guideline provided in the previous lesson ii. prepare the script for their presentation iii. show their script to the teacher for suggestions iv. revise their scripts to minimise language errors v. start memorising their lines for the presentation
Teaching aids	:	Presentation slides
Types of differentiation	:	Product
Thinking skills	:	Bloom's domain (evaluating and creating)

TEACHING AND LEARNING PROCEDURES

STAGES	TEACHER'S ACTIVITY	STUDENTS' ACTIVITY
<p>Set induction Duration: 5 minutes</p>	<p>Teacher (T) greets students in the computer lab.</p> <p>T recaps the content of previous lesson.</p> <p>T displays the presentation guideline as discussed in the previous lesson.</p> <p>T calls representatives from each group to draw lots for presentation turn-taking.</p> <p>T announces the sequence of presentation.</p>	<p>Students (Ss) may enquire further about the guideline.</p> <p>Group representatives come forward to draw lots.</p>
<p>Development Duration: 60 minutes</p> <p>Activity I (60 minutes)</p> <p>The presentation forms an integral part in their learning as it allows them to listen to the experience and findings from other students.</p> <p>Listening to the presentations will also enable them to learn vicariously.</p>	<p>T starts the session by calling the first group.</p> <p>T encourages the other students to ask questions and give constructive criticism on the presentation.</p> <p>T continues the session by calling the next group and opens the sessions to questions from the floor after each presentation.</p>	<p>Ss from the first group come forward and present for approximately 10 minutes.</p> <p>Other students may agree or disagree and may like to share their own ideas.</p> <p>Ss proceed as planned.</p>
<p>Conclusion Duration: 15 minutes</p> <p>Rationale: The closure is set for</p>	<p>T calls students to share positive elements that they have learnt from any particular presenter or presentation.</p> <p>T gives general feedback to all presentations.</p>	<p>Ss share their ideas with the whole class.</p> <p>Ss may enquire further about the feedback.</p>

<p>students to learn from each other and from the teacher.</p> <p>It is also important for the teacher to reinforce language forms on the students through discussion of good and erroneous language use by them.</p>	<p>T displays on the projector screen examples of good use of language expressions and also grammatical mistakes from the presentations.</p> <p>T leads the discussion of these examples.</p> <p>T ends the lesson by giving a preview of the next lesson content.</p>	<p>Ss may enquire further about the examples.</p>
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DAILY LESSON PLAN 12

Class	:	4 Science 1
Enrolment	:	29 students
Language skill(s)	:	Listening (main activity) Speaking (student presentation)
Level of proficiency	:	Lower to upper intermediate
Theme	:	People and Values
Topic	:	Obsession
Expected prior knowledge	:	Advanced knowledge regarding the history of Malayan Independence as acquired from history classes
Learning specifications	:	1.9 (b) Taking part in conversation and discussion 1.3 (d) Exchanging ideas, information, and opinions on topic of interest 2.7 (c) Responding to questions orally Educational emphases: iii. Express oneself accurately Based on these general guidelines, a set of self-formulated learning objectives is created as follows: At the end of the lesson, the students are expected to be able to: i. structure their presentation according to a guideline provided in the previous lesson ii. present their project for 20 minutes
Teaching aids	:	Presentation slides
Types of differentiation	:	Product
Thinking skills	:	Bloom's domain (evaluating and creating)

TEACHING AND LEARNING PROCEDURES

STAGES	TEACHER'S ACTIVITY	STUDENTS' ACTIVITY
<p>Set induction Duration: 5 minutes</p> <p>Rationale:</p> <p>Speaking about a familiar topic can dramatically increase confidence, hence the choosing of this topic. It is also expected that the stress of speaking in a foreign language (English) will be reduced.</p>	<p>Teacher (T) greets students in the computer lab.</p> <p>T recaps the content of previous lesson.</p>	
<p>Development Duration: 60 minutes</p> <p>Activity I (60 minutes)</p> <p>The presentation forms an integral part in their learning as it allows them to listen to the experience and findings from other students.</p> <p>Listening to the presentations will also enable them to learn vicariously.</p>	<p>T calls students to break into their group, brainstorm their ideas for the mega project, and work on the scripts.</p> <p>T moves around from one group to another to help them with their scripts.</p>	<p>Ss from the first group come forward and present their answers for approximately 10 minutes.</p> <p>Other students may agree or disagree and may share their own ideas.</p> <p>Ss proceed as planned.</p>
<p>Conclusion Duration: 15 minutes</p> <p>Rationale:</p> <p>It is important for the teacher to reinforce language forms on the students through discussion of good and erroneous language use by them.</p>	<p>T gives general feedback to all presentations.</p> <p>T offers correct answers if necessary.</p> <p>T ends the lesson by giving a preview of the next lesson content.</p>	<p>Ss may enquire further to find out if their answers are correct.</p>

DAILY LESSON PLAN 13

Class	:	4 Science 1
Enrolment	:	29 students
Language skill(s)	:	Listening (main activity) Speaking (student presentation)
Level of proficiency	:	Lower to upper intermediate
Theme	:	People and Values
Topic	:	Obsession
Expected prior knowledge	:	Advanced knowledge regarding the history of Malayan Independence as acquired from history classes
Learning specifications	:	1.10 (b) Taking part in conversation and discussion 1.4 (d) Exchanging ideas, information, and opinions on topic of interest 2.8 (c) Responding to questions orally
		Educational emphases: iv. Express oneself accurately
		Based on these general guidelines, a set of self-formulated learning objectives is created as follows:
		At the end of the lesson, the students are expected to be able to:
		iii. structure their presentation according to a guideline provided in the previous lesson iv. present their project for 20 minutes
Teaching aids	:	Presentation slides
Types of differentiation	:	Product
Thinking skills	:	Bloom's domain (evaluating and creating)

TEACHING AND LEARNING PROCEDURES

STAGES	TEACHER'S ACTIVITY	STUDENTS' ACTIVITY
<p>Set induction Duration: 5 minutes</p>	<p>Teacher (T) greets students in the computer lab.</p> <p>T recaps the content of previous lesson.</p> <p>T displays the presentation guideline as discussed in the previous lesson.</p> <p>T calls representatives from each group to draw lots for presentation turn-taking.</p> <p>T announces the sequence of presentation.</p>	<p>Students (Ss) may enquire further about the guideline.</p> <p>Group representatives come forward to draw lots.</p>
<p>Development Duration: 60 minutes</p> <p>Activity I (60 minutes)</p> <p>The presentation forms an integral part in their learning as it allows them to listen to the experience and findings from other students.</p> <p>Listening to the presentations will also enable them to learn vicariously.</p>	<p>T starts the session by calling the first group.</p> <p>T encourages the other students to ask questions and give constructive criticism on the presentation.</p> <p>T continues the session by calling the next group and opens the sessions to questions from the floor after each presentation.</p>	<p>Ss from the first group come forward and present for approximately 10 minutes.</p> <p>Other students may agree or disagree and may like to share their own ideas.</p> <p>Ss proceed as planned.</p>
<p>Conclusion Duration: 15 minutes</p> <p>Rationale: The closure is set for</p>	<p>T calls students to share positive elements that they have learnt from any particular presenter or presentation.</p> <p>T gives general feedback to all presentations.</p>	<p>Ss share their ideas with the whole class.</p> <p>Ss may enquire further about the feedback.</p>

<p>students to learn from each other and from the teacher.</p> <p>It is also important for the teacher to reinforce language forms on the students through discussion of good and erroneous language use by them.</p>	<p>T displays on the projector screen examples of good use of language expressions and also grammatical mistakes from the presentations.</p> <p>T leads the discussion of these examples.</p> <p>T ends the lesson by giving a preview of the next lesson content.</p>	<p>Ss may enquire further about the examples.</p>
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