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**Ismini Vasileiou**

October 2016

*To my children*

***Georgios & Konstantinos***

**Abstract**

**A pedagogical evaluation of Computing Flexible Learning Degrees in Higher Education**

This study explores the understanding of academics, and students around Flexible Learning degrees in relation to pedagogy, and the implications of these perspectives for the design of effective Flexible Learning curriculum. It adopted an evaluation research methodology to investigate the Flexible Learning degrees in Computing offered at the Institution where I work during the years 2008-2010. Using open ended questionnaires, interviews and a reflective journal, data were gathered on participant perspectives on the following key areas of research interest: concepts of Flexible Learning; the Flexible Learning environment; the role of the tutor/ lecturer; the role of the learner; availability of information, resources and services; concepts of learning and the learning process. Questionnaire data and interviews were analysed using qualitative analysis to identify conceptual categories and the findings were further supported and explored by the reflective writing where personal observations were recorded, in addition to the literature.

The main conclusions of the study were that: (1) learning is central to the way the Institution provides resources; (2) the design of a Flexible Learning environment influences student learning; (3) student progress depends largely on the lecturer and the feedback provided; and (4) the structure of a Flexible Learning degree must promote employability.

The conclusions of the study are related to both the academics and the students. It is agreeable throughout the research that Flexible Learning requires highly motivated academics and students. With the tuition fees going up, active engagement in learning is highly encouraged in Higher Education. Flexible Learning degrees was the start of a new era in teaching and learning. The findings and successes of this project, are now applied to the whole institution that moved towards Flexible Learning in September 2015.

# **Chapter 1: Introduction**

The UK Government's 2003 White Paper, 'The Future of Higher Education', highlighted the need for “more flexibility in Higher Education degrees, in order to meet the needs of a more diverse student body” (HEFCE, 2008). Consequently, the Higher Education Funding Council for England (HEFCE) gave development funding to some UK universities between 2005 and 2010 to pilot different models of Flexible Learning in Higher Education. This was named the Flexible Learning Pathfinder Project. The HEFCE project was also supported by the Government’s 2011 Higher Education White Paper, ‘Students at the heart of the system’, which identified that many students do not follow the traditional route of the three-year degree after school, and that the Government’s new regulatory framework would allow for greater diversity and flexibility of provision.

In light of this, I got involved in a research project to explore, understand and clarify the creation, validity and need for Flexible Learning degrees in Higher Education establishments in the UK. In participating in this research, I aimed to develop such understanding and framework in order to inform academics to implement and design Flexible Learning degrees, and assist heads of schools or faculties responsible for the evaluation and support of such approaches. The aims were to use the literature review in order to get a clear idea of learning needs in Higher Education, and why there is priority and urgency to develop a more adaptable education. Similarly, this research creates some foundations for further research in the future within Flexible learning for Higher Education. In addition to the approaches to learning that are analysed and related to Flexible Learning in the literature, my personal experiences of working as an academic in Higher Education and, in particular, teaching on a Flexible Learning course, have revealed a high need for the implementation of such approaches. There is an exploration of new approaches to teaching, moving away from the terms e-learning or distance-learning. There is a tendency and aspiration to offer degrees in a more flexible way, and also an urge and need to be inclusive across all age bands, backgrounds and student needs. With the commencement of the HEFCE 2008 Flexible Learning project, there have been on-going discussions across the institutions as to whether or not Flexible Learning degrees and approaches are pedagogically appropriate.

Thus, this research is intended to contribute to the on-going discussions on and around Flexible Learning by using the existing literature and suggesting ways forward. It provides clear aims of for a Flexible Learning approach and creates a supportive environment of responsibilities towards a pedagogically acceptable Higher Education course, and goes some way to demonstrating that those degrees are suitable for all types of learners. As such, for the needs of this thesis, I placed the focus on the Flexible Learning degrees in a UK academic institution during the years 2008 to 2010.

The main aims of this thesis are to understand how Flexible Learning is currently being applied and how was emerged, the ways students learn, any further and current developments in Higher Education, and finally to expand the level of knowledge available and shared around Flexible Learning. In addition to the views stated in the literature, my experiences working as a computing academic in Higher Education can offer the reader a better understanding and evidence the need to move away from the more traditional didactic approaches. The research compares and contrasts the conventional three-year BSc courses to the more recent two-year courses (Flexible Learning), by looking at the differences in teaching methods and how these affect student learning and experiences.

Towards the conclusion, the research suggests future developments in accordance with Higher Education’s current trends, and ways of enhancing the student experience regardless of the student’s background - international students, mature students, students with industrial experience etc.

I have been an academic within Higher Education since August 2005, specialising in Information Systems. I have always been a very technical person and my studies towards a PGCE qualification opened up a new horizon for me. I delved deeper and deeper into the theory behind the chosen teaching methods within the academic community and how they are influenced. Being a computing specialist, and being aware of the latest technologies and their availability, I started becoming more innovative in my teaching, offering my colleagues and my students a new insight into teaching either large or small cohorts. I started looking at how technology is being used in teaching and the benefits it has for both students and academics. My research and publications is an on-going approach towards looking in more detailed ways at how technology is being used in Higher Education, with a greater emphasis on computing courses. The EdD course was intended to change my career and the way I was reviewing my teaching responsibilities every year. I was then introduced to new terms such as *blended learning,* and this helped me to take on the project funded by HEFCE.

Having said that, I must say that this work related to Flexible Learning degrees has not been extremely different from my past work. I brought to this research my years of experience as a teacher in a variety of educational settings (primary level, secondary level, college level, HE level), and my passion in improving and developing further in my field. The thesis was an opportunity to bring together my past knowledge of using the most up-to-date technologies in teaching, and to explore a variety of ‘well-established’ approaches as well as new ones such as Flexible Learning. My professional experience, alongside my personal experience as a student and my ambition to get involved in shaping degrees to accommodate learners’ needs, helped me to identify the focus of the inquiry for this research project. As an academic, my main focus is to enhance my professional practice, explore it further and acquire better knowledge about the Higher Education environment. The changes in teaching and learning in a way force us to implement, develop, discuss and consider new approaches, such as blended learning and Flexible Learning, and these have certainly intrigued me, influenced me, and helped me to shape a vision about my my study and career. I am a strong believer in the importance of the technologies being used in teaching and learning, and how these can shape the future of Higher Education by improving standards and the student experience. Nevertheless, it must be acknowledged that no matter how many technologies an educationalist decides to use, these must not replace the transfer of knowledge between the academic and the student.

My colleagues hold perceptions of mixed responses in terms of Flexible Learning courses. The observed attitudes of academics have ranged from acceptance to the changes that Higher Education is facing, through to disapproval and denial in engaging with the new suggestions and approaches. As an academic in the computing area, I have a good understanding of the discipline’s language and the ‘geek culture’ (Bruce, 2015). This helped me to use my personal experiences, my good and broad understanding of the discipline, to set up a small scale research project to investigate in a more objective way Flexible Learning. All these together, allowed me to have an insight into realities of Higher Education and be in a position to evaluate and analyse the data obtained.

Nevertheless, I am very aware that there is already some theory surrounding Flexible Learning, mostly coming from Australia, and as such I am simply trying to support my views based on my research using existing literature and theory, and not establishing brand new ones. Teaching and learning in a computing lab has always been challenging. Each student tends to sit in front of one computer and the mode of teaching does not allow much interaction (Gallego-Arrufata & Gutiérrez-Santiustea, 2015). The geek culture as mentioned above, is perceived as ‘good computer programmes that lack emotional complexity and depth of art’ (Bruce, 2015). As such, participating in this project, I found it quite intriguing and significant to explore and evaluate the different settings while teaching in computing degrees. I have been the primary investigator in this project, and the main tutor of the course throughout the life of it. As such, I have ensured that during the design and implementation stages, the appropriate measures were put in place to limit my bias and subjective views as the researcher. My main focus has been to explore the different settings, evaluate them based on the participant views, and offer the reader a view for the future. The interpretations of the findings are analysed and described in the Research Design chapter.

Therefore, the focus of this research is a first year student cohort undertaking a Flexible Learning course in computing as previous, starting in 2008 and graduating in 2010. Being a pilot study, we aimed to have a cohort with 17 students in total. All the students got involved in the research process. The dominant two research questions are:

1. What are the pedagogical considerations when implementing a Flexible Learning degree?
2. How is learning affected after analysing and evaluating the different teaching and learning approaches, such as the use of technology, interactive sessions and intense module delivery?

## **1.1 Research Aims**

In order to evaluate and critically analyse the new teaching and learning approach defined, it is first necessary to establish the focus of the research and enquiry. This helps to question Flexible Learning and how it is influenced by publications and Governmental policies or reports, outlining the needs of higher education in today’s society. The latter indicates the following:

1. A need for further educational research
2. A need for re-designing Higher Education courses
3. A thorough understanding of student learning.

The research questions do not aim to constrain the research focus solely to Flexible Learning, they rather aim to create a set of suggestions not only based on perceptions, but how those perceptions are validated by the literature and the data findings. It is expected that people hold different perceptions of a concept and that impacts on how Flexible Learning courses are perceived and what the future entails. There may be implications for the development of Flexible Learning courses and the support of the students where differing perceptions exist within the organisation.

The theoretical aim is to discover the main influences higher education is facing and if there is a need to move towards more Flexible Learning courses. We also need to examine how people who work in higher education, mainly academics, see such innovation. At this preliminary phase, it is my belief that such novelties in higher education have a lot to offer since the needs of graduates have undergone rapid change, e.g. tuition fees increased in the UK context (**ref.**). Students join a Higher Education course with a desire to find a job where not only they will apply their knowledge, but that it will also provide a reasonable income. Students expect to be actively involved and see the relevance of their learning to the demands of the 21st century society (Orey, 2010).

The research collected data by distributing questionnaires to students undertaking a flexible course following an evaluation research approach and interviewing, which is analysed in Chapter 3. The research provides an insight on how learning is perceived by academics and students in Higher Education, current perceptions on Flexible Learning and how people think Higher Education should progress. In Chapter 3, there is detailed analysis of the research approach selected and why those methods were chosen against others.

## **1.2 The context of the research**

The HEFCE 2008 project, established a variety of two-year courses in 8 UK universities (Anglia Ruskin, Derby, Leeds Met, Plymouth, Gloucestershire, York and Staffordshire). The project was based on the Government’s 2003 White paper ‘The Future of Higher Education’ where ‘the need for more flexibility in courses’ was highly mentioned. HEFCE named the two-year courses as accelerated learning courses. The programmes were being evaluated against criteria relating to pedagogy, academic standards, depth of learning, flexibility, student support, student acceptability and perception, placement and work-based learning, quality, professional accreditation, cost and administration. The HEFCE’s (2008) aim was to ‘attract and meet the needs of a wider range of students and stakeholders’ and employ all possible teaching and learning styles in higher education without neglecting the use of technology. In addition, the HEFCE’s pathfinder projects meet the needs and suggestions of the Lisbon Strategy (2000), which promote lifelong learning and flexibility.

Therefore, for the purpose of this research, I refer to the type of learning being researched and evaluated as Flexible Learning. The term Flexible Learning courses/degrees will represent in this thesis the two-year degrees, or accelerated learning terms used by HEFCE with the aim to offer a more generic approach to teaching and learning. More specifically, for my thesis I researched the pedagogic issues around teaching and learning in Higher Education focusing in the discipline of Computing. I aimed to evaluate the traditional teaching styles and methods and explore new ones related to Flexible Learning. This research provides me with data to answer my two research questions. The first question explored the areas of the implementation of a Flexible Learning course, taking into account pedagogical advancements, the use of technology, the student experience and lifelong learning. Question two explored student learning and the changes it is facing based on the outcomes of question one.

This study is mainly significant because it provides an understanding of the associations that exist between academics and students in two different types of degrees within the discipline of Computing – traditional BSc degrees taught over three years, and the Flexible Learning two-year degrees. The main difference is that three-year courses have no teaching during the summer, Term 1 ends in December and Term 2 in April. The exam period took place in May. The students though, enrolled on a Flexible Learning degree follow the same pattern for Term 1 and Term 2, but instead of enrolling to the next stage in September, they enrolled in June, straight after the end of their exams. As such Stage 1 started in September 2008, Stage 2 started in June 2009 and Stage 3 started in January 2010. Both types of degrees had the same number of credits taught and achieved. Appendix H shows the traditional BSc Term time and how the modules are taken. In Appendix I it’s shown how the summer school delivery has been incorporated and studies can be completed in two years.

Once Stage 2 had commenced, it was taking place over the summer. Students attended full days for one month where three modules were taught. They were then given a project assignment that would assess all three modules. Term 1 and Term 2 during the normal academic year, were following the traditional didactic approach in teaching and learning. During the summer school though, a more flexible approach was introduced and evaluated. For the purposes of this research, no analysis was made on marketing and financial aspects. The reach focused entirely to the pedagogical approach of a two-year degree.

The research compared the two types of BSc programmes, and as a researcher I observed how the teaching and learning styles have helped both the academics and the students. It is hoped that this study will give a clear picture of the future of Flexible Learning courses and the types of resources required for their success. Through questionnaires and interviews, the study hopes to uncover positive features but also issues encountered when running a Flexible Learning course. The study, through the literature reviews interviews and questionnaires, will provide descriptions and evaluations of how the teaching and learning environment is managed in relation to improving the quality of Higher Education. Thus, the study will aid understanding of the usage of Flexible Learning in Higher Education courses, in order to improve the quality, achievement and retention in Computing degrees in Higher Education. As in every research, some issues had to be considered while designing the structure of the project, and how the students on the Flexible Learning degrees would be appropriately used on the study. Ethical considerations had to be made in terms of collecting the data and my personal involvement in the project in order to avoid any bias. These are further addressed and analysed in Chapters 3 and 4.

## **1.3 Main Research Issues**

To gather data for the research was a time consuming aspect. The data to be gathered had to be collected in such a way as to provide meaningful answers to the research questions. Since the idea was to focus on collecting data between the years 2008-2010 by making sure the data was coming from students who completed full cycle on Flexible Learning courses.

Apart from the fact that this research was part of my working contract, another key aim for agreeing to undertake and carry out this research project on Flexible Learning in Higher Education, was the fact that I found the topic intriguing and exciting as to how it could help and shape my career. When I started studying towards the Doctor of Education I was a new member of staff at my workplace, and felt that my research would support my academic career and help me to be a successful lecturer and researcher in Higher Education.

## **1.4 Issues with the research Participants**

At the beginning of the research project, I was mainly concerned about how the respondents would perceive the value and need for such an investigation. They were aware of the different approaches in teaching and learning that may be encountered between courses and modules, but it was not clear if they could see the significance of the Flexible Learning approach being evaluated. Due to the small number of enrolments we were allowed to have on those courses, there was a limit on how many participants I could have. Each university participating in the HEFCE project was running two year courses on different disciplines. As such, because my research previously was mainly the computing discipline and applying Flexible Learning to an already problematic geek culture (Bruce, 2015), it would not be beneficial for me to interview students from other universities and disciplines. What was interesting though in my research was that students who had enrolled on the three year BSc courses, could transfer to the two year degrees once they had successfully completed Stage 1. This gave me a great insight too to explore the reasons behind it, why would they transfer and explore even deeper the differences between the different types of learning. As such I managed to have completed questionnaires from all 17 students who originally enrolled on the Flexible Learning degrees and then an additional 8 who transferred. Although the sample size could be considered small but complete, it was amazingly well perceived by the students the importance of their involvement and they all completed the questionnaires happily.

Recognising the fact that the number of students was small on the pilot Flexible Learning degrees, I ensured I issued questionnaires more than once. Also having been on maternity leave in the summer of 2010, I made sure upon my return that I would conduct interviews with as many students as possible. Although there were issues surrounding my research project, at the same time every effort was made to overcome them. Most notably, in 2011, senior management decided to suspend the target courses, which meant I had managed to collect as much data as I could and was available.

## **1.5 The research design**

It was important and useful to define the risks and possible problems of the research that was going to be carried out and the data collection. This enabled me to identify the most appropriate methods to carry out the investigation and the data collection. By reading about the possible approaches to collecting meaningful data I considered the possibility of interviews and questionnaires but also explored the usefulness of focus groups. Every method has its own advantages and disadvantages, and this is explained in more detail in the Research Design chapter.

After reflective thinking considering all factors and risks while carrying out this research, I found out that the use of questionnaires and interviews would be the most appropriate to examine the appropriateness of the Flexible Learning courses. Since the collection of data would only focus on a small number of people but at the same time to the whole cohort, the use of questionnaires would help me to get the students’ first impressions of the Flexible Learning degrees. In addition to this, the interviews helped me to explore further certain aspects and points but also to enable the students and the staff to express their views more freely. More information on the choice and use of questionnaires and interviews can be found in Chapter 3. Additionally, the research proposal, could take into account my personal views and allowed me to reflect on the capability in being reflective of my own role as a tutor on Flexible Learning courses. The fact that some of our students enrolled on three year courses transferred to the Flexible Learning degrees (as described above) was also a great advantage in my research data.

My aim with this research was to focus on pedagogical aspects and what is offered to the students in Higher Education, if by attending a Flexible Learning degree the prerequisites could be different, and if it will be accepted by the employers and promote lifelong learning. For the purpose of this research and its outcome I am only focusing on the pedagogical aspects, what tutors and lecturers need in order to make teaching effective and successful at the Higher Education level and I will not look at the logistics or any impact on staff workload within the establishment.

## **1.6 Significance of Flexible Learning**

The significance of the Flexible Learning degrees and the research I carried out within the Higher Education institution I work for arise from the following main factors:

1. research into organisational implementation of the use of technologies in teaching and learning
2. the limitations in Flexible Learning in terms of pedagogical awareness
3. student-centred approaches are important

As outlined previously, the implementation of Flexible Learning degrees is currently somewhat difficult for Higher Education institutions and yet there has been limited research into the problem. This thesis makes two main contributions towards understanding Flexible Learning delivery, the use of a variety teaching approaches and the use of space effectively rather than using the classroom and the labs in a plain simple way, as they have been layout out by the institution.

## **1.7 Organisation of the thesis**

The body of the thesis is organised into six chapters.

*Chapter 1* is a general overview of the study, including some initial context to the research, the research problem, the research methods employed, the significance of the research and the limitations faced during the life of the project.

*Chapter 2* examines the literature already available relating to flexible approaches to teaching and learning, and an effort to provide a deeper understanding of student learning. In this chapter I argue that there is significant research available on adult learning and that the Flexible Learning courses I explore can provide adequate contribution to this research. Thus, the chapter focuses upon the literature review in support of the research aims and keeps the focus on Flexible Learning and the changes undergone by Higher Education.

*Chapter 3* discusses the research method. Specifically, it describes and evaluates how and why this work has used a qualitative approach by means of questionnaires, interviews and a reflective journal.

*Chapter 4* provides a deep evaluation of the data analysis, critically describes and puts together the results of the questionnaires and interviews, and considers the significance of each approach. The discussion of the findings, brings together the results of the questionnaires, the further discussions that occurred during the interviews and any personal observations reported in my reflective journal. Additionally, I make every effort to support the findings with the literature available. Finally, within chapter 4, I discuss further each of the two research questions, exploring all areas of curriculum development in a Flexible Learning degree.

*Chapter 5* is a discussion of the findings and brings together the literature with the answers collated for the two Questionnaire Phases and the Interviews held. In this chapter, each area questioned is further analysed in light of what the participants thought, aiming to take things in the wider context of Flexible Learning.

*Chapter 6* concludes the thesis and discusses reflections, implications and outcomes. This chapter reflects upon the findings of the research, and outlines the contributions, implications, limitations and final conclusions. As this was a big project carried out by HEFCE, and it had further implications at the university where the research was carried out, it is vital that I explore and discuss the current situation and provide sections on potential future work.

The thesis is structured to provide the reader with a broad understanding of different learning styles a student can bring in Higher Education by bringing together aspects of the literature. It then follows up by explaining the reasons behind the chosen research methods, how the data was obtained and what it means. It concludes with the current situation at my Institution and suggestions for future research.

# **Chapter 2 : Literature Review**

This chapter reviews the existing literature around Flexible Learning in order to explore how the term *Flexible* was derived, developed and the pedagogies around it. The discussion aims to situate the research inquiry within the theories and concepts around Flexible Learning as a way of identifying and innovating new approaches to teaching and learning in Higher Education. The critical overview and discussion of the available literature will try to:

* demonstrate how Higher Education learning is changing;
* the needs of Flexible Learning degrees and approaches;
* and finally, the implications on teachers and students, both positive and negative.

The literature review aims to provide a broad understanding of how learning is taking place, by drawing together those aspects that can support Flexible Learning. This will later on support my discussion of findings, as to whether Flexible Learning is the way forward in Higher Education.

## **2.1 The Nature of Flexible Learning**

The notions of lifelong learning and the need for prioritising the students is becoming more and more central in Higher Education (Nagy & McDonald, 2007). The Australian Higher Education has been a pioneer in this area (Nagy & McDonald, 2007), but gradually other countries wished to examine Flexible Learning, such as the 2008 HEFCE project that I was involved in. Flexible Learning is an evolving concept, and this is reflected in the literature by the variety of terms used to describe it throughout the years. For example, the term Flexible Learning (and approaches within it) has also been found in the literature as *flexible delivery, flexible teaching, distributed learning, open learning, networked learning, online learning and e- learning*. Those terms have been used to describe a wide range of educational methods, techniques, approaches and strategies that seek to provide flexibility to both learners and teachers. In the figure below I tried to demonstrate how all the different types of learning are blended and how they fall under the umbrella of Flexible Learning.

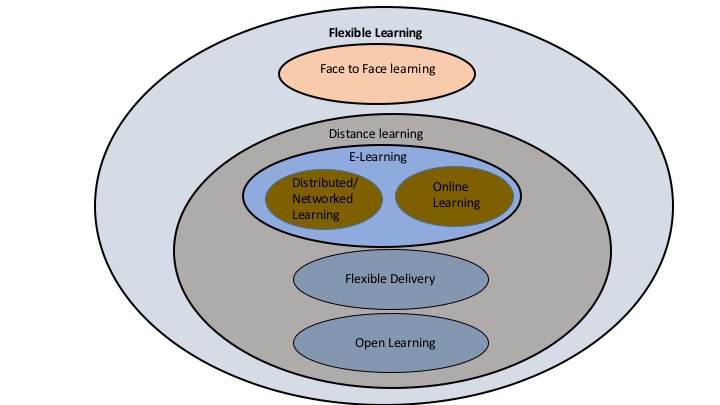


Figure 1 The relationship of different types of teaching and learning

From the learner’s perspective, with regard to the particular courses at the institution where the research took place, flexibility was seen as a module-based scheme, focusing upon one module at a time during the summer school of 2009, and experiencing a variety of teaching approaches. From the academic’s perspective, flexibility was seen in terms of the ability to select such teaching methods, techniques, resources and technologies that are in accordance with pedagogical aims and objectives of a taught flexible course (Hallas, 2008). Universities have also seen these developments as a way of expanding their student base, and of offering more economical subject teaching through technological applications. As such, at the target institution, as mentioned in Chapter 1, the Flexible Learning courses were available and offered to students between the years 2008 and 2012. Those courses were designed in such a way that would offer the opportunity to both academics and students to practice both the didactic and the flexible approaches. The curriculum on modules, exams and coursework was developed in a way to explore Flexible Learning in comparison to the traditional didactic approach, to explore the future of Higher Education, and to meet the institution’s future plans and requirements. Therefore, aim of this thesis is to explore how Flexible Learning is affecting teaching and learning, and how it is supported, determined and justified as a future need and requirement in Higher Education.

The term *flexible teaching* has often been used, especially in Australia, as a generic term, which includes all aspects of flexibility in education. Research so far has emphasised the use and delivery of packaged learning resources that tend not to consider the educational process, but mostly seeing education as a product (Callender, Wilkinson, Makinon, 2006). A variety of authors and researchers believed that using technologies may disembody the learners from interacting within the traditional education (Beckett 1998; Brabazon 2002; Noble 2002). Some academics have been conscious about the agenda of Flexible Learning (Fazackerley, Callender, Chant, Wilkinson, 2009) feeling that it is only an ambition to increase student numbers within an institution. However, such negative opinions could be the result of negative experiences with open and distance education. Others feel that flexibility in learning is a positive way forward, and an opportunity to engage and be creative with new forms of teaching that provide greater equality and inclusion for students (Hallas, 2008). The successful implementation of a Flexible Learning module or degree is also seen as a strong dependent on the relationship between the teacher and the students. Therefore, Flexible Learning can demonstrate a positive impact on the educational equation, since both the academic and the student are equally involved in the process.

The main thing that needs to be explored and understood is how and when learning occurs/happens for each individual student, and why Higher Education is in need of changing and re-shaping. The excellent work conducted by Ramsden back in 1992 and Laurilland in 1993, demonstrated that the success of any teaching approach, it basically depends on the understanding of student learning. Ramadan (1992) pointed out and emphasised on the fact that the aim of teaching is simply to make student learning happening and then Laurilland (1993) stated that effective and quality teaching can be offered if there is generic institutional infrastructure that can support it. The construction of learning environments has also seen emphasis from early on (Laurilland, 1993) where the student centred approach and facilitation of learning are the foundations of Flexible Learning. Throughout the years, many teaching approaches have been analysed such as distance education, open learning, and of course the use of technologies. Although those approaches offer a degree of flexibility in learning, in reality none of them are offering Flexible Learning.

Having said that, the Flexible Learning degrees at my institution were using mixed methods of teaching and were not focusing on one. This offered a very substantial and significant content to evaluate and compare during the lifecycle of this research project. With the recent increase in student fees, the different strategies signed by governments – such as the Westminster Government’s HE policy: Students at the heart of the system (2001) and the HEPI report in 2013: the impact on demand of the Government’s reforms of Higher Education – create a high need for academics to explore and change their teaching approaches in order to accommodate all learner types and meet the industrial needs of the real world.

In discussions of the concepts of openness, distance and flexibility, a useful distinction which is often made is that between educational philosophy or approach, and educational method or technique. The term *open learning* is generally thought of as referring to a philosophy or approach to education that seeks to move away from traditional face-to-face practices, to focus more on individual student needs and learning styles, and to remove the traditional barriers to entering higher education. Rumble (1989) identified fifteen criteria of openness related to access, place or pace of study, means, structure of the programme in terms of content and assessment, and support services. Within this framework, *open learning* refers to the objectives and characteristics of the educational process. Distance education, on the other hand, is usually described as a method of education, referring to the means by which education is achieved (Rumble 1989). A such, an open learning approach might use distance education techniques to achieve its aims, but open learning is not necessarily synonymous with distance education.

Flexible Learning is often translated with where the learning takes place. In practical terms, this is often what Higher Education institutions used to mean with the terms *Flexible Learning;* that you can be anywhere and the tutor can also be anywhere, and learning can occur. Nevertheless, the learner, in whichever explanation of Flexible Learning research has been giving, is placed at the centre of the activities and the learning. Beattie and James (1997) identify 6 main foci of Flexible Learning and the choices a learner can make:

1. The learner accesses learning.
2. The place or environment, time and pace of learning.
3. Methods of learning.
4. The content and the assessment of learning.
5. The learning process.
6. Use of learning support systems.

The emphasis on learner choice is demonstrated in the work of a number of writers and researchers (Magolda, 1999; Collis & Moonen, 2001). The six dimensions of learner choice above were supportive and helpful to provide an understanding of leaners in Higher Education and the changes in it how it affects their needs and requirements. Furthermore, there are four conceptual elements identified which explain further the definition of flexible learning (Van den Brande, 1993):

1. **Openness:** Meeting the different learning needs an individual might have
2. **Flexibility:** Ability to adapt to the individual needs and learning modes. There must be given priority in creating such an environment for interactivity between the academics and the students.
3. **Multimedia:** Technology to support and advance teaching and learning.

Van den Brande (1993) provides a strong and interesting definition of Flexible Learning, stating that it is enabling learners to learn when they want in terms of frequency, timing and duration. Learners can learn how they want in terms of approaching learning under their own learning needs. And finally learners can learn what they want by defining what adds to their own learning and cares aspirations.

At this stage it worth noting that the terms open learning, distance learning and Flexible Learning are often used synonymously. Wade (1994) describes Flexible Learning in terms of learner needs as “an approach to university education which provides students with the opportunity to take greater responsibility for their learning and to be engaged in learning activities and opportunities to meet their own individual needs”.

Taylor, Lopez and Quadrelli (1996, p. 6) focus more on the use of technology, using the term *flexible* as “practices which utilise the capacities for learner- learner and teacher-learner interaction made possible through recent developments in communication and information technology (CIT) to provide increased ‘openness’ in both on- and off-campus delivery of educational programmes”.

Wade (1994) and Taylor, Lopez and Quadrelli (1996) also use the expression flexible modes of delivery to demonstrate and explain how technology can free up the provision of educational programmes from both geographical and time constraints. The learner choice is the key idea in Flexible Learning as Collis and Moonen (2001) state. They identify five key dimensions of learning flexibility:

1. flexibility related to time
2. flexibility related to content
3. flexibility related to entry requirements
4. flexibility related to instructional approach and resources
5. flexibility related to delivery and logistics

Each of these dimensions can be expressed on a range from fixed to flexible, with many possible options within each flexibility dimension (Collis & Moonen, 2001). Flexible Learning is looking to become a new approach to teaching and learning where decisions about individual learning dimensions and decisions are made in advance by the academic or the institution, towards a learning environment where the learner has a range of options to choose with respect to the individual learning needs (Collis & Moonen, 2001). In developing a framework for the discussion of Flexible Learning in Higher Education, Collis and Moonen (2001) identify four key components:

1. Technology
2. Pedagogy
3. Implementation strategies
4. Institutional framework, which is mainly the institution’s plan for the forthcoming years (I.e. school plan, faculty plan etc.).

As explained above, Flexible Learning is currently being widely used in Australia, and for that reason another Australian governmental study of the effectiveness of models of flexibility in higher education (Ling et al., 2001) used the term *flexible provision* to refer to the provision of choice to learners. The ability for the learner to choose and select appropriately within the learning environment, is achieved through a variety of teaching and learning techniques and use of technologies. Certain policies that an institution may choose can affect how a learner chooses (Ling et al., 2001). This study also identifies a number of elements of flexibility (Ling et al. 2001, p. 3) as follows:

1. The time at which the study occurs.
2. The pace at which the learning proceeds.
3. The place in which study is conducted.
4. The content that is studied, which includes the concept of flexible entry and exit points to a programme.
5. The learning style adopted by the learner.
6. The form(s) of assessment employed.
7. The option to collaborate with others or to learn independently.

Taking into consideration the variety of influences in Higher Education, such as reports published on specific aspects of learning (for example peer assisted learning, distance learning, etc) and changes that directly affect students, such as the rise of tuition fees, Palfreyman and Tapper (2016) suggested that new institutional models need to be developed. Based on learner needs and employability needs, it was suggested that the idea of distributed learning environment could be the way forward. If that happens then the students are offered three different learning environments, an on campus one, an electronic/online one and a continuing or lifelong learning one.

Traditional models of educational provision place institutional organisation and functions at the centre of any decisions to be made, with students moving from place to place or person to person. Some of the emerging models place the student at the centre, and provide more flexible access to information whether this is coming from academics directly or other means (Mason and Hopkin, 2011). As such, the distributed learning environment needs to be structured according to the learner needs. It can integrate traditional teaching and learning approaches such as lectures. Four features are identified as contributing to the development of such an environment:

1. cognition – understanding how students learn;
2. collaboration – interaction with information, other students, and the academic;
3. communication – using technological tools to communicate with colleagues, experts, and diverse sources of information;
4. computing – using technology to enable the transformation of learning;

There have been developments over the years to create and establish e- universities that could offer online courses (Darby, 2002). In such situation where learning is being communicated via the technologies, for example video, recorded voice sessions etc, is called networked learning. This creation of those networked learning environments was applied for some time (Barone & Luker, 2000). Such learning environments support and promote connections between learners, between the academics and the learners and also the wider community and the learners (Jones & Steeples, 2002). However, so far there isn't appropriate pedagogy for such environments to accommodate all different needs (Darby, 2002).

The above description and analysis of some different learning environments was an opportunity to provide an insight into how learning is perceived so far and this should be the starting point of any pedagogical change and advancement. It was an opportunity to see over the years how pedagogical researchers tried to view learning from different perspectives, how they tried to create a variety of different environments to offer more support and inclusivity for students.

So far the literature that has been reviewed is based on the different very distinctive approaches to learning that have occurred before the term *Flexible Learning* occurred, what has been offering so far and how it has been approached by researchers but also Higher Education. This distinctive research on different learning environments benefited me greatly as it will provide the basis of comparing and contrasting Flexible Learning degrees at my Institution and the wider research field. My two research questions focus greatly on the pedagogical changes and approaches such a course offers and as such it is very important to understand the field of Flexible Learning before we move on analysing and evaluation what and how happened at my University. To further support this, below there is more information on adult learning which in combination with the different learning environments, will offer a very good knowledge base on what a student expects to see in Higher Education in terms of support towards his/her learning and future lifelong learning.

## **2.2 Learning Styles Background and History**

Most educationalists argue that a teacher’s task in Higher Education is not just to teach current knowledge to students, but to go beyond this level. Suggestions are around preparation of the students to enter the real world, but also, to enhance and engage them in lifelong learning. How an individual receives and perceives information differs to another individual. In order to understand better the concept of *Flexible Learning* and how to effectively design a Higher Education degree, an identification and exploration of how learning theorists see and evaluate Flexible Learning is needed. This will later on help in my research to identify which approaches are widely accepted and followed by examining the results alongside the literature. To understand better the term Flexible Learning it is rather important to review the learning styles and how the theories and concepts around intelligence and learning can actually influence the effectiveness of Flexible Learning (Rose & Nicholl, 1997; Linksman, 1996; Meier, 2000). Gardner (1983) he was the first educationalist researcher to emphasise on the importance of the understanding of what is intelligence is and how an individual learner makes uses of it and applies it. That was a very in depth research into the knowledge society (Harvey et al, 1997) and by analysing below each intelligence helped in developing a framework around Flexible Learning and how it can be inclusive in terms of individual learning styles and approaches.

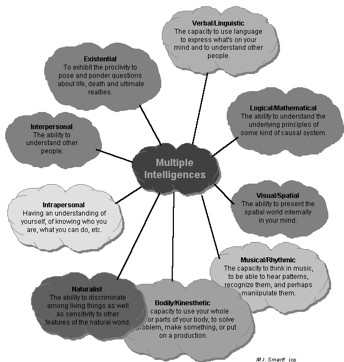


Figure 2 Gardner’s multiple intelligences (Gardner, 1983)

Gardner’s (1983) theory on multiple intelligences suggest that a student can use one or more intelligence in his learning. Gardner (1983) defines intelligence as a combination of skills the assist the student applying problem solving attributes to his/her everyday learning. At the same time, it is that set of skills that the student needs in order to acquire information and knowledge (Perry, 2000).

Gardner’s (1983) original research findings suggested six different types of intelligences:

1. linguistic: those students who can be good at reading, telling stories, writing and memorising.
2. logical/mathematical: those students who can excel in critical thinking, reasoning and dealing with numbers.
3. Spatial: those students who are god at visualising solutions or any topic being discussed.
4. Musical: students who are good in music, meaning they can sing, compose or play musical instruments.
5. Kinaesthetic: those students who can control their body and have a good sense of timing, and an ability to train responses.
6. Interpersonal: such students can be characterised as having a sensitive response to other people’s moods and they are very capable to cooperate in order to work with others.

Gardner’s research and findings progressed and suggested the naturalist intelligence and then the spiritual one. He suggested that individuals will make use of two intelligences at the same time which can be highly developed. The more those intelligences are developed the more the individual or the student will be able to cope with challenges. The learning resources available to the academics vary and normally there is a huge selection. How we use them to utilise the individual’s intelligences is the interesting aspect to consider especially when designing Flexible Learning courses (Rose & Nicholl, 1997). As academics, by having this direct relationship with the students we can observe the different levels of intelligence. Moreover, the way the classroom is used as the learning environment can enhance and support student learning effectively (Costanza, 2001; Cornwell, 2001; Perry, 2000) Gardner, though, did not expand the definition of what he meant by intelligence or denying the existence of intelligence. Sternberg (1883), Eysenck (1994) and Scarr (1985) have criticised Gardner’s practice that uses the word intelligence in the context and meaning of the word ability. Willingham (2004) critiqued Gardner’s view that intelligence is not only linguistic or mathematical but also artistic, athletic etc. He argued that Gardner did not explore enough the meaning of intelligence, although he had always indicated those thinking skills that someone is successful in his/her studies. Hence the study of multiple intelligences makes research difficult because it becomes very broad and it is not suitable for an EdD thesis. Nevertheless, since my research explores the variety of teaching approaches in order to create an inclusive Flexible Learning environment, it is very important to have a wider understanding of how people perceive knowledge. Each student has a different knowledge and cultural background and he/she is unique in his/her own nature. A Flexible Learning course or module needs to cater for each individual and this can only happen if space is provided for every different learning style.

Through the years, research on learning styles has shown that learners perceive learning in many different ways. Teaching in Higher Education means that a tutor has to deal with a variety of different learning backgrounds and needs to provide modules and courses where students will be able to adapt based on their personal learning style. It is, thus, very important to explore within my research how learning styles develop, what affects them and how they can be further developed. Learning styles develop through personal experiences and personal practices. According to Gardner (1983), there are three main modes of learning and often identified in the literature; visual, auditory, and kinaesthetic. For the visual learner information stimulate learning in the form of pictures or diagrams. For the auditory learners, learning is best communicated via lectures, class discussions etc. Kinaesthetic learners prefer to receive information via more physical activities (Rose & Nicholl, 1997; Meier, 2000). Linksman (1996) however, has suggested a fourth learning model, namely the tactile. He says that ’tactile learners receive information best through either touching or feeling’ (Linksman, 1996, p.21). Students though they do not use just one model in their everyday learning. Although they favour some more than others, still they use more than one. From the academic’s perspective is important that some awareness of those models exists and teaching activities can be cultivated alongside those models.

This is a very useful model for academics, since it allows them to prepare classes that address each of the above areas, and since in the Flexible Learning courses I am looking at for the purpose of this research, each academic’s approach, some more traditional some more flexible. It is very important to see if these approaches are of good practice or if there should be a unique agreed approach in teaching. Students can also use the model to identify their preferred learning style and maximise their educational experience. Nevertheless, some psychologists and neuroscientists believe there is little evidence around those theories. Various researchers have attempted to provide ways in which learning theory can take effect in classroom (Dunn & Dunn, 1978). They support the view that learners are affected by the environment, emotionality, sociological needs but also physical needs. Although learning styles differ among students, Dunn and Dunn (1978) states that academics should in many ways try to make changes in their classroom that will be beneficial to every learning style. Such suggestions are related to room design and layout and the development of small group techniques, referred to as the *circle of knowledge*. This is again a very useful aspect of the literature above since it provides information on how to use the learning space, which is something I explored and valued during my research.

## **2.3 Flexible Learning and Adult Learning Principles**

Most of the research published until now around Flexible Learning is about applying the term in adult learning. To guide me in understanding how adults learn I used Kawsorm’s (2003) framework on adult degree completion programmes. She suggests that we as academics, assume that adults are more competent and able to deal with their individual learning. Adults join Higher Education with pre-existing knowledge and skills that should provide the background into exploring a learning environment and becoming autonomous learners (Kasworm, 2003). To support this further it is interesting to mention Knowles’ (1980) theory on andragogy that agrees with Kasworm (2003) on the fact that adults do have certain skills when joining Higher Education. In such cases, Flexible Learning could work because students do not start from a blank canvas, but they build on learning that has already occurred in their lives. A successful Flexible Learning course or module should design a classroom environment that could be aligned with the adult student’s day-to-day world. Effective Flexible Learning programmes seek to be both consistent with adult worlds of action and provide structures and processes that minimise negative effects from this (Kasworm, 2003).

Knowles (1980) also reinforces the fact that adult learning is already more mature and able to solve real-life problems. Having said that, Kolb’s (1984) experiential learning, aligns with the above theories. The understanding and reflection occurs in adults and adult students have the capability to do the connections between prior learning and new learning (Kasworm, 2003).

Computing degrees offer a variety of modules; some are taught modules, some are more practical, laboratory-based modules and some are work-based learning modules. The above models are informative on how we can enhance lifelong learning within any taught Flexible Learning course or module by using real- world scenarios and adapting the learning environment to the student needs. Especially in computing where the students always need to develop applications for real-world users, this could be something worth researching and evaluating.

## **The need and presence of Collaborative Learning in Flexible Learning**

At my institution the Flexible Learning degrees use a variety of teaching approaches. These can vary from the traditional face-to-face lecture, to supplement teaching by extra online material most of the times provided in the format of podcasts. In addition to the above, students are being asked to apply different approaches to learning as well. Collaborative learning is one of the most important learning styles, which students apply and learn via these courses. They are being asked to assess their classmates (coursework marking via peer marking) and they are being asked to work in groups etc. More importantly, during the summer school when all the other students are not on campus, it was very important that students taking the summer modules could work in a collaborative way and support each other during periods when tutors were on holidays. Hence it is of great significance to understand the background of collaborative learning and why it is an essential part of Flexible Learning degrees in higher education.

The theories around Flexible Learning when it occurred as a possible teaching and learning approach, focused on how quickly can a student learn (Meier, 2000). Adults are already capable of cooperating and collaborating with other individuals (Brooks, 1998). This collaborative learning approach creates knowledge and engages the students in problem solving and developing solutions. Bringing together the intelligences that Gardner identified, plus the different learning styles present in a group of students, collaborative learning can become a powerful mechanism within the learning space (Drago-Severson et al., 2001). Discussion and dialogue (Imel, 2002), enable collaborative learning, sharpen student learning and clarify the needed outcome of a leaning space. Students can develop their transferable and interpersonal skills, test new ideas and share worries, all within a safe learning environment. A Flexible Learning approach, can benefit as such both the student and the academic and establish good relationships between the participants (Meier, 2000)

## **The Learning Environments**

Another area important to Flexible Learning is how we use the learning environment. Learning can occur in different types of learning spaces, which have been explained and demonstrated in a variety of ways. Collins, Greeno and Resnick (1994) comment on the use of the term *learning environments* as reflecting the move from teaching to learning, and an attempt to move away from passive information transmission to a more constructivist view of education. They categorise different learning environments according to three broad functions;

1. participating in discourse
2. participating in activities
3. presenting examples of work to be evaluated

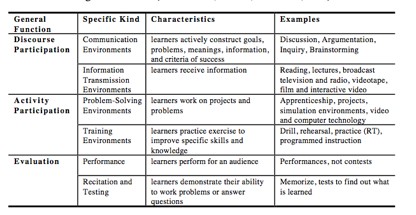


Figure 3 : Learning environment (Collins, Greeno & Resnick, 1994)

Each of these functions can be further divided into two sub-categories, producing a typology of six kinds of learning environment, as shown in Figure 3 above. Most learning environments contain all six types, with the most effective combining the advantages of each type. The most traditional learning environments tend to be characterised as information transmission, training, and recitation and testing environments. Constructivist learning environments are generally characterised as communication, problem-solving, and evaluative performance environments.

Information and knowledge and the way they are used are an important and integral part of the functional categories presented in Figure 3. The function relating to participating in discourse is the most directly relevant aspect, with the classification of learning environments as either information transmission or communication environments.

In the context of discussions on the characteristics of flexible and constructivist learning environments, various authors have developed diagrammatic representations instead of attempting to describe and critically analyse, the interactive relationships characteristics that are happening within learning environments. For the purpose of this study, Flexible Learning in Higher Education, I will try to present some of them below in relation to my research.

Before analysing the different models of learning environment/space, I feel I need to refer to Thomas’ (1995) position that Flexible Learning is about being prepared to configure all available resources, expertise and learning opportunities in the way that fits the learning purpose best. She argues that there is no universally applicable model of Flexible Learning and presents a model in which Flexible Learning is seen as the dynamics of the learning process that takes place between the expert, the learner and the learning resource (Thomas, 1995). The relationship between these three elements is determined by:

1. the purpose of the learning
2. the capabilities of the expert, learner and learning resource
3. the needs of the expert, learner and learning resource.

In this approach, the organisation and infrastructure which supports learning are included in the learning resource component. The needs of the learning resource will have to include the needs of tutors. While recognising that the learner should be at the centre of learning, Thomas (1995) argues that there is more to learning than the focus on the point of learning. All the elements in the process are seen as equally influential. This suggestion, then, gives some responsibility to learners for representing their own interests.

The dynamic nature of the processes reflected in this approach also means that the model must be infinitely variable in order to accommodate particular circumstances (Thomas 1995) – for example students may have to work during summer time, hence attendance at summer schools could be affected. Roles and relationships are, becoming flexible. An expert may not always be the academic, a learner may not always be a student, and learning resources will not always be confined to a limited range of course materials. The learner is not to be regarded as simply a passive recipient of knowledge, but should be actively engaged in the learning process. In some situations, the learner may play the role of expert to other learners, or engage in critical appraisal of knowledge rather than its acquisition. The nature of the learning resource may also have an impact on the dynamics of the learning relationship, particularly those technological applications that provide interactivity. A learning resource can add to the store of knowledge and expertise within the learning relationship (Thomas, 1995). Finally, the relationships between the elements in the learning relationship may be affected by social, economic and technological factors outside the particular learning context. Again, as before, what we are trying to achieve is a greater understanding of how useful block teaching is and if it is the most appropriate teaching method that should be applied in Higher Education at the moment. The approaches used during the summer school put the student in the centre of the teacher-student relationship where reflective approaches were mostly used rather than didactic. By critically analysing what influenced the students during the summer school and their performances, supports a better understanding of their abilities and a better understanding of the teaching approaches used.

## **2.6 The changes in Higher Education**

Students in Higher Education are requested to cope with rapid change and the challenge of the information available to them. So the question that arises is what is changing in Higher Education? The current emphasis on Flexible Learning is a challenge. New policies are coming into play and discussion papers reflect those perceptions that place Higher Education in the centre of the creation of knowledge (Brew, 2000). These policies at times are internal institutional policies, or European policies; furthermore, they may be specialised policies I.e. for students with learning difficulties. Very often, there are recommendations supporting the view that we need to encourage the ways supporting the transition to the information society, managing new approaches in learning, professional development (Vasileiou, 2009) and practice of innovative educational design and delivery.

Barnett and Hallam (1999) problematise pedagogy by examining the challenges we face within an increasingly complex and knowledge-oriented context. We are seeking a more productive level of participation, and as institutions are faced with an increased diversity of students but also a direct relationship with employers; the emphasis on academic and industry collaboration is increasing. Brew (2000), Howard et al (2000) and Savin-Baden (2000) all support the view that pedagogical decisions are grounded within interpretations of knowledge, theories and ideas or beliefs about the learner. What academics have been asked to explore are areas and approaches that can enhance student learning and how to concentrate on and enhance the student experience. The UK universities are growing, developing new partnerships and, as such, decisions about what is taught and the approach to teaching are no longer the exclusive and authoritative domain of academics alone. Coaldrake and Stedman (1999) point out the pressures but also the challenges in a student centred system. This clarifies further the above section on multiple intelligences, where a variety of authors (Hofer and Pintrich 1997, Howard et al 2000, Penso 2000, Shulman 2000) support the argument of multidisciplinary knowledge and within it quite identifiable that there are embedded theories around knowledge, what is learnt and how it is learnt. The evolution of computing degrees generates new demands for research and create new challenges to our epistemological and pedagogical understandings.

The computing discipline lays its foundations on a very technical background. Being an IT professional myself, and having been though the experience of becoming a successful IT professional, I support the view that the knowledge society is not something that IT people had to consider some years ago. As academics in the computing field we are being asked and we are being driven to examine and understand the nature of knowledge and transform our notion of teaching. We are being asked to elaborate our theories of practice through more sophisticated concepts, students’ understanding and professional knowledge in action.

Teaching in Higher Education is an interesting and challenging task. By the time students join a course, they have been through the school system and they are already affected by any governmental decisions and changes. Governments across the world work make every effort to provide a good background knowledge on the use of ICT from very early on for every child’s education (Tondeur & Valcke, 2007). ICT literacy has become a national policy affecting schools and it has become a set skill needed for lifelong learning. The committee eEurope 2002 collectively decided and identified the need for a uniform ICT policy within the school’s curriculum. The findings and recommendations suggest that all school leavers must hold knowledge of ICT that will support them in entering the knowledge based society (Commission of the European Communities, 2000). ICT has become a separate school subject in many countries and especially here in the UK, Higher Education and the government are doing extensive research on how is the best way to introduce ICT in schools and through a variety of reports provide guidance for school teachers (EdNA School Advisory Group, 2001; US Department of Education, 2004). Moreover, the UK Department for Education and Studies set up the Barefoot project collaborating with BT initially and then with BCS- The Chartered Institute for IT, to run a number of workshops for school teachers teaching ICT skills at all levels. Computational thinking is now becoming a key aspect of learning that needs to be reinforced from very early on within the educational studies of an individual.

Flexible Learning degrees were programmes developed and funded by the Department for Education and Skills (DfES). *Flexible Learning* aimed offer an enriched Higher Education degree, aiming at developing such professionals, ready to graduate with all the relevant skills of a Computing degree. One of the main thrusts of this new and modern approach was to realise the full potential of the education system by attracting and motivating students and staff with the use of incentives, professional development and general support.

The context of education is changing globally (Carnoy, 2005). Globalisation is having an impact on Higher Education and, as such, universities are asked to become responsive to national and international needs and trends (Carnoy, 2005). International developments such as the Bologna declaration are being taken into consideration. The character and composition of the students is also changing. Universities nowadays not only need to prepare graduates for the job market but also they need to provide service to mature and lifelong learners (Vasileiou, 2009). Higher Education institutions are now required to set adaptable objectives, to support those learners who are motivated and are returners toe education, often to further their career (Anderson & Askov 2001, p.155). Higher Education faces rapid transformations often and there is high need for teaching approaches to change and adapt.

The Dearing report (1997) discussed the need for continuing professional development in collaboration with employers. Teaching and learning in Higher Education was deemed to be in need of more flexibility in order to become more inclusive towards people with different backgrounds, both in terms of culture and education. Those initiatives were the starting point for HEFCE to explore further Flexible Learning, and was further implemented by Higher Education institutions ‘as part of an overall investigation into different models of Flexible Learning’ funded by HEFCE (2008). The Institution I am working for, was also part of this research and this is how my research and thesis have been enlightened with further governmental information. The rise of the tuition fees, leaving with graduates with debt was one of the main triggers of that research (McGraig, Bowen-Brown & Drew, 2007). The two-year Flexible Learning degrees was an opportunity to to lower the cost of studies and the debt of the students. Although the above papers support the view that Flexible Learning courses have a lot to offer and it should be something academics should consider and evaluate and two major issues have been raised. The Quality Assurance Agency (QAA) is the main provider and reviewer of Higher Education regulations. In order to have nationally accredited courses at Higher Education institutions, degrees are examined and reviewed against the number of hours they are taught and the learning outcomes students need to achieve (QAA, 2001). The fact that the research was piloting the two year degrees, this could raise concerns on feasibility and of the expected academic hours and learning outcomes, could be accommodated. Nevertheless, McGraig’s (2007) report on the two year Flexible Learning degrees evaluated those concerns regarding such possibilities and the fingers suggest that ‘the quality of the degree can achieve the same learning outcomes in shorter time and concerns such as student retention or workload are not an issue’.

Having said that, what McGraig (2007) identified during the research, was related to the Bologna process. The Bologna process set out an initiative to ensure Higher Education institutions across Europe, should aim for compatible degrees. In each country even today, degrees have different duration, some countries a Bachelor is three years, in other four years. Having HEFCE suggesting and even shorted degree, two years, could raise concerns across policy makers in Europe.

At this point it worth mentioning the Lisbon strategy, which promotes lifelong learning and flexibility (McCraig et al, 2007). In 2007, DfES and HEFCE produced a joint report on Flexible Learning degrees (McGraig et al, 2007). The findings of that report were focused mainly on the fact that the QAA had indicated that Flexible learning degrees, with appropriate curriculum design, can have a positive impact on lifelong learning and also to support the Bologna policy principles.

Apart from the governmental driven research on Flexible Learning courses (HEA) there is already evidence of high quality research on the benefits of this type of courses in Australia. Flexible Learning is not a brand new concept. Adult education is a fast growing business and, as Scott and Conrad (1992) found, adults appreciate the efficiency of Flexible Learning formats. In other words, ‘students valued the fact they could complete a course in less time than usual’ (Scott and Conrad, 1992).

The Flexible Learning courses developed at my institution use a variety of teaching approaches, as explained in Chapter 1. The aim of this research is to evaluate those approaches and offer a model solution and suggestions to people wishing to develop curriculums for Flexible Learning courses. The research started with this literature review in order to gain understanding the different types of learning and how all those types of learning can be accommodated within a Flexible Learning degree in Higher Education.

## **2.7 Recent Research on Flexible Learning**

As discussed in this chapter, the meaning and explanation of Flexible Learning is not unique and basically it is widely that it embraces other terms that have been mentioned in this thesis, such as distance learning, online learning, open learning and so on. Educationalists and researchers have been trying to come up with a model that will sufficiently represent Flexible Learning. More recently the official description provided by HEA is that Flexible Learning is an approach that is ‘responsive to pace, place and/or mode of delivery’. Such approach can include the use of technology, work based learning and employer engagement, accelerated learning and distance/blended learning.

Academic staff need for sure to understand in depth their discipline related content. But with the rapid changes, the industrial and technological demands, there is a need to embed new skills in our curriculum. There can be many reasons why a Flexible Learning approach might need to be adapted. First of all, the student needs in terms of time, place and the approach to teaching and learning. Nowadays we have a variety of students coming from so many different backgrounds. There is a need for an inclusive and adaptable environment. When considering to adopt a Flexible Learning approach, the design phase is very important (Casey & Wilson, 2005). Higher Education traditionally had adopted a very didactic approach and quite often there was danger of fragmenting learning and the subject/discipline. Having discussed the well-established different learning styles above, it is evident that a didactic approach could cause barriers to non-traditional students, students with learning needs or simply students with different learning styles. Being able to abstract the educational design of a course or module is a key component of Flexible learning (Casey & Wilson, 2005).

Students in Higher Education are becoming more consumers and they want more real world situations, situations that will face when they graduate and they want to be prepared for that. Students pay attention to the services provided, ow their expectations are met and how the institutions invest in facilities and infrastructure.

Ultimately, an institution’s aim is to differentiate in the market and this can be achieved by pioneering modern approaches to teaching and learning. Students are looking for both diverse and inclusive environments. They are looking to be understood and study in an environment that will empower them and prepare them for the industry.

**2.8 Summary**

This chapter has provided a critical description and analysis of different views around Flexible Learning and the secondary approaches and methods of teaching that Flexible Learning entails. Technological change allows a shift in expectations, practices and discourse around the terms, old and new, in teaching and learning. Although Flexible Learning, online learning, and their analogues sometimes mean the same, in this chapter I tried to present a variety of opinions and research and offer the reader a substantial understanding around Flexible Learning teaching and learning approaches and also a critical description and examples of approaches that can be embedded in a Flexible Learning degree. The chapter investigated the challenges a student or an institution might face of the very diverse background students have. And in order to answer the research questions on how to develop a Flexible Learning course in a Higher Education Institution, we first need to understand what the challenges and difficulties are when it comes to learning.

The following chapter will describe the research methodology and how the data was analysed and reported.

# **Chapter 3 : Research Design**

This chapter describes and analyses how and why the chosen research design was appropriate, effective an efficient, as well as how it supported the investigation of the research questions focussing on Flexible Learning courses in Higher Education. A number of sections address the overall purpose and rationale for the research, the frameworks that support it, the researcher’s philosophical approach and research strategy, the choice of methodology and which methods, and finally why the data obtained were useful for this research.

The literature review in the previous chapter, provided an overview of how people and researchers perceive Flexible Learning and how the different teaching approaches can benefit the learners. Nevertheless, the literature review is not enough by itself to demonstrate the significance of a new teaching approach such as Flexible Learning. Hence, it was essential to analyse the data and evaluate the findings in such a way to produce conclusions and a framework for the future.

## **3.1 Philosophical Approach**

The aim of the research was to improve the practice of teaching and learning in Higher Education by improving existing ones and developing new ones. This fell well under the knowledge for action framework. As a researcher it was important to gain understanding of existing knowledge around the field of Flexible Learning and learning in general that occur in adults within Higher Education. Similarly, the aim to discover new theories around the field. This research achieved to demonstrate certain characteristics of Flexible Learning in Higher Education with the view and aim to improve and transform the future educational system. As the main researcher on this project, I tried from the start not to make any assumptions about the validity of the courses based on any personal experiences so far. On the contrary, I allowed the literature to underpin and investigate how Flexible Learning could possibly develop and supported in Higher Education.

Social reality and understanding can be described as either subjective or objective (Cohen et al, 2003). The subjective conception considers the fact that the experiences of an individual are personal and shape that individual only. Whereas, the objective conception is experiences and situations external to the individual that more than one people can experience it in the same way. To better understand the current situation in Higher Education and further develop on Flexible Learning, it is important to use the above two conceptions to shape the framework that will support reflection on the importance of individual perceptions in society. The subjective concept gives a dimension of views on the social knowledge that will influence the individual when joining a course in Higher Education. The objective concept sees the individual as an external entity to the world and the individual has the capacity to observe situations. However, for the purpose of this research at this stage it is important to locate the research paradigm as this will help with analysing the collected data.

If I had chosen the objective approach for this research, I would have to investigate the influences each individual has and brings in Higher Education and how those external influences determine the student’s studies and future work. With the subjective view though I could stay closer to the issue being investigated, Flexible Learning in Higher Education, where the understanding and perceptions of Flexible Learning among the students could be further and deeper explored. Personally I believed that as with every concept, there would be different views on teaching and learning approaches. Undoubtedly some people would share some of the perceptions and experiences and other won’t. Knowledge and its perception is very individual concept (Whitchurch, 2004) and it is hard to locate a broad definition of it in deriving from different perceptions on Flexible Leaning (Conway, 2004).

Apart from the subjective and objective concepts, there is also those views on ontological understanding concerning the nominalist and realist perceptions of existence. This basically relates to how people explain and interpret situations and experiences taking into account the subjective and objective paradigms they are influenced by. The nominalist perceptions and views are being cultivated by individuals to express their knowledge based on their personal understanding and influenced by events. Those interpretations are unique to the individual. On the other hand the realists who belong to the objective paradigm, view the meaning of knowledge more externally and they interpret in in different ways (Cohen et al, 2003).

The literature supports the nominalist views quite broadly (Porta & Keating, 2008) and based on this it was identified that the words used to explain and identify the meaning of Flexible Learning in Higher Education is still very problematic. Other universities use the term Accelerated Learning and others Two Year BSc courses, there is no unique reference across institutions and research on what is actually meant by Flexible Learning. As this research attempts to contribute to identifying the meaning and the need of Flexible Learning courses and their role within Higher Education, the nominalist approach appeared most relevant. Since there is still an issue around the world accepted term this approach will help me establish a pedagogical research in the field that will contribute in such curriculum development and a broad understanding of what such a course can or should offer, the limitations of it and possible future suggestions.

It is also important at this stage to reinforce the significance of the identity of the student in Higher Education and that each individual enrolled on a Flexible Learning course will interpret this approach to teaching and learning according to his/her own definitions. According to Cohen et al (2003) this the opposite of nominalism, called realism. This perception aims to create a unique understanding of Flexible Learning by reinforcing the need to use a unique context of such approaches by using the common understandings to describe more specifically the responsibilities and activities related to Flexible Learning in Higher Education.

The way this research has been approached all along was by combining both views but leaning a bit more on the subjective and nominalist views. As mentioned above, each participant brings his own perceptions and experiences to the interpretation of a social experience or situation. In reality, at my Institution there was little involvement by most academic staff, and as such I brought into this research my values, my ambitions and my ideas. Moreover, my multiple roles during the life of this project has offered me the opportunity to experiment with the different views and approaches but always making sure that I influence the participants as little as possible. It is true and mentioned above as evidenced from the literature that we can have more than one student that can interpret the same situation in a mutual way. The literature shows little understanding currently as to what Flexible Learning is within Higher Education. This could well be a result of interpreting Flexible Learning in different ways based on each researcher’s personal understandings and perceptions. As part of the analysis process further down, it was found useful to seek the understanding of Flexible Learning degrees from the students’ perspective. It was found useful to minimise the amount of words and terms used within the lifecycle of this research project in order to identify a unique useful explanation of Flexible Learning. By keeping the research focused it seemed very promising that it was possible to find common understandings of the nature of Flexible Learning degrees that could be accepted by the wider Higher Education community. Having said that, at the time the research project started and finished, it was still not clear if that was an initiative driven by research or policy makers. This offered the opportunity to explore further considerations around the subjective and nominalist paradigm to identify those appropriate methodologies in order to collect meaningful data. What is important to clarify at this stage, is that the involvement of the institution that the presented research took place, was based on educational research identified in the literature and supported by the educational researchers within the institutions.

## **3.2 Research Methodology**

As a researcher I had to establish the epistemological framework surrounding this research in order to identify what is required as the most appropriate research strategy (Cohen et al, 2003). Considering the context of the subjective and objective approaches it was clear that an interpretive strategy was needed in order to explain the preferences and beliefs of the participants within Flexible Learning degrees. The interpretation of those beliefs were meant to drive the understanding of Flexible Learning degrees and their need in today’s society. On the other hand though, if I had used the normative approach I should have made pre hypothesis and assumption on what Flexible Learning means (Silva-Leander, 2011), and that would not be an appropriate approach to this researched context. The phenomena being studied in each research project is what drives the researchers to decide upon the best approach in order to collect meaningful data that will be easily analysed and get to a result. Each researcher brings his/hers own beliefs and perceptions in every project and these can shape the research questions too.

Methodology and methods are two distinct meanings. Strauss and Corbin (1998) define methodology as a way of thinking about studying social reality. Methods are described as a set of procedures and techniques for gathering and analysing data. Social science research may have an explanatory or a descriptive focus (Yin 1994, Babbie 1995) and the level of participation of the researcher in phenomena being studied may also vary according to the methodology chosen. This can range from participant observation seen in forms of ethnographic research to various forms of unobtrusive research (Kellehear 1993), which relies on documents and archival sources rather than direct contact with subjects. For the present study the research approach should be able to engage with a range of phenomena including participants’ subjective viewpoints and contextual description that will be explained and analysed in Chapter 5. This means that in some extent the background of each student should be taken into account, e.g. adult student with previous industrial experience.

In the subsequent chapters, the research methods, data collection and analysis of data will be considered. In this section, priority is given to discuss the research strategies that were found to be appropriate at the time the research took place. During this research it was found important to generate such a strategy that would allow all perceptions to be expressed with the view and aim to answer important questions around the effectiveness and validity of Flexible Learning and how successful such degrees could be.

## **3.3 Quantitative and Qualitative Approaches**

In selecting an appropriate research methodology, the most fundamental choice is that between quantitative and qualitative approach. Quantitative methodologies express their research data and findings in numerical form. Quantitative based studies are designed in such a way that the researcher’s influence can be excluded as far as possible. Typical quantitative methods include a survey and questionnaire, which seek to identify statistical trends across a subject sample. Qualitative methodologies seek to understand subjects’ experience of the world through a variety of techniques such as interviewing and participant observation. Qualitative research’s central criteria depend on whether the findings are grounded in empirical material or whether the methods are appropriately selected and applied (Flick, 2006).

In quantitative research the main purposes are to isolate causes and effects, to operationalise theoretical relations, to measure and quantify phenomena, to create research designs allowing generalisation of the findings and to formulate general laws (Flick 2006). Studies should be designed in such a way that the researcher’s personal influence and perceptions eliminated as much as possible. This can reinforce the objectivity of the study whereby the subjective views of the researcher are largely eliminated.

The present study however seeks to gain an understanding of student and tutor perspectives of a Flexible Learning degree. Quantitative and qualitative methodologies can be used in a complementary integrated way (Hedrick 199, House 1994). The primary focus of the present study will be on participants’ experiential perspectives since they are involved in a Flexible Learning degree either as a student or as a tutor. Hence in this situation a qualitative research methodology is more appropriate as it will analyse patterns of learning and perspectives of people. On this view, such an approach offers a broad understanding of what is required in order to expand and provide information and understanding for my two research questions. My research’s aim is to explore teaching and learning approaches when designing and implementing a Flexible Learning course. Hence, it is very important to get as much as possible information from the students to support the literature review analysed above and support the approaches taken at my Institution.

## **3.4 Qualitative Research**

Qualitative research is distinguishably different it from quantitative research. Strauss and Corbin (1998) identify qualitative research as any kind of research that produces findings not arrived at by means of statistical procedures or any other means of quantification. The process of qualitative research involves an analytic procedure which is not mathematical and the results derive from data gathered by a variety of means. There is a wide range of qualitative research methodologies characterised by different philosophical and methodological approaches. Miles and Huberman (1994) observe that various attempts to create definitive catalogues and taxonomies of the major qualitative research traditions have resulted in descriptions which are largely inadequate. Denzin and Lincoln (2000) see qualitative research as involving an interpretative, naturalistic approach to the world, which attempts to make sense of, or to interpret, phenomena in terms of the meanings people bring to them. Creswell (1998) describes it as an inquiry process of understanding that explores a social or human problem, through which the researcher builds a complex, holistic picture, analyses words, reports detailed views of informants, and conducts the study in a natural setting. Merriam (1998) notes that the key philosophical assumption on which all qualitative research is based is the view that individuals interacting with their social worlds construct reality. Qualitative research focuses on understanding the phenomenon of interest from the participants’ perspectives, not the researcher’s, which is sometimes referred to as the emic, or insider’s perspective, versus the etic, or outsider’s view.

Merriam (1998) identifies four additional characteristics shared by all forms of qualitative research, namely: (1) the researcher is the primary instrument of data collection and analysis, (2) qualitative research usually involves fieldwork, (3) qualitative research primarily employs an inductive research strategy, and (4) the product of a qualitative study is descriptive.

In order to position the present study within qualitative research traditions, and to understand the role of the researcher, the philosophical and ideological underpinnings of the various approaches to qualitative research must be considered. Creswell (1998) identifies five philosophical assumptions that guide the design of qualitative research:

1. **The ontological assumption**: There are multiple perspectives on reality. Creswell (1998) defines reality as being constructed by individuals involved in the research situation. Multiple perspectives include those of the researcher, the individuals being investigated, and the reader or audience interpreting the study. The qualitative researcher is basically involved in reporting multiple statements representing the diverse perspectives on the phenomena being explored.
2. **The epistemological assumption**: The researcher has an interactive and collaborative relationship with the phenomena being studied. There is a move away from being an objective observer outside the phenomena being studied, to that of a participatory insider actively engaged in constructing understanding of others’ perspectives.
3. **The axiological assumption**: The qualitative researcher admits that there are personal values brought into the research and reports on his/her values and biases.
4. **The rhetorical assumption**: The language of qualitative studies is personal and literary, based on definitions that evolve during a study rather than being defined by the researcher at the beginning of the study (Creswell 1998). Terms such as understanding discover and meaning are important rhetorical markers in the language of qualitative research.
5. **The methodological assumption**: The qualitative research process proceeds inductively, with findings emerging from the data rather than the data being used to test hypotheses.

In addition to these five basic assumptions, Creswell (1998, pp. 78-84) also acknowledges the influence of ideological perspectives such as postmodernism, critical theory, and feminism on qualitative research approaches. Lincoln and Guba (2000) explore the ideological approaches of a range of alternative inquiry paradigms but from ontological, epistemological, and methodological perspectives. They present a spectrum of ideological positions ranging from positivism, through post-positivism, critical theory, and constructivism, to participatory paradigms. Hedrick (1994) contrasts positivist and constructivist paradigms, associating the positivist paradigm with quantitative research and the constructivist paradigm with qualitative research. Charmaz (2000) identifies both positivist and constructivist methods within a single qualitative research tradition, grounded theory. The positivist paradigm is characterised by a belief in an external, objective reality that can be known. Objective truth is established using scientific, largely quantitative methods, which seek to verify hypotheses (Lincoln & Guba 2000). The researcher is portrayed as a neutral, unbiased observer who discovers data using a set of technical procedures (Charmaz 2000). Post-positivism moves away from objective certainty and believes that reality can be imperfect (Lincoln & Guba 2000). Charmaz (2000) sees a move to post-positivism in grounded theory approaches where researchers propose giving voice to their respondents, representing them as accurately as possible, and discovering and acknowledging that respondents’ views of reality conflict with their own . In terms of its positioning within the spectrum of research paradigms, the present study adopts a largely post-positivist position within the framework of Lincoln and Guba’s (2000) and Charmaz’s (2000) descriptions. Being an insider in this research it was very important to define my identity and make every effort I do not influence the students in their answers and comments. While running the Flexible Learning courses, we were three tutors teaching. However, I was the only one tutor that tried and experimented with new teaching approaches (e.g. online learning, transformation of the learning space etc.) within my establishment. As such, I had to approach the participants in such a way that I would not influence their decisions and opinions, but where I would only offer them a different approach and some space to reflect and compare the traditional approach to the more flexible one.

## **3.5 The Role of the Researcher and my Position in this Research**

As the primary instrument of data collection and analysis (Merriam 1998) and the main measurement device (Miles & Huberman 1994) in qualitative research studies, the researcher plays a central and active role in constructing an understanding of the research environment. The researcher’s construction of reality interacts with the perspectives of the study participants on the phenomena being studied. Qualitative studies result in a product which is an interpretation by the researcher of others’ views filtered through his or her own (Merriam 1998). With this focus on the researcher’s subjective interpretations, it is important that the biases, motivations, interests or perspectives of the inquirer (Lincoln & Guba 2000) are made as explicit as possible throughout the research process. Rew, Bechtel and Sapp (1993) explained the notion of the self as an instrument in the data collection and analysis process, and identify the attributes needed by qualitative researchers which are appropriateness, authenticity, credibility, intuitiveness, receptivity, reciprocity, and sensitivity. Strauss and Corbin (1990) emphasise the need for theoretical sensitivity as a key personal quality of the researcher. Theoretical sensitivity refers to the attribute of having insight, the ability to give meaning to data, the capacity to understand, and capability to separate the pertinent from that which isn’t (Strauss & Corbin 1990). Sources of theoretical sensitivity include the literature relevant to the phenomenon being studied, professional experience, and the analytic process of interacting with data (Strauss & Corbin 1999). Furthermore, Merriam (1998) identifies three main personal characteristics that qualitative researchers should possess: a tolerance for ambiguity, sensitivity to the context and the data, and good communication skills. Playing two roles in this research, the teacher and the research, I had to make clear to all participants but also to the educational establishment that for each role I would make full use of all the above skills. For example, I made sure that results were communicated to all the relevant stakeholders and at the same time my relationship with the students would not be affected by their approach and their final comments on the Flexible Learning courses.

Being both the academic on the Flexible Learning degrees being researched and the researcher too, my role was very challenging in this project. Whilst it is important as an academic to bring in your personal experiences, in this case I had to be aware my preconceptions not to affect or alter any of the data obtained. As the primary instrument of data collection and analysis (Merriam 1998) and the main measurement device (Miles & Huberman 1994) in qualitative research studies, the researcher plays a central and active role in constructing an understanding of the research environment. The researcher’s construction of reality interacts with the perspectives of the study participants on the phenomena being studied. Having worked for 10 years in Higher Education, I am becoming more and more familiar with all the above and continuously expanding and learning on the field. I have experience of working as a Higher Education academic, as a college staff member and also as a research assistant. This has given me the confidence to approach my students, colleagues and supervisors for permission to undertake this research.

The main problems whilst being the insider in a research project, is to question and validate that the findings emerge from the participants and not the researcher. Each research project develops and applies its own criteria and philosophical approach. The goal of any research project is to conduct collection of data in a self-critical way. It is vital that it is not assumed that the epistemology underlying any of the research questions, is the same in every project a researcher carries out. To avoid issues arising from my involvement in this research and to consider my motivations for having a successful project, I tried to support the idea that the selected research design should be responsive to the nature of the research focus. The methods and methodologies that were chosen should address the research questions presented in Chapter 1 and I aimed to explore and evaluate all possible findings without any firm expectations. As a researcher I maintained integrity throughout the project. My long term involvement on the project, from day one, allowed me to have prolonged observations of the various teaching techniques being used, the various room layouts and be ready to run the first summer school for the Flexible Learning degrees, well prepared. My intentions were not to suppress the variety of responses. My intention was to support such a research design that would be responsive to the nature of the research questions and to explore as a researcher the varieties of the findings received. Conducting qualitative research requires spending enough time to develop understanding about the phenomenon and culture before deciding on which aspects to focus on (Hartas, 2015). Of course the question arising here is ‘for how long should a researcher be observing the situation and phenomenon to be explored’. Interesting enough is the statement Punch (1986) made where she says that a researcher must be open with the participants. Punch (1986) also suggests that observation should not take place in disguise and that is of high importance the participants to get involved widely in the process. As such, I felt it was rather important to stay open and focused with the cohort that started in 2008. I observed and explored the whole duration of their studies, moving from the traditional didactic approach to the more flexible one. Throughout the period of their studies, 2008-2010, I established good trustworthiness with the participants by being open and having on-site interaction with them. In particular, the often interaction I had with the participants, offered me greater focus on achieving a greater better understanding of the Flexible Learning courses and the journey students have changing from one teaching method to another. In addition, as a teacher, this supported me in my reflective activities when deciding upon teaching approaches.

## **3.6 Research Methods**

There are many instruments available to collect data and these are called research methods (Cohen et al, 2003). The researcher is responsible to select such appropriate methods in order to identify relevant data and elicit redundant ones. As with every research project, there are many considerations around ethical and professional issues and all these are explained in greater detail below under the Research Management. In order to collect meaningful data and at the same time to be in a position to interpret them in a meaningful and useful way, a variety of methods should be used. This makes the results more significant and the researcher is more able to defend the study. For the purposes of this research it was found that issuing questionnaires at different phases during a full cycle of the Flexible learning degrees, was very suitable. In addition, students were invited for interviews once the data collected from the questionnaires were analysed and at the same time a reflective journal with personal observations was kept.

### ***3.6.1 Questionnaires***

The use of questionnaires is most of the times used when there is a large number of people spread across multiple locations and interviewing is a difficult task (Johnson & Christensen, 2008). Well-presented questionnaires is an effective way to obtain data and have an initial view of possible answers to the research questions. However, with questionnaires there is no follow up if issues are identified as they would be if using interviews. Still is a very useful approach to set the scene and gather initial data and identify participant perspective on the issue researched.

Thus, for the research I was involved in, the pedagogical evaluation of Flexible Learning degrees, I found that the questionnaire method was more appropriate for the time I had, the amount of participants I could use and the fact that I was new in this kind of research. I used the questionnaire method in order to give me an overview of how the students participating on the Flexible Learning degrees perceived the services and resources provided. For the cohort joining in September 2008 we accepted 17 students to enrol. Because it was a pilot study and not many staff were involved we agreed we had to keep the maximum number of students to the minimum. We also offered the option to those students enrolled on the three year courses to transfer once successfully completing the first year of their studies. The transfer would take place at the start of the summer school - June 2009 - and the aim was not to exceed 25 student in total. Therefore, 5 students were interested to transfer and in June 2009 there were 22 students on Flexible Learning courses.

There were two main phases in distributing questionnaires. Phase 1 took place in February 2009, with questionnaires being issued to the students that had enrolled in September 2008 on the two year courses. Phase 2 then occurred in July 2009, once the summer school was finished, with two types of questionnaires being issued. One type was issued to the students already on the Flexible Learning courses and the second type was issued to students who transferred during the summer time to the Flexible Learning courses. 17 questionnaires were issued to the original students enrolled back in September and 5 questionnaires issued to the students who transferred to these courses.

Questionnaires typically include questions about the present, the past and the future (Johnson & Christensen, 2008). This was exactly what I was aiming to collect and evidence from my research participants. The aim was to examine the reasons why they joined one of the Flexible Learning courses, their views and opinions on comparing the different types of teaching approaches and the use of learning space and environment. Also, those ones who transferred in the summer of 2009, what drove their decisions for such actions.

The questionnaires issued are in Appendix B, clearly showing in which Phase of the research they were issues and used at. By going back to Chapter 1 and looking at the research questions of this research project, many similarities are found. My research questions aim to look deeper into pedagogical considerations when developing and implementing a Flexible Learning course. My research questions are looking into the learning space, the technology used and the interactive sessions rather than the didactic approaches. As a researcher but also as an academic on the two year courses, I developed an empathetic understanding (Johnson & Christensen, 2008) and an ability to think similar to my research participants. Having said that, as mentioned before, since I was an insider in this research and always aware of any research bias, I continuously made every effort to ensure that the questions I was asking were not leading ones. This was a very critical aspect of my research design as I did not want to create any biased responses from the participants. As such, I made sure that the way I was phrasing a question would not suggest a certain answer.

What is more, in order to achieve honest and unbiased answers, I had to decide if I would include open- or closed-ended questions. The closed questions require participants to choose from a limited number of responses that are predetermined by the researcher (Johnson & Christensen, 2008). On the other hand, the open-ended questions enable participants to respond in any way that they prefer. The latter was found to be the most appropriate for my research and I managed to have a variety of answers that will be discussed in the following chapter. This was decided mainly because of my double role in this project. I had to design the research in such a way that I would not imply specific answers and allow the participants to express themselves in their own way freely.

### ***3.6.2 Coding structure for Questionnaires***

In qualitative research, and especially in my research project, the data collected is in the format of text rather than numbers. Analysing text can seem difficult many times especially if the researcher needs to identify perceptions and interpretations of a meaning. Having at least 17 students during each phase of the questionnaire process, it was vital to create such codes that would help me distinguish the participant and the phase of the research. This was found to be very useful as the research was progressing and emerging frameworks identified within literature. Thus, I felt the best decision was to apply some codes to the participants. They were marked as follows:

1. Phase 1 September 2008 Cohort was issued with questionnaires in February 2009. Questionnaires were issued to all 17 Students and participants were coded **A1, B1, C1…Q.**
2. September 2008 Cohort (end of Summer School) was issued questionnaires in July 2009. Questionnaires were issued to all 17 Students and participants were coded **A2, B2, C2…Q2**.
3. Phase 2 September 2008 Cohort on 3 year BSc that transferred to Flexible Learning course at the start of Summer School and was issued questionnaires in July 2009. Questionnaires were issued to all 5 Students and participants were coded **AA1, AB1…AE2.**

This gave a total of 39codes to use, which appeared to be a realistic and useful amount of questionnaires and data collected (Gibbs, 2007) especially thinking the focus was on students enrolled on Flexible Learning degrees and completing a full cycle.

## ***3.6.3 Interviews***

Interviews took place in November and December 2013. Three students who completed a whole cycle in the Flexible Learning courses participated. A copy of the questions asked can be found in Appendix F. There are mainly three types of interviews that can be conducted in a research project, the fully structured, the unstructured and the semi-structured (Denscombe, 2003). The type of interview to be chosen needs to be determined by the situation and the level of freedom the participants should have. For the interviews used in this research, it was decided that it was best to be done on-to-one rather than in a group. It was not easy not only to get all the participants in one day as a group, but also it was decided that each participant should maintain the right to keep his/her anonymity among the group and to feel free to express views on the Flexible Learning courses. The interviews were used in such a way, not to make suggestions to participants, but to get a deeper understanding and further elaboration on the responses given during the questionnaire phases. During the interview process, I did not express any views or ideas on whether or not the Flexible Learning courses were successful, neither any opinions on what the future should be.

The aims of conducting interviews were to have an environment where the participant could first of all express himself freely, and secondly, to elaborate and analyse further the questionnaire responses. Having said that, it is evident that the interview questions had to be designed in such a way that keep the research focused and the interviewee free to express an opinion. Therefore, semi-structured questions were asked during the interviews and met the research aims more appropriately than the other two types of interviews.

## ***3.6.4 Reflective Writing***

As a researcher in this project and my direct relationship with the students, I found it very important to apply some reflective thinking. In order to achieve this, keeping a reflective journal was the best approach. It is widely known that researchers keep notes and logs throughout their studies and research in order to track the progress of their work and integrate empirical data with notes and ideas (Jasper, 2005). Nevertheless, these notes are sometimes very personal and as such these logs are located within the realm of observable, justifiable and measurable criteria. I believed that it was very important to add my personal contributions into this research and evaluate the findings against my personal observations as well.

Reflective practice is something perceived by many as an opposition to the approach of evidence – based practice since it can contend with the realities of the everyday life of the researcher (Jasper, 2005). Furthermore, there is little information regarding the notion of reflection on experience that can contribute to understanding and learning about practice (Bulman and Schutz, 2004).

My aim in this research has been to critically understand and evaluate the role of Flexible Learning degrees in Higher Education. As Jasper (2005) suggests, writing involves ordering our thoughts leading to different focus or perspectives. The benefit of analytical writing is mainly that once the idea is written down it can easily be developed and considered. This contributes to the development of critical thinking as it is challenging assumptions and the importance of context. By using the results of the questionnaires and my own observations and thoughts in my reflective journal, I could easily compare and contrast those results and create a more concrete conclusion at the end of the project.

Reflective practice is can be seen by many as an approach to collect practice based evidence. Reflective writing is a way of collecting the realities of the everyday life practice of and the practitioner and researcher (Rolfe et al., 2001). Scanlon et al. (2002) suggest that reflection enables practitioners to tap into knowledge gained through experiences and it was such a great opportunity for me to have this research role for the cohort I was teaching. My everyday interaction with them gave me the opportunity to gain a deeper understanding of the meaning of the experience by bringing to consciousness tacit knowledge (Jasper, 2005).

Denzin and Lincoln (1994) by reviewing the development of qualitative research traditions identified five moments of qualitative research. The first moment was the objectivist and positivist one starting around 1900 and researchers were trying to offer valid, reliable and objective interpretations. The second moment was named modernist and creative and researchers attempted rigorous qualitative studies. This phase ended in the 1960s. The third phase was called blurred genres and it was a new multiplicity of theoretical orientations. This phase lasted from 1970 to 1986. The fourth moment coincides a crisis of representation in which truth and method were challenged. The fifth moment is characterised by continuing diversity and a series of tensions. Last but not least, they identified a sixth moment towards which we are currently moving and it is called reflexive.

Being one of the core tutors in our Flexible Learning degrees, the interpretation of the data could be influenced by my positionality. Qualitative research generally by its nature is interpersonal and intimate (Coffey, 1999). As a teacher I had to build a relationship with my students. As a researcher in the project I wanted it to succeed. Hence I found very important to become a reflective insider, negotiating roles and subjectivities (Coffey, 1999). As such the process of analysing the findings adds critical reflection to my on-going tasks of making sense of students’ comments and feedback.

My personal findings by summarising my reflective journal are mainly around the learning space and the teaching methods. As described in earlier chapters the mode of the Flexible Learning courses consists of three terms per year. Term 1 and 2 run alongside the traditional bachelors degrees and term 3 is the summer school. Therefore, term 1 and 2 do not face any big changes, as the students are being co taught with other computing students. The learning space for these terms is the traditional lecture room that can fit around 230 students and the traditional laboratory where each student is allocated to one computer. During the summer school though, I decided to transform the learning space and examine its effects. I therefore ran my sessions in a room that had no computers, only tables and chairs and just one computer to use it with the projector for my material. I asked the students to move the tables and chairs in order to create a U shape. The question that arose at this point was why the learning space plays a vital role in student learning. So the first thing that needs to be analysed is what is student learning and how can student learning be enhanced.

It is widely supported by Kolb (1984) that each person is an individual and has a unique learning style, which differs compared to others. Below Kolb’s learning cycle is shown to demonstrate how a student may process thinking and this diagram has been very useful when designing modules or even courses. The aim of a course or a module is to make sure that all different learners can easily adapt and understand the content that is being represented.

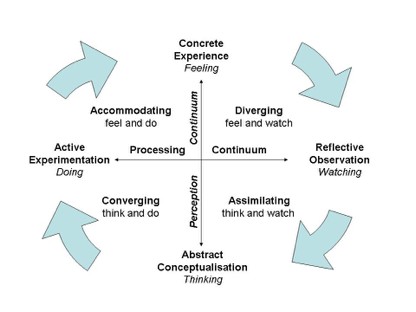


Figure 4 Kolb’s learning cycle (1984)

To further analyse this, Kurt Lewin’s concept as read in Marrow (1977), is that learning styles are a dynamic complex. Kurt believed that how be person perceives life is subjective to that person only and depends on the environment too. It includes needs, goals, memories but also beliefs. There are other theories around learning space, that follow up Kurt’s initial suggestions. Lave and Wegner (1991) support that learning is a ‘transaction between the person and the environment’. Since one of my teaching approaches was to make changes to the learning environment, this theoretical model offered me the knowledge to set it up and evaluate it by including all different types of learners and making sure that all students were positive benefited from this experience. All the above provide the evidence to my personal observations and reflective notes on the importance of creating such an environment that would be inclusive, adaptable and suitable to everyone’s needs. My personal observations also support what students provided as answers to the questionnaires shown above.

The use of a reflective journal was a mean to record comments and suggestions made by students and colleagues informally or during school level meetings. This gave me the opportunity to go away and describe, analyse and evaluate (Fade, 2005) thoughts that were shared during the situations mentioned above. The relationship of the academic and the student provides good foundations for critically reflective thinking. Dialogue is very encouraged to occur in such situations (Brockbank & McGill 2007) in order to maintain an open but challenging relationship (Powell, 2004). Bud et al (1985) favoured the opinion that the more you reflect as an educator the more effective learning in your classroom can occur. Similarly, the more a student reflects, the more he can evaluate and learn. Another great supported of reflection is Kolb (1984) who finds reflection an essential element in teaching and learning.

In Figure 4, above, Kolb’s leaning cycle is presented. McClure (2005) suggests that reflection can occur only once you have had some experiences. He suggests that Kolb’s cycle can be used clockwise and can support you in reviewing a situation. This can occur by holding discussions with others or asking for advice, guidance and information. It is important for a researcher to reflect back many times during the lifecycle of each project that is carrying out in order to evaluate ideas and ensuring that the approach being followed is still applicable and suitable. Once a whole cycle of reflection is completed following Kolb’s cycle clockwise then the researcher can go back and review the situation again in the light of the findings. This is of course an ongoing activity that doesn't aim perfection but improvement and reassurance that the project is progressing well, is focused and is using prior experiences.

Nevertheless, experience is something that you can build up gradually. I saw reflection as professional developmental tool since I was very new to carrying our research under such large scales. Thus, by being reflective throughout the summer school, I was then able to support my decisions and on-going changes made during the teaching sessions.

It was important to use a reflective diary to record my positive experiences and achievements as well as the not so positive ones. A balanced view of what took place in classroom during the summer school was essential. through refection I tried to summarise and portray the different processes occurring during the academic year. By continuously observing my teaching practices across modules and teaching approaches, I did not only identify what was going on at my workplace, but I was in a position to evaluate and recognise ways forward. It helped me greatly to underrated why certain behaviours were present, how those behaviours were dealt with and what would happen if we change them. Reflection is a time consuming task and requires allocated time so critical thinking is applied and it is ensured is seen as an ongoing process.

Because of all the above, I decided a written reflective journal was the best approach to document my actions as an academic in a flexible environment of teaching and learning. By using this journal, I was able to record and analyse events in a prescribed manner and it was a productive strategy to foster reflective thinking. The journal process was mostly informal and helped me with the ongoing teaching during the summer school and being a flexible academic.

## **3.7 Institutional and Policies Document Collection**

In Denscombe (2003) it is explained that the documents can provide a great source of data and very powerful. Written documents can offer a great support in the findings during a research lifecycle. They record accurately events and decisions and are made publicly available. For the needs of my research, documents published by HEFCE on the Flexible Learning project and documents published internally in my workplace, have been proved very valuable. In Chapter 4 and Chapter 5, I will be referring often to the documents that HEFCE published across the UK from all the establishments piloting Flexible Learning courses and my establishment’s documents to evidence the current situation and the outcomes of the pilot studies.

## **3.9 Ethical Aspects of undertaking educational research**

I received full ethical approval to carry out this research project by both the institution the research was taking place and the University of Sheffield that I was enrolled on my doctoral studies. I ensured I followed the official ethical procedures and guidelines of the British Educational Research Association (BERA, 2004) and I gave the opportunity to all participants to withdraw from the project at any stage. The nature of the research, the issues explored and analysed, did not put the participants in any danger. They were though reassured that anonymity was the main priority when publishing the results of the research. No personal data related to the research were kept on any database or hard copy, and as such there were no issues or concerns in relation to the Data Protection Act 1998.

## **3.9 The need for authenticity, reliability and validity in research**

Reliability is achieved when the researcher in using and choosing the particular research methods, those methods are repeated during the lifecycle of the research project (Descombe, 2003). This means, that if every time the research method is repeated and different results are obtained then it is entirely due to the changes on the issues being researched. For the needs of this research on Flexible Learning courses, it was found that reliability was expected to be higher. The same research instruments were used more than once (I.e. questionnaires) in the same context and it would be very likely for perceptions held to alter to elicit the same outputs. However, because Flexible Learning courses were being run in many different universities across the UK as part of the pilot study, and their procedures and processes were different to the institution I was carrying out the research, it was admitted that data were possible to change at later dates. This means that if another researcher is wishing to undertake this research at later date, the context of Flexible Learning may have changed by then due to the research and work being undertaken by different establishments. Perceptions also change over time and this greatly affects research and outcomes. Nevertheless, the methodology and research instruments used in this project, could be used again with other research that is focusing and exploring Flexible Learning pedagogies and approaches.

To question the validity of the research and data obtained (Denscombe, 2003), the researcher needs to relate the data obtained and their representation of the truth or reality within the scope of the research project and the hypothesis or situation being investigated. The researcher also needs to check if the data obtained are very much linked and focused around the research questions. If so, then the validity of the research and its outputs, ensuring that are directly related to the original research questions, will reinforce the research aim.

Furthermore, identifying the relevant instruments that adequately reflect this research is highly needed. The researcher bias is something that troubles all research projects and in some extent it is accepted that it cannot be avoided entirely. Nevertheless, every attempt was made during the execution of this project, by keeping the focused on the original aims and acknowledging at any point of the research, should the researcher biased in the decisions taken, or the project or the participants. What is important to note at this stage, is that my position, as the researcher, has been stated in the research throughout, and every effort has been made to identify if personal beliefs, or personal experiences, may influenced the research at any point. This way, it is hoped that the data obtained and needed for analysis, will be as valid as possible and to be seen from a reasonable and honest perspective.

Authenticity in this research project has been achieved by building upon existing published research, continuous feedback from the students participating on a Flexible Learning course, my doctoral supervisor and any institutional information and documentation that was available to me. This was the best way to produce authentic work on Flexible Learning that will offer the opportunity to me and other researchers to further the investigation based on the data collected and interpreted within this thesis.

A frequent criticism of qualitative research is the subjectivity of its findings and the potential for the findings to be influenced by the notions of the researcher. A key question for researchers is how to establish that the results of qualitative research are credible and trustworthy. Lincoln and Guba (1985) identify four main concerns in relation to the trustworthiness of research findings:

1. The truth value of findings which is the located to the data collected and their results where they reflect the reality of the study subjects and their context.
2. The applicability of findings to other contexts which is the extent to which findings from one research project have the possibility and potential to be applicable to other studies and research.
3. The consistency of findings which is the extent to which findings can be replicated with the same or similar subjects and context.
4. The neutrality of the researcher can be located within the context of the perceptions a researcher may have and how much those perceptions can influence the study.

Lincoln and Guba (1985) argue that the traditional research paradigm, which is positivist and largely quantitatively based, associates these four concerns with the criteria of internal validity, external validity, reliability and objectivity respectively. They propose a new formation of these criteria to be more consistent with the philosophical approach of the post positivist, or naturalistic, research paradigm. Others such as Merriam (1998) retain these traditional terms but reinterpret them to be more consistent with a qualitative approach. In relation to truth value, for instance, Lincoln and Guba (1985) argue that the traditional criterion of internal validity requires a correspondence between research findings and an objective reality, which is impossible to confirm and can only be tested through the process of falsifying conflicting hypotheses. In the alternative naturalistic paradigm, however, there are multiple constructed realities (Lincoln & Guba 1985) made by human beings and accessible to those who make them. In order to demonstrate the truth value of research findings, the naturalistic researcher must show that these multiple constructions of reality have been represented adequately, that they are credible to the constructors of the original multiple realities. As such, credibility becomes the naturalistic truth value criterion. In addition to this, Lincoln and Guba (1985) propose naturalistic equivalents for external validity called transferability, reliability called dependability and finally objectivity called confirmability. To explain this further, transferability depends on the degree of similarity between the sending and receiving contexts. To establish dependability, the researcher must take into account factors of variability and factors of phenomenal or design induced change. In relation to confirmability, the question often asked is to whether the characteristics of the data are confirmable or not confirmable. Lincoln and Guba’s (1985) demonstrate four criteria for establishing trustworthiness and provide useful guidelines for evaluating the findings of qualitative research studies. Various strategies and techniques for establishing trustworthiness have also been identified by a number of researchers (Lincoln & Guba, 1985; Miles & Huberman, 1994; Merriam 1998). Throughout this research design, data collection, and data analysis phases of the study it was ensured that the findings were trustworthy within the framework of Lincoln and Guba’s (1985) four criteria.

## **3.10 The need for Credibility**

This research was a qualitative one and not a quantitative one. As such what was explored was people’s perceptions of reality and how they see the world (Merriam, 1998). The participants though have multiple constructions of the reality (Lincoln & Guba 1985) and the research findings must be able to present all that. this is called credibility. In order to enhance the credibility of one’s research findings the main strategies are triangulation (Lincoln & Guba, 1985; Miles & Huberman, 1994; Merriam, 1998), peer debriefing (Lincoln & Guba, 1985; Merriam, 1998) and clarifying the researcher’s biases (Merriam, 1998). In this study there were three main strategies to explore participant views and collect findings, questionnaires, interviews and a reflective journal where as the main researcher I was noting down my observations. The findings of the questionnaires and interviews supported greatly my personal observations in my reflective journal. The findings were also supported by very recent institutional documents that are further discussed in the final chapter.

These documents were supplemented by reviewing policies related to Flexible Learning and examples of other universities-institutional reports. Thus I used multiple data sources to confirm the emerging findings (Merriam, 1998). The discussion of the findings demonstrates and confirms that the relevant research literature is supportive in terms of pedagogical advances in Higher Education and all this contributed to establishing credibility of my research findings. In peer debriefing, colleagues are asked to comment on emerging findings. In the present study, this role was taken and performed by my line manager who conducted informal interviews with each one of the students to review at an early stage student feedback and understanding of the Flexible Learning degrees. As a newly appointed research assistant at that stage, it was best advised that I observe the interview process and make notes. This proved to be very useful in the following months, in terms of ensuring my personal observations in my reflective writing were accurate and the questionnaire findings also reflected this. The data from this study have been archived in paper based format so that others may consult them as required.

## **3.11 The need for Transferability**

Every research project aimed to contribute in the field of knowledge and the outputs of it to be used in the future too. How the findings will be transferred will depend on the context of each research (Lincoln & Guba 1985). For this research project I mainly used questionnaires and interviews with students who completed a full cycle of a Flexible Learning course. The extent to which these findings will or can be generalised will depend on the reader’s judgment and need of each research project. As researcher my duty is to follow such strategies to enhance transferability through rich and thick descriptions (Lincoln & Guba 1985; Merriam 1998). I aimed with this study to provide a critical evaluation of the participant perspectives by giving importance and highlighting their own views on Flexible Learning course. The answers to the questionnaires and interviews allow the reader to make judgments on whether the Flexible Learning course for Computing students at my establishment were effective, taking into account the pedagogical challenges and ways forward. This was mainly achieved by portraying the different answers from each participant, identifying similarities and differences. The range of questions asked though, were aiming to provide a wider context in the research and as such other institutions to be able to carry on with the research on similar projects. This eventually will lead to successful transferability of the findings and the results

## **3.12 The need for Dependability**

The findings of every research can be replicated by other researchers whose research context is similar (Lincoln and Guba, 1985). The way a research is performed then, is very important to demonstrate dependability and the qualitative researcher is needed to take into account any factors or changes that took place during the lifecycle of the project. There are many strategies available to support dependability of a project. The researcher’s position (Merriam, 1998), triangulation ( Lincoln & Guba 1985; Merriam 1998), and the audit trail( Lincoln & Guba 1985; Miles & Huberman 1994; Merriam 1998). For the needs of this research, it was vital and important to explain the researcher’s position. As the main investigator in this project, I ensured the research has been clarifying throughout it lifecycle the need to keep a reflective journal, issue questionnaires at two different faces of a Flexible Learning course, and the need for interviews. All these were supported by the theoretical framework for the study and during the discussion of the findings the reader can make judgements on the dependability of them.

## **3.13 The need for Confirmability**

Lincoln and Guba (1985) suggests that in order to establish confirmability in within a research we should use audit trail. This approach allows the researcher to judge whether or not the findings are determined by the participants’ perspectives and not by the researcher’s ones. As such, the findings can be presented in such a way to offer the reader a clear distinction between participant beliefs and perspectives and how the researcher interprets these. As such, as the researcher I ensured that the study incorporates various means for ensuring the trustworthiness of the findings, and provided reasonable assurance that they meet the criteria of credibility, transferability, dependability and confirmability.

### ***3.13.1 Analysing Data***

The aim of the qualitative data gathered is to provide rich descriptions and definitions of participant perceptions for the issue being researched (Miles and Huberman, 1994). The aim of the research project is to generate new concepts or revise existing ones and the gathering of data is aiming at that. How the researcher will then analyse and interpret the data is the most crucial aspect of any research project. By looking at the work of Miles and Guberman (1994), it is very useful to follow the stages identified by them as it helped me to stay focused on the key issues:

* Stage 1 is the data reduction. The researcher selects appropriate participants and by simplifying the data gathered provides focused answers that underpin the key issues.
* Stage 2 is how the data gathered will be displayed. A well organised representation of the data collected will support the future analysis of them especially if we need to revisit the research.
* Stage 3 is how we draw conclusions from the data collected by grouping the key issues and breaking them down into themes.
* Stage 4 is the verification of the results. Removing redundant data and displaying the needed data in an effective way will accurately express the views of the respondents. The results of the findings need appropriate analysis by remaining focused on the research questions. Although the present research project finished, my ongoing involvement into Flexible Learning is an evident that my research has been valued and continually verified.

In conclusion, there were two main methods on data collection that needed to be evaluated in this project against the two research questions as found in Chapter 1; the answered questionnaires and the interview findings. It was found rather important to understand from very early on how the research findings would contribute to the further development of the research questions in order to provide a good representation of data (Miles and Huberman, 1994) that could contribute into the research of Flexible Learning.

## **3.14 Summary**

The research applied a subjective and nominalist paradigm framework. I ensured throughout the life of the project that my opinions and interpretations took into consideration the views and opinions of the Higher Education educational researchers. Aiming to clarify Flexible Learning in Higher Education and contribute a better understanding of it, I applied a social research, evaluating the different teaching and learning approaches by using questionnaires, interviews and a reflective journal. I discussed my personal and professional position within this research earlier in this document. This enabled me to keep a clear mind throughout the research project and an ability to understand the context of pedagogies I was investigating and analysing. I ensured that questionnaire findings were followed up with interviews to validate and analyse further the findings. I believe that the research I carried out on Flexible Learning has a good level of authenticity. I tried to bring together as much as possible of the existing published research and continuously discussing it with doctoral tutors and colleagues. The next chapter discusses how the data was analysed and how it was relevant to my initial enquiries on Flexible Learning.

# **Chapter 4 : Data Analysis Process**

The findings presented in this thesis result from 22 students who completed a full cycle of a Flexible Learning degree. Specifically, these were the 17 students who enrolled initially on the course completed two questionnaires each (Appendices A and B), and the 5 students who transferred in the summer of 2009 on the above course, completed one questionnaire each (Appendix C). The questionnaires were open-ended and took place between September 2008 and July 2009. These questionnaires - 39 questionnaires in total - offered the opportunity to students enrolled on these courses to offer their views, evaluating the teaching and learning experiences. Since my involvement was direct in this research, in addition to the questionnaires, as mentioned before I kept a reflective journal, where I noted of my observations and informal interviews with students and other tutors. Later on three of the those students that were surveyed were also interviewed, in order to offer the researcher a greater insight into the questionnaire data gathered.

Within this chapter I offer the reader overview of the context of Flexible Learning at my Institution. The data were presented and discussed in relation to each of the two research questions that I identified in Chapter 1. This allowed me to reflect on each pedagogical approach used and identify its limitations. For each of the section there was a summary bringing together the pedagogical approaches discussed taking into account the data findings. It then summarises all items discussed offering the reader some possible suggestions related to my research questions.

## **4.1 The UK pilot study**

All the Flexible Learning pilots funded by HEFCE (2008) had to engage with Flexible Learning approaches. Each university participant in this project engaged in a different way. The Leeds Metropolitan University project aimed to develop a learning environment for teaching of these courses. The Medway Partnership was a collaboration of three institutions; the University of Kent, Canterbury Christ Church University and the University of Greenwich (HEFCE, 2004). They managed to create a framework for working across this partnership. Sheffield Hallam University found that Flexible Learning courses are a preferred route into Higher Education. Nevertheless, none of the above mentioned universities examined the pedagogical advancements while designing Flexible Learning courses. The above universities mainly focused on logistics and managerial issues, and as such my contribution to the field has something unique to offer as it looks at different areas of development in Higher Education. Below is further elaboration of how I approached Flexible Learning at my Institution.

## **4.2 Flexible Learning at the target institution**

The findings from the 39 questionnaires were viewed in the context of policy and practice in relation to Flexible Learning at my Institution. This particular university has a good record trying to get involved in innovative teaching and learning methods. Blended learning, e- learning and CPD courses are the main focus of the Teaching and Learning Managerial Group. When HEFCE announced the pilot study on Flexible Learning, my institution was there to participate and evaluate the new approach. Even before the launch of the project, a number of individuals and departments have been experimenting with web-based course management systems and podcasting for the delivery of modules. The University’s teaching strategic plan – for which I work for - identified strategies for achieving teaching and learning objectives, which included the development of Flexible Learning programmes offering different modes of delivery methods, to cater for diverse student needs. Hence, Flexible Learning has been a means in completing a bachelor’s degree which allows duration, intensity, learning space, teaching methods and delivery, and the use of a variety of teaching tools used in order to succeed on all the above. The aim of Flexible Learning at institution is to enhance the educational experience and to increase participation in it.

At the point of the research being conducted, the main tool being used was Microsoft’s SharePoint, and in addition to this, individuals were experimenting with different approaches, I.e. podcasting (using iPads and Macs), audio feedback for assignments and some on-line learning. These approaches offered the students a variety of experiences across all modules and enhanced their approach and understanding to lifelong learning. However, the aim of the thesis is not to examine the pedagogical surroundings of the use of those technologies and individuals. The reference to them is being made simply to offer a generic understanding of the establishment’s approach at that time and what was used during the summer school of 2009. As the data are being critically analysed, the reader will eventually be offered a clear view of where the establishments stands at the moment.

## **4.3 Data gathering process**

The research process and methodology was discussed in previous chapters. This chapter will focus on and deal with the instruments used to collect the data. The areas to be analysed for the questionnaires are:

1. how the questionnaires were used;
2. keeping a reflective journal;
3. interviews;
4. how effective was the collection of data performed with those methods;
5. what was the quality of the data collected;
6. documents made publicly available within the educational establishment where the research took place.

### ***4.3.1 Methods, Instruments and Findings***

In the previous chapter, the decisions to use questionnaires, interviews, HEFCE documents, internally published documents at my workplace and a reflective journal were discussed in some detail. I chose those methods as I felt they would maximise the opportunities for collecting rich data in order to pursuit some findings around Flexible Learning.

### ***4.3.2 Questionnaire Findings***

By using questionnaires, it was promising to obtain understandings and insights in response to the research questions designed to address in this thesis. The aim was to shape the questions in such a way to remain focused on the research, the issues and areas raised within my two research questions as described in Chapter 1. During the phase of developing the phrasing of the questions to be used, it was important that the main aim of the research questions was present. Moreover, the questions should allow the participants to offer their own opinions without being led or constrained. Since my research questions were very concerned with Flexible Learning pedagogies, I decided to pilot them in such a way to help me draw my own conclusions by observing my students and keeping a reflecting journal. The questionnaires covered areas such as the use of the learning space, a comparison between the different teaching approaches students met in Term 1 and 2 to those ones during the summer school. In total, each questionnaire had six open-ended questions. I tried to pilot my research in stages. After initial discussions within my institution I then discussed it with my supervisor and thought the research project I ensured that terminology was discussed often in order to query the meaning of each.

The questions were sent to the respondents via email or as a printed hand- out. Because of the different student background, I thought it was important that they put some thought in it and answer the questions in their own time. Also, I offered to provide additional explanations if needed by the participants via email or in the classroom.

Reflective notes were taken quite often, straight after teaching or in the evening. The data obtained from the distributed questionnaires, did manage to answer the research questions and gave data to be evaluated and analysed. Participants seemed to be clear in their answers by using only a few words for each question. A number of participants though, choose to provide evidence and examples by of good practice and elaborating further on their points made. The questionnaire data provided qualitative findings from the students’ perspective on university facilities, the relevance of the programme, learning and learning resources and teaching approaches. The answers to the questionnaires issued to participants can be found in Appendices A, B and C. The findings for each Questionnaire Phase are presented in Appendix E. The category of University Facilities is broken down in subcategories focusing on Induction Week, the Library, the Learning Development group and the Careers Service. The relevance of the programme was focusing on tutors’ performance, the relevance and satisfaction in regards to assessment and whether they thought they were overloaded with work. The final category requested information on teaching and learning, asking for more information around the learning resources available to the students, the use of the learning space and teaching methods and styles.

The tables in Appendix E provide a breakdown of what was answered under each section on the questionnaires by each participant. To further understand those tables, we need to see each group of information separate and see what is relevant when designing a Flexible Learning course. By looking at the University facilities we can identify those areas that students need further guidance on during the induction week of the course. The University makes all these facilities available, so it is up to tutors to make sure that students are aware of these and to be embedded in the course and the modules. This can be mainly achieved by setting the students activities that will enhance their learning; it will still be course-specific, but at the same time, students will make use of those facilities.

The next two areas of answers, ”Relevance of the Programme” and “Teaching and Learning”, are very important, as these are the sections that tell us a lot about the teaching approaches in the Flexible Learning course evaluated in this thesis. As already explained, Term 1 and Term 2 follow the traditional teaching pattern; one-hour lecture per week per module and one practical hour per week per module. Hence, contact with tutors is spread across term time. On the other hand, the summer school was very different; students had contact with each tutor for a week for each module between 9am and 5pm. The students’ feedback was very positive when it came to the summer school and the use of the learning space which was adaptable to each student, the promotion of more interactive sessions and more student-led sessions had a great appeal. They found that teaching approaches were supportive in their learning, and that the dynamics of that environment changed in a very positive way the relationships between students (Appendix E: Phase 2: Participants B2, D2, E2, F2, I2, J2, L2, M2, O2, P2, Q2, AA2, AB2, AD2, AE2).

The above analysis of the data definitely provides some insight for my research questions. Overall, as shown above, the feedback was very positive and that proves that the teaching approaches that placed the student in the centre used during the summer school was definitely something positive that could be expanded further. A Flexible Learning course needs to be original and different. The results demonstrate that since it is an intensive course, it needs to keep the same pattern throughout the duration of it. This is also widely supported by literature, as it was presented in great detail in Chapter 2, with particular focus on the importance of the educational process, rather than the products (Beattie & James 1997, Ling et al 2001). The intense and module focused teaching, offered the students to explore a variety of learning styles, it enabled them to learn what they want and how they want it (Van de Brande 1993). At the same time, the academic can be in a position to receive feedback on the spot and adapt and change the teaching approaches.

The questionnaire results show a positive outcome when designing a Flexible Learning course that is student-led, promoting collaboration and interaction and that the different teaching approaches can meet the needs and requirements of the different learners. In Chapter 2 it was explored and analysed how people learn, how intelligence can be described, meaning that they learn in different pace and different ways etc. By using the literature review as a guide to understand learning in Higher Education, is an encouragement that as academics we should try create an attractive Flexible Learning course, widely recognised by both Higher Education Establishments and industries.

The most significant points that derive from the questionnaire data findings that relate to teaching and learning, is that in order to have successful Flexible Learning courses, require the selection of appropriate learning and teaching approaches. It was made clear that there approach taken during the summer school, which was a Flexible Learning approach, should not be about repackaging existing materials. The content was there for each module, but how it was communicated should vary and should adapt to personal learning styles (Willems, 2011).

When it comes to Flexible Learning, a variety of effective and adaptable teaching and learning methods should be chosen and applied during the life of the course. Such methods could include problem-based learning, enquiry- based techniques and, of course, blended learning. Each method should be used in such a way to promote individuality and support personal learning styles (Kolb, 1984).

### ***4.3.3 Interview Findings***

The interviews were conducted in 2013, involving three students who had completed a full cycle of a Flexible Learning degree and had graduated. The interviews provided a greater analysis and in depth answers of certain points made within the questionnaires. In Appendix F the set of questions issued to those participants can be found and in Appendix G, the summary of each interview can be found. Each interview has been named Participant A, Participant B and Participant C. the results of those interviews present the reasons why the students chose a Flexible Learning course, and having experienced the didactic approach and the flexible approach of teaching, they offered their views and understandings. Similarly, during the interviews we discussed more in depth how the adaptable learning space helped with the learning, compared to large lecture theatres and rooms where students sit in rows looking at each other’s back. The interviews in Appendix G, are presented in such a way that makes it easy for the researcher and the reader to compare the findings to the ones of the questionnaires, found in Appendix E.

The questions had been sent to the participants prior to the interviews taking place with the view that they might need time to think about them and be honest and detailed with their answers on the day of the interviews. As a researcher, I recorded all the interviews for transcribing. During the process of interviews I identified some common themes and patterns in the answers given. The analysis technique that I followed during the interview phase according to (Cohen and Manion, 2013) involved 7 steps:

1. Transcribing
2. Listening to what the interviewee was saying for ‘a sense of a whole’
3. Tried to describe general understandings of Flexible Learning
4. Grouped together answers and concepts relevant to the research questions
5. Grouping elements of relevant meaning
6. Writing a reflective summary after each interview with the main points discussed
7. Examined common themes

When structuring and carrying out the interviews I tried to remove any bias within the research. Fielden (2003) clearly says ‘Whilst bias is rigorously guarded against in scientific research, it is inevitable in qualitative research’. Nevertheless, every effort was made to overcome such barriers and the transcribed answers were sent to the participants to check them and agree that what they said and shared was correctly collected. The response was very positive and as such I strongly believe that the qualitative approach of conducting interviews had minimal, if not no, bias.

The data collected from the interviewees shows that one of the main triggers for students to choose such courses was the fact that they would pay less tuition fees. At the same time, all participants were agreeing that the way the summer school was designed and how it was making use of the learning space and other technologies was indeed a much more beneficial way. At the time, the institution was not in a position to support in great detail online or distance learning. So when students were away they mainly contacted their academics via emails.

The participants strongly agreed that the learning environment, and the set-up of it, plays a very important role in developing a positive attitude towards learning, towards peers and towards the academic staff. The student centred approach that they experienced during the summer school, had definitely created a positive attitude and greater engagement in their studies. The use of all possible technologies at the time in such a way that they did not isolate the academic from the students, also offered a very positive experience. All participants felt that although there was material constantly shown on the projector or the laptop, controlling the material from the iPad and enduring the academic was always among the students facilitating the session, made a huge difference in their motivation, engagement and of course their final results. Participants were found also to be in an agreement that they would like to see more academics moving away from the didactic approach in huge lecture theatres, and try out different approaches to teaching and learning.

## **4.4 Summary**

This chapter has considered the data collection and findings via the use of questionnaires, interviews and reflective writing. It presented the findings in such a way to show how students felt under different settings and different approaches to teaching. It is highly noted from the questionnaires and the interviews that student participants found the Flexible Learning approaches more challenging and at the same time more engaging. It was unanimously agreed that they would like to see more staff experimenting new approaches, moving away from didactic ways of teaching. They also found that Flexible Learning can provide a different environment and the student centred approach was more to their liking. As a summary the findings were:

* Students would like to see more technology to be used in teaching and learning, especially to support online and distance learning in greater depth.
* Didactic approaches to disappear and experience more interactive and student centred ones.
* Participants were found to prefer the more module focused aspect of the course (summer school), rather than doing more than one modules throughout the academic year. They prefer to finish one or two modules at a time before they move on to the next.

The next chapter presents the data findings in a more critical way, and they are discussed in the light of the conceptual frameworks discussed in the literature review.

# **Chapter 5 : Discussion of Findings**

This chapter discusses the interview and questionnaire findings and how my reflective journal supports them in the context of theoretical and empirical research in order to ascertain to what extent the findings confirm, contradict, supplement or extend what is already known in relation to Flexible Learning and its teaching approaches. The discussion of the findings is organised around the two research questions introduced in Chapter 1.

1. What are the pedagogical considerations when implementing a Flexible Learning degree?
2. How is learning being affected after analysing and evaluating the different teaching and learning approaches?

In this research, the areas explored and supported by the literature and the data findings are the pedagogic considerations and recommendations, curriculum recommendations, staff development, resources and IT, and how policies are affecting the development of such courses. All of these will be linked to the research questions above.

Flexible Learning degrees, as evidenced in the interview findings - Appendix G: Participants A, B and C - are well received due to the fact it takes a shorter time to complete a degree and also because it is very module specific. The literature review chapter also supported the idea that Flexible Learning degrees are preferred and found more attractive to mature students. Potential applicants were generally unaware of the nature of those Flexible Learning courses (Anonymised Business Plan, 2007). On-going awareness was being raised and we were encouraging the enquiry into Flexible Learning. It may be asked to what extent the institution’s course prospectus or myself influenced participant responses to questions about Flexible Learning. During the period of the study (2008-2010) students were still coming to terms with what was meant by the term Flexible Learning degree, given that this was the first year of implementation. Academic subjects were identified as being offered in flexible delivery mode in course prospectuses, but nevertheless it is clear from the findings that some students were not aware of what this entailed, and in addition, not all members of staff were willing to have a more student-centred approach and expand on it (Anonymised Business Plan, 2007). Given that the students had to fill in a questionnaire towards the end of Year 1 (February 2009) in and then again at the end of the summer school (July 2009), it is reasonable to assume that their responses were largely derived from their experience of the subject and that institutional tutors may have influenced some statements. From the academic’s point of view, my institution’s strategic plan 2011-2014 (Anonymised Business Plan, 2011) explicitly acknowledges and encourages Flexible Learning principles. I was at the time the main tutor highly involved in such teaching approaches and one of the early adopters of Flexible Learning principles later on in other modules I was teaching (Vasileiou, 2009). Below, I will elaborate further on each research question (found in Chapter 1) and how the data findings answer each one of them and the initial conclusions.

**Research Question 1: What are the pedagogical considerations when implementing a Flexible Learning degree?**

In a Flexible Learning degree which is student-centred, the learner can choose the pace of study and many times the place as well and the learning modes. These have been seen as positive features and such perceptions are consistent with the literature that emphasises on several key dimensions of Flexible Learning (Collis & Moonen, 2001; Ling et al, 2001).

## **5.1 Pedagogic Resources**

### ***5.1.1 Summer School teaching***

The summer school ran as a four-week intensive teaching block which was module based (one module at a time), and commenced at the beginning of June 2009. Students responded positively to the intensive teaching mode, and strongly indicated it to be preferable to the more traditional form of delivery that took place in Term 1 and Term 2. During the summer school a variety of teaching styles were applied. Being adaptable on each day based on students’ needs, was found to be essential. I employed a high proportion of student-to-student interaction, learning by doing, and problem-based learning. Beyond the allocated and timetabled teaching sessions, I found that providing extra one-to-one support to the students during summer school was very important, and to enhance this, I established formative submissions and feedback, and on-demand tutor support.

An attempt to employ electronically supported group work over the summer, in order to help provide further structure, did not have great success. This was a consequence of students wishing to take their summer holidays at different times, and the tools used did not seem to be helpful and well supported at that stage. I only managed to use the establishment’s portal for individual needs and to provide the required support. Since this has been an on-going research and implementation of the variety and availability of teaching approaches, I managed to put into practice a variety of these and examine the importance and the effects of each on the following academic year, September until January 2010. The use of personal learning systems with the tool PebblePad on one of my modules for first year students in the autumn term of 2009, was very successful and the results of it were published and shared at a conference (Vasileiou, 2009). PebblePad was an available tool at the time, at my establishment, and it helped with setting up personal and adaptable learning for each student on which I could provide feedback. Using the personal learning system, gave the students the opportunity to examine their learning while joining a Computing course and set some goals with the support of the academic tutor.

One of the issues we had to face was that mature students have stood out as holding strong views on some course elements, such as personal development, assessed group working, and introductory material relating to the world of business. The reason for this is the fact that most of these students already have a lot of work experience from the industry. Nevertheless, since these were not concerned as an issue to cause failure of the programme of study, but as a student need to be evaluated and met, the module curriculum and the course overall, incorporated these and took account of them. What must be noted at this stage is that there is no evidence that students’ performance suffered due to their remoteness from the University before the exams or during their summer coursework, and this is supported by the fact that they found the university’s resources adequate (Anonymised internal document, 2011).

It was noted that there was a distinct tendency of some Flexible Learning students towards achieving a first class degree but also an aspiration towards deeper learning. Students have difficulties at the start of the course in judging the expectations of Higher Education hence why induction week is very important and why it was part of my questionnaires. On the other hand, an aspiration towards a first class degree can lead to stressed students when students encounter the more demanding parts of the course and their aspiration quite often is not being met. In previous paragraphs it was analysed the fact that students found very important the return of coursework feedback and the use of different flexible teaching styles. Students on such courses are more motivated most of the time and ready to accept the challenges of module focused teaching courses, so the tutor’s aim is to make sure as many students as possible progress in year 2.

### ***5.1.2 Appropriate pedagogies***

The discussions within this thesis are related to teaching and learning practices concerning Flexible Learning approaches and the effectiveness of them. Flexible Learning is not based on pre-existing material, pore existing teaching and pioneering approaches or a template. It is an opportunity for academics ti be creative and explore the needs of students. At the same time, the provisions of Flexible Learning, by having the student at the centre of any interaction, is a great opportunity for better and mutual understanding of those needs. As an institution, and as an academic, we explored the idea of to apply and incorporate e-portfolios into our student learning. This was very successful because e-learning systems at that time, did work for students who engaged with the module but also with less involved students whose interest was triggered by the use of something completely new and basically “hands- on”. Over the summer, some additional time was spent on getting the e- learning environment working appropriately including the academic support and such appropriate activities. Flexible Learning includes providing learning at times suitable for learners (Vasileiou, 2009).

Given the importance of the time spent undertaking additional work through the summer, getting the e-learning environment working properly with academic support and appropriate activities is crucial. Flexible Learning includes providing learning at times suitable for learners (Vasileiou, 2009).

### ***5.1.3 The Learning Space***

The findings that derived from the questionnaires issued to the students, the interview findings and my personal observations and reflections, suggest that the students’ perspectives on learning is influenced by the pedagogical design of the Flexible Learning space. This is generally evidenced by all participants taking part in the summer school. Some useful quotes from the questionnaires are found in Appendix E:

**Participant A2**: “Large lecture theatres are impersonal and oppressive to learning spaces that do not encourage interaction”

**Participant C2** : “The room was laid out appropriately with good visual aids.”

**Participant M10**: “Larger groups can be counter-productive”

The primary characteristics of the Flexible Learning space, as perceived and demonstrated by the students, included more interactive in-class sessions and more online support. Students also found the space comfortable, relaxed and spacious. Nevertheless, another student, participant F2 in Appendix E, commented that “It is not the spaces that make us learn; it is the people inside the spaces”. This shows how each student differs greatly in terms of personality, learning styles and needs. The learning space should meet the relevant learning needs of a student, and the academic is part of it. As such, in similar situations the perception of a student could be how he/she can connect to the academic responsible for setting the scenes, rather than the materials in the space themselves. How each student perceives what the learning space and environment is, again can differ ( Willems, 2011).

The students appreciated the features of the problem solving environment that moved away from the traditional theoretical approach in classroom and they gave great emphasis on the communication that was developed during the sessions. This is in line with the typology of learning environments developed by Collins et al (1994). The sessions made use of the learning space in such a way that it could be adopted a discursive mode of presentation of the material by myself as the academic. My main role was more of a facilitator in order to support hands on the material, encourage student discussion and integrate them all in collaborative communication. Such learning environments encourage, facilitate and support critical thinking. Students engaging in dialogue with other classmates and comprehend each other’s viewpoints and possible solutions gives them the opportunity to explore the field deeper (Orey, 2010). The learning space used in the Flexible Learning courses discussed in this thesis, focused on information transmission, encouraged questioning, and allowed students to practice and train how to capture the requirements of a business scenario and model a possible solution. As an academic, I saw my role as being to pass on information and I managed to get students to engage in practice exercises which tested their ability to apply requirements analysis concepts.

## **5.2 The Role of the Tutor/Academic in Teaching**

As mentioned above, teaching on the Flexible Learning courses, I had to make priority to take the role of the facilitator and move away from the didactic approach (Vasileiou, 2011). I was aiming throughout the cycle of those degrees, to transmit information around the theory behind the practice of information systems and database development. Being the primary designer of the layout for the learning environment taking place during the summer school of 2009, I determined the module content and selected the information and learning resources. Hence, I think that a academic's approach to teaching and learning has a major influence on the design of the learning environment and the extent to which it encourages information transmission and a constructivist learning approach. This again is evident by the students’ comment, especially participant F2 who said that “It is not the spaces that make us learn, it is the people inside the spaces”.

In Youngblood et al (2001) study of the role of the teacher as a facilitator and mediator, was found that the structure of the components that a course has, reflects the teacher’s view of learning and his/her personal ontology and epistemology. The relationship between the pedagogical design of the learning environment and student perspectives on learning is mostly expressed across all questionnaires and interview findings where the structure of the course requires and supports student engagement in both online and face-to-face sessions. It is evident in the results I gathered that the sessions were challenging and ideas were questioned (see Participants A2- Q2 and AA2-AE2 in Appendix E). The learning process took place by making connections and interaction with the others in the room. Students saw themselves engaging more actively in the classroom during the summer school rather than lecture theatres in Term 1 and Term 2 ( see Participants A2-Q2 and AA2-AE2 in Appendix E).

It is worth mentioning at this stage Swan’s study published in 2001 which explored the relationship between course design and student perceptions. Swan (2001) pointed out three factors that play a major role in designing a successful courses. He suggested that a clear and consistent course structure is needed, an instructor should interact frequently and constructively with students and finally valued and dynamic discussions should be encouraged and supported.

During the development and delivery of the summer school, there was a variety of pedagogical approaches, promoting Flexible Learning, teacher facilitation and interactivity among the group. The factors identified in Swan’s (2001) and Youngblood et al’s (2001) studies supported the findings of the design approach and its implementation. The findings support the significance of the nature of the subject discipline, the pedagogical design of the learning environment and student perspectives on how they perceive learning (see Questionnaire findings in Appendix E: Participants A2-Q2). The research has been primarily focusing on Computing degrees as explained in Chapter 1 and as such it is trying to depict the norm of a taught environment in Computing, and how this can change and transform in order to meet at greater standards the students’ needs.

The students valued both face-to-face and online communication (see Participants A2-Q2). Face to face communication was still of great significance to students since it provided a way of engaging with the teacher and other students which could not be replicated in the online environment. The findings highlight how well the Flexible Learning environments were adopted by students. It also agrees that students support and would welcome such approaches in order to provide multiple modes of communication to accommodate individual preferences and to offer a range of communication experiences especially because this is an undergraduate course (Participants A2-Q2).

There have been several studies available on teaching and learning. However, what is noticeable is that each study, most of the times, examines one teaching method in isolation, such as online learning, classroom based learning, distance learning etc. In a Flexible Learning approach though, which is student centred (Willems, 2011), we, as academics, are asked to explore this term. We are asked to take a step back, listen to what the real needs of a student are in today’s world, how can we prepare a student for a graduate job and of course (Burge, 2011), how a Flexible Learning can enhance the learning of a Computing student.

Flexible Learning though as discussed above puts the student in the centre and offers a variety of possibilities. Thomas (2001) found that richer modes of communication were displayed in the traditional face-to-face environment because of the social and emotional dimensions a communication involves. Some students find online communication to be impersonal and inadequate compared to face to face interaction and they see it more as a means of information exchange rather than a forum of collaboration (Thomas, 2001). Thomas (2001) carries on and suggests that a mixed education is more appropriate and should utilise the strengths of technology in relation to information exchange and combine face to face learning that will build meaningful partnerships. This will help to overcome certain difficulties that were mentioned above in an absolute online environment. Consequently, from the learner’s perspective the model of Flexible Learning that includes some face to face interaction as well, appears to be superior to one that excludes this mode completely. In this present research, the successful combination of face to face and online communication is present and evidenced during the summer school (see Appendix E: Participants A1- Q1 and A2-Q2). The way in which modes of communication were arranged and used within that learning environment appears to be a major factor in students’ perceptions of the success of their learning. At the same time, Swan’s (2001) study of design factors in online courses, found a significant relationship between levels of interaction between students and levels of learning and satisfaction. His findings were pointing out the importance of creating opportunities for interaction among classmates in online degrees. As such, the effectiveness of student learning and the engagement within Flexible Learning modules and the course in more general, is closely linked to the design of aspects of the learning environment (Brindle & Wait, 2009).

**Research Question 2: How is learning being affected after analysing and evaluating the different teaching and learning approaches?**

**Perspectives of learning**

In order to understand if learning is happening in a Flexible Learning degree, we first need to understand what is learning and how it perceived. How do we know that our teaching approach is effective and able to transfer knowledge.

The learning environment I created during the summer school, was designed in such a way in order to produce active engagement and hands on with the modules staying away from the didactic approach. At the same time learning and exploration of the content was encouraged through discussion, critical thinking and interpreting the information. The content was decided in advance of the what the module outcomes would be, and a provisional plan of what would be covered each day was issued to the students. Since that was a student centred approach, there could not be a final plan issued to them, as it had to allow them the space to request changes. There could be times that the teaching approach was not appropriate, there could be times the pace was not appropriate. What this means, is that although the content was pre- decided, alongside the learning outcomes of the modules, at the same time space was given to alter the provisions. Students could request a different teaching approach; students could end up spending more or less time on each concept.

In the questionnaire and interview findings, it was also suggested that students, individually or in groups, could choose a different way to engage with the learning whereas in the didactic mode that is not possible. Compared to the didactic approach, were the academic is at a distance in classroom from the students, in a Flexible Learning environment the dynamic is shifted and the academic becomes more flexible and needs to approach the students more. The participants of this research supported the view that a learning environment should incorporate multiple presentations of teaching and not a didactic approach (see Appendix E: Participants A2-Q2 and AA2-AE2 and Appendix G). Comments such as ‘confident environment’, group collaboration and team building’, ‘far better than lecture theatres’, ‘academic was close’, are very encouraging that there is a high need across the student community to move away from the didactic approach. This way it is more likely to accommodate the range of individual preferences and so provide more flexibility to students offering them the ability to choose and suggest to the academic a teaching method based on their learning style.

The students on the Flexible Learning courses were perceived as being more actively engaged with the learning process during the summer school, rather than in term 1 and 2 where there were more traditional environments (see Appendix E: Participants A2-Q2 and Appendix G). This type of engagement involved students in actively designing their own business scenarios including implementation of the final product. This was enhanced via group based activities during the summer school and further online support once the face-to-face when the teaching period was finished. Via emails and online discussions on subject based tasks students were actively encouraged to communicate with me as the module leader. Collins et al (1994) place great emphasis on the communication environments. They support the view that no matter the teaching approach as teachers we need to establish constructive learning environments. Hence, the summer school teaching approach gave priority to the goals of the modules, the problems Computing students are being called to solve, the meanings and the criteria of a successful business scenario. At the same time, Collins et al (1994) refers to the information transmission environments where learners participate in a discourse through receiving information. The students strongly pointed out that knowledge and information tends to be used passively in the traditional learning environments. The traditional didactic lecture for example, most of the time, involves the lecture passing on the information, which students must memorise and reproduce. Especially at the time of the research being carried out, once the student had left the lecture theatre he could only depend on his notes, the handouts and based on that to carry on studying. The ways in which students engage with the learning would appear to be a function of the pedagogical design of the learning environment and basically individual conceptions of learning (Brindle & Waits, 2009).

A major positive perception of the summer school delivery, was its ability to provide access to an integrated set of information resources which included lecture notes, web resources, online support but also specialised books. The ability of online learning environments to provide integrated access to learning resources does not necessarily means that students will actively engage with the information available to them. From the questionnaires it is obvious that not all students have been using the Learning Development team’s resources which were available online although they were introduced from day one (Participants A2-M2). In addition to this the student portal, was not only a repository of lecture notes to be downloaded. By providing an online community to the students the aim is to move away from a replication of the conditions that exist in a traditional lecture system (Ward and Newlands, 1998). The key to encouraging active engagement with the learning process and teaching approaches, is to make the learning environments more interactive to stimulate learning and should embody a constructivist view (Ward and Newlands, 1998) that will promote communication among the participants rather than plain information transmission.

## **5.3 Three levels of Teaching**

Knowledge in Higher Education is not just about the acquisition of it. It is about the ability to demonstrate and apply the knowledge acquired at the workplace and throughout one’s life employment. Computing is a field that is changing rapidly and is a very demanding one. As academics in the field, holding the responsibility of preparing our graduates, we must put emphasis and understand how learning can improve. Interestingly enough, Biggs (1999) was talking about the student experience and the quality of teaching. He identifies three levels of teaching that every academic needs to explore in order to develop such teaching approaches that will assist students in their learning.

* **What the student is**: In this mode all the responsibility of learning is placed on the student. The academic can carry on for years with same teaching approach, whether this is didactic, online, or whatever, and there is no real evaluation of the effectiveness of it.
* **What the teacher does**: While the teacher is trying to become more innovative and tries out different teaching approaches at the same time they are not evaluated against the student views.
* **What the student does**: In this case the focus is shifted to the teaching in such a way that it will lead to learning. Here there is an opportunity to evaluate the effectiveness of any teaching approach based on student feedback, In such situations learning takes place through the active engagement of the student and there is constant two way feedback and discussion.

It has been very instructing to explore studies that old and actually see what has been happening in Higher Education the last twenty years and in light of that examine the past and present and interpret the data findings. Moving away from the didactic approach has been a challenge for this project and placing the student in the centre of the of any teaching approach within the Flexible Learning environment requires the academic to clearly specify the learning objectives of a module or a course in general. Flexible Learning is very supportive of Biggs ‘What the student does’ level of teaching. The academic is encouraged to design teaching and learning activities that at the same time will encourage students to participate in such tasks that will give them enough exposure on real world scenarios. In the findings many participants stated that having the academic close to them, receiving constant feedback and guidance was a very important benefit of Flexible Learning.

As in every learning environment, all components should support each other, exams, coursework, lectures, tutorials etc. Students should be engaging in the appropriate learning activities and teaching “is the purposeful creation of situations from which motivated learners should not be able to escape without learning or developing” (Cowan, 1998). By examining Flexible Learning in this thesis, all aspects of learning are being taken into account with the aim to identify the areas that are highly needed especially for an academic to consider when designing such a module or course in Higher Education. An academic has the freedom to select such appropriate pedagogies within this environment but always be in a position to alter provisions and meet the students’ requirements and needs.

Having explained above how teaching can become more effective, it is worth mentioning at this stage the fact that there must be some core accreditation derived from the school responsible for a Flexible Learning degree, hence the management I.e. the Head of School. The Heads can identify clear aims to ensure that learning and teaching system, its processes, rewards and constraints are aiming to ensure that firstly the teacher is engaging in activities that will ensure the quality of teaching and learning. This means that teaching expertise requires a disposition to engage in reflection on core beliefs. There should be some value added to the notion of the reflective practice in teaching STEM degrees and more particularly Computing degrees in Flexible Learning environments. Reflection on teaching approaches contributes to the development of more sophisticated structures with a greater appeal to the students and can lead to enhanced learning practices and eventually to improve student learning.

Consequently, when an institution decides to develop a Flexible Learning module or degree, academics should significantly improve the quality of their teaching approaches. Going back to the results collected it is obvious within the answers to the questionnaires and interviews that students place great emphasis on the teaching approaches and the fact that the student is put in the centre of the teaching approach. By constantly applying reflective practice, a tutor can achieve the maximum engagement from the students whatever the teaching method is, online, classroom based, mixed methods, podcasts, flipped classroom etc. At the same time there should be some collaboration among the staff that teach on a Flexible Learning degree. During this research I saw that most staff carried on teaching in the same traditional way, lecture based sessions (Anonymised Business Plan, 2009). There should be such an environment within the school where academic staff can receive support and assistance in carrying out ideas and innovations.

## **5.4 The student experience in Flexible Learning Degrees**

During the summer school of the evaluated Flexible Learning degrees, students were focusing on or two modules at the same time as explained earlier in Chapter 1. The amount of time spent on each module was the same as running this module all year round. However, one important element of this approach is that the pace for each module is now faster and it is completed sooner. Moreover, should a student fail to attend some consecutive days it may affect his/her final result even failing the module as he/she has missed important aspects of the content. Similarly, if a member of staff falls ill during that period, again it will affect the teaching of the content and the student engagement and assessment. However, those were issues to be discussed and dealt with by the senior management team and they are not part of this research.

The findings demonstrate that students were able to cope with the demands across all Flexible Learning courses (HEFCE, 2009). The questionnaires tried to gather information around how the Flexible Learning course had affected students’ lives. The questions around workload, assessment, available facilities and resources for the students were the ones that were the most important factors to establish a good solid foundation for a Flexible Learning course. The summer school setting meant no holidays for the students and if all the above were not appropriate enough this could lead to an unsuccessful summer school result. Students agreed that by using different learning and teaching methods during the life of a module and a course in more general, then that would facilitate more collaborative communication and the teaching and learning in Higher Education could transform into a better student experience. Nevertheless, such models require collaboration on curriculum development between students and staff but also between students, staff and employers, enabling students to take more responsibility of their own learning.

## **5.5 How the Curriculum is being affected**

In the traditional teaching approach, I.e. lecture based sessions, the person running the session becomes the teacher and the curriculum supports his/her teaching. The curriculum in any contemporary democratic society reflects the definition of democracy which that society has accepted as legitimate and true (Ross, 2012). There have been attempts to challenge the validity and legitimacy of a society’s dominant definition of democracy but nevertheless there is always challenge when trying to change the curriculum in an educational setting.

Higher Education is responsible for the reproduction of such skills that meet the social defined needs and there is a shared understanding of the expectations for the basis for social life (Dewey, 2013). This means in the wider context of a Flexible Learning degree, that it needs to take into account the needs of the society but also those of the industry and creates a more diverse student and graduate profile. Higher Education is changing due to those flexibilities in modes of delivery and it is called to meet the needs and challenges of globalisation and lifelong learning. Higher Education faces pressures towards greater standardisation and uniformity through the interaction of government and its agencies. Moreover, there is a need that courses are accredited by professional bodies. Computing courses are one of them. and are accredited by the Chartered Institute for IT (BCS) in order to maintain such a curriculum that will promote lifelong learning and graduate employability. All this is also feeding into the curriculum of any degree, of any teaching and learning approach and must be carefully examined by academics who wish to develop a flexible learning approach.

## **5.6 Increasing diverse and flexible opportunities for students**

In 2014, HEA published a report on Flexible Learning exploring the demands of the students especially in light of the rise of the tuition fees. Because of students’ heterogeneous situations (HEA, 2014) employment after graduation and debt recurring because of studies, was the main concern of the students. Offering greater flexibility to the students allows them to integrate more and at the same time it gives space to express their requirements. Having to pay greater amounts of money to study, and leaving Higher Education with a debt, students are now looking for greater optionality in terms of selecting appropriate teaching approaches, selecting relevant curricula to their own career needs etc (HEA, 2014).

The research was concerned with promoting a variety of forms of study, aware that traditional three year undergraduate programmes are not suitable for all potential students, for example because of students wishing to take a break while studying, particular learning needs or family situations (HEA, 2014). Flexible study is an important element of this variety of provision (full and part-time) as can be seen as a form of blended learning undertaken both in the home and in periods of attending university.

In promoting flexible study and up skilling, academics teaching on such courses need to be actively involved in developmental work around four key elements of up skilling:

* Education for employment
* Education to enable return to employment
* Education to change employment or enhance prospects
* Education whilst in employment

It is argued very strongly that part-time students are the very constituency (Beattie & James, 1997), which needs to be given educational opportunity if the aspirations of the Leitch Report are to be realised. However, for many potential students, travel to study at conventional times is not a possibility, for example because of geographical or family constraints. Consequently, it is important in reaching this constituency to use economies of scale increasingly to bring opportunities to study to the student, rather than always expecting the student to come to the campus. This has tremendous potential for unlocking one of the key inhibitors of up skilling, which is physical immobility.

It is essential for a modernised university both to attract students from diverse and non-participatory backgrounds, but also it is essential, to enable those students to participate by providing flexible modes of study, which particularly address the issue of geographical immobility. We see flexibility in pace of study, place of study and mode of study as an essential element in enabling the participation of underrepresented groups in the educational opportunities provided by higher education (HEFCE, 2009), (IAL, 2000).

## **5.7 Studying towards Lifelong Learning**

During the development and evaluation of this research it has become increasingly obvious to myself that most academics had limited understanding of the dimensions of Flexible Learning (Anonymised Business Plan, 2007). One main problem across the staff was the assumption that flexible delivery was the same as traditional teaching and learning, but just occurring at different times. In fact, for Flexible Learning delivery to work effectively, teaching practices need to change. This provides both a major challenge and a major opportunity to colleagues. Due to the fact that Term 1 and Term 2 are being taught in the traditional way I did not see a great change in teaching approaches. Having said that, at that time there were not any further provisions within the institution to support different approaches. Using the existing online system for distributing handouts, laptops and computers the institution had provided me with and the use of our existing classrooms, I challenged myself to create such an environment and such a teaching approach that will gradually tell me more about the student needs, the students learning styles and how I as an academic can facilitate and empower such environments.

Being responsible for the summer school, I tried to be shift things around by using and reusing the current provisions of the academic institution I was working at. I was aiming to engage students throughout the life of the summer schooling boost their learning process (Ark, 2013).

With this in mind the fact that we need produce such graduates that will be able to carry on with their own learning, I saw an opportunity in Flexible Learning to examine different approaches to enhance those skills of students that will help them later on with their career. The rapid change of technology, creates a situation where there is a danger for a graduate to even get a first class degree but the day after his graduation new technologies, new programming languages etc. may emerge. The lecture, within my academic institution, was seen at that time as the central means of knowledge in teaching and learning. The aim of a Flexible Learning degree should be to promote lifelong learning of those students participating in such mode of learning. Each course is unique in its nature. STEM degrees are different to other degrees such as philosophy. STEM degrees are in need of practical work and the role of the industry nowadays is affecting how academics and schools in general make their decisions when it comes to designing, and shaping a curriculum. During the life of the Flexible Learning degrees, there were some further approaches tried out, extras to what is mainly discussed within this thesis. Those approaches were made visible also through the evaluation reports of other institutions participating on the HEFCE project. Such approaches were enquiry-based learning, and problem-based learning. However, none of those reports examined the pedagogical considerations in depth as is being done with this thesis.

## **5.8 Working with employers and professional bodies**

All of our Computing degrees at our institution are accredited by BCS the Chartered Institute for IT. When we implemented the Flexible Learning degrees, which would take a student to complete a degree 2 years and not 3 anymore, it was questioned whether they would support those degrees with accreditation. BCS and other professional bodies across other universities, did not have any issues in accrediting such courses (McCraig et al, 2007). This added value to the courses although they were part of a pilot study and graduates received equal recognition (McCraig et al, 2007).

The Higher Education teaching and learning approaches has become very attractive to researchers for years now. There has always been a great interest in the importance of engaging the students and that the academics and the institution need to meet their needs. By applying active listening to the student community it can offer the academic and the institution at a wider context a great insight and understanding on setting the scenes on a module and the course in more general (Mattila, A. & Dolhi, C., 2016).

Computing students throughout their studies are given real world scenarios to apply techniques and solutions. It is important as such for Computing students to improve their practice through professional development activities. Professional development is a key element in improving graduate employability. Flexible Learning is another opportunity there for the academics to embed professional development in the centre of teaching and learning, in such a way that will support the demands of Computing graduates to gain those skills needed to become employable and able to continue with their lifelong learning.

The goal of working with employers throughout their studies is to improve the way in which the needs of the employers are met within the curriculum. The students and the educational establishment are not the only ones affecting the development and design of the curriculum in a Flexible Learning degree. Real world employers also have a stake in professional learning. If improvements and innovations are to be made then the involvement of the employers is crucial. During the course of the study, employers were involved in different and several levels as explained in this and previous chapters.

The present curriculum approach in the current Flexible Learning degrees is an attempt to improve educational quality and guarantee and promote graduate employability. The aim has been to improve educational quality in terms of access to real world industries, self-direction of the learners, meeting learners’ needs and meeting the needs of the employers. As such Flexible Learning is not an objective or an end itself since adaptations and improvements will always be possible and most of the times necessary.

Waterhouse (1990) points out that Flexible Learning as teaching approach is simply good teaching and learning. By managing the institutions needs and goals with those of the employers we can achieve a well-established Flexible Learning degree in the Computing discipline. However, as curriculum designers, we must carefully weigh the advantages and disadvantages of each decision, need and requirement. One way to achieve this would be to work with different employers each year and for each module. This approach would be very supportive in planning, providing and evaluating professional development opportunities. This collaboration would seem to be crucial for effective practice in the management of Flexible Learning.

The IT market has seen growth and it was foreseen that this would continue to grow around 22% per year at least. The diagram below shows this growth.

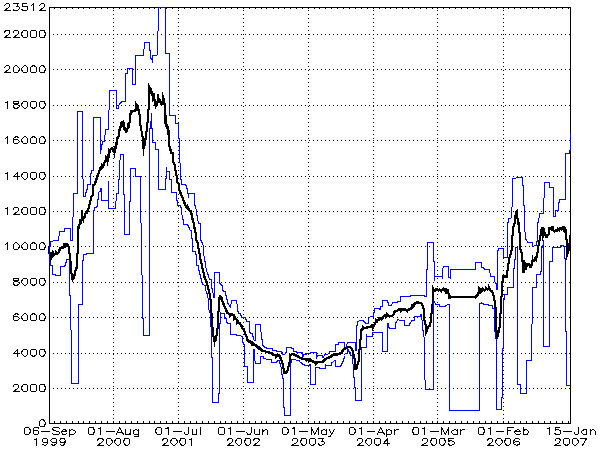
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Figure 5 Demand for Computing Jobs (JobStats, 2007)

The diagram below shows the continuous growth and demand of jobs in Computing (Adams, 2014).

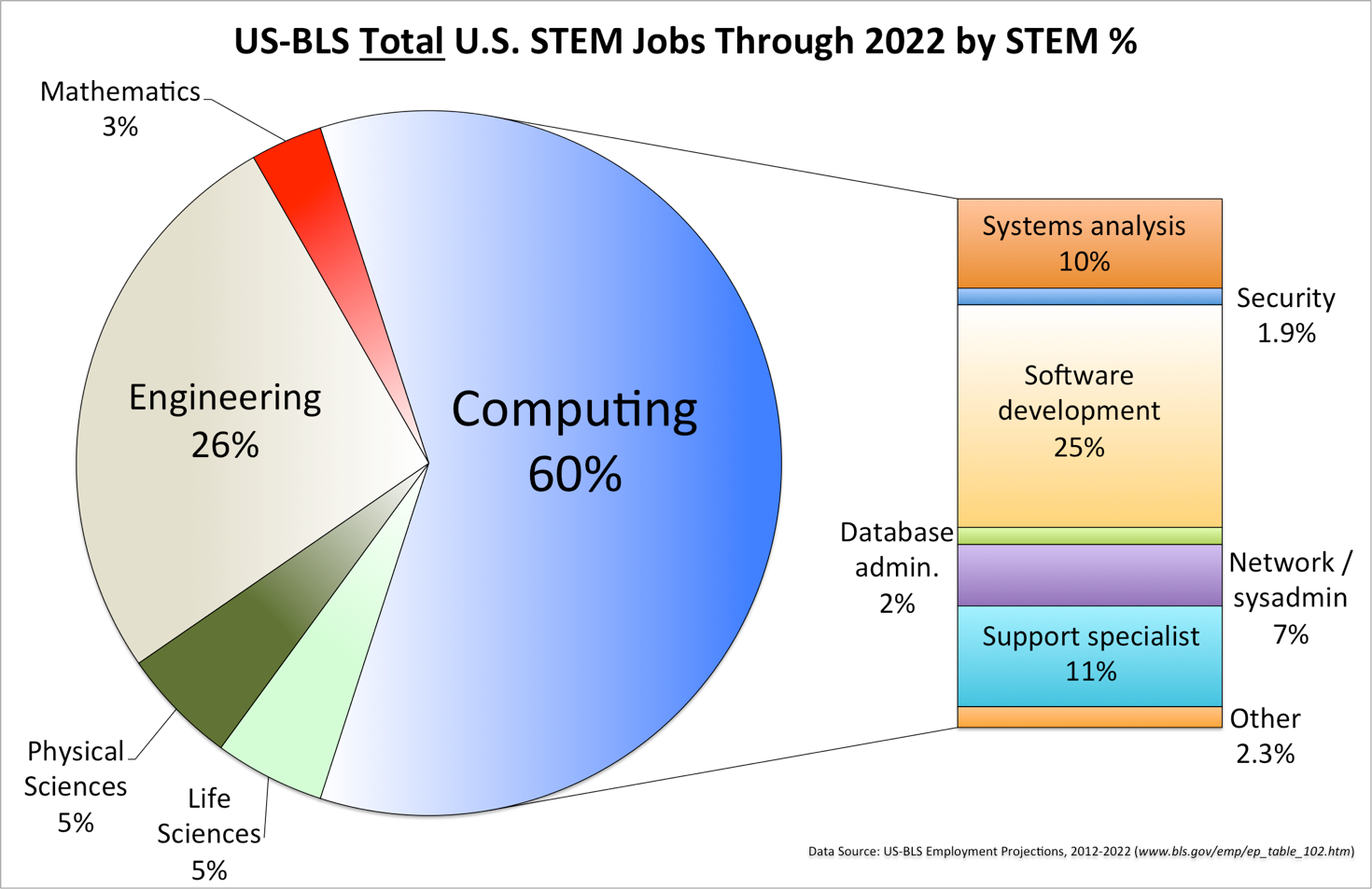


Figure 6 STEM jobs by 2020 (Adams, 2014)

It is as such imperative that the high need of the employer market, the Flexible Learning courses was well accepted. The programme still followed the norms and procedures adhered to all other Computing degrees. These courses were also incorporating a variety of professional development components again in line with the needs of the industry. Working closely with employers, either via the placement route or the work based learning modules, it was evident that there was high need for more IT graduates and often at a quicker pace (HEA, 2011).

The Flexible Learning courses, paid a great attention to employability skills. Through the variety of assessment and teaching approaches, students acquired and developed those skills needed. Cranmer (2007) found out that teaching face-to-face, in the traditional didactic approach, is not a productive environment for students to develop their employability skills. By mixing the different teaching approaches and putting the student in the centre of the learning environment, such skills can successfully be developed in more depth. Lane (2016) carried out a research on how and when the students feel they have acquired employability skills. The findings showed that students were in much favour of the mixed methods and that it was evident when students would apply for either placement or graduate jobs. The provision of well-designed material in a Flexible Learning course, with the input of the employers with whom each institution is collaborating with, can lift the skills a graduate student can bring into the new working environment. Nehme (2010) supports the view that a more flexible approach, in addition to the face-to face one, can increase the confidence and motivation the students to participate more in their learning. Similarly, Gilding and Colbran (2013) suggested that such approaches were adopted in Law departments in Australia and had far better outcomes in improving the students’ employability.

Employers not only need graduates knowledgeable around their subject, but also to have such skills that will support their lifelong learning when they are no longer within the Higher Education environment. An effective flexible learning curriculum, should consist approaches such as face-to face, online learning, podcasts, flipped classroom etc, to enable students to develop those employable skills through independent learning. At the same time, a Flexible Learning curriculum, nurtures collaboration among students and among students and academics.

*University Resources*

The findings, during Phase 1 of the Questionnaires (Appendix E), explored the understanding and use of the university resources and facilities in terms of Careers, the Library and the Learning Development group. Students enrolled on a Flexible Learning degree were asked if they used those facilities and resources and the findings were mixed. No students at that stage had used the Careers service but most of them had used the Library and the Learning Development. The students were given the opportunity to have a variety of information available show clear understanding of each service provided to them but students did not use all of them. If there is greater flexibility and integration of these facilities within a Flexible Learning degree, then the student experience will improve greatly. This of course is something that individual module leaders cannot deal with and it has to come from the management of the school, I.e. Head of the School.

**Summary**

This chapter has demonstrated the findings in relation to the literature review and how they cross reference each other. The research questions were critically analysed using the data collected and the reader was presented with up to date material to demonstrate that the effects Flexible Learning has, are very positive. It is shown that not only within the student community, but also the employers, favour ways that can mimic real world situations and prepare the graduates more adequately. It was also shown that the tutor has a greater responsibility within such environments to stay up to date, to amend the curriculum and make use of possible technologies. The next chapter will provide a discursive approach to the findings and some conclusions and future suggestions.

# **Chapter 6 : Conclusions and Further Recommendations**

The thesis has explored, with the use of questionnaires, interviews and reflective journal, the application of Flexible Learning degrees in Computing at a Higher Education establishment. The areas investigated where the comparison of the traditional didactic approach and the flexible approach that took place over the summer schools. The findings of this study, suggest the areas academics need to focus on in order to have successful Flexible Learning degrees. This chapter will provide some final conclusions that derive from this study and explores the implications for Flexible Learning degrees in Computing.

***6.1 Conclusions and Implications***

The conclusions in this thesis are derived from the analysis and discussions of the questionnaires and interviews alongside my own observations documented in my reflective journal. The results and discussions presented in this thesis, reflect my institution’s regulations and views. As such, other institutions must critically examine how to transfer the findings and conclusions to their contexts and learning environments.

In Chapter 1, I proposed two research questions that aimed to explore the implications of the use of technology, intense teaching and more interactive sessions compared to the traditional didactic approach. After doing a background literature review in chapter 2, exploring the different types of learning approaches a student may have and always trying to relate those to the Flexible Learning degrees I've been examining, it was evidenced that pedagogical flexibility is a matter of value in Higher Education establishments (Barnett, 2014). The thesis suggests in Chapter 4, different areas a university needs to consider while developing the curriculum and applying it on a Flexible Learning course, the role of the academic, the role and the responsibilities of the student and the pedagogical resources available to all.

As the study conclusions have been based on the questionnaires and interviews received at the university worth computing Flexible Learning degrees took place, the strongest implication for my investigation and discussion of the results and conclusion, is the fact that senior managers decided to postpone those courses in September 2012. However, 6 months later, the institution announced that it will move towards a new teaching and learning approach that will be based on Flexible Learning. I will first discuss the conclusions that derived only from running and implementing the two year courses for computing, before I move on to the analysis of the institution’s wider context and plans for September 2015.

I have distinguished the conclusions in four sections together with a discussion of their implications and reference to the literature and my research findings. The first two conclusions are associated with the first research question (Chapter 1, page 11) and discusses suggestions and implications that are related to what an university needs to be able to offer to the students enrolled on a Flexible Learning degree. The last two conclusions , related to the second research question (Chapter 1, page 11) and are focusing on the students and what a Flexible Learning degree can offer them in terms of making them employable and able to continue with their lifelong learning within the IT industry.

***Conclusion 1***

***The ways in which information and learning are conceived are central to the way my institution provides the relevant resources.***

As explained in Chapter 4, I coded all the anonymous questionnaires that were issued to all students undertaking a Flexible Learning degree as follows:

1. Phase 1: Questionnaires issued in Spring 2009 to examine the traditional didactic approach A1-Q1
2. Phase 2: Questionnaires issued in Summer 2009 to examine the Flexible Learning delivery A2-Q2
3. Phase 3: Questionnaires issued in Summer 2009 to students who transferred from the three year courses AA1-AE5

The initial analysis of the questionnaires, indicated that there are significant relationships between the ways in which tutors and students perceive and conceive learning and the ways in which they think about teaching and use the available resources as part of their learning process. From the student’s perspective the variety of factors that can influence the way they are learning, is related to the active engagement with information and not to be passive during teaching sessions. Students need to be able to acquire knowledge from all aspects of learning, become more critical and to be able to create their own learning environment that will enhance communication of the content being taught rather than transmitting information in a plain didactic way (Willems, 2011).

From a teacher’s perspective, the way learning and information is being interpreted, can affect how the environment is being established, designed how the group dynamics are being supported. This could consequently affect how students approach and perceive learning. Nevertheless, through appropriate pedagogical design the factors that affect student perceptions of the learning environment can vanish and can be adapted, transformed and manipulated by the academic.

The school/department, the faculty and the university in general need to be deeply engage with the learning process. The school/department needs to develop an awareness and understanding of the various perspectives of learning and how these may affect the learning outcomes. Flexible Learning degrees are unique in their nature, and there must be a common understanding among the staff within a school about how to meet the learning outcomes in a Flexible Learning environment. However, not all staff were aware of Flexible Learning degrees and what this entails. As such the school must promote staff awareness by formal education process and on-going professional development. Some of the findings and conceptual ideas explored and presented in this thesis, such as multiple intelligences and the nature of flexible degrees, could provide a useful starting point for the programmes. As far as possible, the school and the university in general should endeavour to encourage active engagement with the learning process, qualitative and deep approaches and a critical and interpretative thinking. The school should create such a communication environment where knowledge is used as part of the active process of constructing learning. Such an approach could be applied at the individual context specific level of the modules’ curriculum or more broadly at the level of the subject based course curriculum. To support the above views with the literature, it can be found that Harris (2011) suggests that ‘Flexible Learning encompasses as many paradoxes and contradictions as conventional learning. It is important to avoid seeing Flexible Learning as some panacea and to view that instead as an ambiguous development one that requires intervention to develop the good sides and avoid the bad. The provision of interactive technology alone will not solve the problems posed by existing social, cultural and professional barriers to participation on the part of both students and staff. The most passionate and advocates of Flexible Learning do seem to recognise this.’

The above quote, alongside the views of the students, evidence and support that institutions should reflect upon their needs and the student community. The institutions need to set the pedagogical driver to be the student and not the technology. Of course, technology is still there to support, enhance and explore learning, but not to replace any aspects of it.

***Conclusion 2***

***The design of a Flexible Learning environment influences student approaches to learning and the use of learning resources.***

The central relationship in a Flexible Learning degree is established between the academic and the student. The primary designer of the module being taught and of the environment, should be the tutor, and is very likely to be the main influence on how students approach learning and conceptualise the information and knowledge available to them. In the present research, tutors have been perceived as facilitators with positive approach to disseminating knowledge to all students. Flexible Learning is a philosophical perspective (Burge et al, 2011). Participating aa a student in a student centred approach to learning, the personal adaptability is a desirable aspect of for the students participating (Burge et al, 2011). Flexible Learning can be conceptualised in many ways, from traditional contact, such as didactic lectures, to blended learning approaches combining didactic and online facilities, or fully online offerings or flipped classroom.

In Chapter 4, it was described that the teaching approach to the summer school was different to the teaching approach and delivery in Term 1 and Term 2. I adopted a more flexible approach rather than the didactic one where the student was placed in the centre. In order to have an effective learning environment for a Flexible Learning degree, tutors must have a more participatory role throughout the year by building on the positive perceptions of their role as facilitators of access to information (Hill, 2008). The study findings indicate that tutors need to work on their profile and their teaching approaches and become more actively engaged in the design and development of a Flexible Learning degree. A variety of participants in the study I carried out (Appendix E and Appendix G) clearly stated and all agreed in their answers that the learning environment during the summer school was ’*great*’, and that they felt ‘*the learning environment depends on the tutor*’. These comments mean that tutors need to explore and practice the available teaching approaches either by embedding the use of technology or by just being more innovative in things such as room layout and material presented.

The findings suggest that a number of roles for tutors building on relationships with other tutors teaching on the course but also the students of these courses, are important to be adapted and further developed based on the group dynamics and the needs of the course. Participants coded AA1-AB1 and A2, D2, F2, H2, H2, I2, J2, K2, L2 (Appendix E) in answering question 5, suggest that in a Flexible Learning environment tutors were very close to the students and were very helpful, enthusiastic and approachable. Such teaching roles then, should be supported as facilitators of student learning, designers of Flexible Learning environments, participants in collaborative learning with students and should advocate the incorporation of information resources and knowledge into Flexible Learning environments.

If tutors are to influence the way that development or construction of knowledge is used in Flexible Learning degrees, then strong collaborative partnerships with individual students must be promoted and cultivated. While generic institutional, faculty, or school approaches to learning have contributed value - such as the use of library and the career services - the findings of this study indicate that the relationship developed of the individual student with the academic, was essential for integrating learning resources more deeply into the learning process.

A tutor in a Flexible Learning degree should select and evaluate the appropriate information resources, design module components and assists tudents with knowledge seeking. In this sense, tutors should be encouraged to act as Flexible Learning advisors or as designers of the generic learning environment either this is happening in a classroom face to face, either this is happening online. Those tutor roles should be promoted by higher levels of management in an institution could be aiming to showcase them. This will offer wider awareness across all levels of an institution on what a tutor can do to further the pedagogical aims of a course or a module in more particular and enhance the student learning experience.

In collaboration with other members of staff but also by exploring the industry needs through the professional bodies - such as British Computer Society (BCS) - tutors have an important role to play in designing information environments which actively engage learners. Flexibility, in the sense of catering for the individual needs of the students, should be an important component of the Flexible Learning environment and should accommodate individual learning styles adopting a range of information presentation formats. The flexibility in learning requires provision of multiple media and modes of communication to engage with the range of student preferences and it should be challenging for tutors to provide the full range of options in both face to face and online environments.

More broadly, universities themselves are learning environments both physically and virtually and tutors are the primary designers of any learning environment. The physical design of an institution, such as classrooms, lecture theatres, labs, can be seen as an opportunity to create such environments in which the students will actively engage with their learning, and be responsive. This aim is basically translated into the way an academic uses the learning space and environment, how he/she presents information and collections of data and how are being displayed. It is important to remember that an institution must engage its staff (tutors, administration, etc.) and should provide a range of facilities and equipment to support change, experiment and application of new and different learning approaches. The learning space should be used for both individual and collaborative work. Similarly, if learning takes place on a virtual environment, then this should be designed in such a way to encourage active engagement and integration among students and tutors. Thus, the above findings of this research are highlighting the opportunities that academics and tutors could explore in developing their roles as active collaborators and participants in the creation and implementation of Flexible Learning degrees and in presenting information and knowledge as an essential component of learning (Vasileiou 2011). In a knowledge society, Higher Education is challenged to become a knowledge organisation. The boundaries between students and academics are shifted, teaching becomes more student centred the transmission of information and knowledge is now a two way approach (Vasileiou, 2011).

**Conclusion 3**

***Students found their positive progress to depend more on the role of the tutor/lecturer and the feedback given rather than their workload.***

The current model of learning in a Flexible Learning degree combines some elements of distance learning, online learning and classroom-based learning. In order for a flexible delivery to occur, the tutor should be encouraged to explore the above approaches to learning. The findings of this present research indicate that the summer school teaching which included the above teaching approaches, successfully represent students’ understanding of what the course outcomes were. Students clearly stated in the questionnaires that the models of teaching in term 1 and 2 lack innovation compared to the summer school teaching. Students accept their individual needs and they feel the summer school model of teaching appeared to extend communication between the tutor and the students. The student centred approach is based on conceptual change and development (Ramsden 2003) where students take a deep approach to learning. In a student centred approach a tutor is changing roles, from communicator of knowledge he becomes a facilitator and enabler.

Interventions by tutors, either face to face or online, benefit from understanding the phases one’s knowledge and understanding goes through. The student is the initial phase of gathering and absorbing the information presented. The tutor then is called to analyse the learning process taking place in a Flexible Learning environment and with this in mind he/she needs to tailor the teaching approach based on the group dynamics. Both face-to- face and online teaching can assist in structuring such Flexible Learning degrees that model the learning process very carefully. Once a learning framework has been achieved, then it will be easier to make judgments about the most appropriate resources to be used at particular occasions.

**Conclusion 4**

**The structure of a Flexible Learning course is responsible for making the students employable after they graduate.**

In 2012, HEA published a report on employability, discussing views on pedagogy and advising universities how to promote it through modules and courses. Since then the economic, political and environmental pressures upon Higher Education have placed the graduate employability in the centre of each agenda. There are two main definitions of employability supported by HEA (2012).

1. Employability is a set of achievements, skills, understandings and personal attributes that if a graduate acquires all these it is more likely to become more employable and successful in his chosen field.
2. Employability is not just about getting a job. Employability is more than developing attributes, techniques and experiences to enable a student to get a job. It is about learning and developing critical and reflective activities.

The institution where I carried out the research, there is a dedicated careers service and during the questionnaires phase students were asked if they used the career service during their studies. At the same time, employability was part of many modules. Either as a direct component named employability skills, or via other routes by providing real world scenarios and problems to the students to solve. Moreover, students were exposed to activities involving employers and the outcome of those activities were assessed.

With the above in mind it is clear that just getting a degree is not enough. With the tuition fees increase, graduates leave the university with a debt. As such employability is a core interest when designing the curriculum in order to enhance, support and promote graduate employability. It requires the engagement of both the students and the staff and has an impact on teaching and learning practices. HEA (2012) supports the view that there should be significant opportunities for formal learning off campus. The institutional environment impacts directly on models of delivery. At present, and part of this research, it was noted that having separate the Careers department as generic a University resource, although students are aware of it, it doesn't mean students will use it. Employability is advised to be embedded within the curriculum and promoted in every module. Although a context specific module can be implemented in every Flexible Learning degree, employability can be promoted across all modules. Students can be given such activities and scenarios that are based on the real world and they can be asked to provide suitable solutions. In a Flexible Learning degree tutors are encouraged to apply a variety of teaching approaches. Work based learning could be one of the solutions in order to promote employability. Students can be allocated a small scale project, assigned to a person from the industry where he/she will play the role of a mentor, and produce such a solution that could be applied in the real world. In 2010 and 2011 this was tried out as an assessed element on one of my modules where I ran a coding day with a UK telephone company. The company visited the educational establishment that I work for with a team of developers. Students were given 5 different real world scenarios and they were asked to implement a possible solution. The module assessment was not so much about the effectiveness of their development, or suitability of code, but it was more about being exposed to skills that will make them employable. They were exposed to how the industry works and it was made apparent that the module content is actually up to date, flexible and adaptable and they would graduate with current skills and attributes. This of course was one of the possible teaching approaches in embedding employability into the curriculum that someone could apply. From my perspective, as the academic, this approach incorporated a variety of factors beneficial to the students. A different Flexible Learning environment, a flexible teaching approach and a holistic approach to understanding what is needed for becoming a successful graduate.

Employability is a very big topic and this thesis is only exploring the need for a computing student to graduate with employable skills and how a Flexible Learning degree can support and embed this. HEA (2012) provides a full analysis and suggestions on different possible ways how to promote employability within a course. Other suggestions include e-progress files, Professional Development (PDP) modules (Vasileiou, 2009) , one year long placements or even graduate podcasts.

It is important for the student to look forward towards the outcomes of a course and be able to reflect on past developments. A shared community can be developed to share student experience and enable learning focused around a degree program encouraging staff and students to work together towards graduate employability. A Flexible Learning degree with the appropriate environment set up can promote employability in all aspects. The tutors have the freedom to choose if they want to embed employability within an existing module or if they want to create a stand-alone module on graduate employability. Teaching approaches can vary giving them the freedom to choose between a classroom based activity or an online one. What must be noted at this stage is the fact that in every module, no matter what the teaching approach is, there must be a clear reference in the learning outcomes on graduate skills and illustrate which skills a module enhances (HEA, 2012). In Chapter 2, it was discussed how a learner may approach an educational setting. It was evidenced by the literature that each adult learner need the involvement of the industry (Kasworm, 2003; Kasworm, 2008). The implementation of the Flexible Learning courses I was involved in and based my research on, placed a lot of emphasis around teaching and learning. In addition to the above, the learning space was also a central aspect of my research and not only the findings supported a positive view around the changes (Chapter 4 and 5) but also the literature (Chapter 2). The learning environment framework designed by Colins, Greeno and Resnick (1994) in addition to Gardner’s framework, provided enough information and evidence to design the modules by putting the student in the centre. HEA (2012) made it clear that the future of Higher Education needs to embrace the different learning styles, offer new opportunities and ideas. The above evidence from literature (Gardner, 1983; Kasworm, 2003; Kasworm, 2008; Collins et al, 1994) supports this view of making learning wider and tutors are being asked to understand deeper student learning and interaction. This comes to an agreement with the questionnaire findings in Appendix E as part of Phase 2 plus the interview findings in Appendix G.

**6.2 The Institution’s current and future situation**

Flexible Learning degrees were suspended in September 2012 and since then no new students were enrolled. At the same time though, discussions at higher level management occurred and in April 2013 the institution decided to proceed with a new model for the whole establishment. At that time, it was decided that all courses and all schools will move towards Flexible Learning delivered in block teaching from September 2015. This new approach is now called Curriculum Enrichment Project (CEP) and aims to provide all students with curricula and co-curricular opportunities during their studies.

The areas of the institution that students were asked to evaluate during the questionnaire Phase 1, such as the careers service, the library and the learning environment, are now becoming core aspects of CEP. Although the higher management through their communications within the business plans and official documents have been calling CEP block teaching approach, in terms of pedagogical approach, it is Flexible Learning. This is also evident by the subtitle of the Curriculum Enrichment Project documents saying ‘There is much more than a lecture’ (Anonymised Business Plan, 2013). The idea behind CEP is to offer the academics and the students the opportunities to explore new approaches to teaching and learning. With block teaching, which is similar to how the summer school was ran during the Flexible Learning courses (see page 21), an all year module will now be taught in 13 weeks. This means that no longer students will have more than two modules running in parallel. The variety of models now offered, core modules and plus modules, will aim to engage the students in many different ways, and thus, this means the academics must explore different ways of teaching the current and future material. It will also provide more options for students to wish to go part time or to support their career further by just enrolling on one module achieving a CPD certificate (Anonymised Business Plan, 2013). The drivers for this change were indeed the areas researched within this thesis, employability and teaching approaches. The new structure is now as shown in Figure 6.1.

QAA guidelines have also been very supportive of this approach and the team developing the Flexible Learning teaching approach across the institution used it as guidelines. More particularly, QAA (unknown date) supports the view that in Higher Education we need to aim to review and enhance the provision of learning opportunities and teaching practices. That will assist students to become independent learners and study their chosen subject.

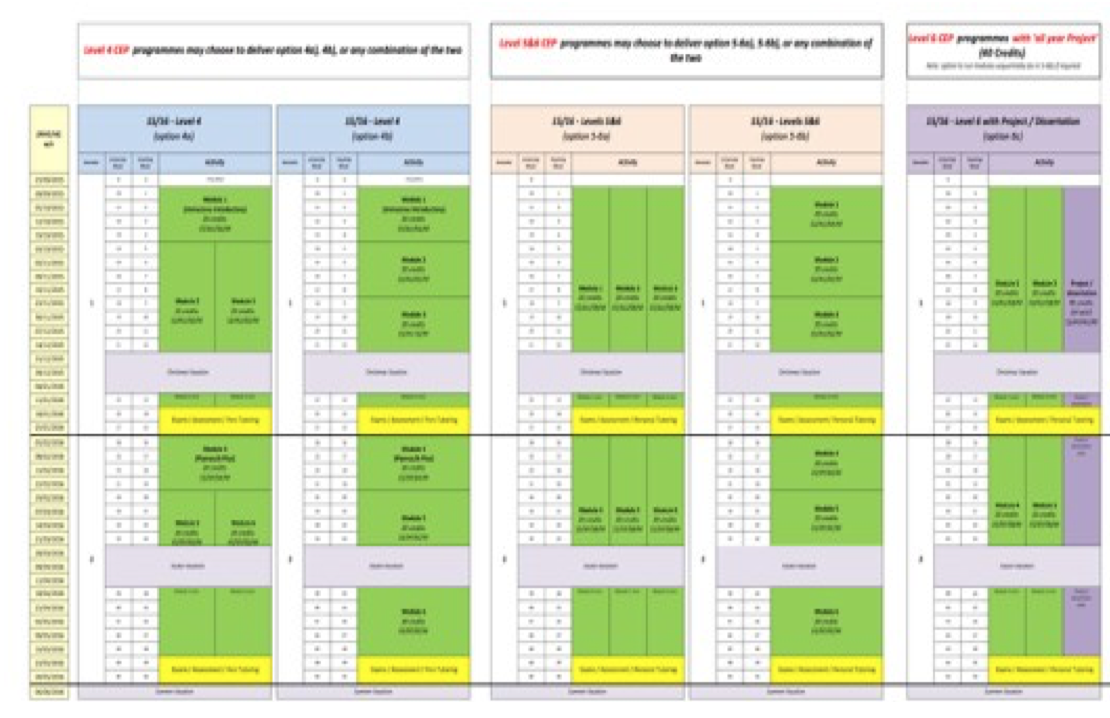


Figure 7 Curriculum Enhancement Project (Anonymised Business Plan)

Figure 6.1 shows how modules will be taken by students starting in September 2015. The Flexible Learning Degrees that we ran between 2008 and 2010 and used for the purposes of this research, did not face any changes in Term 1 and Term 2. Whereas now, the summer school model will be applied across the whole academic year. There will be no summer school under CEP, there will be two semesters, but within the block teaching mode academics are challenged and welcomed to approach teaching under different terms. Some suggested approaches are the flipped classroom, podcasts, peer assisted learning, work based learning and online learning. The institution is rapidly moving away now from the didactic approaches such as lectures. The key thing under this new model is how we, academics, evolve and shaping Higher Education rather than repairing it. Student experience and learning is multi-dimensional and as academics we aim to improve what we do and support learning transitions.

**6.3 Further research**

The model of Curriculum Enhancement Project which relies greatly on Flexible Learning is officially commencing in September 2015. Through Flexible Learning we aim to enhance the analytical and critical thinking of the students across the institution. Once a full year of Flexible Learning is completed across all Computing courses, it would be very valuable to examine each teaching approach individually and see if the Computing students are still actively engaging with the courses. This thesis, through the questionnaires collected and the interviews that took place, identified that Flexible Learning within the course was well perceived and preferred compared to the traditional didactic approach. The situation we have now, is that Flexible Learning will be applied across the whole institution, across the whole academic year. Students who will be in Stage 2 and Stage 3 in September 2015, and have already experienced the traditional way of teaching in Stage 2 during the academic year 2014-2015, will be in a position to be interviewed and form some focus groups in order to understand the positive and negative implications of Flexible Learning model. The new model, needs to have an inclusive approach, taking into account the different learning styles and the educational backgrounds of the students. Employability still remains a key aspect of this approach, as we aim to produce such graduates that will be able to support their own lifelong learning. Applying Flexible Learning across the whole institution now raises further areas of research such as timetabling, finances and most importantly the willingness of staff to approach and explore teaching. The latter can be proved challenging if individual staff members are not willing to do so. It will be interesting enough, to revisit the above areas in June 2016 and evaluate how Flexible Learning impacted on our courses, on the staff members and the whole institution. The research opens up a promising future, possibly a dramatic change on how we perceive teaching and learning in Higher Education. Senior management teams will need to evaluate finances, timetabling and appropriate resources provided. Having carried out this research within the institution for the very first time, commencing in 2008, I would be intrigued to carry out further pedagogical research and examine the full impact of Flexible Learning in Higher Education.

**6.4 Synthesis of Research Findings on Flexible Learning**

For the purposes of this thesis and the research content, by using the term Flexible Learning I have been referring to the mode of teaching that differs and varies from the traditional face-to-face approach in classroom. Terms such as blended learning, online learning, distance learning etc, are now taken forward under the umbrella of Flexible Learning. The influence and adoption of new technologies emerging has affected how Higher Education is being shaped and the expectations students now have. Flexible Learning is widely used in Australia as mentioned in the literature review, Chapter 2, and it is gradually being examined, evaluated and expanded in the UK too.

Flexible Learning in Higher Education means giving the students to study not just a component at an institution, but to study a discipline with the support of a Higher Education institution in order to further their careers and aspirations, makes them autonomous and independent learners who at the same time are acquiring such transferable skills to support them in their lifelong employment. Flexible Learning, within the institution the research took place at has definitely been appreciated based on the findings. Seeing now Flexible Learning becoming wider, becoming an institution policy it definitely raises more research questions, such as staff knowledge and willingness on this Flexible Learning, and areas that will concern the management teams such as finances, resources and timetabling. Further work will certainly need to be undertaken in one year’s time at least, to ensure our practices in Flexible Learning as academics are being revisited, evaluated and Flexible Learning in general is being constantly updated. New theories will emerge, new reports will be published, and we must constantly reflect upon the needs and requirements of students in Higher Education but also the purpose of Higher Education too.

The presented research, initially had an impact on myself as an academic. In the context of my professional work, it made me explore the student experience and challenged my own understanding of student experience and employability. At the same time, the presented research had an impact across the institution as the valued and positive results of it, made the senior management team to decide to progress with an overall Flexible Learning approach. Students are now in the centre of our teaching and learning commitment and approach and they will help to determine and shape the future of the Flexible Learning approach.

A Flexible Learning model, has a purpose of enabling students in Higher Education to learn and gain valuable qualifications by practising skills and knowledge under many different settings. The findings showed a great appreciation of the skills the students acquired and how preferable this student centred approach was. As a conclusion and further suggestions, I could make the following points:

1. Develop and embed flexible learning capabilities within the academic practice and environment.
2. Use digital media to enhance and support collaboration among students and construct peer learning.
3. Facilitate and assess the students through means such as e-portfolios, reflective practice and work-based learning models.
4. Allow and support distance learning – email communication, online conferences, synchronous but also asynchronous online methods.
5. Facilitate those students who do not quite adjust in a student-centred environment.
6. Ensure students have access to all relevant tools to support their learning.
7. Build and promote an environment that develops and promotes employability.

Flexible Learning environments are facing rapid growth and the rise of new technologies can empower Higher Education Institutions. Flipped classroom, podcasts, e-learning etc., have all become possible and gradually developing and expanding because of the available technologies. This research focused on the student perspectives and how an institution can create Flexible Learning environments. There is as such a need to look at the challenges and views of the management side of an institution and the academics. More research will also be useful to explore any difficulties management might face in developing such environments. In this research project for example the consequences of workloads of staff or if training is needed in order to understand the latest ways of teaching and learning, have not been explored. Therefore, research on challenges and opportunities for academics and management will be very valuable.

Flexible Learning is gradually becoming very popular among the students because of the opportunities they are given to experience real world situations, alongside the ability to provide equal opportunities to all learners by having a learning environment that can adapt to individual needs.

# **References**

1. Adams, J. (2014), Computing Is The Safe STEM Career Choice Today, Retrieved 5th May 2016 from <http://cacm.acm.org/blogs/blog-cacm/180053-computing-is-the-safe-stem-career-choice-today/fulltext>
2. Alberta Assessment Consortium (1999). *A Framework for Communicating Student Learning*, Edmonton, AB: Alberta Assessment Consortium.
3. Alberta Assessment Consortium (2000). *How to Develop and Use Performance Assessments in the Classroom*, Edmonton, AB: Alberta Assessment Consortium.
4. Anderson, J. & Askov, E.N. (2001). *Twin approaches to research: The Penn state and the Flinders experience*, International Education Journal, 2(3), pp. 154-160 Australian experience', in Snyder, CA & Fox, JW (eds.), Libraries and other.
5. Anonymised Business Plan (2007). *HEFCE Strategic Development Fund Flexible Learning Pathfinder*
6. Anonymised Business Plan (2011). *Shaping 2015*
7. Anonymised Business Plan (2013). *Curriculum Enrichment Project*
8. Ark, T. (2013). *The Future of Learning: Personalised, Adaptive and Competency Based*, Retrieved 17th July 2014 from <http://gettingsmart.com/wp-content/uploads/2011/08/D1-white-> paper-the-future-of-learning-personalized-adaptive-and-competency-based.pdf
9. Babbie, E (1995), *The practice of social research*, 7th edition, Belmont: Wadsworth Publishing Company
10. Barnett, R. and Hallam, S. (1999). *Teaching for supercomplexity: a pedagogy for higher education*, in Mortimere, P. (ed) *Understanding pedagogy and its impact on learning*, London: Sage.
11. Barnett, R. (2014). Conditions of Flexibility: Securing a more responsive higher education system, HEA Retrieved 14 October 2014 from https://www.heacademy.ac.uk/conditions- flexibility-securing-more-responsive-higher-education-system
12. Barone, C. A. & Luker, M. A. (2000). *The Role of Advanced Networks in the Education of the Future*, In M.A. Luker (ed.) *Preparing Your Campus For A Networked Future*. Educause Leadership Series (Volume 1). Jossey-Bass: San Francisco, CA.
13. Baxter Magolda, M. B. (1999). *Creating contexts for learning and self-authorship: Constructive-developmental pedagogy*, Nashville, TN: Vanderbilt University Press.
14. Beattie, K & James, R (1997). *Flexible coursework delivery to Australian postgraduates: how effective is the teaching and learning?*, Higher Education, vol. 33, no. 2, pp. 177-194.
15. Beckett, D (1998). *Disembodied learning: how flexible delivery shoots higher education in the foot: well, sort of*, Electronic Journal of Sociology, vol. 3, no. 3.
16. BERA (2004). *Revised Ethical Guidelines for Educational Research*, Retrieved 18th October 2009 from <http://www.bera.ac.uk/system/files/ethica1.pdf>
17. Biggs, J. (1999). *What the Student Does: teaching for enhanced learning*, Retrieved 23rd June 2010 from <http://www.tandfonline.com/doi/pdf/10.1080/0729436990180105>
18. Bologna Declaration (1999). Retrieved October 2008 from <http://ec.europa.eu/education/> higher-education/bologna\_en.htm
19. Boud,D. (1985). *Reflection: Turning Experience into Learning*, London: Routledge
20. Brabazon, T (2002). *Digital hemlock: Internet education and the poisoning of teaching*, UNSW Press, Sydney.
21. Brew, A. (2000). *Directions of staff development*, Society for research in Higher Education and Open University.
22. Brindley, J. and Walti, C. (2009). *Creating Effective Collaborative Learning Groups in an Online Environment,* Retrieved 21st October 2010 from <http://www.irrodl.org/index.php/irrodl/> article/view/675/1271
23. Brockbank, A., McGill, I. (2007). *Facilitating Reflective Learning in Higher Education*, Open University
24. Brooks, P. (1998). *Cohort Communities in Higher Education: The best example of adult education*, Proceedings of the 39th Annual Adult Education Research Conference, San Antonio, May 15 1998.
25. Bruce, K. (2015). *From the sublime to the extraordinary : geek and bhakti*, Journal of Postcolonial Writing, DOI: 10.1080/17449855.2015.1005473.
26. Bulman, C., Schutz, S. (2004). *Reflective Practice in Nursing*, Oxford: Blackwell.
27. Burge, E. (2011). *Why Look at Flexibility?*, in Burge, E., Gibson, C., Gibson, T. (2011) Flexible Pedagogy, Flexible Practice, AU Press: Edmonton.
28. Callender C., Wilkinson D., Mackinon K., (2006) Part-time students and part-time study in higher education in the UK: A survey of students’ attitudes and experiences of part-time study and its costs, London: Universities UK/Guild HE
29. Carnoy, M. (2005). *Globalisation, trends and the open society*, Retrieved June 25th, 2008 from <http://www.soros.org/initiatives/esp/articles_publications/articles/globalization_20060217/> carnoy\_english.pdf
30. Claxton, C. (1984) *Live and Learn. An Introduction to the Psychology of Growth and Change in Everyday Life*, Open University Press
31. Charmaz, K 2000. *Grounded theory: objectivist and constructivist methods*, in Denzin, NK & Lincoln, YS (eds.), Handbook of qualitative research, 2nd edn., Sage Publications, Thousand Oaks CA, pp. 509-535.
32. Coaldrake, P. and Stedman, L. (1999). *Academic work in the twenty-first century: Changing roles and policies*, Occasional Paper Series, 99H, Department of Education, Training and Youth Affairs.
33. Cohen, L Manion L, Morrison, K (2003). *Research Methods in Education*, London: RoutledgeFalmer.
34. Cohen, L Manion L, Morrison, K (2013). *Research Methods in Education*, London: RoutledgeFalmer.
35. Collis, B & Moonen, J (2001). *Flexible learning in a digital world: experiences and expectations*, Kogan Page, London.
36. Commission of the European Communities (2000). *Communication from the commission*, Retrieved 15th June 2009 from <http://ec.europa.eu/dgs/health_consumer/library/pub/> pub07\_en.pdf
37. Conway, M. (2000). *What’s in a name? Issues for Association of Tertiary Education Management [ATEM] and Administrators*, Journal of Higher Education Policy and Management, Vol. 22, No. 2, pp199-201.
38. Collins, A, Greeno, JG & Resnick, LB (1994). Learning environments, in Husén, T & Postlethwaite, TN (eds.), The international encyclopaedia of education, 2nd edn., Pergamon: Oxford
39. Cranmer, S. (2007). Enhancing graduate employability*, Institute of Education, University of London*
40. Creswell, JW (1998). *Qualitative inquiry and research design: choosing among five traditions*, Sage Publications, Thousand Oaks CA.
41. D’Andrea, V. & Gosling, D. (2005). *Improving Teaching and Learning in Higher Education*, Berkshire: McGraw-Hill Education.
42. Darby, J (2002). *Networked learning in higher education: the mule in the barn*, in Dearing, R. (1997). *National Inquiry of the Committee into Higher Education*, HMSO.
43. Denscombe, M. (2003). The Good Research Guide, Maidenhead: Open University Press.
44. Denzin, NK & Lincoln, YS (2000). *Introduction: the discipline and practice of qualitative research*, in Denzin, NK & Lincoln, YS (eds.), Handbook of qualitative research, 2nd edn., Sage Publications, Thousand Oaks CA, pp. 1- 28.
45. Dewey, J. (2013). *Democracy and Education*, Retrieved 26th August 2014 from https:// [www.gutenberg.org/files/852/852-h/852-h.htm](http://www.gutenberg.org/files/852/852-h/852-h.htm)
46. DfES (2003). *White Paper: The future of Higher Education,* Retrieved June 10th 2008 from<http://www.dfes.gov.uk/hegateway/strategy/hestrategy>
47. Drago-Stevenson,E., Helsing,D., Kegan,R., Popp,N., Borderick,M., Portnow, K. (2001). *The power of cohort and collaborative groups*, National Centre for the study of Adult Learning and Literacy, Retrieved 19th May 2008 from [www.ncsall.net/?id=254](http://www.ncsall.net/?id=254)
48. Dunn and Dunn (1978). *Teaching Students Through Their Individual Learning Styles: A Practical Approach*, Prentice Hall College Div., Pergamon, Oxford, pp. 3297-3302
49. EdNA School Advisory Group (2001). *Learning in an online world: The school education action plan for the information economy*, Progress report 2001, Retrieved 25th July 2009 from [www.adna.edu.au](http://www.adna.edu.au/)
50. Fade, S. (2005). *Learning and Assessing through Reflection*, Retrieved 19th May 2008 from [http://www.practicebasedlearning.org/resources/materials/docs/RoyalBromptoV3.pdf](%20http://www.practicebasedlearning.org/resources/materials/docs/RoyalBromptoV3.pdf)
51. Fazackerley A., Callender C., Chant J., Wilkinson, D. (2009) Educating Rita? A model to address inadequate state support for part-time students. Policy Exchange Research Note
52. Fielden, K., (2003). *Fact or fiction: Qualitative research results in information Systems*, Information Science & Information Technology Education Conference, Pori, Finland. Retrieved 15th August 2015 from <http://proceedings.informingscience.org/IS2003Proceedings/docs/027Field.pdf>
53. Firestone, W. (1993). *Alternative Arguments for Generalizing From Data as Applied to Qualitative Research*, Retrieved 26th March 2010 from <http://mkoehler.educ.msu.edu/> hybridphd/hybridphd\_summer\_2010/wp-content/uploads/2010/06/Firestone-1993.pdf
54. Flick, U. (2006). *An introduction to qualitative research*, London: Sage Publications
55. Gallego-Arrufata,M. & Gutiérrez-Santiustea, E. (2014). *Perception of democracy in computer- mediated communication: participation, responsibility, collaboration, and reflection*, Retrieved 19th April from <http://www.tandfonline.com/doi/abs10.1080/13562517.2014.957270#.VUnppM4k_8s>
56. Gardner, Howard (1983). *Frames of Mind: The theory of multiple intelligences*, New York: Basic Books
57. Gibbs, G. (2007). *Analysing Qualitative Data*, London: Sage Publications Gilbert, N. (2008). *Researching Social Life*, Londong: Sage Publications
58. Hallas, J. (2008). *Rethinking teaching and assessment strategies for flexible learning environments in Hello! Where are you in the landscape of educational technology?,* Retrieved 25th January 2009 from <http://www.ascilite.org.au/conferences/melbourne08/procs/hallas.pdf>
59. Gilding, A. & Colbran, S. (2013). *E-Learning in Australian Law schools*, Legal Education Review, pages 201-239
60. Harris, D. (2011), *The Paradoxes of Flexible Learning*, Athabasca: Au Press
61. Harvey et al (1997). *Integrating Learning Styles and Multiple Intelligences*, Retrieved 16th January 2012 from [http://scis-suny-information.wikispaces.com/file/view/3+integrating](http://scis-suny-information.wikispaces.com/file/view/3%2Bintegrating)+Learning+Styles+MI+copy.pdf
62. Harts, D. (2015). *Educational Research and Inquiry: Qualitative and Quantitative Approaches*, London, Continuum International
63. Hedrick, TE (1994). *The quantitative-qualitative debate: possibilities for integration*, in Reichardt, CS & Rallis, SR (eds.), *The qualitative-quantitative debate: new perspectives*, San Francisco CA: Jossey-Bass
64. HEA (2012). *Pedagogy for Employability*, Retrieved 15th February 2013 from https:// [www.heacademy.ac.uk/node/4142](http://www.heacademy.ac.uk/node/4142)
65. HEA (2011). An Introduction to Work-Based Learning, Retrieved 10th November 2015 from <https://www.heacademy.ac.uk/system/files/work_based_learning.pdf>
66. HEA (2014). *Condition of Flexibility: Securing a more responsive Higher Education System*, Retrieved 25th August 2015 from https://[www.heacademy.ac.uk/conditions-flexibility-securing-](http://www.heacademy.ac.uk/conditions-flexibility-securing-) more-responsive-higher-education-system
67. HEFCE (2008). *Pathfinder Flexible Learning Project at Staffordshire University: End of Project Report, Retrieved 10th February 2009 from* https://[www.google.co.uk/url?](http://www.google.co.uk/url) sa=t&rct=j&q=&esrc=s&source=web&cd=1&cad=rja&uact=8&ved=0CCIQFjAAahUKEwj7r8qQ26vGAhXnaNsKHXkrDEM&url=https%3A%2F%2Fwww.heacademy.ac.uk%2Fsites%2Fdefault%2Ffiles%2FHEA\_Evaluation\_report\_Aug09.doc&ei=RWiMVbv5LufR7Qb51rCYBA&usg=AFQjCNHn9I9zrOLK608ewv1UIl8msFXOww&sig2=nczBHETUG5QeQ9iEHgZVpA&bvm=bv. 96782255,d.ZGU
68. Hill, R. (2008). *Strengthening Teaching Communities through Online professional development*, Journal of Research in Innovative Teaching, vol 1 (1)
69. Hooker, M. (1997). *The transformation of higher education*, In Diane Oblinger and Sean C. Rush (Eds.) (1997). The Learning Revolution. Bolton, MA: Anker Publishing Company, Inc IAL 2000
70. House, D. (1994). *Student expectancies and Academic Self-Concept as predictors of Science Achievement*, Retrieved 20th May 2012 from <http://www.tandfonline.com/doi/abs/> 10.1080/00223980.1996.9915041?journalCode=vjrl20
71. Imel, S. (2002). *Metacognitive Skills for Adult Learning*, Trends and Issues Alert no. 39 Jasper, M (2005). *Using reflective writing*, Journal of Nursing, vol. 10(3), London
72. Jones, C & Steeples, C (2002). *Perspectives and issues in networked learning*, in Jones, C & Steeples, C (eds.), *Networked learning: perspectives and issues*, London: Springer-Verlag,
73. Johnson, B. & Christensen, L. (2008). *Educational Research: Quantitative, Qualitative, and Mixed Approache*, London: Sage.
74. Kasworm, C., & Blowers, S. (1994). *Adult undergraduate students: Patterns of learning involvement*, Report to OERI, Department of Education, Washington, D.C.: Knoxville, TN: College of Education, University of Tennessee.
75. Kasworm, C. (2003). *From the adult student's perspective: Accelerated degree programs*, Retrieved 4th January 2008 from <http://onlinelibrary.wiley.com/doi/10.1002/ace.85/abstract>
76. Kasworm, C. (2008). *Emotional challenges of adult learners in higher education*, Retrieved 19th December 2008 from <http://onlinelibrary.wiley.com/doi/10.1002/ace.313/abstract>
77. Kegan, R. (1994). *In Over Our Heads: The Mental Demands of Modern Life Cambridge*, MA: Harvard University Press
78. Kellehear (1993). *The unobtrusive researcher: A guide to methods*, Retrieved 24th January 2011 from <http://www.getcited.org/pub/103239274>
79. Knowles, M. S. (1990). *The Adult Learner. A neglected species*, Houston: Gulf Publishing.
80. Kolb, D. A. (1984). *Experiential learning: Experience as the source of learning and development*, New Jersey: Prentice-Hall
81. Lane, S. (2016). *Developing employability skills by using blended learning*, American Journal of Educational Rsearch, volume 4, No. 1 pages 47-53
82. Laurillard, D (1993). *Rethinking university teaching: a framework for the effective use of educational technology*, London: Routledge
83. Lave, J., & Wenger, E. (1991). *Situated learning: Legitimate peripheral participation*, Cambridge, UK: Cambridge University Press
84. Leitch Report (2006). *Prosperity for all in the global; economy – world class skills*, Retrieved 1st June 2008 from <http://www.official-documents.gov.uk/document/other/0118404792/0118404792.pdf>
85. Lim, E & Van Dyk, MT (1997). *Library support models for distance education: the Australian experience in Snyder*, CA & Fox, JW (eds.), *Libraries and other support services for distance learning*, JAI Press, Greenwich CN, pp. 57-91
86. Lincoln, YS & Guba, EG (2000). *Paradigmatic controversies, contradictions, and emerging confluences*, in Denzin, NK & Lincoln, YS (eds.), *Handbook of qualitative research*, 2nd edn., Sage Publications, Thousand Oaks CA
87. Ling, P, Arger, G, Smallwood, H, Toomey, R, Kirkpatrick, D & Barnard, I (2001). *The effectiveness of models of flexible provision of higher education*, Department of Education, Training and Youth Affairs, Canberra, Retrieved 23rd October 2010 from http:// [www.dest.gov.au/highered/eippubs/eip01\_9/eip01\_9.pdf](http://www.dest.gov.au/highered/eippubs/eip01_9/eip01_9.pdf)
88. Linksman (1996). *How to learn anything quickly: An accelerated program for rapid learning*, New York: Barnes and Noble
89. Lisbon Strategy (2000). Retrieved 19th October 2008 from <http://ec.europa.eu/education/> focus/focus479\_en.htm
90. Lopez, L., Taylor, P. & Quadrelli, C. (1996). *Flexibility, Technology and Academics Practices: tantalising tales and muddy maps*, Canberra: Department of Employment, Education, Training and Youth Affairs
91. Marrow, A. J. (1977). *The practical theorist: The life and work of Kurt Lewin,* New York: Teachers College Press
92. Mattila, A. & Dolhi, C. (2016) Transformative Experience of Master of Occupational Therapy Students in a Non-traditional Fieldwork Setting, Retrieved 1st August 2016 from <http://dx.doi.org/10.1080/0164212X.2015.1088424>
93. McClure, P. (2005). *Reflection on Practice,* Retrieved 26th June 2008 from http:// cw.routledge.com/textbooks/9780415537902/data/learning/8\_Reflection%20in%20Practice.pdf
94. McCraig, M., Bowers-Brown, T. & Drew, S. (2007). *Accelerated Learning programmes: A review of quality, extent and demand*, Retrieved May 20th, 2008 [www.heacademy.ac.uk/](http://www.heacademy.ac.uk/) assets/York/documents/ourwork/research/Accelerated\_learning\_programmes\_1.pdf
95. McKeon, K.J. (1999). *What is this thing called Accelerated Learning?*, Training and Development, 6 (49), pp. 64-66
96. Meier, D. (2000). *The Accelerated Learning Handbook*, New York: McGraw-Hill
97. Merriam, S. B., & Caffarella, R. S. (1999). *Learning in Adulthood*, San Francisco: Jossey- Bass
98. Merriam, Sharan B. (1998). *Qualitative Research and Case Study Applications in Education*, San Francisco: Jossey-Bass
99. Miles, MB & Huberman, AM (1994). *Qualitative data analysis: an expanded sourcebook*, 2nd edn., Sage Publications, Thousand Oaks CA
100. Nagy & McDonald, (2007). *New models for learning flexibility: Negotiated choices for both academics and students*, Retrieved 12th December 2012 from <http://www.ascilite.org.au/> conferences/singapore07/procs/nagy.pdf
101. Nehme, M., (2010). *E-learning and student motivation*, Legal Education Review 223-239
102. Noble, DF (2002). *Technology and the commodification of higher education*, Higher Education Monthly Review, vol. March, pp. 26-40
103. Oblinger, DG & Maruyama, MK (1996). *Distributed learning*, CAUSE, Boulder CO
104. Oliver, M. (2005). *Against the term blended learning*, Retrieved 25th January 2007 from [www.nottingham.ac.uk/~ntzcl1/literature/blended/oliver-trigwell.pdf](http://www.nottingham.ac.uk/%7Entzcl1/literature/blended/oliver-trigwell.pdf)
105. Oliver, M. & Trigwell, K. (2005). *Can Blended Learning be redeemed?*, E-Learning, 2(1), 17-26
106. Orey, M. (2010). Emerging Perspectives on Learning, Teaching and Technology, Jacobs Foundation, Zurich
107. Osguthorpe, R.T. & Graham, C.R. (2003). Blended learning environments, definitions and directions, The Quarterly Review of Distance Education, 4(3), 227-233
108. Outram, S. (2011). Final evaluation of the HEFCE funded Flexible learning pathfinder projects, online Date Accessed 20th March 2012 http://www.google.co.uk/url? sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=0CCAQFjAA&url=http%3A%2F%2Fwww.heacademy.ac.uk%2Fassets%2Fdocuments%2Fflexiblelearning%2FPathfinder\_2011\_AW\_2\_281111\_1614.pdf&ei=\_DN9UImaKqSr0QWq8IHQAw&usg=AFQ jCNGuznc\_lM2eGmLg1hAoUZ0GOGBr9A&sig2=u0tCf5rU4vMJtYzvsprjEA&cad=rja
109. Palfreyman, D., Tapper, T., (2016) The marketization of English higher education and the financing of tuition fees, London Review of Education, Volume 14, Number 1, April 2016, pp. 47-55(9)
110. Porta, D. & Keating, M. (2008). *Approaches and Methodologies in the Social Sciences*, Cambridge Press, New York
111. Punch, M. (1986). *The Politics and Ethics of Fieldwork: Qualitative Research Methods*, Beverly Hills: Sage
112. QAA. (2001). *Progress files for higher education* Retrieved February 22nd 2007, from [www.qaa.ac.uk/academicinfrastructure/progressFiles/default.asp](http://www.qaa.ac.uk/academicinfrastructure/progressFiles/default.asp)
113. QAA (unknown date). *Chapter B3: Learning and Teaching*, Retrieved 13th November 2014 from <http://www1.hw.ac.uk/quality/resources/qaamapping-chapterb3.pdf>
114. Ramsden, P (1992). *Learning to teach in higher education*, London: Routledge
115. Rew, L, Bechtel, D & Sapp, A (1993). *Self-as-instrument in qualitative research, Nursing Research*, vol. 42, no. 5, pp. 300-301
116. Robson, C. (2006). *Real World Research*, Blackwell Publishing,Oxford
117. Rolfe, G. (1997). *Writing ourselves: creating knowledge in a postmodern world, Nurse Education Today Issue* 17, pp 442–448
118. Rose, C, Nicholl, M (1997). *Accelerated Learning for the 21st Century: The Six-Step Plan to Unlock Your Master-mind*, Dell, New York, NY
119. Ross, E. (2012). *The Social Studies Curriculum: Purposes, Problems, and Possibilities*, Albany: State University
120. Rowntree, D. (1992). Exploring Open and Distance Learning, Kogan Page Limited: London
121. Rumble, G (1989). *Open learning, distance learning, and the misuse of Language*, Open Learning, vol. 4, no. 2, pp. 28-36
122. Ryan, M, Hodson Carlton, K & Ali, NS (1999). Evaluation of traditional classroom teaching methods versus course delivery via the World Wide Web, Journal of Nursing Education, vol. 38, no. 6, pp. 272-277
123. Scott, P.A. & Conrad, C.F. (1992). *A critique of intensive courses and an agenda for research*, In Smart, J.C. (Ed) Higher Education: Handbook of Theory and Research, New York: Agathon Press Staffordshire 2008
124. Swan, K (2001). *Virtual interaction: design factors affecting student satisfaction and perceived learning in asynchronous online courses*, Distance Education, vol. 22, no. 2, pp. 306-331
125. Steeples, C & Jones, C (eds.), *Networked learning: perspectives and issues*, London: Springer
126. Strauss, A & Corbin, J (1990). *Basics of qualitative research: grounded theory procedures and techniques*, Newbury Park CA : Sage Publications
127. Silva-Leander, S. (2011). *On the Possibility of Measuring Freedom: A Kantian Perspective,* University of Oxford, Oxford Department of International Development, Oxford: Oxford Poverty and Human Development Initiative
128. Tait, A & Mills, R (eds.) (1999). *The convergence of distance and conventional education: patterns of flexibility for the individual learner*, London : Routledge
129. Taylor, Lopez and Quadrelli (1996). T*eaching methods versus course delivery via the World Wide Web*, Journal of Teaching, UNSW Press, Sydney
130. Thomas, MJW (2001). *Learning communities and the virtual university: the effects of computer-based learning environments on student interaction and learning*, Research and Development in Higher Education, vol. 24
131. Tondeur, J. & Valcke, M. (2007). *Curricula and the use of ICT in education: Two worlds apart?*, British Journal of Educational Technology, 38 (6), p. 962-976 Retrieved 20th January 2012 from [http://www.sociology.org](http://www.sociology.org/)
132. Van den Brande, L (1993). Flexible and distance learning, Chichester: John Wiley and Sons
133. Wade, W 1994. *Introduction*, in Wade, W, Hodgkinson, K, Smith, A & Arfield, J. (eds.), *Flexible learning in higher education*, Kogan Page, London, pp. 12-16
134. Ward, M & Newlands, D (1998). *Use of the web in undergraduate teaching*, Computers and Education, vol. 31, pp. 171-184
135. Waterhouse, P. (1990). *Flexible Learning An Outline*, Bath: Network Educational Press
136. Whitchurch, C. (2004). *Administrative managers: a critical link Higher Education Quarterly*, Vol. 58, No. 4, pp280-298
137. Willems, J. (2011). *Students’ Perceptions Flexing Pedagogy and Practice*, in Burge, E., Gibson, C., Gibson, T. (2011) *Flexible Pedagogy*, Flexible Practice, AU Press: Edmonton
138. Wlodkowski, R.J. (2003). *Accelerated Learning in Colleges and Universities*, New Directions for Adult and Continuing Education, no.97
139. Wolfe, A. (1998). *How a for-profit university can be invaluable to the traditional liberal arts*, Chronicle of Higher Education, pp. B4-B5
140. Yin, RK (1994). *Case study research: design and methods*, 2nd edn., Sage Publications, Thousand Oaks CA
141. Government’s Higher Education White Paper, (2011). *Students at the heart of the system*, Retrieved 25th October 2011from [http://www.google.co.uk/url?](http://www.google.co.uk/url) sa=t&rct=j&q=&esrc=s&source=web&cd=2&ved=0CCoQFjAB&url=http%3A%2F%2Fwww.bis.gov.uk%2Fassets%2Fbiscore%2Fhigher-education%2Fdocs%2Fh%2F11-944-higher-education-students-at-heart-of- system.pdf&ei=U492UPaTDYGf0QWvvIH4Dg&usg=AFQjCNGcfA- JyM6IMraWFKi\_FhdYnp59cA&sig2=5QKBTod5-mqt6o78DcA1DQ&cad=rja
142. Vasileiou, I. (2007). *Can ICT support learning and teaching in Computing courses? How do we choose and use?* 4th International Conference on Open and Distance Learning. Athens, Greece 23/11/2007 - 25/11/2007
143. Vasileiou, I. (2009). *Integrating PDP (Personal Development Planning) and the e-portfolios in Accelerated Learning courses emphasising on employability,* 5th International Conference on Open and Distance Learning. Athens, Greece 27/11/2009 - 29/11/2009
144. Vasileiou, I. (2009). *Blended Learning: The transformation of Higher Education curriculum,* Open Education: The journal for Open and Distance Education and Education Technology, <http://www.openedu.gr/share/magaz_files/papers_pdf/volume5number1all.pdf>
145. Vasileiou, I. (2011). *What is to be a Teacher in Higher Education: The relationship between Teaching and Research,* 6th International Conference on Open and Distance Learning. Loutraki, Greece 04/11/2011 - 06/11/2011
146. Youngblood, P, Trede, F & Di Corpo, S (2001). *Facilitating online learning: a descriptive study, Distance Education*, vol. 22, no. 2

# **Appendices**

### **Appendix A**: Questionnaire Phase 1 for students enrolled on a Flexible Learning degree

Evaluation of 2 year degrees in Computing

Questionnaire-Phase 1

Thank you for taking the time to complete the following course evaluation.

1. How did you find the induction week? Did you acquire all the information needed?
2. Have you used the following facilities and what are your impressions?

* Library
* Learning Devleopment Centre
* Careers Service

1. Could you comment on your general experiences as a first year student? (relevance of the programme, tutors/staff, assessment, workload)
2. How did you find the quality /usefulness of learning resources? Give some examples.
3. What are your comments on Teaching and Learning while being a Flexible Learning student?
4. Do you find the support you get adequate/helpful/sufficient? What are your comments?
5. How do you find the role of your lecturers/tutors? (Are they enthusiastic? Are they accessible? Etc)
6. Are you encouraged to learn independently? What are your views on this?
7. What are your views on study loads? Do you find the assignments/exams are relevant to the course? Should you be given more or less work during the academic year?
8. Do you get feedback for coursework and exams? Please comment.
9. Do you feel the course gives you life changing/career changing knowledge?
10. What is your previous experience in the IT field?
11. Do you find that the University and the School (tutors etc) are emphasizing on employability and facilitating you in this?

Thank you for participating.

### **Appendix B**: Questionnaire for Students transferring to Flexible Learning degrees from a 3 year course

Academic Year 2008/2009

Evaluation of First Year Flexible Learning courses

1. How did you find the teaching and learning styles/methods/pace compared to the 3 year course you were enrolled originally?
2. How did you find the use of learning spaces (classroom layout, etc.) during the summer module compared to the Term 1 and Term 2 modules
3. How did you find the teaching approaches used in order to meet your learning styles and needs?
4. What are your comments for further development?
5. What was the best part of the module COMP205 in terms of teaching and learning?
6. What was the worst part of the module COMP205 in terms of teaching and learning?
7. Overall what are your comments, views, and opinions for the teaching and learning styles for the academic year 2008/2009? What would you like to see more and what less?

Thank you for participating.

### **Appendix C:** Questionnaire Phase 2 for students enrolled on Flexible Learning Degrees

Academic Year 2008/2009

Evaluation of First Year Flexible Learning courses

1. How did you find the use of learning spaces (classroom layout, etc.) during the summer module compared to the Term 1 and Term 2 modules?
2. How did you find the teaching approaches used in order to meet your learning styles and needs?
3. What are your comments for further development?
4. What was the best part of the module COMP205 in terms of teaching and learning?
5. What was the worst part of the module COMP205 in terms of teaching and learning?
6. Overall what are your comments, views, and opinions for the teaching and learning styles for the academic year 2008/2009? What would you like to see more and what less?

Thank you for participating.

### **Appendix D**: Information Consent

**Information Sheet**

**Title**: Authentic Pedagogies for Computing in Higher Education

**Principal Investigator**: Mrs Ismini Vasileiou

**Department**: xxxxx

**Telephone Number**: xxxxxx

You are invited to participate in a research study investigating new pedagogic approaches in Higher Education. If you volunteer to participate in this study, you will be given questionnaires and asked to attend an interview to discuss the questions on the questionnaire in order to share your views on the 2 year degrees (fast track).

The research will involve asking you to talk about your views, thoughts and concerns for the new 2 year degrees in Computing. You will be asked to talk about the content of the course, the pedagogic approach, employability and other relevant teaching and learning issues.

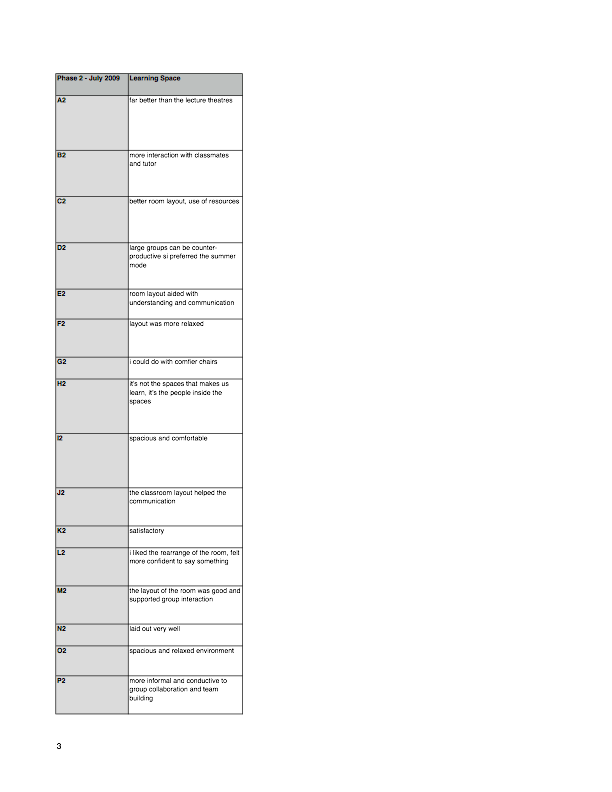
The questionnaire will take approximately 15 minutes and the interviews between 15 and 20 minutes. You may not get any benefit from participating in the study, but the interviews and questionnaires will help in identifying the areas that will need further development and also the success of the 2 year degrees in Higher Education.

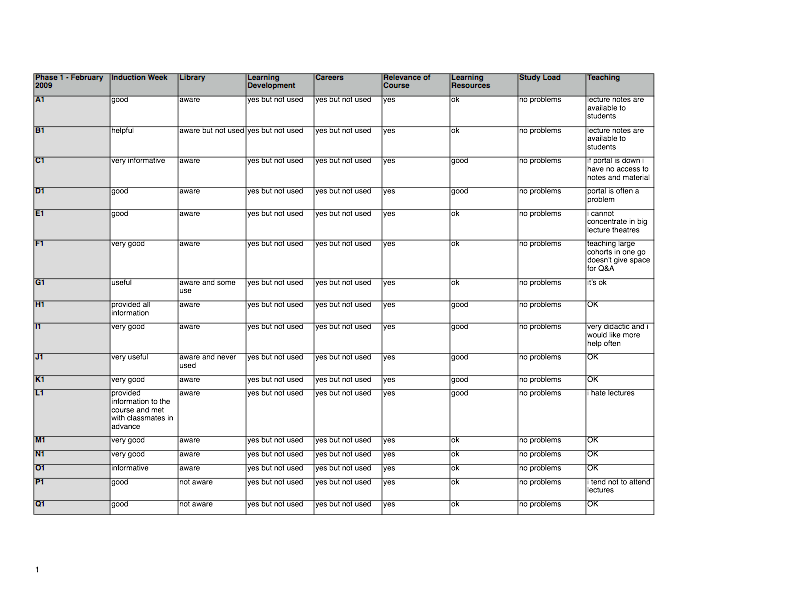
If you volunteer to participate in this study you should always remember that you may withdraw and stop participating in the study at any time you wish. There are no risks from participating in this study other than perhaps you may get tired. In addition to that, it is guaranteed that your answers will not affect your progression to the course even if you decide to withdraw.

All information that you provide will be kept strictly confidential. At no time will I give any information to anyone outside the research staff. The results of this study will be used for my doctoral thesis and may be presented at professional meetings or published in professional journals, but your name and any other identifying information will not be revealed.

If you have any questions about this study or if you have any questions regarding your rights as a research participant you may contact Ms Ismini Vasileiou at 01752 XXXXXX or Mr Dominic Reeve at 01752 XXXXXX.

### **Appendix E:** Answers to Questionnaires





### **Appendix F:** Interview Questions

1. Why did you choose a Fast Track Course?
2. How would you compare and describe your experience in a Flexible Learning environment (summer school) and a more didactic environment.
3. Could you please provide me with an explanation and description on attending and studying one module at a time (Summer School) compared to attending and studying 6 modules at the same time (Term 1 and Term 2).
4. Would you say the technologies used enhanced learning? If not why?
5. Would you say the adaptable learning space had an impact? kindly explain your position.
6. How would you describe the group dynamics between the students and between the students and the academic?
7. How did you maintain contact with the academic once summer school was finished and you were working on the assignments?
8. What would you like further developed and/or enhanced on a Flexible Learning course?

*Thank you for your participation!*

### **Appendix G:** Interview Findings

Participant A

1. **Why did you choose a Fast Track Course?**

Lasted 2 years only and I paid less tuition fees.

1. **How would you compare and describe your experience in a Flexible Learning environment (summer school) and a more didactic environment (Term 1 and Term 2).**

When I first started the course I normally attended sessions in big lecture theatres with 150 or even more students. Although some tutors could keep you awake during the lecture, at the same time the amount of knowledge you acquire when leaving the room was very minimal. During a lecture we only got set of slides with text and diagrams but no practice on the content. By the time we had to attend the practical session most of the times it was days after and it seemed that we would either turn up with no knowledge on what to expect, or doing some reading prior to the session felt like 100% self study.

During the summer school though we were very focused on one or two modules at the same time. Having longer hours per day for each module, the tutor there sitting down with us, it was for sure a different kind of experience.

1. **Could you please provide me with an explanation and description on attending and studying one module at a time (Summer School) compared to attending and studying 6 modules at the same time (Term 1 and Term 2).**

It helped us all to stay more focused and ensure we understand the content before we move on to the next module. Whereas during the other Terms, I personally felt very lost in trying to understand so many different aspects of Computing.

1. **Would you say the technologies used enhanced learning? If not why? If yes why?**

For sure they did enhance learning. We are Computing students first of all and using them makes learning very relevant in our field too. The way the tutor was able to sit down with us and at the same time control her laptop and use the software to explain things further was something we all enjoyed. Learning took a different shape, academic was close, the session was student led but with great support from our tutor.

1. **Would you say the adaptable learning space had an impact? kindly explain your position.**

Not looking each other’s backs and not sitting in rows it definitely made a difference,. You could each other struggling or getting an answer right and its definitely changed the group dynamics and new friendships were made easily.

1. **How would you describe the group dynamics between the students and between the students and the academic during the summer school?**

It was easier to meet the people who had just transferred on the course and talking and sharing concerns and ideas with all fellow classmates it was much easier. Big lecture theatres never help with those aspects of student life. I remember a couple of students with learning needs how more comfortable they felt in that environment, I remember telling us about how isolated they were feeling in those big lecture rooms. Regarding the academic, she was amazing. She had a great understanding and passion of what she was teaching but being around us and not standing in from of us it had a great impact on how comfortable we felt to say many times we were not getting the concepts. By talking to the individuals she could adjust and adapt her approach, meeting the individual’s learning needs.

1. **How did you maintain contact with the academic once summer school was finished and you were working on the assignments?**

It was done via email. There was no other way and it is a shame. We were told initially that something like an online forum would be set up so we could all interact with each other and the academic but what was provided was not exactly that. I think it was lack of technology resources at the time though.

1. **What would you like further developed and/or enhanced on a Flexible Learning course?**

I would like to see all academics trying different ways of teaching, move away from the didactic mode. I would possibly like to see more use of technology, I believe students are now given an iPad ? If this is used in teaching and learning more widely that would be great.

1. **Anything else you would like to add?**

Participant B

1. **Why did you choose a Fast Track Course?**
   1. It only lasted two years, I could get a job quicker.
2. **How would you compare and describe your experience in a Flexible Learning environment (summer school) and a more didactic environment.**
   1. I definitely preferred the summer school compared to term 1 and term 2. I don't like lectures, I was always falling asleep. It was too crowded and boring.
3. **Could you please provide me with an explanation and description on attending and studying one module at a time (Summer School) compared to attending and studying 6 modules at the same time (Term 1 and Term 2).** 
   1. I guess it kept me more focused. Didn't have to worry for too many assignments at the same time. I enjoyed doing one or two modules only and getting the core understanding before I move to the more advanced ones.
4. **Would you say the technologies used enhanced learning? If not why? If yes why?**
   1. No I enjoyed using technology as part of my learning. It was for sure more engaging and more people could participate and share ideas without being afraid of sounding ‘stupid’.
5. **Would you say the adaptable learning space had an impact? kindly explain your position.**
   1. For sure. More interaction with the group, more sharing and of course peer support.
6. **How would you describe the group dynamics between the students and between the students and the academic?**
   1. We became friends quicker, started study groups whereas in term 1 and 2 it was rather difficult as you don't spend too much time with your classmates in classroom and you cannot ask easily if they would be up to it. Having the lecturer sitting down with us rather than maintaining distance from us had an impact on how comfortable we felt in classroom to ask questions and engage.
7. **How did you maintain contact with the academic once summer school was finished and you were working on the assignments?**

via email.

1. **What would you like further developed and/or enhanced on a Flexible Learning course?**

I don't have any suggestions at the moment.

1. **Anything else you would like to add?**

No, thank you.

Participant C

1. **Why did you choose a Fast Track Course?**

It sounded interesting that I could finish my degree quicker.

1. **How would you compare and describe your experience in a Flexible Learning environment (summer school) and a more didactic environment**.

I enjoyed the summer school far more than Term 1 and Term 2. I don't like sitting in a crowded room for an hour or two.

1. **Could you please provide me with an explanation and description on attending and studying one module at a time (Summer School) compared to attending and studying 6 modules at the same time (Term 1 and Term 2).**

It was more interesting and helped me stay focused. It made a difference on my time management. It was one module at a time, one assignment, one difficult task at a time.

1. **Would you say the technologies used enhanced learning? If not why? If yes why?**

Yes, I enjoyed the interaction that the use of software created between students and academic.

1. **Would you say the adaptable learning space had an impact? kindly explain your position.**

I enjoyed the freedom I had to ask questions at any point of the session. Seeing other students struggling with concepts as much as I do it was very encouraging for me to engage more with the course.

1. **How would you describe the group dynamics between the students and between the students and the academic?**

Of course friendships were created, the academic was not perceived as a scarecrow etc.

1. **How did you maintain contact with the academic once summer school was finished and you were working on the assignments?**

Via email.

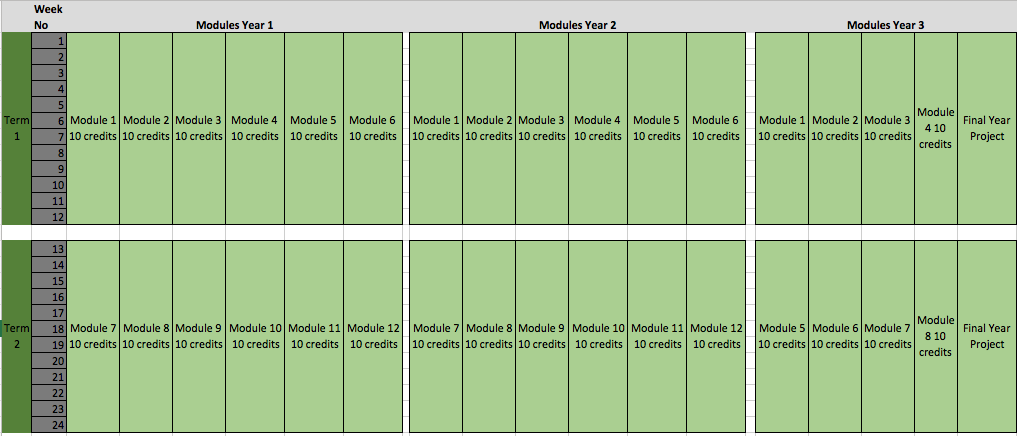
1. **What would you like further developed and/or enhanced on a Flexible Learning course?**

Possibly more lecturers to listen to what the students need.

1. **Anything else you would like to add?**

No

### **Appendix H:** Comparison of BSc(Hons) Traditional 3 Year Degrees



### **Appendix I:** Comparison of BSc(Hons) Flexible Learning Degrees

