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Faculty and Student Attitudes and Experiences of Blended Learning in Postgraduate Programmes: A Case Study in an Irish University

By

Tom Foley

BEd, MEd

A thesis submitted in partial fulfilment of the requirements for the degree of

Doctor of Philosophy

Supervisors: Professor Kathy Hall, Dr Seamus O'Reilly & Dr Alicia Curtin

Head of School: Dr Fiona Chambers

School of Education

National University of Ireland, Cork

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Table of Contents

Page

Table of Contents i

List of Figures vi

List of Tables vii

Declaration viii

Abstract ix

Acknowledgements xi

Glossary of Terms and Abbreviations xii

Chapter 1: Introduction 1

1.1 Preamble 1

1.2 Significance of the Study 3

1.3 Theories of Learning 5

1.4 The Blended Learning Context 8

1.5 Statement of Research Question 9

1.6 Research Setting 10

1.7 Proposed Models 11

1.8 How this Study is Organised 12

Chapter 2: The Higher Education Landscape 14

2.1 Modern Issues in Contemporary Higher Education 14

2.1.1 Access and Diversity 15

2.1.2 Retention 16

2.1.3 Accountability & Efficiency 17

2.1.4 Government Funding 17

2.1.5 Technology – 'Solution or Challenge' 19

2.1.6 Links with Learning 21

2.2 Contemporary Issues in Learning 22

2.2.1 Situated Learning Theory 23

2.2.2 Implications of Student Learning for Assessment 24

2.2.3 Community of Practice (COP) 25

2.2.4 Legitimate Peripheral Participation 26

2.2.5 Experience & Problem Based Learning 26

2.2.6 Ability 28

2.3 New Technologies 30

2.3.1 Introduction - Context 30

2.3.2 Particular Challenges presented by Technology Adoption 31

2.3.2.1 Extrinsic Challenges 31

2.3.2.2 Intrinsic Challenges 33

2.3.3 Impact of Technology – Context & Pedagogy 35

2.3.4 Multimodality as a Concept 37

2.4 Conclusion 39

Chapter 3: Technology Enabled Learning Environments: The Position of Blended Learning 40

3.1 Introduction 40

3.2 Blended Learning Definitions 42

3.2.1 Blended Learning Potential 47

3.3 Studies of Practice 51

3.3.1 Synthesis – Key Issues and Trends Emerging 57

3.3.2 Challenges Facing Blended Instruction 59

3.4 Rationale for Blended Learnig 65

3.4.1 Flexibility of Provision 66

3.4.2 Enhanced Student Learning 66

3.4.3 Increased Pedagogic Efficiency 67
3.4.4 Supporting Diversity 68
3.5 Blended Learning Conceptual Frameworks 69
3.5.1 Chosen Frameworks for this Study: TPACK and Multimodal Model 73
3.5.2 Links with Contemporary Learning Theory 82
3.6 Conclusion 86
Chapter 4: Examining the Elements of Pedagogy through Key Constructs 88
4.1 Constructs 88
4.2 Assessment 89
4.2.1 Authentic Assessment 91
4.3 Feedback 94
4.4 Interaction 100
4.5 Student Experience/Satisfaction 106
4.6 Conclusion 109
Chapter 5: Methodology 111
5.1 Introduction 111
5.2 Research Questions Investigated 111
5.3 A Case Study Design 112
5.4 Philosophical Underpinnings 114
5.5 Case Context 114
5.6 Research Design 115
5.7 Data Collection 116
5.7.1 The Participants Involved 118
5.7.2 Sampling Procedure 120
5.7.3 Data Sources 120
5.7.3.1 Interview Schedules 121
5.7.3.2 Observations 122

5.7.3.3 Documentation 122
5.7.4 Pilot Study 123
5.8 Research Analysis 124
5.8.1 Ethical Approval 131
5.8.2 Validity and Bias 132
5.9 Chapter Summary 135
Chapter 6: Findings from Student Perspectives 137
6.1 Overview of Findings from Student Interviews 137
6.1.1 Student Perceptions of Blended Learning 142
6.1.2 Student Experience 145
6.1.3 Interaction 151
6.1.4 Assessment 157
6.1.5 Feedback 163
6.2 Conclusion 167
Chapter 7: Findings from Faculty Perspectives 169
7.1 Overview of Findings from Faculty Interviews 169
7.1.1 Faculty Perceptions of Blended Learning 171
7.1.2 Student Experience 173
7.1.3 Interaction 176
7.1.4 Assessment 180
7.1.5 Feedback 183
7.1.6 Lack of Training 185
7.1.7 The importance of Time to implement and develop Blended Learning 190
7.1.8 Catering for a Diversity of Learner 192
7.2 Themes of significance to both Student and Faculty Participants 195
7.2.1 Course Induction 195
7.2.2 Learning as Situated and Communities of Practice 198

7.3 Conclusion 201

Chapter 8: Conclusions and Reflections 203

8.1 Overview of Study 203

8.2 Transactional Relationship 205

8.3 Review of Findings through Research Questions 207

8.3.1 Constraints of Blended Learning 213

8.3.2 Enablers of Blended Learning 215

8.4 Conclusion 217

8.5 Research Limitations 220

8.6 Recommendations and Suggestions for Further Research 220

8.6.1 Recommendations 221

8.6.2 Further Research 222

References 223

Appendices 268

Appendix A Ethical Approval 269

Appendix B Research Participants Information Sheet 270

Appendix C Participant Consent Form 272

Appendix D Student Semi-Structured Interview Schedule 274

Appendix E Faculty Semi-Structured Interview Schedule 277

Appendix F Contact Summary Form 281

Appendix G Transcript of Interview with Lecturer of Gerontology 282

Appendix H Project Proposal 292

Appendix I Audit of Programmes 295

List of Figures

Figure 1. Concepts related to the quality of learning at university (Entwistle, McCune, & Hounsell, 2002) 42

Figure 2. The balance between face-to-face activities and online activities in blended learning (adopted from Koohang, 2009, p. 79). 46

Figure 3. Spectrum of e-learning (adopted from Procter, 2002, p. 3) 46

Figure 4. Blended learning conceptualisation 50

Figure 5. Community of inquiry framework (Garrison & Vaughan, 2008) 70

Figure 6. Five-stage model of e-moderation (Salmon, 2009) 71

Figure 7. The SAMR model 72

Figure 8. Technological, pedagogical content knowledge (TPACK) framework 77

Figure 9. The multimodal model for blending with purpose (Picciano, 2009) 80

Figure 10. Components of data analysis: interactive model (Miles & Huberman, 1994) 130

List of Tables

Table 1. Overview of findings from studies of blended courses.....51

Table 2. Summary of the benefits and challenges of blended learning 65

Table 3. Comparison of interaction between face-to-face and online settings 103

Table 4. Phases of data collection 118

Table 5. Demographic profile of student participants 119

Table 6. Phases of thematic analysis.....124

Table 7. Coding system 126

Table 8. Pseudonym system.....126

Table 9. Pre-determined constructs 128

Table 10. Themes emerging inductively 129

Table 11. The audit trail for this study 134

Table 12. Matrix overview of student perceptions in Case 1 138

Table 13. Matrix overview of student perceptions in Case 2 139

Table 14. Matrix overview of faculty perceptions in Case 1.....169

Table 15. Matrix overview of faculty perceptions in Case 2.....170

Declaration

This is to certify that the work I am submitting is my own work and has not been submitted for another degree, either at University College Cork or elsewhere. All external references and sources are clearly acknowledged and identified within the contents. I have read and understood the regulations of University College Cork concerning plagiarism.

Signed: _____

Tom Foley

Student Number: 108116571

Abstract

While technology has undoubtedly increased the breadth and depth of access to education, shifts of this magnitude need reconstruction of approach from faculty and administrators in higher education to rethink the pedagogy for the twenty-first century learner who require such skills as critical thinking, problem solving and the ability to communicate through different media where the face-to-face lectures still dominate teaching practice. In this exploratory study, a case study approach was used to investigate the implementation of blended learning with a group of students on their postgraduate programmes and explore the influence blended learning is having on both faculty and student experience. This study explores the challenges and benefits of a holistic approach to digital learning for a modern university. In conducting this study, the TPACK model of Mishra and Koehler (2006) and the Multimodal Model by Picciano (2009) form the basis of the conceptual frameworks adopted as these were deemed the most relevant frameworks because of their pedagogic dimension.

The themes identified included the need for face-to-face interaction, course structure, induction and providing adequate support. Challenges arose due to isolation with the physical distance between the instructor and students, using technology to communicate on forums, workload, lack of training, time management issues and the ongoing need to provide a variety of assessment methods and subsequent feedback. Blended learning is endorsed as a strategy that helps to create a more integrated approach for both instructors and learners. What also emerged was that a holistic, seamless and well integrated blended learning approach using pedagogically appropriate models and more active learning, provided faculty the opportunity to engage students in a richer, deeper, and more meaningful context.

Overall, students valued this learning and assessment strategy and viewed the online environment as an inclusive space in which to collaborate and share ideas

where they had the option to share knowledge and interact with each other beyond the confines of the classroom where the significance of the pedagogy takes priority over and above the efficiency aspect. This study concludes that blended learning can be considered as an efficient approach to distance learning in terms of students' learning experience where pedagogy transcends technology. The evidence would suggest that effective blended learning does not entail merely 'toying with technology' and adapting it into pre-exiting courses where it may serve no pedagogical value. The relationship between content, pedagogy and technology is fundamental, thus, the implementation of powerful blended learning may necessitate changes in pedagogy and the relationship between students and educators.

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Finally a heart-felt thank you is extended to all the participants of this study. Their willingness to allow me to delve into and seek their personal experiences in order to tell this story was invaluable.

Glossary of Terms and Abbreviations

Blended Learning: In this study, it will be viewed as the combination of traditional face-to-face teaching methods with authentic online learning activities.

Community of Practice (CoP): This refers to the gathering of a group of people who share a concern or passion for something and learn how to do it better as they interact with like-minded people.

E-Learning: This comprises of all forms of electronically supported teaching and learning. In essence, it is the use of computer and information technologies to create learning experiences.

Face-to-Face Learning (F2F): The traditional classroom or face-to-face instruction is when the instructor and the students are in an environment devoted to instruction and the teaching and learning take place at the same time.

Higher Education Institutes: Higher Education Institutions are public and private colleges, universities or other third level bodies whom provide specialist education in such fields as art and design, medicine, business, engineering, rural development, theology, music and law.

Information and Communication Technology (ICT): Information and communication technology (ICT) is another term for information technology (IT) which refers to the integration of telecommunications to access, store, transmit, and manipulate information.

Instructional Design: This refers to theories about how human beings learn along with strategies for applying these theories, and methodologies to carry out the strategies. It aims to compress the learning process and fill the gaps in our knowledge.

Instructional Designers (ID): These help create courses from a specific user profile, enabling learning via online communities, social media technologies and

providing guidance to faculty and educators on how to engage with technology and generate more relevant content.

Learner Management System (LMS): This is a software package that enables the management and delivery of online content to learners.

Lifelong Learning: This refers to all learning activity undertaken throughout life, with the aim of continuing to build on and improve knowledge, skills and competences.

Multiple Choice Questions (MCQs): This is a form of objective assessment where a multiple choice item consists of a problem and a list of suggested solutions.

Virtual Learning Environment (VLE): A system designed to support teaching and learning in an educational setting for distance learning.

Web 2.0: Online technology which is characterised by interactivity and collaboration.

Chapter 1: Introduction

1.1 Preamble

Education, globally, faces unprecedented challenges as we grapple with the rapidly changing landscape of learning in a digital age. Shifting demographics, coupled with mounting student expectations, technological advances and demands for improved retention rates are motivating factors behind the need for significant improvement in the higher education sector. In one generation, our world has profoundly changed. Our habits and practices have been transformed seemingly overnight, but our key institutions have failed to keep pace. The evolution and innovation of digital technologies and their infiltration into all levels of education, from early schooling, and on into universities, has challenged higher education institutions to redefine their teaching and research practices in recent years. In our society, it is very difficult to separate the processes of learning from the practice of education, but we must remember that learning can take place in a wide variety of ways in parallel to the classroom and in very different environments.

Higher education is one of the fastest growing sectors, globally. With a rapid growth in the sector and the increasing global competitiveness, higher education institutions need to focus on how learners are assessed and continue to be assessed. While levels of attainment may be improving, the gap in educational achievement is far too wide in many places. Pedagogies, programmes and modes of assessment deemed effective in the past are no longer adequate and require restructuring. Assessment is clearly under scrutiny with competing theories, diverse practices and many conflicting demands coming from a wide range of stakeholders. While assessment and evaluation form a substantial part of practitioner's workloads, with increasing cohort sizes, reduced budgets, depleting resources and pressure for more cost-effective assessment methods, institutions are faced with on-going challenges. These challenges are calling on institutions to review their position and implement systematic methods for improving quality and

efficiency to remain viable in the global economy, as researchers assert that, on the basis of anecdotal feedback, observation and clear research evidence, the traditional university lecture appears to be in trouble (Davis et al., 2012; Kelly, 2012). While institutions have evolved over centuries, their future is uncertain, and it is difficult to predict whether they will continue to be cornerstones of education in half a century. What is clear though is that, unless they adapt and plan for the future, they may find themselves having diminished in size, fated to become boutique institutions serving a minority.

Digital transformation over the past decade has seen an influx in social media technology that allows individuals to create and share content in digital form through multi-way communication. The practice of social media in higher education can effectively work towards bridging the digital divide which refers to the economic and social inequality with regard to internet access. Not all communities and students have equal access to technology infrastructures and the disadvantage of the "digital divide" is most apparent among those who live in or attend schools in economically disadvantaged areas (Dolan, 2016). The uptake and adoption of e-learning within higher education has seen a dramatic growth in recent years (Algahtani, 2017), calling on the need for further investigation into its impact for institutions, practitioners, and students. We are now at a point where 95% of higher education institutions are operating at least one virtual learning environment. In light of such an expansion of e-learning and the predicted future rise, there are already efforts underway to analyse the somewhat pre-dated traditional education system in place, one that is grappling with issues of quality in an outdated system, where in the face of pedagogical innovation and technological advancements, higher education has retained the systemic structure of previous generations.

Nowadays, it has become apparent that students are making use of their own technology, as well as those provided for them in educational settings as part of their informal day-to-day lives. Students today have choice, perhaps too much choice, of what and where and how to learn. Rosen (2010, p. 205) describes them

as “anytime, anywhere, anyway…my way”, where many prefer to access course information within online environments at a time convenient to them (Davis et al., 2012). Today’s learners are potentially more autonomous, technologically gifted and dynamic, not by virtue of some particular gene they were born with but by virtue of the multimodal environment they have grown up in. Colleges and universities cannot survive on lectures alone and an increased presence of social media in higher education environments is crucial if institutions are to re-connect with learners who have been born into a technological age and can’t comprehend life without the internet. Developing this vision will require considerable change as educators are now faced with the challenge of understanding the pedagogical characteristics of online learning and asynchronous communication tools to best support students’ learning.

1.2 Significance of the Study

Today’s educators face mounting pressures to increase students’ achievement, all the while having less time for instruction in the classroom. Confronted with this challenge, more and more faculty are moving to blend their courses (Barbour et al., 2011; Watson, 2008). In recent years, Information Communication Technology (ICT) has witnessed an expansive growth in all aspects of modern society and has played a major role in the popularity of blended courses. Blended learning is commonly viewed as a combination of face-to-face and online delivery methods and is a flexible approach to e-learning widely used in varied educational contexts (Jonas & Burns, 2010). Such an approach influences students' perceptions of the learning environment and learning approach, further highlighting the relationship between blended learning, student learning experiences, and overall achievement**.** The National Access Plan (2015-2019) has a clearly stated objective for Higher Education Institutions that “equity of access policies should be mainstreamed into everyday life in higher education to enhance the quality of the learning experience and the progression outcomes for all students” (HEA, 2015, p. 128). As institutions

begin to examine blended learning instruction, there is a growing research interest in exploring the implications for both faculty and students (Dziuban et al., 2018). It is important to note that despite the proliferation of literature on online learning, there is a relative scarcity of original research dedicated to examining attitudes to blended learning from an institutional perspective. Wang et al. (2015) highlighted the growing concern over the lack of institutional-based research. In a review of research carried out between 2013 and 2015 based on 87 articles, the results indicated the areas receiving the most attention regarding blended learning: learner 95%, educator 32%, content 79%, technology 54% and institution at 17% (p. 385).

Halverson et al. (2012) also report that most of the seminal work in blended learning to this point has not been empirical in nature, but rather has focused on definitions, models and the potential of blended learning. Ginns and Ellis (2007) research suggests that academics in blended learning contexts need to focus, not only on the functions and capacities of online materials and activities, but on seeking to understand their students' perceptions of the blended learning environment, and identify how successfully it supports students' learning across the whole course. In addition, the main focus of the case studies and survey investigations cited in the literature focus mainly on undergraduate programmes. This study seeks the views of postgraduate students, a silent audience in the blended learning field who have different learning needs for blended learning. Of particular importance for this case study are the use of technology for learning at a distance and expanding opportunities to learn outside the classroom.

This thesis will focus on the introduction of a blended learning approach to the delivery of two postgraduate programmes in a leading university. The knowledge gained from this study will contribute to a better understanding of both the importance and the practice of blended learning, along with the practical implications and pedagogical foundations. A qualitative design will be used which allows the researcher to analyse process, rather than outcomes or products. The context in which this is explored is postgraduate higher education.

This thesis will have practical implications for course designers and educators and theoretical implications for the blended learning frameworks that informed it. The study provides an evaluation of the opportunities, influences, challenges and future professional development needs for the optimisation of blended learning, along with evaluating its potential to support the co-construction of knowledge through meaningful discourse. The findings will be useful in helping decision makers to determine the need for transforming the learning environment, from face-to-face, to blended learning in the university.

1.3 Theories of Learning

Definitions and conceptions of learning have been the focus of debate for centuries as people have been trying to understand this complex process. Over the past century, educational psychologists and researchers have posited many theories to explain how individuals acquire, organise and deploy skills and knowledge. Blended learning is dependent on an understanding of effective pedagogy (Bennett et al., 2009) as using technology in the classroom by itself is not effective unless educators have a theory to model their instruction with. Most educators who adopt and utilise multimedia understand that technology does not replace effective teaching; instead it opens new horizons for discovery and exploration. In order to design effective blended learning instruction, educators need to have knowledge about how people learn and this will direct them to the most effective instructional strategy that will in turn drive the chosen technology. Equally, one must remember that the technology is there to facilitate the learning, not direct the learning. Alonso et al. (2007) assert that effective educational practice is always based on sound pedagogical principles and theories.

Learning theories develop assumptions about learning, test the propositions through research, specify conditions under which learning takes place, and

recommend events related to learning in both formal and informal settings. Theories of learning are described by Young (2008, p. 43) as:

> systematic, well-delineated ways of describing and explaining the teaching/learning process, often with the support of a distinct vocabulary representative of underlying epistemological and ontological perspectives. In addition to furnishing an organised and structured way of looking at teaching and learning, many theories and taxonomies of learning also provide characteristic vocabularies, often metaphorical, that reflect their underlying epistemologies.

Theories help to understand the learner, instructor and the supporting subsystems in a learning environment. Hence, models developed on such theories have more credibility among the researchers (Drysdale et al., 2013). Choosing an e-learning platform cannot really be established independently from an underlying pedagogical model (Wu et al., 2010). Pedagogical theory presents two general learning perspectives: a more instruction-centred, objectivist approach versus a constructivist or active, student-oriented perspective (Wu et al., 2010). There is a close relationship between technology and constructivism, the implementation of each one benefitting the other. E-learning is a pedagogical approach that supports a constructivist theory of learning where interaction is a critical component as learning occurs in a social context through collaboration, negotiation, and peer review. The constructivist paradigm induces *"*deep learning*",* critical thinking and problem solving behaviour (Wu et al., 2010). Constructivism states that learning happens in contexts and that learners form much of what they learn and understand as a function of their experiences in situation (Gilakjani et al., 2013).

Even though there are many models, there are only a few models developed based on theories. Most commonly used theories are Garrison's Community of Inquiry, Moore's Transactional Distance Theory, Wenger's Communities of Practice and Mezirow's Transformational Learning Theory (Drysdale et al., 2013). Though in some research, learner support and instructor/educator are taken as components (Taylor & Newton, 2013), there is a dearth of research on faculty perspectives and the link between learner support and instructor. Interactions between people, and

mediating tools such as language, are now seen to have a crucial role in learning. The essence of interaction amongst students, teachers, and content is well understood and is referenced in many theories of education, especially constructivism (Picciano, 2017). Thus the assessment of learning outcomes need to take more account of the social as well as individual processes through which learning occurs.

In brief, there is no single constructivist theory. Constructivist approaches to teaching and learning is grounded in several research traditions. For instance, constructivist rhetoric can be found in behaviourist approaches and the boundary between cognitivist constructivism and social constructivism is indistinct. Different theories have their own strengths and weaknesses, and continue to evolve. This permits educators to 'mix-and-match'. While it may be easy to plan how one can integrate and blend a constructivist, socio-cultural context for learning, yet, putting this into practice with activities that are authentic and meaningful for the learners can be a challenge for many educators. However, while theorists may be opposed to this idea, in the majority of instances it makes sense to combine approaches.

Various recent developments in educational thought have brought the notion of learning as a process into new prominence. Sociocultural theorists such as Lave and Wenger are of the opinion that when learning is viewed primarily as a process rather than as a product, learning then becomes a practice that changes both the learner and environment, becoming a key part of lifelong learning. The author believes that real-life problem-based practice in situated learning environments will assist learners to become more autonomous, adaptive learners. Similarly, there is now evidence that socio-cultural and activity theory frameworks are involved in a 'discursive shift' to recognise the cognitive potential to explain how we learn new practices (Edwards, 2005). Situated learning comes from a creative and critical position where the work is situated physically and engages with contemporary social, cultural, and political conditions. The blended environment promotes a collaborative approach to learning by means of activities situated in real life

contexts and helps learners become autonomous, meta-cognitive and self-regulated.

Lave and Wenger (1991) make the point that there are not distinguishable modes of learning, because however educational enterprises differ, learning is a product of the environments which they are composed. From a situated learning perspective, an ability to understand something is not grounded in individual accumulation of knowledge but is instead a product of social context in which the learning took place. This shift from the notion that knowledge is the possession of the individual to knowledge as residing in the social context demands a change in mind set and understanding of learning. It equally illustrates why the transfer of understanding from one context to another can frequently pose difficulty.

One of the most popular and controversial theories relates to learning styles and posits that individuals learn differently depending upon their individual characteristics and personalities and this notion is contested by well-known scholars such as Kirschner (2017) and is addressed later in the thesis. Situated learning challenges these perspectives on learning that assume fixidity, rigidity and predetermined concepts such as learning outcomes, since learning is always relational, contextual and emergent in contexts. Thus, blended learning, like all learning is a situated practice and this study looks to investigate it through this lens.

1.4 The Blended Learning Context

Blended learning, e-learning, and online learning are terms that have been adopted to describe the use of synchronous and asynchronous methods of assisting learning through technological means. While distance education and blended learning are referred to by many as closely related, blended learning environments offer different opportunities that allow for different kinds of instructional activities to occur, as it increases the range of tools and potential strategies that can be used to reach learners. Blended learning is influenced by a combination of inter-related

factors. For the purposes of this study, blended learning will be viewed as the combination of traditional, face-to-face teaching methods, with authentic online learning activities. This definition encapsulates the two key components of blended learning; a process that is pedagogically based and a course with a mixture of traditional face-to-face and new online components. Blended learning provides the opportunity to completely modify the teaching and learning relationship thus becoming part of a potentially transformative process (Mirriahi et al. 2015). This can create opportunities to bridge formal learning with informal learning, encouraging lifelong learning habits. As blended learning is continuing to gain momentum in Ireland, this study is contributing to research through identifying factors that can influence blended learning as a means of delivering curricula in Irish Universities.

1.5 Statement of Research Question

This thesis will primarily focus on blended learning in higher education and examine the effect of the university experience on learning outcomes. The use of blended learning in higher education is not possible to generalise due to the lack of empirical institutional investigations, but this study hopes to add to this research. In this exploratory study, a case study approach was used to investigate the implementation of a blended learning model with a group of students on their postgraduate programmes and explore the influence blended learning is having on both faculty and student experience. This research will focus on current teaching and assessment methods utilised in higher education as the practice of assessment alone does not ensure effective learning; rather, pedagogic theory conceptualises assessment as a communication process in which feedback is identified as fundamental to both learning and teaching.

The study looks to review existing research and practice on blended e-learning and assessment, conduct a qualitative case study analysis and make recommendations

to guide future policy, practice and research. In order to really challenge current practice, the context and situatedness of feedback must be recognised. Feedback has emerged as a key issue in higher education in recent years and is arguably the most important aspect of the assessment process in raising achievement (Evans, 2013). This study will review feedback practices to establish the level of dissonance between academics and students in their perceptions of how important and useful feedback is; as reported by many researchers (Adcroft, 2011). The study also pays particular attention to students and instructors' interactions and their influence on teaching and learning on the courses under study. It will also look at the impact of technologies on content and pedagogy.

In order to guide this review, a number of key questions were formulated and will be addressed in an attempt to shed light on the role of digital technologies in higher education:

1) How is blended learning perceived and experienced by university tutors?
2) How is pedagogy conceptualised by the students with particular reference to the main constructs; student experience, interaction, assessment and feedback?
3) What are the constraints and factors influencing the implementation of blended learning?

1.6 Research Setting

The research is based at an Irish University that has a diverse population of 21,000 students. This includes 15,000 in undergraduate programmes, 4,000 in postgraduate study and research, and 2,000 in adult continuing education across undergraduate, postgraduate and short courses and the university is recognised as one of Ireland's leading research institutes. In this study, the sample consisted of 15 students and 6 faculty across two programmes, one in the Humanities and the

other in Medicine and Health. All students were in their first year of a postgraduate course and were engaged in blended learning.

1.7 Proposed Models

Due to the plethora of technological developments in recent years, there is no single formula or prescribed model to adopt as it very much depends on lecturer and students' needs and the cognitive topic (Bergmann & Sams, 2012). Learning is a dynamic process that may evolve and change from one classroom to another and is dependent on a number of factors including learning stimuli and pace of instruction. This research supports the concept that multiple intelligences and mental abilities do not exist as mere 'yes/no' entities but within continua which the mind blends in a manner consistent with the way it responds and learns from the external environment and instructional stimuli. Conceptually, this suggests a multimodal instructional design framework that relies heavily on a variety of pedagogical techniques, delivery approaches, and media. The multimodal design focuses on the delivery of course content and materials and encourages the instructor to provide as many learning modalities as possible to provide ample choice to students and provide pathways of learning that correspond to their individual learning strengths and skills. Additionally, the technological pedagogical content knowledge (TPACK) framework was adopted as a means to understand and describe the kinds of knowledge needed by educators for effective pedagogical practice in a technology-enhanced environment. While the multimodal model and TPACK framework are very different in scope, they offer a lens to guide instructors to integrate technology effectively and will be discussed further in chapters 2 and 3.

1.8 How this Study is Organised

Chapter One provides an overview of the study, identifies the reasons and significance of the study, describes blended learning, the main focus of interest, lists the three main research questions, and, finally, outlines how the study is organised.

Chapter Two puts the study in context and provides a backdrop for understanding the changing nature of higher education. Modern issues in contemporary higher education are explored along with contemporary issues in education to set out the current higher education landscape. New technologies and their impact on content and pedagogy are then reviewed.

Chapter Three is a review of the literature. It looks at technology enabled learning environments and the position of blended learning. Recent research is reviewed and the rationale for blended learning is set out. Conceptual frameworks are then reviewed to establish the most suitable for this study.

Chapter Four examines the elements of pedagogy through the key constructs under review and provides a comprehensive synthesis of major thoughts and discussions, focusing on factors affecting and influencing the implementation of blended learning in the higher education setting.

Chapter Five describes the methodology adopted, data collection methods, and procedures used in the analysis of the data. The research tools used to collect data from key stakeholders and the methods utilised to analyse the data are explained. Issues of validity and reliability, as well as ethical considerations, are also observed.

Chapter Six looks at findings from student perspectives where detailed analyses are presented for interpretation through the use of matrices. The results will be guided by the research questions.

Chapter Seven reviews the findings from faculty perspectives where common themes are highlighted and an additional section where themes emerge inductively from both student and faculty opinions will be included to present the common threads and themes running through the study.

Chapter Eight will aim to discuss the findings and draw conclusions from the central findings. It summarises the major findings in response to the research questions and highlights the contributions to the field of blended learning. The limitations of the current study will be reviewed and implications for best practice will then be drawn. Finally, recommendations for the current institution, along with suggestions for further research, will be provided.

Chapter 2: The Higher Education Landscape

The continued emergence and development of technology undoubtedly presents opportunities and challenges to the future nature of higher education provision and the constraints and problematic aspects of online technologies for learning are in need of investigation. The primary objective of this chapter is to review current research on technology mediated learning and the opportunities and challenges digitisation now presents to course designers. It brings together existing research in the field to create a map of this digital ecosystem of education, discussing student access to these technologies, what they are using them for, and the implications of this use for assessment and learning. Most significantly, however, it raises fundamental questions about how students' learn and, consequently, whether we need to analyse and reconsider the design of our formal education system.

The chapter is subdivided into three sections with the first section focusing on modern issues in higher education followed by a section on contemporary issues in learning with the final section reflecting on new technologies and their impact on content and pedagogy.

2.1 Modern Issues in Contemporary Higher Education

> The purpose and value of higher education is its ability to add to the understanding of, and hence the flourishing of, an integrated social, institutional, cultural and economic life (HEA, 2015)

Higher education has experienced unprecedented growth and change in recent decades. The expansion and diversification in Ireland has been particularly complex, in that, there have been significant developments in technology and ICT, as well as in society itself. Collins and Halverson (2009) argue that we are moving

from an era of "universal schooling", to an era of "lifelong learning", learning continually as new situations demand. The focus is no longer about just making students knowledgeable within their domains of study, but also in equipping them with transferable skills for successful functioning in professional life. Haigh and Clifford (2011) argue that high competency, in both hard and soft skills, is not enough, as higher education needs to go deeper into changing attitudes and behaviours becoming the core of a globalised knowledge-based economy.

2.1.1. Access and Diversity

Higher education is challenged now to promote a range of competencies around knowledge, attitudes, skills and dispositions. With increasing numbers seeking places in higher education and depleting budgets and financial support, institutions are challenged to adapt. The capacity of higher education has doubled over the past twenty years and will have to double again over the next twenty. Those entering the system now and in the future will have very diverse learning needs, and many are 'mature' students. Higher education itself is having to innovate and develop to provide flexible opportunities for larger and more diverse student cohorts. It will need to do this while simultaneously enhancing quality and relevance, and connecting with the wider needs of society and the economy, bearing in mind that we operating in a more competitive globalised environment. These challenges as reported by many researchers are calling on institutions to review their position and implement systematic methods for improving quality and efficiency and to be ever more transparent to remain viable in the global economy.

Higher education is now seen by government as central to future economic development in Ireland, and there are broad social and cultural advantages to widening participation. Higher education is no longer viewed as for the exclusive in society as five times as many young people attend higher education than was the case forty years ago. An elite system of higher education has been replaced by one that gives wider access to students (HEA, 2016). Ireland's higher education system is being pushed to become ever more flexible in provision in both time and place,

and the structure of higher education is already evolving as institutions seek to respond more effectively to the new pressures of diversity, efficiency, transparency, public accountability, funding and access. Working towards equity of access is a priority for the Higher Education Authority (HEA) and these developments seek to realise the full potential of Irish talent and innovation. The recent recessionary period has highlighted the impact that economic circumstances have on student behaviour. We are sending record numbers of school-leavers to higher education, while the proportion going to apprenticeships has reduced significantly. The collapse in employment opportunities and apprenticeship places for school leavers has led to an increase in demand for both further and higher education with recent projections suggest that by 2028 the number of new entrants to higher education will increase by 29% over 2013 levels (DES, 2014).

2.1.2 Retention

While participation continues to grow, rather worryingly, in figures recently published by the Higher Education Authority Ireland (2017), attrition seems to be on the rise, with a growing number of students failing to complete their studies. The scale of these drop-out rates come as senior academics question whether many students are suited to returning to higher education, having completed many years in industry or the workforce. Some argue that today's generation of student are perceived as entitled with many growing up with lower self-esteem due to the need for instant gratification and validation who don't have the coping mechanisms or skills to deal with stress or anxiety (Ng & Johnson, 2015). While drop-out rates are more prevalent amongst undergraduate students and vary across different sectors and types of higher education, typically higher levels are witnessed at Institutes of Technology. Having said this, overall non-progression rates of 15% compare favourably against international standards but undoubtedly, additional funding and retention initiatives would help to address and alleviate this issue. Equally important is that access to higher education be available to individuals independent of socio-economic disadvantage, gender, geographical location, disability or other circumstances. The Programme for Access to Higher Education (PATH) was recently

established by the Department of Education and Skills in 2017, focusing on three strands that are committed to increasing participation by under-represented groups and developing diversity amongst third level cohorts. While undoubtedly, increased participation will be significant for higher education, it also brings serious challenges in terms of structure, human resource practices and funding.

2.1.3 Accountability and Efficiency

Flannery and McGarr (2014) make reference to the need for reform in Ireland's higher education sector, with greater flexibility offered both as the rationale and as the means of reform. Few people would deny that the modern university is quite different since the turn of the century and the work of academics has changed considerably over this time driven by the efficiency and accountability agenda. Some would argue that the call from the hierarchy in institutions for efficiency and accountability has been used as a mechanism for control, cost reductions and to drive particular policy agendas (Kenny, 2008). As institutions shift from a collegial to a corporate or commercial entity, a shift in power from academia to the hierarchy has taken place with institutions now expected to do more with less. Universities of today are challenged to update and internationalise their study programmes, to establish partnerships, to engage in mobility and, at the same time, do all of this in a cost-effective way, keeping it accessible to learners (Nascimbeni, 2014). Scaling is therefore essential for higher education institutions as they are having to deliver on heightened expectations with reduced budgets and depleted resources. As acknowledged by Bradwell (2009), the forces now confronting education in many respects represent a "perfect storm" of institutions expected to offer a more varied provision to a growing number of students in an era where funding is reduced.

2.1.4 Government Funding

Investment in higher education is imperative where the scale of investment is substantial and the quality and reputation of Irish research is now a priority in order

to have positive impact across all social groups and the need for diversification in funding sources is simply essential (Kaiser et al., 2014). There are more than 40 higher education institutions in Ireland: 24 are public higher education institutions of which 7 are universities, 14 are institutes of technology and 3 are specialist higher education colleges (HEA, 2017). New legislation will pave the way for technological universities in the coming years as the government believes in the idea of merging institutes of technology to create larger and more powerful institutes of technology. Higher education institutions need to identify and engage with a broader base of funding sources, and reduce their strong relative reliance on government funding while improving the relevance and quality of their education and research.

The Irish higher education system is predominantly funded by the state with approximately 70% of total funding being provided but within these public institutions the reliance on state funding has been reducing significantly since 2008. Exchequer investment in Irish universities has diminished year on year over the past decade and this combined with the steady increase in students seeking a third-level qualification, has fundamentally undermined the financial model (Irish Times, 2018). Increases in student contributions along with general reductions in overall state funding have resulted in a steady reduction in the proportion of total funding for core activities of higher education institutions and subsequent reductions in the university rankings for all Irish universities as the student to teacher ratio has increased. Having said this, in July 2016 the Report of the Expert Group on Future Funding for Higher Education called “Investing in National Ambition: A Strategy for Funding Higher Education” was published. The Report outlined the future funding needs of the higher education sector and concluded that an additional €600m was required by 2021 and €1bn by 2030. This requires a more responsive and open engagement with key stakeholders, particularly to continue to successfully use philanthropy and enterprise to fund necessary capital and developmental projects and universities are in particular targeting foreign markets to either recruit

students/researchers from or else open up branches of the university therein, e.g. UCD Penang Medical School.

Investment in high-quality research in higher education is vital for our future economic and social development. Irish higher education is expected to be characterised by research-performing institutions that interact effectively with enterprise and society within an open innovation system to ensure that past and future investment contributes to Ireland's future development. It is also worth pointing out that Irish universities have been losing ground in the global university rankings (QS World University Rankings, 2018). While additional funding has been allocated for higher education in the next couple of years, many institutional leaders are of the opinion that it's a drop in the ocean as research budgets are small by international standards, and this combined with large class sizes, could well see many institutions slide down the rankings even further unless addressed.

2.1.5 Technology – 'Solution or Challenge'?

The advent of new technologies have changed the traditional model of higher education, where physical presence is not a necessary requirement anymore (Yuan et al., 2013). Studying while working is more commonplace and therefore more mature students have now the opportunity to study towards a graduate or post-graduate degree. Access to learning has become more flexible, and students can choose from a blend of different approaches. The current demand in education and training identifies methods and tools for delivering "just-in-time, on-demand" learning opportunities tailored to individual students, taking into consideration their differences in skills level, perspectives, culture and other educational contexts (AONTAS, 2015). The opportunities which will open up in the years ahead as technology advances will potentially be vast and some of them can only be imagined at this stage. Learning experience is assumed to be readily enhanced by abundant online resources (Strecker et al., 2018) where examples of such technology-driven innovations would include the use of mobile and video technology, flipped classroom model and the use of collaboration technology in

blended approaches. Langbauer et al. (2016) further argue that interactivity can increase the efficiency of learning programmes and thus support the individual learning process due to its increased potential to motivate students and make them more interested and engaged in the learning subject. The challenges and opportunities presented by technological advances are under active consideration in higher education and their impact, will depend largely on how they are received and managed. The main point to note in terms of my argument at this stage is that higher education in Ireland is undergoing several inter-connected challenges of which the issue of new technology is but one.

Amidst these technological advances, many higher education institutions attempt to engage with this world of social media applications and social media users. The positioning of higher education by some commentators continues to be quite negative. While we have gone through enormous changes in our modes of social interaction and communication, many commentators are of the view that our most important institutions of school and work have altered very little. Davidson (2011, p. 160) for instance points out, "most education is still stuck, institutionally and instructionally, in the ideology and the methodology of the industrial age". Owens (2012) supports this notion that higher education is still based on an outdated transmission model of teaching and learning. Institutions will need to review their position as Laurillard (2014, p. 3) asserts "better that the academy engage and lead than avoid and perish" and this requires systematic change at the institutional level. While change is inevitable and institutions face difficult choices, higher education is tasked with an array of agendas as reflected in the quote at the outset of this chapter.

Irish higher education is now at a point of transition, with increasing numbers entering the system from a diversity of background and a much greater emphasis on lifelong learning and upskilling (DES, 2011). The image of universities as the "ivory tower" (Duff et al., 2000, p. 7), with a tradition of producing elite intellectuals has transformed, with a focus on the creation of lifelong learners.

Critical thinking, adaptability and creativity will be key characteristics required of graduates in the future and a shift toward a hybrid model of educational delivery may provide a solution and be viewed by policy makers as the way forward to create educational systems that are more inclusive and societies that are more knowledgeable and just. While some seminal thinkers (Johnson et al., 2012) are critical of the current higher education institution and the lack of uptake of technology due to issues around poor infrastructure, limited space and, limited number of qualified lecturers (Al-Gamdi & Samarji, 2016), we don't yet know enough regarding its potential to make informed decisions. The purpose of this study is to look for evidence of these claims.

2.1.6 Links with Learning

Historically, learning has been viewed as an object to be acquired, possessed, and transferred but in recent years, new theories have introduced the concept of learning as an active experience that occurs as we acquire the knowledge and skills. The next section puts learning under the spotlight and looks at the various recent developments in educational theory that have brought the notion of learning as a process into new prominence. Sociocultural theorists such as Lave and Wenger demonstrate that learning and living are one and the same, that learning is not something separate from 'the everyday'. The author believes that real-life problem-based practice in situated learning environments will assist learners to become more autonomous, adaptive learners. Situated learning comes from a creative and critical position where the work is situated physically and engages with contemporary social, cultural, and political conditions.

2.2 Contemporary Issues in Learning

Learning has played an important role in cultures around the world and learning theorists continue to debate how people learn effectively. Numerous researchers have highlighted that the very definition of learning is contested, and that assumptions that people make regarding its nature and where it takes place also vary widely (Schoenfeld, 1999; Hager, 2003). Contestation of the definition, nature and location of learning brings into question whether the concept of a general theory of learning is possible or indeed feasible (Philips, 2016). Learning standards are taken to mean a "definite degree of academic achievement established by authority, custom, or consensus and used as a fixed reference point for reporting a student's level of attainment" (Sadler, 2012, p. 9). In educational research, there has been an obvious shift towards more social, collaborative and communal perspectives of learning (Donnelly, 2007). Various studies of collaborative and inquiry-based learning maintain the view that learning be understood as a combination of participation, knowledge creation and internal processes. Lave and Wenger (1991) make the point that there are not distinguishable modes of learning, because however educational enterprises differ, learning is a facet of the communities of practice of which they are composed. This section will look at learning from a situated perspective, where an ability to understand something is not grounded in individual accumulation of knowledge but is instead a product of social context in which the learning took place. This shift from the notion that knowledge is the possession of the individual to knowledge as residing in the social context demands a change in mind-set and is yet another feature of the complexity of contemporary higher education.

Definitions and conceptions of learning have been the focus of debate for decades as people have been trying to understand this complex process. Over the past century, educational researchers have posited many theories to explain how individuals acquire, organise and deploy skills and knowledge but like all scientific theories, Sfard (1998) delineates that theories of learning come and go. In more

recent times, the field of education has undergone a significant shift in thinking where the once held notion that all kinds of learning processes in any situation can be understood by some general set of rules or mechanisms, has been replaced by a perspective on learning that acknowledges the importance of the context in which learning is taking place as well as the content of learning (Cole, 2010; Rogoff, 2003). This suggests that knowledge and learning have to be understood as inextricably integrated with the setting in which they occur, where Brown et al. (1989) assert that an understanding of learners' activity in a particular setting is central to an understanding of their learning; learning is thus "fundamentally situated". In essence, learning is a function of the activity, context, and culture which it occurs, where it is situated (Lave & Wenger, 1991) and this is where the term situated learning derives from.

2.2.1 Situated Learning Theory

Situated learning theory holds that effective education requires learning that is embedded in authentic contexts of practice and has emerged as an alternative to dominant, cognitive perspectives on learning (Pengiran, 2018). Brown et al. (1989) argue that knowledge is embedded in the situation and it is the circumstances that provide essential structure and meaning to learning. This approach to learning demands what Evans (2014) calls "a deep approach"; i.e., to see knowledge as complex, evolving, effortful, tentative and evidence-based (p. 187). Situated learning theory focuses on the relational and structural aspects of learning. Social interaction is important to situated learning theory, and student understanding and achievement are greatly enhanced by authentic social interaction, communication, and collaboration. A wealth of research has been devoted to the goal of understanding the different theories of learning. Two specific metaphors have emerged within which learning can be understood. These consist of the acquisition metaphor and the participatory metaphor of learning (Sfard, 1998).

The acquisition metaphor depicts learning as the gaining and accumulation of knowledge where it can be shared, transferred, constructed and built upon.

Learning in this perspective is a process of using knowledge according to these affordances while on the other hand, the participation metaphor represents learning not as cognitive growth or as receiving something, but as an active involvement in an ongoing process of learning, where learning is embodied by doing and participating. Learning in this context is viewed as the result of negotiating meaning through interaction with others, with context, and the physical world. As learning is often linked with formal education, in order to learn effectively will involve elements of both participation and acquisition. The complementary nature of both these metaphors, emphasises the coexistence of learning as matter or acquisition metaphor; and learning as process or participation metaphor. Sfard argues that while theories of learning can be classified as acquisition-oriented or participation-oriented, most conceptual frameworks use elements of both metaphors. While knowledge can be acquired in informal situations, purposeful engaging experiences add to the acquisition processs. Students who are taught by a process of acquisition rather than participation, requiring them to reproduce and regurgitate facts and concepts through memorisation, will not be able to access a body of knowledge that would otherwise be available to them through a learning experience enriched by real-world social and material interactions.

2.2.2 Implications of Situated Learning for Assessment

Assessment of learners' work is a significant component of effective teaching and learning (Webber & Tschepikow, 2012). Gee (2015) whose research on learning would align with the sociocultural, situated perspective, says that we need to pay more attention to our assessment methods as too often we do not know who we are assessing when we assess today's students, as they are a complex body of experience gained over long periods of time. He makes the point that the focus of assessment ought to be on assessing bodies of experience for more effective learning in the future and the building of new capacities. This highlights the importance of formative assessment as a process of gathering evidence in order to determine if learning occurred and what next strategies will advance future

learning (Moss & Brookhart, 2009). Situated learning focuses on the social nature of cognition and the importance of learning in an authentic context further emphasising that authentic and relevant tasks that relate to the learners' everyday work and cognition be provided for assessment. Wenger (1990) makes the point that current assessment methods use tests which the students struggle to engage with, where knowledge must be demonstrated out of context, and where collaborating is considered cheating. Thus, the situated learning theorist would claim that learning can only happen through the intervention of activities, context, and culture (Motteram, 2013; Sansome, 2016).

2.2.3 Community of Practice (CoP)

Situated learning theory suggests that learning is experienced and mediated through interactions in a 'community of practice'. Within a community of practice, group members jointly share and develop practices, learn from their interactions and gain opportunities to develop personally, professionally, or intellectually (Lave & Wenger, 1991; Mills, 2013). Reilly et al. (2012) found that communities of practice, provide an active, connected approach with the potential to enhance and expand professional growth opportunities in university faculties. Wenger (1998) demonstrates that learning is central to human identity, where individuals continuously create their shared identity through engaging in communities of practice which can provide a powerful incentive for learning. Participation is the key to communities of practice, with negotiation of meaning and reification the outcomes of such participation between members. The participation metaphor offers a helpful way of conceptualising situated learning theory such as cognitive apprenticeship, situated theory and communities of practice and accommodates student progress and growth and has the potential to give rise to togetherness and collaboration, which promote positive risk taking and inquiry in learning environments (Sfard, 1998). This reinforces the theory that learning through participation as "apprenticeship" might further encourage the student's collaboration in the classroom, leading to a community of learners solving problems together in what is known as legitimate peripheral participation.

2.2.4 Legitimate Peripheral Participation

Legitimate Peripheral Participation (LPP) is a concept emerging from the work of Jean Lave and Etienne Wenger and seeks to describe and account for learning in participatory groups. The type of learning characterised is highly influenced by socialisation and imitation. This usually requires social interaction and collaboration within the "community of practice". The community typically comes together to solve a problem and seek to benefit from the knowledge of others who may be more experienced or more knowledgeable. In essence, the newcomer to the groups initial involvement is peripheral, but over time is drawn inwards and becomes more engaged and more complex. Eventually, learners gradually move away from this community to become engaged in more dynamic and complex activities, and transition into the role of the expert which usually occurs unintentionally and the process is referred to as "legitimate peripheral participation" (Lave & Wenger, 1991). LPP locates learning in the interactions between people. Learning does not belong to individuals, but to the various groupings and discourses of which they are a part. In stark contrast, many commentators would argue that the current education system insists that the most important aspects of learning are in the possession of individual students. So LPP is useful in countering the arguments of the prevailing discourse of assessment, attainment targets for individuals, grades and levels of attainment with the predominant focus on the individual acquiring general information from a decontextualized body of knowledge.

2.2.5 Experience and Problem Based Learning

While situated learning emerged in the late 1980s through key theorists such as Brown et al. (1989) and Lave and Wenger (1991) building on the theories of others such as Bandura's social learning theory and Vygotsky's constructivism, its key characteristic focus is on placing the learner 'in the experience' through problem-based learning and experiential learning. Situated learning places the learner in the context so, therefore enhancing the value added practice and knowledge. This

approach to teaching turns much traditional education upside-down in that the learning now needs to emerge and grow out of problem-solving activity as higher education is increasingly becoming a knowledge-producing enterprise where students are actively involved in the knowledge creation process. In the university phase, the inter-connectedness between higher education and society is further deepened; education is concerned with ensuring that the majority of the population has the knowledge and skills to adapt to rapid social and technological change. The idea that colleges and universities are complex organizations that adapt to their external environment has long been accepted in higher education scholarly circles (Enders, 2004; Manning, 2013; Papadimitriou, 2011).

In a Problem-Based Learning (PBL) context, the goals of teaching relate directly to valuing student understanding more than transmitting information and promotes engagement in meaningful learning and cooperation among students and an increasing body of research is emerging to indicate the effectiveness of PBL (Hung et al., 2008). Tasks usually involve working as teams and the use of group work is a particular feature of the PBL method. The imperative of 'purposeful group dialogue' means that lecturers and students are both involved in ensuring the quality of the dialogue so that it enhances learning. While different perspectives of cognition have been applied to experiential learning and adult education, including the role of reflection, working through conflict, situated learning, learning through action and interaction (Eames & Cates, 2011), PBL implies the need for an innovative instructional strategy that poses meaningful, contextualized, authentic situations, with appropriate instruction and guidance to learners to develop knowledge and problem-solving skills. In essence, problem-based approaches to learning are one of many instructional approaches that situate learning in a meaningful task.

Learning through experience is not a new concept in the educational realm. Notable educational theorists such as Dewey, Rogers, and Kolb have provided the groundwork of learning theories that focus on 'learning through experience' or

'learning by doing.' Kolb (1984) states that learning involves the acquisition of abstract concepts that can be applied flexibly in a range of situations. Kolb's experiential learning theory is concerned with the learner's internal cognitive processes and is characteristically represented by a four-stage learning cycle; doing, reflecting, concluding and planning. Kolb provides a relatively simple yet conceptually complex definition of experiential learning as "the process whereby knowledge is created through the transformation of experience" (Kolb, 1984, p. 38). Instruction is designed to engage students in direct experiences which are tied to real world problems and situations in which the instructor facilitates rather than directs student progress. The focus of experiential learning is placed on the process of learning and not the product of learning and what makes this concept stand out and more powerful than 'learning-by-doing' and 'hands-on-learning' is the inclusion of the reflection and application stages. Situated learning is well suited to all types of education as authentic examples help educators to reflect on their practice (Korthagen, 2010) and could be related to their teacher-learner autonomy (Lynch, 2013).

2.2.6 Ability

Another issue is 'ability as dynamic' and Sternberg as a researcher reflects this stance through his work and the idea that ability is not fixed but dynamic as there is substantial evidence that abilities can be altered (Sternberg, 1988; Sternberg & Spear-Swerling, 1996). Sternberg's (1990) view of intelligence revolves around the interchange of analytical, practical, and creative aspects of the mind and thus in his opinion measuring intelligence not only involves assessing how much of a certain ability we each have, but also how we use our abilities to solve problems or adapt to certain environments. The goal of education is to promote higher level thinking by teaching for successful intelligence where the ability to learn is an essential part of intelligence. Sternberg (1998) views abilities as forms of developing expertise, where expertise involves the acquisition, storage, and utilisation of explicit knowledge of a domain and implicit knowledge of a field (Sternberg et al., 1995). While

learning is divided into explicit learning and implicit learning, students learn more effectively when they think to learn, as intelligence consists of complimentary processes of critical and creative thinking. As the landscape of an environmental context changes over time, adequate adaptation, shaping, and selection involve a process of lifelong learning. In essence, practical intelligence is the ability to learn and in order to gain knowledge, it's not enough to have experiences, but to take from them the key nuggets and information that can be adapted and applied in other situations.

As ICT continues to develop, instead of having to learn in the same location, schools and institutions are now hosting blended and online distance courses that permit groups to access material and interact through new technological means. In their identification of theoretical frameworks that inform our understanding of e-learning, Mayes and de Freitas (2007) presented situated learning theory as a fundamental perspective to further discipline our understanding of learning in Web 2.0 environments. Situated learning can be reflected in the purposeful integration of educational technologies to support learners' and scaffold student learning in these complex, authentic, and social educational contexts. Complexity is interwoven throughout higher education and when we design for complexity, we also design for simplicity and effectiveness in experience for staff and students. Higher education institutions need to leverage technological tools and systems to deliver the personalised experience that students of today have come to expect (National Student Survey, 2018). The next section will look at new technologies, the challenges to successful integration and their impact on content and pedagogy.

2.3 New Technologies

2.3.1 Introduction-Context

Technology is perhaps one of the strongest factors shaping the educational landscape today (Johnson et al., 2016) and while the development of technology is feared as a disrupter and distractor, it can also be revered as an enabler in the education sector. The benefits of technology for higher education include the idea that technology gives institutions the ability to be much more flexible; it enhances collaborative learning and helps institutions to maximise opportunities. Educators and researchers point to the potential of technology to increase motivation and engagement of learners, cater for different learning styles and improve learning outcomes (Eady & Lockyer, 2013). It also enhances the student experience by allowing students to adapt to new learning environments and be much more creative (O'Donnell, 2012). It enriches and enhances communication skills, developing critical thinking and problem solving, increasing social responsibilities and the capacity of self-education and self-improvement (Groff, 2013). Today's technology enables students to learn at their own pace according to their abilities and needs and offers students greater flexibility to work on material when and where it's convenient for them.

Technology in the classroom is assumed to prepare students for their future and sets them up for this increasing digital economy as an alternative to education in the information society of today or tomorrow. In essence, online learning opportunities presented by digital technologies provide convenient and efficient access to the latest information and knowledge, learning and assessment, and training and upskilling. Online learning breaks down barriers and reduces access issues and closes that gap that existed for many where a top quality higher education was out of their reach by allowing institutions increase capacity at a reduced cost (Wall, 2015). Today's institutions use the digital technologies to shift from the brick and mortar monopoly on education. Colleges and universities use eLearning to enhance the classroom experience and to deliver

courses entirely online and the adoption of eLearning offerings continues to increase (Kemp & Grieve, 2014). Yet in many ways, we are just scratching the surface of the impact of online learnings true potential. As the technology is relatively new, we are only beginning to explore its true capabilities and higher education institutions are well placed as research establishments to explore the technology field and its potential in the educational setting. As technology in classrooms continues to evolve, a shift towards focusing on and enhancing students' educational experience becomes key.

One of the challenges that educational institutions face is maximising the effectiveness of technology to underpin the support and delivery of the curriculum (Wall, 2015). Some would suggest that rather than replacing curriculum, if harnessed and used in an effective manner, technology can enhance it, leading to deeper student engagement and collaboration amongst our student population (Groff, 2013). Although many educators appreciate the benefits of educational technologies, its successful implementation can be a challenge as Rahmany et al. (2014) argue, successful integration of technology is a complex issue that requires implanting complicated knowledge systems and deeper understanding of complicated interactions among multiple types of knowledge. After all, technology is not linear, and as much as it presents various opportunities, it also poses several challenges. The challenges to technology integration can be both external (extrinsic) to the educator including issues around access to resources, training and support, while intrinsic issues are centred around faculty resistance to engage with the technologies, attitudes and beliefs, and knowledge and skills (Johnson at al., 2016).

2.3.2 Particular Challenges presented by Technology Adoption

2.3.2.1 Extrinsic Challenges

External issues as described above often need to be addressed at the institutional level where problems with technological infrastructure have been cited as a barrier to the adoption of blended learning (Mahdizadeh et al., 2008; McConnell & Zhao, 2006 as cited in Stein et al., 2011). This poses an issue, as easy access to technology for both trainers and learners is a prerequisite for successful delivery of any online learning component (Childs et al., 2005). Technology systems need to be designed to act in tandem with academic policies to provide a more integrated experience for students where decisions at university level on technology platforms and VLEs, systems and appropriate tools and resources are made in consultation with academic leadership. In the absence of resources to establish and develop e-learning content, the instructor must be empowered to embrace blended learning and acknowledge that their role must change and this undoubtedly presents significant challenges for leaders in educational institutions (Wall, 2015). It is important not to use technology for its sake, but rather to embed technology appropriately (Eady & Lockyer, 2013).

As faculty quality and effectiveness largely determine institutional success (Vailli & Testori, 2012), educators require professional development on where to find content and how to interpret and manipulate the content to deliver and apply it in an online setting. However, Voogt and McKenney (2017) have raised questions about the adequacy of current professional development programmes in preparing teachers to design ICT integrated lessons. Without the necessary resources and funding to provide effective continuous technological training, institutions will continue to cite inadequate professional development as one of the major barriers to technology implementation. When adopting and implementing new technologies in the educational setting, faculty face the issue known online as the 'double innovation', where an additional layer of work is added to their already heavy workloads (Cleaver, 2014). It requires the faculty member having to educate and familiarise themselves with the technology prior to linking it with learning intentions and outcomes. While educational technologies are becoming easier to learn, the double innovation problem posed

by its integration results in additional time on the part of faculty and without additional support and resources, many will continue to shy away from this educational innovation as research by Ertmer et al. (2012) indicated time as being an influential barrier to integrating new classroom technologies.

Online teaching demands new competencies of our educators (Alvarez et al., 2009) and is fundamentally different from traditional teaching as it requires the development and adaption of pedagogies (Baran, 2011). In order to realise effective technology integration, faculty are encouraged to engage with ongoing training and CPD as university faculty often lack systematic preparation for teaching (Baran, 2011; Simon, 2012) and especially lack preparation for online teaching. Inadequate professional development and training is a commonly cited reason by faculty for the lack of technology implementation (Ertmer et al., 2012).

2.3.2.2 Intrinsic Challenges

Higher education is experiencing rapid and profound change from many different directions where some of these changes are highly desirable, while others are necessary to reposition colleges and universities in a changing world. One such change that is not clearly visible is attitudes and how technology is gradually changing the academic relationship between teacher and student. Educators are expected to be, and are valued as, repositories of knowledge and information (Evans, 2014). Lecturers and faculty who were once a source and wealth of knowledge are now competing for attention with a generation of students who feel entitled and have easy access to instant solutions and answers. New technologies have advanced the human capacity for rapid communication in unprecedented ways where what we have viewed in the past as 'instant gratification' or 'impulsivity' may, through the current generation's eyes, be seen as living at appropriate speed! (American Psychology Association, 2009). We now have the commodification of education where there unfortunately exists a sense of entitlement where students nowadays expect on-demand services and enhanced grades as they are paying more for a service (Bunce et al., 2017). The role of the educator is shifting from one of relaying information to sort fact from

fiction and differentiate between unreliable sources including information sought on Wikipedia. To avoid being technology-driven, Laurillard (2016) makes the point that faculty must learn to harness technology as the means to serve our academic ends which requires a dramatic shift in the role of the educator.

Given the abundance of available educational technology, it is essential that educators feel comfortable and confident regarding their ability to use and deliver them effectively. Koehler et al. (2014) make the point that teachers often lack the knowledge to successfully integrate technology in their teaching and that their use of technology tends to be limited in depth and scope rather than transformative. Many faculty are apprehensive and slightly concerned that this new model of instruction will restrict their academic freedom. It is important that faculty be persuaded to adopt a different mode of teaching to understand the full potential of educational technology and this requires a change of attitude and mind-set where Cakar (2018) reported that the perceived benefits and attitudes were influential on the intentions of users. More importantly, the relationship between attitude and intention positively affected the perceived benefit of technology adoption (Pazvant, 2017).

If there is one big stumbling block that hampers learning, it is resistance. The failure of blended courses to reach their potential can be attributed to a number of factors including both the resistance of educators (Heirdsfield et al., 2011) and a lack of adequate professional development (Garrison & Vaughan, 2008). Coupled with this, many institutions find that its management structures are difficult to modify and somewhat resistant to change. Despite the clear evidence of the benefits of using technology in education, some commentators and researchers are claiming that there continues to be a notable reluctance by academics to engage with online learning due to reasons such as fear of change, scepticism about student outcomes, or workload issues (Wingo et al., 2017). There is less resistance when things change gradually. We sometimes look at technology as a barrier to personalisation and humanity, but this fallacy is rooted in the myth that technology

is not a threat to mankind. As institutions continue to explore ways that faculty can integrate and apply technology in their educational settings, consideration must be given to the modification of pedagogy as a result.

2.3.3 Impact of Technology – Content & Pedagogy

If educators are to repurpose tools and integrate them into their teaching, they require a specific kind of knowledge, referred to by Koehler and Mishra (2009) as technological, pedagogical and content knowledge (TPACK). They argue that technology by itself is not a panacea for higher education today as consideration must be given to the relationship between technology, content and pedagogy. This highlights the significance of the TPACK framework and builds on Shulman's (1986) PCK theoretical framework that represents the blending of content and pedagogy, where TPACK considers how the addition of technology can help teachers to integrate domain knowledge with appropriate pedagogical approaches (Voogt et al., 2013). An inherent strength of the framework is its capacity for supporting the review of technology not simply as an 'add-on, or 'bolt-on' but with a view to the relationships between the three domains of content, technology and pedagogy in the learning environment (Koehler & Mishra, 2009).

The ability of the teachers to integrate technology into different teaching methods has become essential because of the rapid advancement of technology in the twenty-first century. In recent times, researchers have shown a growing interest in studying how educators incorporate technology into their teaching (Graham et al., 2009; Srisawasdi, 2014) where educators require a good understanding of how technology can be coordinated with pedagogy and content knowledge to integrate technology effectively into the learning environment (Graham et al., 2009). Banas (2010) makes the point that educators need to move from a level of *"*no technology use*"* to one of *"*learning from*"* technology and finally through to a *"*learning with*"* technology level. In order to integrate technology into the learning environment effectively, the TPACK framework,

provides a map for educators to understand how to use technology to teach concepts in a way that enhances student learning experiences. TPACK represents the use of technology to support content-specific pedagogical strategies in the learning environment.

As educators are aware, teaching is a complicated practice that requires an interweaving of many kinds of specialised knowledge, Koehler and Mishra (2009) make the point that this is further complicated when considering the challenges newer technologies present to educators. Most instructors and administrators recognise the benefits technology can have in the classroom but the instruction of technology skills alone is not sufficient to prepare educators for the pedagogical integration of technology (Mishra et al., 2009) as while they understand how a specific piece of technology works, this doesn't automatically translate to them using it effectively to promote student learning (Graham et al., 2009). While it is sometimes assumed that the presence of digital tools will solve all our problems and enhance the learning process, this is far too simplistic a view as without effective planning, resourcing and implementation, it is little more than a bolt-on effect with limited pedagogical purpose. In contrast, effective teaching with technology requires an understanding of the concepts of technology; systems, resources, requirements, optimization, processes and control. These concepts are the cornerstone for creative design. Mishra and Koehler (2006) speak of the dynamic interaction when referring to developing educators' knowledge, as they strive to use technology for teaching and learning. This has clear links to our previous section on learning as situated, "thoughtful pedagogical uses of technology require the development of a complex, situated form of knowledge" (p. 1017), and TPACK will be further developed in chapter 3. While TPACK predominantly focuses on the educator for teacher knowledge, the multimodal model focuses on the student and supporting them in their knowledge acquisition.

2.3.4 Multimodality as a Concept

Multimodal approach is one in which learning is delivered in more than one sensory mode. On the one hand, it designates a tendency towards the integration of a variety of semiotic systems (verbal, visual, kinaesthetic), while on the other hand, it designates the simultaneous engagement of different senses (seeing, hearing, touching, etc.) (Peeters, 2010). Norris (2015) describes multimodality as a fast growing area of inquiry where the focus moves beyond the modes to include things such as layout, gesture, gaze, or body posture. Moreno and Mayer (2007) describe mode as being the code used to represent information in the verbal or non-verbal form, while modalities refer to the sense receptors used to receive the information, (auditory, visual etc.). Consequently, by being able to select modes tailored to the needs and preferences of learners, more students might be included in learning (Nouri, 2018).

Multimodality takes note of the fact that students learn in different ways where students' understanding can be enhanced by the addition of non-verbal representations to verbal explanations (Fletcher & Tobias, 2005). The multimodal learning environment is highly interactive as rather than unilaterally presenting the verbal and non-verbal information required to understand something, it permits student input, accommodates different learning paces, and allows for system feedback contingent on student responses (Moreno et al., 2001). Selander and Kress (2010) assert that meaning making and knowledge building is increasingly taking place in a multimodal way. As highlighted by many proponents of the multimodal approach, in the new technological era, learners are more active in the learning process and can develop and enhance their learning by employing multiple semiotic resources (Danielson & Selander, 2016; Jewitt, 2008).

While interactive learning environments permit students to manipulate the instructional materials, deep learning from these environments depends on opportunities to reflect on their actions (Azevedo et al., 2005). Multimodality can

be considered using the TPACK framework focusing, in part, on Pedagogical Content Knowledge (PCK) which is defined as knowledge that includes "knowing what teaching approaches fit the content, and likewise, knowing how elements of the content can be arranged for better teaching" (Mishra & Koehler, 2006, p. 1027).

Kang et al. (2010) have mapped PCK from a multimodal perspective and make the point that educators have to make choices all the time about what pedagogy works best to deliver the content, how to interact with the students and how to assess their work. Picciano (2009) argues that learning styles are not fixed rather they play out "within continua from which the mind blends the manner in which it responds to and learns from the external environment and instructional stimuli" (p. 14). Current cognitive science research suggests that students learn in different ways depending upon a number of factors including their age, learning stimuli, the pace of instruction, etc. (Picciano, 2009). It also suggests that learning is a dynamic process that may evolve and change from one classroom to another, from one subject to another, and from one day to another (Willingham, 2008). This continues to raise questions about what and how to teach, particularly in light of multimodal theories applied to education (Jewitt & Kress, 2003; Hull & Nelson, 2005) and the diverse offerings of new digital technologies. Conceptually, this suggests a multimodal approach to technology enhanced learning that relies on a variety of pedagogical techniques, deliveries, and media and this is the basis for Picciano's framework for multimodal instructional design. His framework operationalises this through attention to six basic pedagogical objectives and the activities and appropriate approaches (including use of digital technologies) for achieving them and is useful as an analytical framework to delve into the use of various 'elements' and associated technologies across the range of learning opportunities. While we must acknowledge that interactive mixed-modality learning environments do not automatically create understanding, Picciano's model is flexible in nature and other modules can be added as needed, where the most important feature of this model is that the pedagogy drives the approaches that will work best to support the learner.

2.4 Conclusion

This chapter portrays the complexity of the higher education environment and looks at contemporary learning theory and the links between blended learning and learning as situated. Situated learning is an important component of pedagogy as it draws on the experience of meaning-making in everyday life. Pedagogy is negotiated, a conversation brought about in the moment by the individuals interacting in a situation and it is when theory and action meet that pedagogy develops. Connections need to be made between technology, pedagogy and content as without support structures and learning activities grounded in sound pedagogy, technology in the learning environment will only have a 'bells-and-whistles' approach with limited impact on learning.

Determining an appropriate design for a learning progression that blends both theoretical and practical experiences in TPACK development must draw from multiple modalities as the online TPACK learning trajectory is a supportive instructional approach for the design of online experiences. While the TPACK framework was introduced for educators to enable them to conceptualise the knowledge base to teach effectively with technology, in this study, an integrated model for blended learning is provided based on pedagogical purpose and the TPACK model. The following chapter will contextualise the purpose of this study by locating it in the existing body of knowledge and peer reviewed literature relating to blended learning, frameworks, and their links with contemporary learning theory.

Chapter 3: Technology Enabled Learning Environments: The Position of Blended Learning

3.1 Introduction

Technology is a key enabler for blended learning and can help establish and develop online communities without being time or situation bound (De L'Etraz, 2010). Research has revealed that using technology in the process of learning increases interest, motivation, improves attention span and produces a positive mind-set towards learning (Nguyen, 2015). Moreover, the integration of web technology in the learning process also improves learning efficacy (Alwehaibi, 2015; Briggs, 2014). Having said this, one needs to be cautious, as incorporating technology in the learning process does not necessarily guarantee motivated students or improved results (El-Seoud et al., 2013).

The generation of web, or 'Web 2.0', supports social interaction and allows the opportunity to collaborate with individuals from around the world and "provides us with a great opportunity to modify our approaches to teaching and learning in beneficial ways" (Renes & Strange, 2010, p. 211). The asynchronous nature of online forums, blogs and wikis provide the added flexibility for students to participate and balance study with other life commitments and distractions. Social web technologies are increasingly being incorporated into innovative learning practices and offer great potential for supporting students' learning in higher education (Boulos & Wheeler, 2007; Grosseck, 2009; Huijser, 2008). Web 2.0 applications provide venues for collaboration and the sharing of information, supporting the networks for social and active learning. Web technologies have increased the availability and accessibility of content for both learners and instructors and have enabled both to produce content, blurring the line between the instructor and the learner (Wall, 2015). As technology continues to develop and with the exponential growth of online teaching, Web 3.0 rears into action,

where new platforms are beginning to emerge that will undoubtedly support and enhance technology-supported environments where learners individually and collaboratively consume and create content.

With fast-developing technology and evolving educational practices, universities are increasingly offering more "flexible" learning environments (Kemp & Grieve, 2014) and various educational opportunities are emerging for online and face-to-face students in higher education (Szeto, 2011). The rise of e-learning has helped to encourage students to take on more responsibility for their own acquisition of knowledge (Ituma, 2011) but it is equally as important that students understand the motivation and self-discipline that are required for this type of learning (Cackett, 2018) as a direct consequence of the physical separation of students and instructor is the need for all communication to be mediated by some kind of technology. When students are provided with a rich context and the tools for learning, they achieve higher levels of learning, see a stronger relevance between the problems in the classroom and the problems of the real world, and are more satisfied with the learning experience (Johnson et al., 2006). Limited institution-led support for faculty may decrease the motivation of lecturers to transform a course from a traditional model into a blended format and discourage their commitment to change (Kenney & Newcombe, 2011). Many proponents speak of the blended format as being an effective model to engage and enhance the learning experience of students today (Benson et al., 2011; Bernard et al., 2014; Ryan et al., 2016). Although the concept of blended learning may be simple in theory, it is complex in reality (Wang et al., 2015).

This chapter is a review of the literature that attempts to link all these core ideas and have them intertwined to form a coherent framework for this thesis and a research study that is underpinned by it. This review will focus on the influence of digital technologies on higher education and how they pave the way for innovative techniques in the educational environment that can both enrich the students' learning experience and provide students with a broader real-world learning

environment. This literature review is subdivided into two main sections. Section one will look at the context and definitions of blended learning, followed by a review of studies of practice. Section two will take a look at the various frameworks with a focus on two models; TPACK and Multimodal and their links with contemporary learning theory.

3.2 Blended Learning Definitions

Concurrent with the rise in implementation, research on blended learning has increased over the past decade, with much of the research occurring in a higher education context (Halverson et al., 2012). Blended learning has been viewed by many higher education institutions as a means of integrating pedagogy and technology with teaching and learning and as a way of growing research and cultivating new markets. Factors that influence the quality of learning achieved, according to Entwistle et al. (2002), include course material presentation and both the type of teaching–learning environment provided, as well as the students' perceptions of this environment, as illustrated in Figure 1.

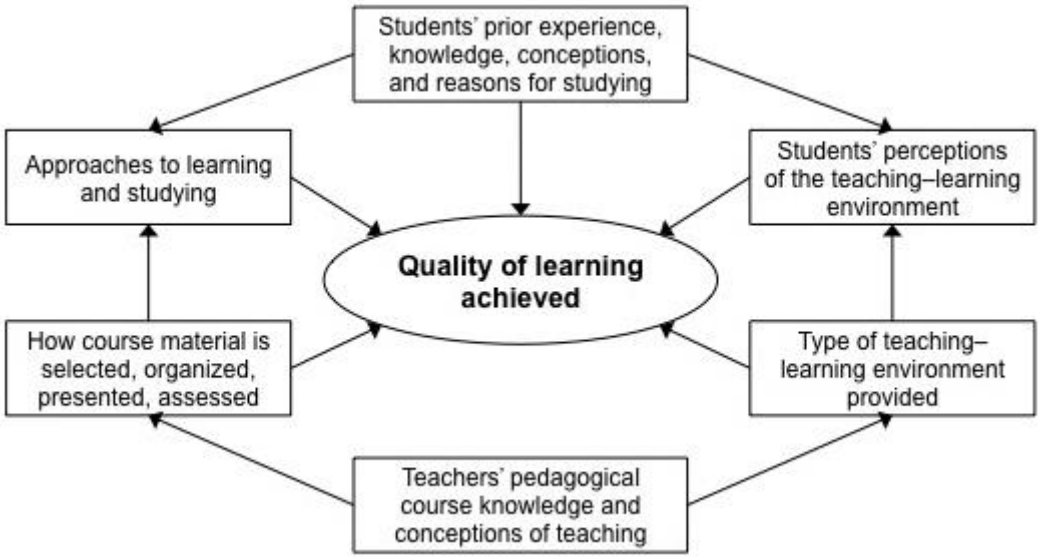


Figure 1. ***Concepts related to the quality of learning at university (Entwistle, et al., 2002)***

While research continues to emerge on the topic, the debate around the definition of blended learning continues to play out. It has been argued that there cannot be a generic model for blended learning as there are far too many variables and a focus on a carefully designed one-size-fits-all model of blended learning would be counter intuitive (Irlbeck et al., 2006). Over recent years, there have been many attempts to define blended learning (Graham, 2013; Oliver & Trigwell, 2005; Vaughan, 2007). The search for a definition for blended learning has been productive, challenging, and, at times, daunting (Dziuban et al., 2018).

Graham's (2013) work explored the literature related to learning effectiveness, learner satisfaction, faculty satisfaction, access, flexibility and cost effectiveness, where he outlined opportunities for exploring the link between these themes and the need for more theoretically grounded research. According to Bernard et al. (2014), blended learning can be defined as:

> the combination of instruction from two historically separate models of teaching and learning: traditional face-to-face learning systems and distributed learning systems (p. 91).

Although there is little consensus regarding a clear cut definition as numerous individuals have used various approaches, blended learning has become widely accepted in educational settings and for some, is the future of education itself (Brown & Diaz, 2010), where learning can happen anytime, anywhere, irrespective of a student's socioeconomic class or location.

Oliver and Trigwell (2005) establish that blended learning affords teachers different ways of transferring information to the students. Thorne (2003) finds blended learning is a method of making learning more individualised and further asserts the fundamental aim in blended learning is to choose a combination that will motivate students and support them to complete their courses successfully. Ross and Cage (2006) view blended learning as entailing a "spectrum of learning modes that range from the traditional face-to-face classrooms to fully online degree programs". Garrison and Vaughan (2008, p. 148) observe "the word blended is used to suggest

that it is more than a bolting together of disparate technologies with no clear vision of the result". Fleck (2012), however, provides an extremely creative description for blended learning that makes it clear that there are as many opinions about blended learning as there are researchers/educationalists writing about it. In fact, a positive by-product of adopting blended learning is that it provides a range of learning solutions and can enable more elegant and bespoke solutions by combining one or more methods. More recently, Christensen et al. (2013) defined blended learning as contributing to an integrated learning experience through multiple pathways:

> a formal education programme in which a student learns at least in part through online learning with some element of student control over time, place, path and at least in part at a supervised brick-and-mortar location away from home. The modalities along each students' learning path within a course or subject are connected to provide an integrated learning experience.

Horn and Staker (2014) define blended learning as "any formal education programme in which a student learns at least in part through online learning, with some element of student control over time, place, path and/or pace". Bates (2015, p. 39) notes that blended learning embraces a wide variety of designs, amongst which he distinguishes:

- technology used in classroom aides (e.g. PowerPoint Slides, clickers);
- using a learning management system to support classroom teaching (e.g. for storing learning materials or for online discussions);
- using lecture capture for flipped classrooms;
- sequencing semesters of residential study with semesters studying online;
- short periods on campus for hand-on experience or training followed by concentrated time studying online;
- hybrid or flexible learning requiring the redesign of teaching to enable students to do the majority of their learning online, coming to campus only for specific in-person sessions (e.g. laboratories) that cannot readily be done online

Over the past decade, no universal definition of the term “blended learning” has emerged. What has happened as such is that the term has been defined and redefined by various studies. Moskal et al. (2013) delineate that the concept of blended learning is not universal because it is fundamentally interdependent with the context in which it occurs which links in with the implicit nature of situated learning theory as described earlier in sub-section 2.2.1. The literature indicates that blended courses are designed in many different ways, where the lack of a clear accepted definition leads to educators interpreting and understanding blended learning in different ways, resulting in a wide variation of approaches (Deperlioglu & Kose, 2013; Graham, 2013; Lee et al., 2013).

Up to recently, the growth of blended learning environments was predominantly practice led as opposed to research based. Nowadays, there is a growing body of research advocating the use of blended learning and supporting the view that it positively influences student learning outcomes (Bernard et al., 2014; González-Gómez et al., 2016). Ryan et al. (2016) assert that the most effective teaching model is a blended approach, which combines face-to-face classroom learning, self-paced learning, and live e-learning. This is comparable to the findings of Sun et al. (2008) as self-paced opportunities and balancing work and family are especially important for postgraduate student cohorts. Research suggests that this is pertinent amongst a professional body such as nursing participants who often have competing demands on their time, including a full time job and family commitments given their demographic profile (Hahessy et al., 2014). While Shah and Cunningham (2009) state that the majority of students believe that e-learning has numerous advantages, they continue to view face-to-face lectures as significant and a ‘real contact’. While this may be true, Grosseck (2009) points out that the use of Web 2.0 technologies in higher education is perceived by educators as very promising, both for the educational process and for self-development. In fact, many are finding the need to redesign curricula models that are less prescribed and driven more by learners needs using Web 2.0 technologies and this will require educators to expand their visions of pedagogy and learning (Selwyn, 2010). A

significant element in blended learning is to determine an appropriate balance between face-to-face and online activities, as depicted in the following figure taken from Koohang (2009).

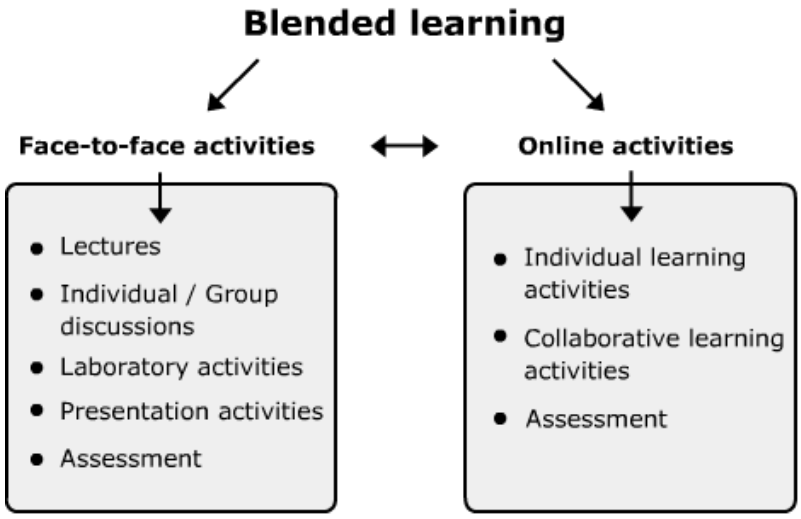


Figure 2. ***The balance between face-to-face activities and online activities in blended learning (adopted from Koohang, 2009, p.79).***

With Osguthorpe and Graham (2003) highlighting the significance of balance between face-to-face and online activities, it is imperative that we place blended learning in the context of e-learning. Blended learning sits within the continuum of course delivery modes between entirely face-to-face and entirely online courses. By introducing the Spectrum of E-learning as developed by Procter (2002), it is possible for us to classify where blended learning is situated.

Contact Learning	Flexible Learning	Blended Learning	Online Learning	Distance Learning

0% Electronic **100% Electronic**

Figure 3. ***Spectrum of E-learning (adopted from Procter, 2002, p. 3)***

Allen and Seamen (2007) categorise blended courses as having between 30-79% of content delivered online. Anything above this value is deemed as online, while below 30% online content is categorised as web-facilitated. Similarly, Watson et al. (2010) set a threshold of 30% online delivery of content for an environment to be considered blended.

Although there has not been complete agreement among researchers about the precise definition or meaning of blended learning (Bernard et al., 2014), for the purposes of this study, blended learning will be viewed as the combination of traditional face-to-face teaching methods with authentic online learning activities. As Picciano (2009) suggests, without a clear definition, blended learning is perceived as a vague combination of online and face-to-face instruction. Given the exploratory nature of this study and its desire to understand blended learning from the perspectives of faculty and students, this definition of blended learning is suitably broad.

3.2.1 Blended Learning Potential

Blended learning has been the focus of much attention in recent years with numerous studies investigating the complexities of how blended learning interacts with cognitive, affective, and behavioural components of student behaviour and examine its transformational potential (Dziuban et al., 2016; Garrison & Vaughan, 2013; Jean-Francois, 2013; Kitchenham, 2011; Picciano et al., 2014). Blended learning has been established with an experimental approach in order to challenge different issues in higher education, including the changing nature of the student cohort and recent advances in technological innovations. As both e-learning and traditional learning have visible strengths and limitations, Azizan (2010) proposes that it is best to combine the strengths of both learning environments to develop a mix of delivery called blended learning.

Blended learning, incorporating e-learning, is the only technology-based delivery vehicle that can make on-going dynamic adjustments to the instructional path

based on learners' responses. This tailoring of instruction based on learning progress is referred to as adaptive instruction (Clark & Mayer, 2008). The research cites that students often choose this model due to its convenience and the ability to regulate class attendance due to its flexible scheduling (Watson & Gemin, 2009). It has been described as a mode of teaching that eliminates time, place, and situational barriers, whilst enabling high quality interactions between teachers and students (Kanuka et al., 2009). An environment that combines e-learning with face-to-face experiences sets it apart from the traditional lecture methods and this mixed instructional model known as hybrid or blended learning serves to combine the best features of each model. Furthermore, blended learning can support student-centred learning environments (Benson et al., 2011), where the affordances of blended learning environments are assumed to promote higher-order thinking, critical reflection and motivation, and facilitating student self-regulation of their learning (Morrison & Monteiro, 2014).

Staff are using an increasing number of digital approaches to support students' learning, drawing on a growing pedagogical literature evidencing the effectiveness of technology to enhance learning outcomes, student engagement, and student satisfaction. Dziuban et al. (2004) in a three-year study between the face-to-face, fully online, and blended learning methods found that blended teaching always gives better success rates than the other two methods. A study conducted by the US Department of Education (2009) examined fifty-one empirical studies comparing online education with traditional face-to-face courses. They concluded that students who took the class online performed better than those taking the same course face-to-face (Yates et al., 2009). A meta-analysis conducted by Jaschik (2009) found that students who took all or part of their instruction online performed better, on average, than those taking the same course through traditional instruction. Further, those who took blended courses appeared to do best of all. This trend has continued with the publication of a meta-analysis of 50 studies that concluded that while online students performed slightly better than their face-to-face counterparts, students in courses that blended online and face-

to-face components did much better than a straight online course (Means et al., 2010).

Stein and Graham (2014) acknowledge that the movement of learning to online environments adds flexibility to participant's schedules, provides learning benefit through automated and asynchronous online tools, and can tap into the modern social web to assist learners to venture beyond the traditional confines of the classroom. Kim (2012) makes reference to its potential to improve the learning environment and human interaction, Ali et al. (2014) highlights its ability to improve students' team work skills and Young and Randall (2014) cite the potential to improve knowledge through discussions outside the classroom.

Blended learning has emerged through the development and cohesion of information and communication technology but very few studies provide educational guidance for institutions (Halverson et al., 2012). Many higher education institutions teach in multiple modes which includes on campus, at a distance, online or a blend of a number of modes (Taylor & Newton, 2013). Research would suggest that there is no singular best model for blended learning that fits for all. Fully online courses are very demanding for many students and have their drawbacks due to their "limitations in engaging learners in deep learning and meeting the high expectation of self-disciplined and motivated learners" (Lim & Yoon, 2008, p. 60) and "lack of peer contact and social interaction, high initial costs for preparing multimedia content material, substantial costs for system maintenance and updating, as well as the need for flexible tutorial support" *(*Wu et al., 2010, p. 55). Therefore, an effective alternative to address the limitations associated with fully online learning is to find a middle ground and blended learning provides such an effective instructional alternative. Dziuban and Moskal (2011) established that the mode of delivery has a very weak statistical correlation with students' success or persistence, thus, the institution has to select the mode of delivery that best serves their students through the right combination of face-to-face and technology mediated-instruction.

Figure 4 helps illustrate some of the variation that can exist in the blended model. This graphic representation of "blended" developed by Picciano and Dziuban (2007) highlights the way in which the extent of technology use can differentiate between the various blends. An interesting aspect of this model is the distinction in the lower quarter between asynchronous and synchronous teaching and learning technology and the use of media infusion in an attempt to meet the needs of today's diverse learners.

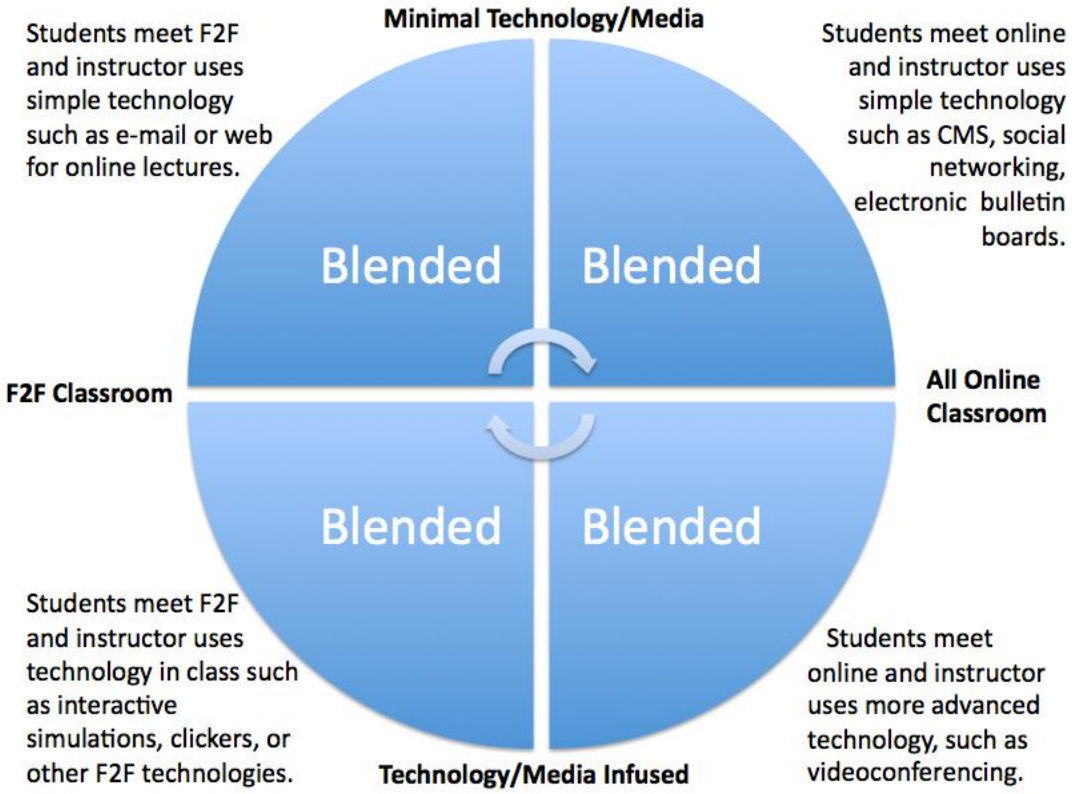


Figure 4. ***Blended learning conceptualisation***

Source: Picciano & Dziuban (2007), Blended Learning Research Perspectives, Needham, MA: The Sloan Consortium

There is an increasing recognition that blended learning can address funding shortfalls and preserve and enhance the ideals of higher education. In net-based environments, learners are afforded substantial freedom, with the educator

providing the framework and the learners discovering for themselves, with increased autonomy. There is a vast amount of literature that has reported on and attempted to outline the different dimensions of blended learning, and the following section is a review of these.

3.3 Studies of Practice

In an attempt to understand where we are going in any field of research, it is important to understand where we have been. Research on blended learning has increased steadily in the last decade and the following table represents a sample of 15 studies related to the current study. Identifying and understanding the trends in this growing body of research is important so that researchers are in a better position to frame their own investigations and also to establish gaps in the existing knowledge base which can be explored. While many of these investigated the use of technology in an educational setting, as to its effectiveness on the learning process, these studies differ in many ways regarding the software adopted, the place of study, course being delivered, study design and dependent variables, and most importantly study results.

Table 1. Overview of findings from studies of blended learning

Researchers	Year	Title	Views on Blended Learning
Allen & Seamen	2013	Changing Course; Ten years of tracking online education in the United States, Sloan Consortium: Retrieved from: http://www.onlinelearninsurvey.com/reports/changingcourse.pdf	This longitudinal study tracks the opinions of chief academic officers and is aimed at answering fundamental questions about the nature and extent of online education. Concerns regarding the quality of the learning outcomes for online education and the additional faculty time and effort required to support online learning are cited as major barriers to the successful implementation and adoption of online learning. A continuing concern among academic leaders at all types of institutions has been their belief that lower retention rates are a barrier to the growth of online instruction.
Baxter & Haycock	2014	Roles and student identities in online large course forums: Implications for practice, *The International Review of Research in Open and Distributed Learning*, 15(1).	The research draws on current theory relating to online communities and examines this in relation to the extent to which the forum adds to feelings of academic and social integration. Findings reflect on the importance of academic integration and identity whilst also alluding to a number of barriers producing negative effects on student motivation and online identity.
Bernard, Borokhovski, Schmid, Tamim & Abrami	2014	A Meta-analysis of blended learning and technology use in higher education: from the general to the applied, *Journal of Computing in Higher Education*, 26(1), 87-122.	In this meta-study of blended learning, students in blended programmes have turned out to achieve slightly better than students following traditional classroom instruction programmes. The authors in this study make the point that the element of technology integration in blended learning courses seems to lead to very low, though significant improvement in student achievement, particularly when technology yields cognitive support or facilitates student interaction.
Collopy & Arnold	2009	To blend or not to blend: Online and blended learning environments in undergraduate teacher	This research demonstrated how student satisfaction and motivation can increase as a result of blended learning. Their research involved the study

Researchers	Year	Title	Views on Blended Learning
		education, *Issues in Teacher Education*, 18(2), 85-101.	of 80 undergraduate teacher candidates who participated in modules delivered in three different formats; fully online, partially blended and fully blended. Their results indicated that in the two types of blended classes, students reported "significantly higher levels of learning" (p. 96).
Dringus & Seagull	2015	A five-year study of sustaining blended learning initiatives to enhance academic engagement in computer and information sciences campus courses. *In Blended learning: Research perspectives*, Vol.2. Edited by A. G. Picciano, C. D. Dziuban and C. R. Graham, 122-140, New York: Routledge.	In this book chapter, the authors share experiences and data in highlighting a 5-year implementation plan of blended learning initiatives. While blended learning is viewed as sustainable and students indicated a positive response towards the integration of online tools and activities in enhancing their class experience, faculty have concerns over constraints likely to persist that will impact the implementation and success of the model. These constraints would include faculty and students' preferences, expectations of an on-campus course, class size, and the extra time and workload involved.
Dziuban, Graham, Moskal, Norberg & Sicilia	2018	Blended learning: the new normal and emerging technologies, *International Journal of Educational Technology in Higher Education*, 15(3), 1-16.	This study investigates outcomes, implications, and possible future directions for blended learning in higher education. The authors delineate that effectiveness is determined by access, success and student perceptions. The authors conclude that blended learning, because of its flexibility, allows us to maximise many positive education functions.
Garrison & Vaughan	2008	*Blended Learning in Higher Education: Framework, Principles and Guidelines*, San Francisco: Jossey-Bass.	Garrison and Vaughan assert that it is 'beyond time' for higher education institutions to adapt and cater for the needs and expectations of an ever increasing knowledge society. They define blended learning as the "thoughtful fusion of face-to-face and online learning experience" (2008, p. 9). They delineate that a popular framework for discussing blended

Researchers	Year	Title	Views on Blended Learning
			learning from a socio-constructivist perspective is the community of inquiry framework and assert that the "ideal educational transaction is a collaborative constructivist process that has inquiry at its core" (2008, p. 14).
Gonzalez-Gomez, Su Jeong, Airado-Rodríguez & Cañada-Cañada	2016	Performance and Perception in the Flipped Learning Model: An Initial Approach to Evaluate the Effectiveness of a New Teaching Methodology in a General Science Classroom, *Journal of Science Education and Technology* 25(3), 1-11.	This study focused on the flipped classroom model where a significant difference was evident on all assessments with the flipped class students performing higher on average where the students welcomed the ability to pause, rewind, and review lectures, as well as increased individualized learning and increased teacher availability.
Laumakis, Graham & Dziuban	2009	The Sloan-C Pillars and boundary objects in framework for evaluating blended learning, *Journal of Asynchronous Learning Networks*, 13(1), 75-87.	A framework is proposed for evaluating online learning and is now increasingly utilised to evaluate blended learning. Laumakis et al. assert that blended learning has established a culture of sustainability in higher education, providing accessibility to a very diverse student population.
Lopez-Perez, Perez-Lopez & Rodriguez-Ariza	2011	Blended learning in higher education: Students' perceptions and their relation to outcomes, *Computers & Education,* 56(3), 828-826	Lopez-Perez et al. (2011) discovered that teachers found that using a blended learning environment enabled them to cover more material and their students' learning was enhanced by the blended environment. Improved teacher student interaction was cited and students' experienced a higher degree of autonomy and improved motivation and satisfaction in the blended learning environment.
Moskal, Dziuban	2013	Blended learning: A dangerous idea, *The Internet*	In this article, the authors make the case that implementation of an

Researchers	Year	Title	Views on Blended Learning
& Hartman		*and Higher Education*, 18, 15-23.	effective blended learning programme requires alignment of institutional, faculty, and student goals. For an institution to succeed in the blended model, it must have a sense of what goals and outcomes it wants to achieve. Blended learning requires high quality support at all levels and these elements must play out in an institutional culture that is both responsive and reliable.
Norberg, Dziuban, Moskal, Norberg & Sicilia	2011	A time-based blended learning model, On the horizon, 19(3), 207-216.	This research identifies constructs in terms of improving enhancement, presence and access in that "blended becomes a mix of place versus non-place events". They identify that blended possibilities emerge around five components: migration, support, location, learner empowerment, and flow. The authors predict that in the future we may possibly be able to discontinue conversations regarding space, blending, and perhaps even time.
Owens	2012	Hitting the nail on the head: the importance of specific staff development for effective blended learning, *Innovations in Education & Teaching International*, 49(4), 389-400.	The researcher conducted a mixed-methods study to analyse input from 529 educators on their pedagogical views of blended learning. The purpose of the study was to identify a gap between educator beliefs about blended learning and their practice of it in the classroom. The key finding in the study revealed the need for more resources and educator instruction. The results highlighted a need for further research in the area of educator perceptions, satisfaction, and practice of their pedagogical styles to the blended learning environment.

Researchers	Year	Title	Views on Blended Learning
Ryan, Kaufman, Greenhouse, She & Shi	2016	The effectiveness of blended online learning courses at the community college level, *Community College Journal of Research and Practice*, 40(4), 285-298.	In this paper, the authors cite online learning in contradistinction to F2F learning. They agree that students' learning in online and blended settings does not arise from technology alone but from the combined influence of implementation, context and learner characteristics as these factors interact with technology. The evidence suggests poorer outcomes for students enrolled in online only courses, whereas, students enrolled in blended courses perform similarly, if not better, relative to students in a traditional instructional setting.
Vaughan	2010	A blended community of inquiry approach: Linking student engagement and course design, *Internet and Higher Education*, 13, 60-65.	Vaughan conducted a case study with 70 participants which compared a blended course before and after its redesign, focusing on key areas such as use of technology, assessment activities and learning outcomes. The redesigned course witnessed an increase in student satisfaction while retention and the class grade average also increased significantly.

3.3.1 Synthesis- Key Issues and Trends Emerging

Emerging concepts such as online learning or e-learning in the higher education sector, have resulted in a significant number of comparative studies being carried out on e-learning and face-to-face learning environments (Northey et al., 2015; Southard et al., 2015), and students' learning outcomes (Bernard et al., 2014; González-Gómez et al., 2016; Ryan et al., 2016). In the reviewed research in table 1 above, four studies have focused on establishing whether technology enhanced learning in the form of e-learning, blended learning is more effective than traditional face-to-face teaching. Researchers, educators and educational decision makers alike are eager to determine which format leads to the best results for their students and the educational institutions.

Educational research suggests that courses offered in a blended format prove more effective than face-to-face and online (Ryan et al., 2016), with improved student achievement and cognitive learning outcomes. A number of recent studies have compared face-to-face teaching to online/blended learning in order to try to define which of the formats provides the best opportunities for the students to succeed (Bernard et al., 2014; Gonzalez-Gomez et al., 2016). In Bernard et al's. (2014) meta-study of blended learning in higher education, students who participated in blended programmes achieved better than students in traditional programmes. Similar findings have been made by Northey et al. (2015) and Gonzalez-Gomez et al. (2016). Despite the perception that the majority of students preferred online learning to traditional classroom learning, it has been reported that some students will choose the traditional face-to-face method because of the social interactions (Maddox & Ashby, 2004). This is consistent with findings in other research studies, which report that students tend to experience feelings of isolation if they opt for an online course where Baxter and Haycock (2014) make the point that a lack of peer response or teacher moderation seemed to be detrimental to students' learner identity as they felt isolated from and peripheral to the academic community of the forum.

Baxter and Haycock (2014) build on Lave and Wenger (1991), and highlight the significance of learner identity and feelings of belonging to a learning community. They further claim that the development of a strong and salient online identity plays an important role for student retention and motivation in online learning programmes. A study by Lopez-Perez et al. (2011) further highlights that the use of blended learning has a positive effect on reducing dropout rates and in improving exam results, combating the retention factor impacting higher education as referenced in chapter 2. Research has also highlighted the advantages that the online teaching environment offers – e.g. in terms of shifting the learning environment to a more social, flexible and personal space, thus promoting a student centred, problem-solving approach to learning (Gonazles-Gomez et al., 2016).

Online students need to feel connected to the educator, to other students in the course and to the course content (Gonzalez-Gomez, 2015). Lopez-Perez et al. (2011) stressed the need for educators to be facilitators and promote and encourage active participation and provide opportunities for students to interact and collaborate with their fellow peers and instructors. Reviewed research had also highlighted that peer-to-peer learning and assessment leads to satisfaction among students in online learning environments (Dziuban et al., 2018), and that social interaction and networked learning among peers should be encouraged in effective online learning. Vaughan (2010) makes the point that timely feedback as well as individualised responses to online assignments are of primary importance in the online environment.

In another study, Howard (2009) found that students in e-learning modules lamented the face-to-face interaction with their lecturers and peers and found it a challenge to work with each other in an online environment. On the contrary, findings by Lopez-Perez et al. (2011) found that higher education students seemed to prefer online learning as a complement to traditional modes of classroom teaching. Overall, what these findings seem to suggest is that the blend should

consider the learning goals, the situational issues, target group and institutional issues to create an optimal blended learning environment. Since the emergence of digital technologies in the early 90s, many studies have investigated how and the extent to which digital learning technologies can influence and enhance the learning experience. A significant point arising from the reviewed research and one which links in with contemporary learning theory discussed in chapter two is the fact that, student learning in online and blended courses appears not "to arise from technology alone but from the combined influence of implementation, context, and learner characteristics as these factors interact with technology" (Ryan et al., 2016, p. 296), and this highlights the importance of adopting suitable frameworks when implementing a blended approach. While the potential of blended learning is almost boundless and represents a naturally evolving process from traditional forms of learning to a personalised and student focused path, there are challenges and obstacles associated with adopting this teaching model.

3.3.2 Challenges Facing Blended Instruction

The transition from traditional teaching methods to a blended one can be somewhat daunting, as it challenges both students and faculty to interact differently with the content and each other. Blended learning, by interacting with almost every aspect of higher education, provides opportunities and challenges that we are not able to fully anticipate (Dziuban et al., 2018). Blended learning effectiveness has quite a number of underlying factors that pose challenges. The main barriers to using blended learning raised in this study were consistent with those frequently reported in the literature: a lack of technical skills, a lack of time, and a failure to provide adequate support to staff.

Blended learning programmes can be difficult to implement as they require a great deal of expertise in the content area, pedagogy, and management of the digital face-to-face environments, as well as sophisticated use of data to drive students' learning (Kennedy & Archambault, 2013). Blended learning presents us with a unique opportunity to both analyse what exists and revisit our provision; it also may

challenge our assumptions about how learning can be delivered as blended learning "is not teacher's simply putting lesson plans online or content resources online" (Patrick et al., 2013, p. 14). Yuen (2011) makes reference to the complex nature of blended learning implementation where it involves lecturer knowledge of how to use the technology, pedagogical adaptations, student learning preferences, and institutional factors such as the availability of technology. Learning online requires students to work more independently than they may previously have been used to with intrinsic motivation being a requirement for learners, though for the most part, self-directed competencies can be learned. While a blended course will offer a balance of both asynchronous and synchronous learning, successful students will need to be self-directed and reflective learners as key to successful transition into higher education is the ability of students to develop autonomy and to take more responsibility for their own learning (Nicholson et al., 2013). Vaughan (2007) agrees, citing that more responsibility will be placed on students in blended environments, which will require them to reassess their study habits and time management skills and embrace sophisticated technologies.

A significant challenge for higher education institutions has been to position their institutions to take advantage of blended learning to meet the growing expectations for higher quality learning (Garrison & Vaughan, 2013). Those who have been most successful at blended learning initiatives stress the importance of institutional support for course redesign and planning (Dringus & Seagull, 2015; Moskal et al., 2013; Picciano, 2009; Tyanan et al., 2015). The effectiveness of any blended learning course will be determined by the skill, adaptability, and commitment of the staff involved (McDonald, 2008). Faculty members are often under excessive time constraints, with commitments to on-going lecturing and research and this can be a significant barrier to introducing blended strategies when some faculty are resistant to change. This is supported by research which suggested that faculty are resistant to changes being imposed on them (Bohle-Carbonell, 2013) due to feelings of loss of control over their teaching (Mackeogh & Fox, 2009).

Design and implementation of blended learning requires significant time commitment to provide for sufficient staff training, material development, and more importantly adequate time for reflection and evaluation of effectiveness (Harris et al., 2009). It is fair to say that developing a blended course will initially require much more time than preparing for face-to-face lectures with added resources and material for online learning. The increased time commitment required to design blended courses is regarded as one of the most significant challenges for faculty and has been consistently reported in many studies (Benson et al., 2011; Owens, 2012). While this may pose a stumbling block for staff, it is incumbent on universities to recognise and even offer incentives for faculty who pursue innovative teaching practices to encourage others to follow suit and value their efforts.

Bates and Sangra (2011) argue that institutions must rethink their learning and teaching so that they can optimise the use of technology. Several factors resulting from faculty perceptions about technology in the classroom represent barriers to the adopting and implementation of blended learning as a pedagogical alternative in higher education. Faculty uneasiness and fear of incompatibility with traditional pedagogical methods is one barrier to the full integration of blended learning in higher education (Bacow et al., 2012). The technical challenges are not about getting technology to work; rather, they are concerned with ensuring the success of the programme by utilising and supporting appropriate technologies. Given the reality that one must walk before they run, it is essential when designing blended models that you don't introduce all of the available technologies at once, a more prudent approach with the introduction of small initiatives may work best and that then will provide the platform to build on those successes.

Several challenges seem to remain in this area despite the substantial promise of web based instruction and other information technologies; in addition to the technological challenges such as consistent connections, the pedagogical challenges of dealing with cognitive overload, the effort of remaining flexible, maintaining the

social interaction and the holistic approach required to designing interactivity in blended learning also exist. It is still the case in many blended learning environments today that they are suffering from a lack of interactivity. An important component of classroom learning is the social and communicative interactions between learners and educators that promote interpersonal encouragement and social interaction. Effective interaction promotes active learning environments, the provision of greater feedback for educators, and enhances students' motivation. However, another barrier to the adoption of blended learning is the fact that faculty members believe that the online environment provides less discourse than in face-to-face environments. One of the often-heard criticisms of online or blended courses is that some may find them isolating or lacking in interpersonal contact (Ragan, 2007). Many believe that the blended and online models will diminish the many opportunities for human relationships to develop which is essential for high quality learning environments. Attrition is also referenced as an issue in the literature and sometimes is attributed, at least in part, to lack of social and personal engagement (Liu et al., 2007). Thus, it's often best to adopt technology to scale a new instructional model rather than cramming it into your old model. In any sound pedagogy, the educator sets the learning goals and monitors the learning process while managing the educational environment. However, many faculty cite the need to learn new pedagogies as a barrier to adopting online instruction.

While faculty are enthusiastic about the potential of information technology in teaching and learning, their limited exposure to models of good practice may result in quite traditional forms of usage that fail to benefit from the enormous potential of the technology. Mills (2015) makes the point that educators often struggle with adapting the practices they have found effective in face-to-face classes to an online environment. According to Walters (2008), the array of delivery mediums, wide variety of technology combinations and the lack of exemplars to follow for particular mixes, results in educators facing difficult situations and therefore pressure when redesigning their courses. Grand-Clement (2017) makes the point

that, educators now have to continue to develop and refresh their skills and knowledge in order to keep abreast with the constant innovations and new developments in the digital world. Training and preparing faculty to become effective online instructors requires a new paradigm, comprising technical proficiency and virtual engagement (Mujtaba, 2011). So, in addition to appropriate time being made available to staff for relevant training and an appropriate lead in time established, perhaps one of the greatest challenges confronting faculty in the establishment of a blended programme is the fact that they must adapt to a relatively new pedagogical model within institutions, where few have determined the exact make up of that model.

Student reluctance to move from a passive to an active student role has also been cited as an obstacle for pedagogical change (Garrison & Vaughan, 2008). MacDonald (2008, p. 130) also makes the point that in the classroom you can always close the door so that your students are less likely to escape before the end of a session but in an online environment "you can never be entirely certain that your students will walk through the door in the first place". While technology offers increased access to education, some instructors would argue that technology is being forced upon them and that their ways of working are being disrupted to the detriment of their students' learning (Coates et al., 2005). Educators who could benefit from blended learning may be reluctant to introduce it to their teaching as digital fluency or academics' confidence and skills in using online technologies remain low (Johnson et al., 2014) despite the availability and affordances of digital technologies.

Another issue to be given due consideration when constructing blended courses is the diverse range of students' abilities and computer skills. A big challenge is how users can successfully utilise the technology and ensuring participants' commitment, given the individual learner characteristics and encounters with technology (Hoffman, 2014). Hoffman adds that users getting into difficulties with technology may result in abandoning the learning and eventual failure of

technological applications. Thus, measures should be taken to prevent students who lack computer skills from becoming disadvantaged or frustrated resulting in a negative attitude towards technology.

The main challenges to implementing blended learning identified by educators included lack of time to develop modules, lack of confidence that the technology would work (Benson et al., 2011), and a lack of support and resources for course redesign (Vaughan, 2007). The issue of lack of access to appropriate and reliable technologies appears repeatedly in the literature, despite the considerable investment in technology procurement in the sector (Atwell & Hughes, 2010). Faculty uneasiness and fear of incompatibility with traditional pedagogical methods is another barrier to the full integration of blended learning in higher education (Bacow et al., 2012). Training and preparing faculty to become effective online instructors requires a new paradigm, comprising technical proficiency and virtual engagement (Mujtaba, 2011). The success of ICT integration in education is therefore, greatly dependent on the availability of different types of technology and teacher training and innovation (Wallet, 2014). Both proponents and opponents place too much emphasis on technology while undervaluing the effects of human agency. While technology and gadgets including smart phones, ipods and ipads have indeed become ubiquitous, technology continues to be highly dependent on us, requiring input and programming, highlighting the need to re-centre our focus onto human agency instead of on the type of technology used.

Blended learning is by no means easy, but through on-going pedagogical and technological support, funding, sufficient technology support and infrastructure, blended learning will provide the digital knowledge essential for our global graduates. However, if educators were to think blended learning is the magic bullet to fix everything, they would be unwise. The hype that comes from thinking that you can improve learning in the classroom by introducing technology is misguided. While learning does come at a cost, the training and up-skilling of educators to help them to utilise online tools for the purpose of learning is paramount. While the key

is to redesign blended courses for active and collaborative learning, staff support and training is imperative for the success of the blended model. Table 2 summarises the benefits and challenges associated with blended learning.

Table 2. ***Summary of the benefits and challenges of blended learning***

Benefits	Challenges
• Increased flexibility for students and teachers • Enhanced student learning outcomes • Improved autonomy and engagement • Reduced attrition rates • Ability to foster a positive learning environment • Not being time or situation bound • Cost and resource savings	• Reduced face-to-face resulting in isolation • Technology and technical issues • Time commitment in redesigning course • Lack of support for course design • Lack of funding • Developing new teaching methods and pedagogies • Developing appropriate assessments

Despite the inherent challenges and obstacles posed by the introduction of the blended learning model, it is considered by many as the most effective model for online learning (Bernard et al., 2014; Northey et al., 2015) and the following section will look at the rationale for blended learning.

3.4 Rationale for Blended Learning

Blended learning is an approach to education that is building momentum and being used with increasing frequency in higher education. Blended learning offers a convenient educational alternative that suits today's twenty-first century learner. It offers a flexible, accessible education to busy individuals from varying social backgrounds, regardless of time and place. With ever increasing publication of the potential benefits of blended learning, it is not yet apparent how practitioners and

their institutions are choosing to make use of these approaches. This section of the study will review the practical and educational rationales which are being used by practitioners to underpin their choices around blended learning in practice. The following rationales relate to institutional strategy and were the most cited amongst the research.

3.4.1 Flexibility of Provision

Flexibility refers to the need for faculty to be flexible in the way in which students are supported to reach their potential and achieve their goals. Flexibility may occur through informal and formal learning experiences where the students' achievements are assessed rather than what they read in a textbook. In blended courses, faculty have the ability to mix and match face-to-face and online materials and this leads to increased instructional flexibility. So and Bonks (2010) research found similar benefits, where they reported that blended learning offered greater flexibility for the creation of a community of learners, as well as providing an opportunity for instructors to share their ideas and materials with each other. From a lifelong learning perspective, learning is no longer divided into time and place; instead, learning continues to occur on an on-going basis that is neither time nor situation bound. Recent research by Birbal et al., (2018) concurs citing that students appreciated the flexibility attributed to blended learning which allowed them the opportunity to work at their own pace and take charge of their own learning. Flexible learning has many dimensions and promotes and encourages autonomous learning and forms an important aspect of course design. Blended learning provides a flexible platform, which assists in addressing the diversity in students' learning styles and needs through the integration of interactive online techniques, with more traditional teaching strategies.

3.4.2 Enhanced Student Learning

E-learning environments effectively provide lifelong learning with enhanced educational opportunities through self-directed and independent autonomous

learning. Numerous studies have demonstrated that courses using blended learning as a delivery method contribute to improved learning outcomes for students (Northey et al., 2015; Ryan et al., 2016; Young & Randall, 2014). Blended learning would appear to enhance student learning experiences by creating opportunities for them to improve their understanding through their own investigation and research of certain issues and topics and has gained popularity as it provides more flexibility, opportunities for independent work, and peer collaboration (Smyth, 2012). Institutions are beginning to realise that learners can only reach their full potential when they have the flexibility to study according to their own needs and interests. This type of self-directed independent learning is an essential attribute of lifelong learning and forms the backbone of this process for many learners.

3.4.3 Increased Pedagogic Efficiency

In recent years, educational institutions have altered their delivery methods to blended programmes to take advantage of the best pedagogical techniques of mixing both online and face-to-face learning. The concept of blended learning refers to the pedagogical paradigm of an active student focus and engagement with curriculum delivery. Unfortunately, today's so called millennials or digital natives don't feel the need to have to remember anything as they can look it up on the internet. Selwyn (2009, p. 372) has characterised this as the "cut-and-paste" approach to thinking. If anything, young people's use of the internet can be described most accurately as involving the passive consumption of knowledge rather than the active creation of content. For blended learning to reach its full transformational potential, the primary goal should be rethinking and redesigning the teaching and learning relationship, with efficiency and convenience as possible secondary benefits. The 'Net Generation' of learners are putting increased pressure on faculty to adopt more effective pedagogies as they attend institutions expecting the immediacy of technology.

3.4.4 Supporting Diversity

There is little doubt that the increasing diversity of the student population is one of the most significant changes currently happening within higher education:

> The types of student now entering higher education are more diverse, with less predictable educational backgrounds and prerequisite knowledge than in the past (Bryan & Clegg 2006, p. 18).

By its very nature, diversity is a broad and wide ranging topic to cover as referenced in chapter 2 earlier and initiatives designed to promote diversity, inclusion, and equity have rapidly become some of the most complex areas of policy and practice in higher education (Anderson, 2008; Smith, 2009; Antonio & Clark, 2011 cited in Worthington, 2012). As we seek to extend participation, increase student numbers, encourage continuing professional development, and make our institutions more accessible to all, diversity has become commonplace in higher education. It is no longer plausible to state that there is one homogeneous group of students with a common goal to learn in the way prescribed by universities. With increasing numbers of students participating in higher education, lecturers and educators need to adopt pedagogy for a diverse student population, as well as in assessment. Diversity contributes to a more positive and pluralistic society through more effective communication amongst peers, by challenging stereotyped preconceptions, through promoting personal growth and by bringing together individuals from diverse backgrounds and cultures, as Conway (2008, p. 2) highlights:

> The resultant shift in higher education policies to focus on widening participation has changed the traditional view of the academy which was once elitist in nature and has moved to a more pluralist perspective.

Laumakis et al. (2009) assert that blended learning has established a culture of sustainability in higher education providing accessibility to a very diverse student population. We are witnessing a greater diversity of students presenting themselves in our classes from diverse backgrounds, with varied prior knowledge

and experience and different learning styles. To cater for these individuals, we need to be able to test a whole range of skills and abilities which will be useful to these students in both their academic and working lives. Effective assessment of students' knowledge and skills is central to the process of learning. If we succeed in both the process and practice, then learning of the appropriate type will follow.

While there are many frameworks and instruments for evaluating blended learning, no particular one seems to be favoured in the literature and this is partly due to the diversity of reasons for evaluating blended learning systems, as well as the many intended audiences and perspectives for these evaluations (Bowyer, 2017). For example, some frameworks focus on technology over pedagogy, most focus on the student perspective rather than that of teachers or administrators, and some frameworks focus on the effects of a blended learning approach on student outcomes. The next section will look closely at a number of useful models and conceptual frameworks that have gained prominence in recent times.

3.5 Blended Learning Conceptual Frameworks

In higher education, a lack of a stage like framework to model blended learning for all institutions exist. Whilst a simple form of blended learning lies in integrating online and face-to-face learning experiences, the complexity arises with different learning designs (Garrison & Kanuka, 2004). Most of the research on blended learning indicate that there is no ultimate formula for blending the online and face-to-face components. Thus, it emphasises the challenges faced by designers of blended learning to achieve the best proportion in every learning situation (Rossett et al., 2003; Dentl et al., 2005). There are several learning frameworks and tools that can enable educators to effectively integrate technology into instructional approaches and this section will look more closely at a number of these prominent models and identify the frameworks most suitable to this research study.

The Community of Inquiry framework is social constructivist in nature and in order to create a collaborative constructivist process that has enquiry at its core, Garrison and Vaughan (2008) suggest that the community of inquiry should be utilised as it has a more student-centred approach, thus enabling learners to become more autonomous by assuming control and directly influencing outcomes.

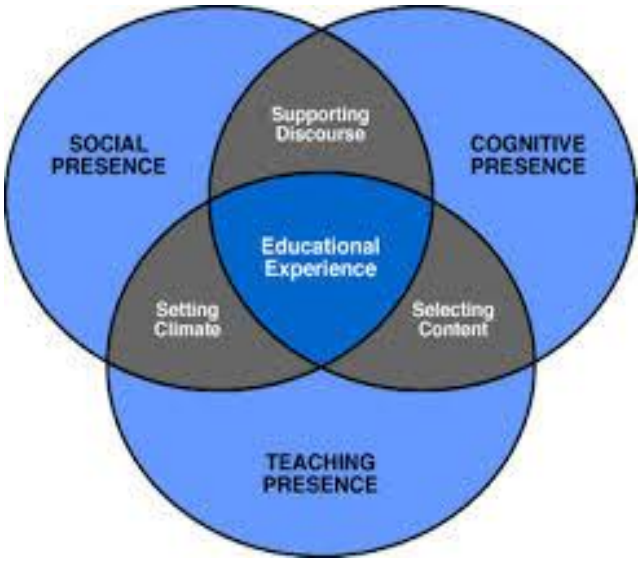


Figure 5. ***Community of inquiry framework (Garrison & Vaughan, 2008)***

The CoI framework consists of three elements: social presence, cognitive presence, and teaching presence. It is a recursive model, in that each of the core elements supports the others. It provides a forum for learning about new ideas and provides a structure to learn from each other's experiences; Timperley (2011, p. 117) sees the aim of the community as being "to share learning experiences and work together to generate new knowledge and improve the culture of learning". Communities of inquiry are being used extensively to guide the design and delivery of online courses, where knowledge and expertise is shared and developed through discourse and collaboration (Shea, 2006; Garrison & Arbaugh, 2007).

Salmon's e-moderation model was built on Maslow's (1943) model of the hierarchy of needs. Maslow's model can be applied in an educational context, particularly to comprehend the motivation of teaching and learning for students. The earliest and most widespread version of Maslow's hierarchy of needs includes five motivational needs, often depicted as hierarchical levels within a pyramid, as illustrated in Figure 6.

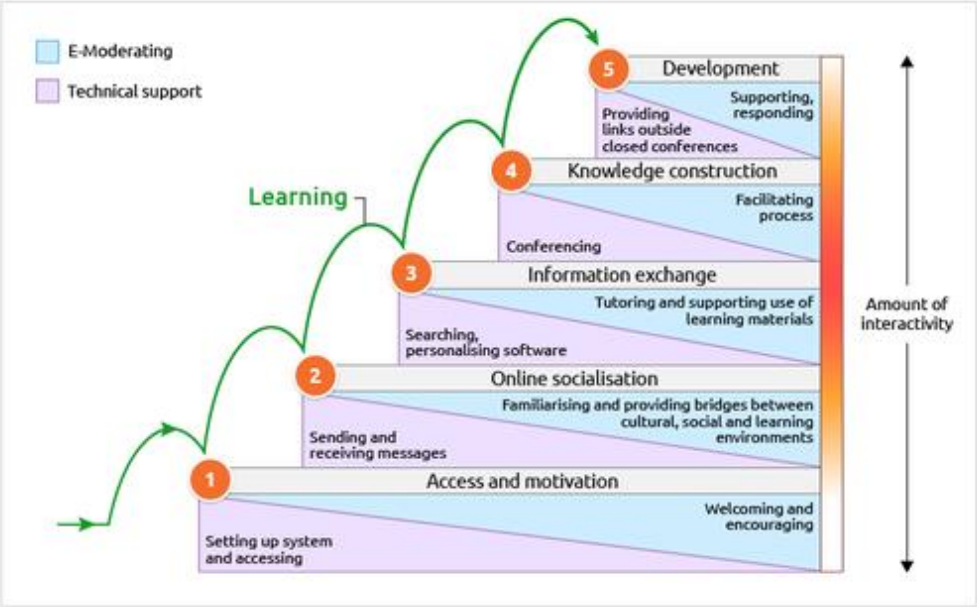


Figure 6. ***Five-stage model of e-moderation (Salmon, 2009)***

In this framework, Salmon emphasises the hierarchy and talks about the prerequisite of the individual and the ability of the participants to benefit from it. In this approach, learners take control of their own knowledge construction while e-moderators role is solely to facilitate, oversee and sustain communication amongst the learners. Salmon's aim is essentially to provide a practical and effective guide for those initiating online educational programmes based on Maslow's educational concept.

Similarly the SAMR Model as proposed by Puentedura (2006) uses a stepped approach that categorizes four different degrees of classroom technology integration. The letters "SAMR" stand for Substitution, Augmentation, Modification, and Redefinition and was created to share a common language across disciplines and observe how educational technology can facilitate the teaching and learning process. It can be visualised as a staged approach as an educator progresses along the continuum, technology becomes increasingly embedded into the learning activities. The further along on the continuum, the more effective the integration of technology.

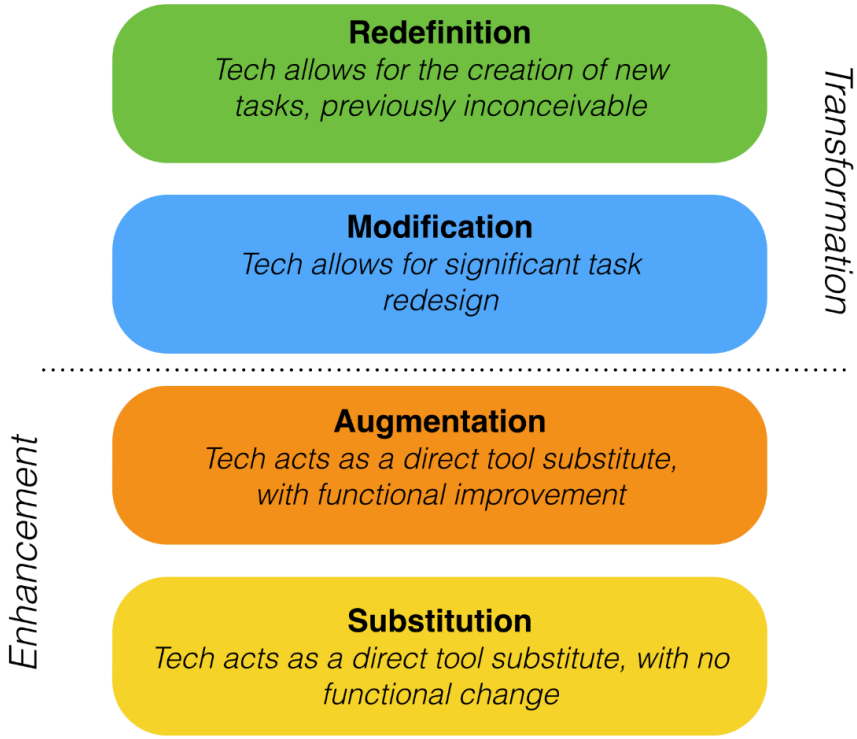


Figure 7. ***SAMR Model (Puentedura, 2006)***

As the review has highlighted, there are many different frameworks proposed to support the introduction of technology into the education realm. Over the past two

decades, an increased focus has been the integration of technology into schools and higher education institutions and two models were chosen as they offer a productive approach to many of the dilemmas that educators face in implementing educational technology in their classrooms. TPACK brings a very strong instructor led perspective and provides a very useful framework that brings together the pedagogy, the content and the technology with the multimodal model complimenting it because of its method of delivery, flexibility and emphasis on situated learning.

3.5.1 Chosen Frameworks for this Study – TPACK and Multimodal Model

Technology has changed so many industries already and education is no exception as it is viewed as a powerful tool that can support and transform education in many ways. Technology has also begun to change the roles of teachers and learners as every aspect of teaching and learning is affected by it. With the rapid development in information technology and the need to acquire twenty-first century skills, global trends in higher education are shifting towards using digital pedagogies. One of the most widely cited frameworks for understanding the complexity of the teaching profession builds on the seminal work of Shulman (1986), who first proposed pedagogical content knowledge (PCK) as one of the knowledge sources for educators, focusing on the educators' perspective as referenced in section 2.3.3 earlier. Content and knowledge are inter-twined components of learning. Utilising TPACK helps to emphasise the technical knowledge needed for integration and provides a theoretical basis for using instructional technologies in teacher education programmes (Angeli & Valanides, 2009).

As new advanced technologies have arrived to the classroom, teacher education programmes have been challenged to prepare teachers equipped with the necessary knowledge and skills to integrate technology into their teaching. Among the issues considered by Mishra and Koehler (2006) is the highly complex nature of teaching that appeals to different kinds of knowledge. The act of teaching is perceived as "a complex cognitive skill occurring in an ill-structured, dynamic

environment" in which the "expertise in teaching is dependent on flexible access to highly organized systems of knowledge" (Mishra & Koehler, 2006, p. 1020). The issue of what teachers need to know about technology for effective teaching has been the centre of intense debate in the recent past. Technological Pedagogical Content Knowledge (TPACK) has been proposed as a conceptual framework to describe the knowledge base teachers need for effective technology integration and the importance of making the link with appropriate pedagogical approaches as described earlier by Voogt et al. (2013). However, research has shown that teachers are not adequately equipped with the knowledge required for successful technology integration and "their attempts tend to be limited in scope" (Koehler et al., 2013, p. 101). Good teaching with technology requires "understanding the mutually reinforcing relationships between all three elements taken together to develop appropriate, context specific strategies and representations" (Koehler et al., 2007, p. 741). Mishra and Koehler (2006) posited that seamless integration of technology will not occur unless teachers develop a complex, situated knowledge that brings together three different types of knowledge; content, pedagogical, and technological. In essence, technological developments affect both the teaching content and the pedagogical ways of delivering it.

Even for the most tech-savvy educators out there, looking for the best educational programme and tools is a daunting job, but avoiding technology altogether is not the answer. The challenge for educators is to identify the most effective technology and assess its impact over the content and pedagogy. The conceptual framework of TPACK was used to illustrate instructional ideas regarding how teachers integrate technology into their pedagogy and it has been embraced as a theoretical basis for structuring ICT curriculum in teacher education programmes (Chai et al., 2011; Jimoyiannis, 2010). While the epistemology of technological pedagogical content knowledge (TPACK) is currently considered as the essential qualities of knowledge for highly qualified teachers (Srisawasdi, 2012), teachers need not be overly familiar with the entire TPACK framework as such in order to benefit from it. They simply need to understand that instructional practices are

best shaped by content-driven, pedagogically-sound, and technologically-forward thinking knowledge (Kurt, 2018). Studies reported that the TPACK model can be used as a potentially productive framework to prepare and develop teacher competencies in school teaching (Doering et al., 2009; Lee & Tsai, 2010; Voogt et al., 2013) as it gets them to focus on effective ways to integrate technology into the classroom.

A discourse that interlinks with both logistical and pedagogical conceptualisations of flexibility is that of using technology to support learning (Flannery & McGarr, 2014). Since its inception, the TPACK (technological, pedagogical, content knowledge) Model (Mishra & Koehler, 2006) has garnered considerable attention and been used as a powerful theoretical tool to investigate the complexity of the educational process in combination with ICT integration. Koehler et al. (2007, p. 741) described the heart of TPACK as "the dynamic, transactional relationship between content, pedagogy, and technology". The TPACK framework provides us with an analytical lens to analyse changes in educators' knowledge regarding successful technology adoption and helps one understand the "complex web of relationships" between content, pedagogy, and technology (Mishra & Koehler, 2006, p. 1042). TPACK capitalises on the connections, interaction, affordances, and constraints between three types of knowledge and the interaction between all three (Reimann et al., 2015). While the three domains are essential for the successful use of technology in teaching and learning, the framework also helps us to consider how content, pedagogy, and technology dynamically co-constrain each other (Mishra & Koehler, 2006, p. 1046). TPACK is:

> a conceptual model that offers teachers a mental framework for thinking about the different areas of knowledge related to effective teaching and interaction of knowledge and skills necessary for the effective integration of technology (Vallejo, 2013).

When working with the TPACK framework, we generally start with our content or what we want students to learn (Voogt & Mckenney, 2017). Once the specific skills

or objectives have been selected, one might consider pedagogy or the methods to utilise in order to teach these skills or objectives. In considering pedagogy, it is important to focus and reflect on how the chosen teaching strategies help students meet the skill and content objectives. The last piece of the jigsaw in the TPACK framework is technology, or the tools and resources students need to be successful with during the learning experience. In this framework, technological knowledge is defined as knowledge of how to use new and existing technologies where technology is integrated as a tool to enhance content and support the pedagogical methods adopted. TPACK describes a new dimension of ICT integration in the educational process and offers support in thinking through how to construct learning activities that seamlessly and intentionally integrate technology (Tzavara et al., 2018). Working towards a student-centred pedagogy where technology is used effectively to create optimal learning experiences for students demands careful planning. It also requires educators to develop an understanding of the pedagogical implications and technical expertise involved in the technology they are planning to use.

The specific forms of knowledge that educators require to effectively teach with technology have been identified by Mishra and Koehler (2006). In the framework in figure 8 below, content knowledge (CK) refers to "teachers' knowledge about the subject matter to be learned or taught" (Koehler & Mishra, 2009, p. 5). They describe pedagogical knowledge (PK) as educators' deep knowledge about the processes and practices or methods of teaching and learning (2009) where higher education pedagogy adds an important dimension to quality teaching at the institutional level. Technological knowledge (TK) relates to an educator's ability to apply information and communication technology (ICT) skills and knowledge while Technological Content Knowledge (TCK) is defined by Koehler and Mishra (2009, p. 5) as "an understanding of the manner in which technology and content influence and constrain one another" with TPACK relating to an evolving form of knowledge that is advanced beyond content, technology and pedagogy alone. Pedagogical Content Knowledge (PCK) includes knowing what teaching approaches fit the

content, and how elements of the content can be arranged to enhance teaching while Technological Pedagogical Knowledge (TPK) is knowledge of the existence, components, and capabilities of various technologies as they are utilised in a variety of teaching and learning settings. Essentially, Mishra and Koehler's (2006) Technological, Pedagogical and Content Knowledge (TPACK) provides a framework of knowledge for educators in order to effectively and purposefully integrate technology into their teaching.

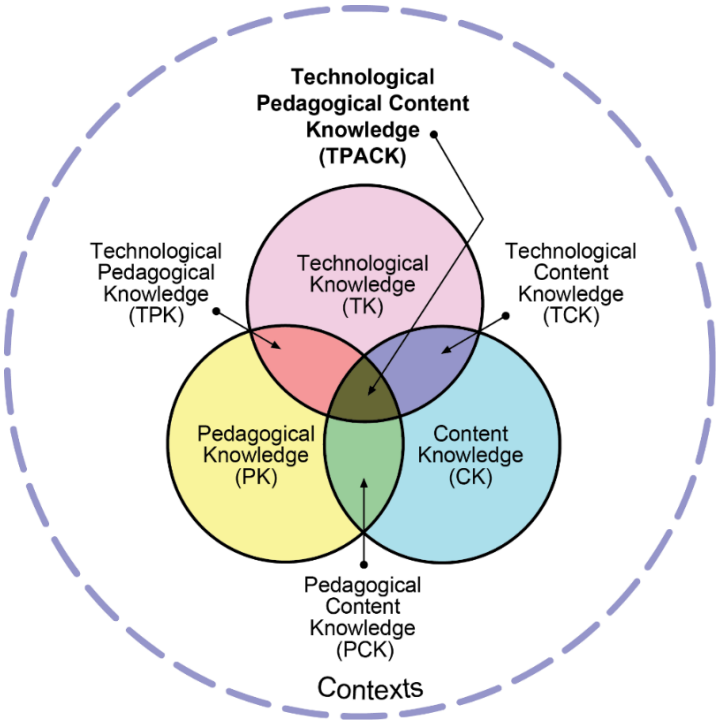


Figure 8. Technological, Pedagogical Content Knowledge (TPACK) Framework (Mishra & Koehler, 2006).

Instead of focusing on the transfer of content as the main aim of an online course, Mishra and Koehler's TPACK framework acknowledges the significant interplay between a teacher's pedagogical stance, their use of technology and their knowledge of the content of the discipline in which they are teaching. According to TPACK, the central elements of good teaching with technology include content, pedagogy, and technology, and only the planned interplay between these three

domains can generate the type of flexible knowledge required by educators to successfully incorporate technology into teaching (Glowatz & O'Brien, 2015). In essence, the technology employed must communicate the content and support the pedagogy in order to enhance students' learning experience (Kurt, 2018).

Koehler et al. (2014) state that TPACK exists in a dynamic relationship and goes beyond knowledge of content, pedagogy, and technology taken individually. While these triangulated areas constitute TPACK, following a systematic review of the literature by Voogt et al. (2013), it emerged that this framework has its shortcomings. Chief among these is the fact that the current model focuses on knowledge and the transfer of knowledge, rather than on the learning experience of the student and equally there is some concern regarding the omission of the student within the TPACK framework (Glowatz & O'Brien, 2015) and hence the inclusion of the multimodal model to compliment this framework by addressing the needs of the student. Additionally, a number of researchers argue that the TPACK framework is unclear in aspects and that the boundaries among the constructs are uncertain (Archambault & Barnett, 2010; Cox & Graham, 2009, Graham et al., 2009) with Graham (2011) further highlighting that the framework is quite complex, lacks theoretical clarity, and has undefined components. Having said this, an inherent strength of the framework is that while no one uniform combination of content, pedagogy and technology is prescribed, TPACK provides the flexibility for researchers and practitioners to adapt its framework to different circumstances. Several researchers have built on, modified and adapted this model (Jang & Chen, 2010; Lee & Tsai, 2010) in an attempt to garner a better understanding of the knowledge domains within the TPACK theoretical framework. While there are areas that need further work, this model is useful conceptually to develop an understanding of the pedagogical implications and technical expertise involved in the technology utilised.

In higher education, neither a standard nor structured framework to model blended learning exists to guide institutions. Based on the limitations described above and

the fact that TPACK is from the educators' perspective, determining an appropriate design for a learning progression that blends both theoretical and practical experiences in TPACK development must draw from multiple modalities as the online TPACK model is a supportive instructional approach for the design of online experiences as Harris and Hofer (2011) make the point that:

> TPACK as it is applied in practice must draw from each of its interwoven aspects, making it a complex and highly situated educational construct that is not easily learned, taught, or applied (p. 213).

Blended learning practice is primarily custom-made to suit the needs and requirements of institutions and organisations as the earlier section on blended learning definitions pointed out that there is no fixed definition but there are a range of different approaches cited as a 'spectrum' as blended learning sits on a continuum with various combinations and approaches as suggested in this research. The multimodal approach, as put forward by Picciano (2009), recognises that as learners come from diverse backgrounds with different learning styles, educators and course designers should structure modules in such a way as to utilise multiple approaches, including face-to-face methods and online technologies that address the needs of all. This 'Blending with Purpose' multimodal model is designed to enhance student learning and experience through improved access and flexibility.

The model comprises six basic pedagogical objectives coupled, with recommended approaches and technologies for realising them. The objectives consist of content, social/emotional, dialectics/questioning, synthesis/evaluation, collaborative learning and reflection, but it is important to point out that every activity does not have to be included in every course. The model is flexible and assumes that other modules can be added as needed and where appropriate. This model recognises the diversity of students entering higher education today and encourages instructional designers to utilise multiple approaches to meet the needs of a wide continuum of learners. The multimodal model has a significant role to play in

facilitating blended learning. With more efficient use of time and resources, learning can be disseminated with greater effect to a bigger audience.

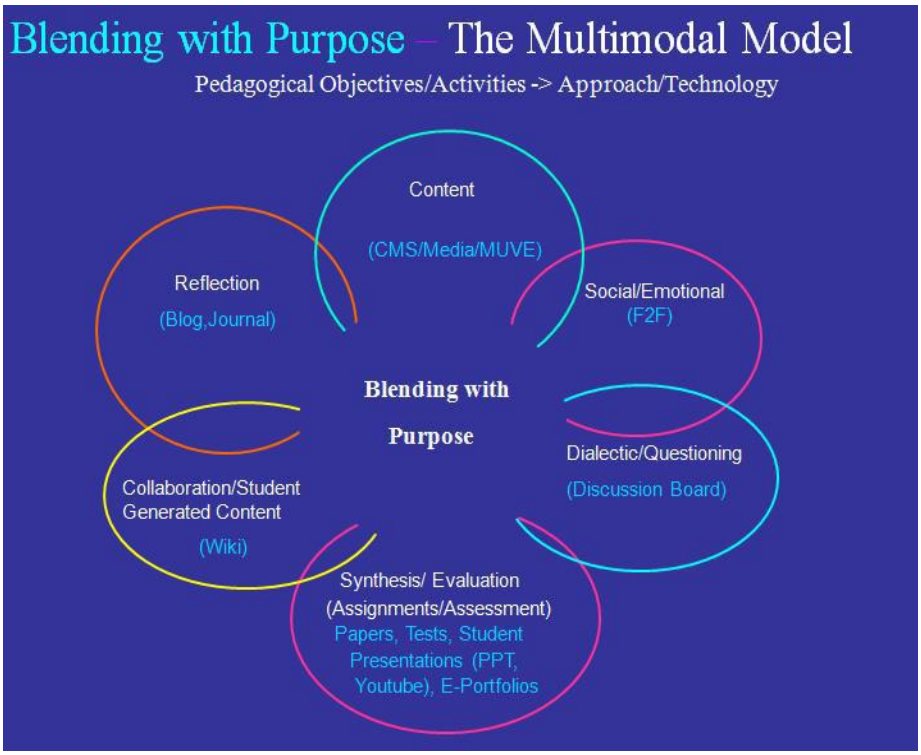


Figure 9. ***The multimodal model for blending with purpose (Picciano, 2009).***

Looking at the multimodal model itself and its six pedagogical goals, content is one of the primary drivers of instruction and there are many ways in which content can be delivered and presented. VLEs such as Blackboard or Moodle are the basic content delivery mechanisms for blended learning and support the delivery of a variety of media including text, video, and audio. In providing and presenting content, this model suggests that multiple technologies and media be employed.

The Blending with Purpose pedagogical model posits that instruction is not simply about learning content or a skill but also supports students socially and emotionally, thus complimenting the TPACK framework. The physical presence and access to a tutor or lecturer is reassuring to students as they like the human contact and the

opportunity to ask questions and seek guidance. While fully online courses and programmes have evolved to the point where faculty members can provide some social and emotional support where possible and appropriate, in blended courses and programmes this is more frequently provided in a face-to-face mode. Development and improvement in technologies is bringing new possibilities for e-learning, mainly in the area of collaboration as it keeps people in regular contact with each other through new tools like internet based audio and video communication, e-portfolios and social networking tools such as blogs and wikis (Picciano, 2009). Discussion boards and blogs provide the lecturer with an electronic record that can be reviewed and online technology allows for a more seamless sharing of evaluation and assessment activities, and provides a permanent, accessible record for students and faculty. The six components of the model form a cohesive framework in which rich interaction can be provided and blended across the programme of study where each course has flexibility in approach, choosing appropriate activities and approaches of the model. The pedagogical objectives of a course should drive the activities and, hence, the approaches.

Based on recent research reports, the blended learning model, which combines face-to-face and online learning, is now the preferred model for online course design. Its superiority over online learning, which lacks face-to-face interaction, is evident from studies that examined both student achievement and satisfaction. According to the centre for Educational Research and Innovation (CERI), blended learning is gaining in prominence globally as ICT is deployed to complement rather than replace traditional forms of learning (Mitchell & Forer, 2010). Institutions are coming to terms with the idea that new approaches to the design and delivery of learning materials for the twenty-first century learner has to be considered where Bradwell (2009) brings it into perspective:

> Teachers and lecturers have to deal with a much greater range of information processing styles, cultural backgrounds and styles of learning. As a result, the ideal for teaching in higher education is now

> recognised to involve much more than lectures as a means of information provision (p. 19).

In the last few decades, the most notable shift has been from page to screen (Kress, 2010). Crucial to the multimodal model is interaction not only between teachers and students but also with the classroom environment and external and abstract factors such as students' cultural background and identity (Marchetti & Cullen, 2015). Multimodal learning environments permit instructional elements to be presented in more than one sensory mode to cater more effectively to the different learning styles and modal preferences of an increasingly diverse student body. Fadel (2008) established that students engaged in learning that incorporates multimodal designs, on average, outperform students who learn using traditional approaches with single modes. The major benefit as identified by Picciano (2009), is that it "allows students to experience learning in ways in which they are most comfortable, while challenging them to experience and learn in other ways as well' (p. 13).

3.5.2 Links with Contemporary Learning Theory

TPACK is identified as a good fit with many of the issues that were identified in chapter 2 on contemporary learning theory including situatedness, the context, participation, experience and problem-solving. Situated Learning has become a ubiquitous concept in a variety of fields across academia. While the theories that underpin the notion of situated learning are relatively easily explained, implementing these ideas in instructional settings can pose difficulties. There are many questions that are raised in terms of the nature and form of the instruction when one attempts to construct learning environments that employ the principles and elements described by the proponents of situated learning theories. Skills that need to be promoted when introducing technology include self-directed learning, critical thinking and social and co-operative skills to assist with knowledge construction individually or collaboratively to solve problems. In this regard, technology has a pivotal role to play as it offers greater freedom to learn ubiquitously both formally and informally. Situated cognition, as a general

theory of knowledge acquisition, has particular relevance to this development where the 'learning challenges' are presented as a function of the activity, context and culture in which they occur.

It is clear that the development of knowledge requires a change in understanding, beliefs and priorities as educators need to consider the wider socio-cultural context. TPACK may be considered as knowledge that grows and develops through participation, knowledge sharing and negotiation and therefore describes sociocultural-oriented educator knowledge for the active implementation of TPACK, such that socially situated learning experiences occur in communities of learners within and beyond the classroom. Effective technology integration for pedagogy requires developing sensitivity to the dynamic, transactional and co-dependent relationship where a challenge "in any one of the factors has to be compensated by changes in the other two" (Mishra & Koehler, 2006, p. 1030). McGarr and McDonagh (2019) make the point that there appears to be a gap between personal and professional/pedagogical use. While research indicates that levels of web 2.0 are increasing (Garcia-Martin & Garcia-Sanchez, 2017), this does not necessarily translate to their professional and pedagogical practice. By selecting the technologies that best serve learning goals and activities, students' learning has the potential to be enhanced.

While early accounts of learning "were strongly influenced by the concept of learning as a product…" in which knowledge was considered as an individually acquired novel attribute, more recent accounts of learning focus "on learners developing knowledge by actively engaging in the process" (Hager, 2005, p. 829). These two categories mirror many aspects of the learning metaphors of acquisition and participation as discussed earlier in section 2.2 that Sfard (1998) argues underpin much educational thought. From a situated learning perspective, transforming their knowledge recognises how and when they learn is fundamental to what is learned.

Picciano's (2009) multimodal model is a component model that identifies “elements that might be needed for an integrated or unified theory or model for online education” (p. 182), and there now appears to be more of a focus on what it means to learn effectively utilising technology, at least from the perspective of educational theory. Wenger and Lave (1991) focused on and promoted concepts such as ‘communities of practice’ and situated learning as referenced in chapter 2 earlier. They are of the opinion that learning involves a deepening process situated in, and derived from, participation in a learning community of practice. A common framework for reviewing blended learning from a socio-constructivist perspective is the community of inquiry framework (Garrison & Vaughan, 2008). The author is of the view that theory and practice should have an iterative relationship as illustrated in the study’s focus on situated practice where theory should inform practice, but equally, practice should also inform theory.

Contemporary learning is personalised and provides anytime, anywhere access for students to portable technologies. In recent year’s multimodal interaction is becoming of great interest as a result of the increasing availability of mobile devices. In this view, many applications making use of speech, gestures on the touch screen and other interaction modalities are beginning to appear. While designing and implementing multimodal systems can be a difficult task, in a review of instructional technology, Bosch (2016) identified and compared blended learning models and recognised that blending the objectives, activities, and approaches within multiple modalities is most effective for, and appeal to, a wide range of students, supporting the diverse student cohorts entering higher education as referenced in chapter 2.

The emergence and integration of ICT and accompanying multimodal learning has had a significant impact on higher education (Nouri, 2018), where Leander and Lewis (2008) argue that information and communication technologies (ICT) impose demands on learners to create meaning across multiple modes. Various contemporary learning approaches can provide a ‘launching-pad’ to assess,

evaluate and implement creative course pedagogies in many courses. Jewitt (2008) make the point that knowledge is now more frequently represented and communicated in other modalities, such as audio, video, image, or a combination of these, than in the traditional, historically dominant text mode. As a result, information and communication technology have an increased assimilation in our lives and its profound effect on the communication landscape emphasises the growing importance of multimodal learning in both formal and informal settings (Selander, 2016). Research reports that in terms of knowledge acquisition and consumption of existing digital learning material, the modalities listed above are becoming far more popular than texts as one could argue that "different modes offer different potentials for meaning making" (Kress, 2010, p. 79). In essence, students make use of the affordances of different modes as it helps them better construct knowledge than when exclusively bounded to the mode of text in the past.

As regards assessment, Kress and Selander (2012) outline that pedagogical approaches should reconsider historically dominating mono-modal assessment methods and recognise the requirement for assessment with multimodal assessment practices. Introducing a multimodal assessment with support and scaffolding will provide students the opportunity to explore and expand their digital literacy capabilities, as well as offer more choice in how they engage with assessments as there is an urgent need to develop alternative ways of assessment in support of students new literacy practices in the digital age (Hung et al., 2013). DePalma and Alexander (2015) make a case for written commentaries or reflective pieces as complimentary to students' multimodal submissions. In developing multimodal practices, it is essential that the design of learning environments, pedagogical practice and assessment be given due consideration along with the modes and media which are crucial aspects of learning and knowledge construction.

3.6 Conclusion

E-learning practice has frequently been viewed as being technologically rather than pedagogically driven (Vogel, 2010) and for this reason a renewed focus on pedagogy is important to make the shift towards a more student-centred education. It is imperative that faculty understand how to adjust their instruction to positively impact student learning (Boskz, 2012; Mishra & Koehler, 2009). To help make sense of the array of technological tools and choices, one must recognise the importance of technological knowledge, pedagogical knowledge and content knowledge as a dynamic framework that supports the integration of technology in teaching and learning. Supporting faculty to infuse engaging and meaningful content through technologies for instruction and assessment requires an active inquiry pedagogy that enables students to take advantage of the affordances that technology can offer.

Web 2.0 tasks need to be both clear and pertinent, with guidance and assistance readily available to those who need it, as in a technological era, the educator now becomes more important than ever, encompassing the role as chief moderator, mediator, and mentor. We must remember that the most engaging educational tool of all is an enthusiastic educator who provides high, clear expectations and connects with students (Coe et al., 2014). An educator with deep pedagogical knowledge understands how students construct knowledge, acquire skills, and develop positive dispositions toward learning. As such, pedagogical knowledge requires an understanding of cognitive, social and developmental theories of learning and how they apply to students in the classroom. In order to understand faculty and student attitudes toward emerging technology and its pedagogical value to learning design and student success, the following chapter will look at key elements of pedagogy including student experience, interaction, assessment and feedback. Along with the various models as referenced earlier in chapter 3, there are also many themes in pedagogy but these are the most noteworthy ones and the

next chapter will justify this focus, including an outline and analysis of them due to their links with contemporary thinking on pedagogy and learning.

Chapter 4: Examining the Elements of Pedagogy through Key Constructs

4.1 Constructs

Several key factors are considered to be significant in a blended programme. Among those factors would include student experience, interaction, assessment, and feedback. This study explores these constructs in an attempt to obtain greater insights into possible relationships between them and to gauge their significance in implementing a blended learning programme**.** According to Gebric (2010), students require motivation to participate in online discussions, with well-planned and structured learning and assessment activities. Blended learning is not about matching the content to the most appropriate delivery medium, but doing it at the learning objective stage and it's the assessment technique that marries these two concepts. Alignment with curriculum objectives and integration of learning and assessment activities are critical factors in blended learning (Groves & O' Donoghue, 2009; Zhu, 2006).

Online learning has a number of potential benefits, not least of which is the ability to overcome the temporal and spatial restrictions of traditional educational settings. Notwithstanding the advantages offered by online learning, a variety of factors have been identified as crucial to the success of online courses (Andresen, 2009). Research has highlighted that student experience, interaction, assessment and feedback have all been viewed as significant constructs in the development of blended programmes (Smyth, 2012; Donnelly & McAvinia, 2012; Evans, 2013) and are themes arising from the reviewed literature and very much key elements of the frameworks under study.

4.2 Assessment

Assessment is an integral part of the learning process and can be described as a challenging activity in higher education due to the demands of the numerous stakeholders involved. Assessment has a strong influence on learning and is at the core of formal higher education (Angus & Watson, 2009). Assessment in higher education drives the curriculum and can occupy up to half of the instructional teaching time (Brew et al., 2009). Brown et al. (1997) point out that assessment of learners' work tends to cause practitioners in higher education more difficulties than any other area of their professional work. Assessment is often seen as crucial to ensuring learners engage with lectures and seminars (Levia & Quiring, 2008). Effective assessment promotes quality instruction that absorbs students in active learning and connects new information with existing knowledge. Assessment shapes the experience of students and influences their behaviour more so than the instruction and teaching that they receive, thus "there is more leverage to improve teaching through changing assessment than there is in changing anything else" (Gibbs & Simpson, 2004, p. 22).

The role and significance of technology in the educational sector is growing and changing at a rapid pace (Groff, 2013). Practitioners and course designers in the higher education sector are being challenged by the recent surge in online technologies. With such an influx in web based course delivery and technology enhanced approaches, learning outcomes and assessment are now very much under the pedagogical microscope. Marriott and Lau (2008) qualitative study indicated that assessment played a significant role in the teaching and learning process. Students perceived a beneficial impact on learning, motivation and engagement derived from the regular interaction with the online assessment.

As online and blended learning have become integrated into educational practice, educators' need to review fundamental issues of teaching, learning and assessment in higher education. Assessment underpins much of what occurs in higher

education. Approaches to assessment are argued to be the cornerstone of enhancing teaching and learning; “If you want to change students’ learning then change the methods of assessment” (Brown et al., 1997, p. 7). While restructuring and planning is required, planning for change in assessment traditions can create complex challenges, needing collegial reflection and discussion (Harris & James, 2006 cited in Brew et al., 2009). While assessment needs adequate resources and effective planning, it produces information that is highly valuable to institutions and is one of the most important activities educators undertake (Trotter, 2006). Its thoughtful implementation allows instructors to assist students develop the aptitudes and talents that are essential to their success in our multifaceted and interconnected world.

There is an abundance of assessment methods used in higher education to assess students' achievements, ranging from projects, presentations and essays to group work, journals, portfolios and dissertations. One of the strongest emerging themes in the research on assessment is the extent to which different approaches to assessment impact on student learning (Black et al., 2003 cited in Sambell et al., 2012, p. 33). Yet, when deciding upon an appropriate means of assessment, we tend to stick with the known or the 'tried and tested methods', because they appear to have the perception of academic reliability and validity. Bryan and Clegg (2006, p. 21) agree, stating that “Instead of being imaginative and innovative, assessment reverts to simple and crude basics. It can be a vicious and downwards spiral”. However, the principal goal must be to select a method that most effectively assesses the objectives of the component of study.

In recent years, the growing influence of constructivist ideas (Piaget, 1977; Vygotsky, 1978) has encouraged many educators to implement additional authentic assessment in their teaching and learning environment, thus creating a well-educated workforce, with the requisite skills and mind-set:

> as there appears to be acceptance that the role and function of assessment needs reconceptualising to include multiple pathways for

> students to both learn and demonstrate their learning in a climate dominated by social constructivist thought (Brew et al., 2009, p. 654).

4.2.1 Authentic Assessment

The principle of authenticity is fundamental when it comes to designing effective learning environments. Authentic assessment is a form of assessment in which students are required to perform real-life tasks that demonstrate meaningful application of essential knowledge and skills (Moeller & Reitzes, 2011) and implies the use of activities that are inherently interesting, relevant, and have long-term value. Students require engagement in multidisciplinary problem solving and critical thinking for authentic learning (Morgan & Cox, 2005; Windham, 2007). With the continued emergence and growth of online learning environments in recent years, the need for best assessment practices in Virtual Learning Environments (VLEs) increases. Authentic assessment is regarded as one of the most powerful means we have to foster students' productive, worthwhile approaches to learning (Torrance, 1994 cited in Sambell et al., 2012). This type of assessment typically comprises of tasks for students to perform in an attempt to promote deep, complex and valuable learning; through their participation in various learning activities, students can learn through 'situated' learning (Herrington et al., 2010). Authentic learning environments connect students' theoretical knowledge to professional requirements (Herrington & Herrington, 2006) and instead of testing to acquire the best answer to discrete questions, we need to measure:

> The ability to make connections, to synthesise, collaborate, network, manage projects, solve problems, and respond to constantly changing technologies, interfaces, and eventually, in the workplace, new arrangements of labour and new economies (Davidson, 2011, p. 127).

Knowing how students are going to be assessed has a powerful influence on what they study and how they are going to learn. Thus, "the challenge for all educators is therefore to seek ways to marry the curriculum and assessment in such a way as to maximise student learning in relation to priority goals" (Bryan & Clegg, 2006, p. 44). All too often, students cram for exams which involves a strategy of shallow learning,

where rote learning of material tends to take precedence over understanding, analysis and application. Unfortunately, this is one way in which assessment can be detrimental to learning and Ramsden (2003, p. 68) warns us that "unsuitable assessment methods impose irresistible pressures on students to take the wrong approach to learning tasks". Nicol (2009a, p. 5) recommends that assessment tasks should "engage students in deep rather than surface learning" and "promote student's productive engagement in learning". This finding is strongly endorsed by Ramsden (1997) and Haggis (2003), leading to the conclusion that:

> The influence of assessment on approaches to learning may not be that more appropriate forms of assessment can induce a deep approach to learning, but rather that inappropriate forms of assessment can induce a surface approach (Joughin, 2009, p. 22).

Authentic assessment focuses on students' analytical skills as distinct from traditional testing methods, with a predominant focus on recall skills through rote memorisation of facts and passive test taking. One of the critical self-regulatory skills that students need is the ability to self-assess, as this has been linked to authentic assessment and the development of metacognitive skills (Lew et al., 2010). By assessing one another's work, students can gain critical insight into the assessment process, which in turn can lead to an improved understanding of learning outcomes and ultimately benefits their own individual performance. The use of authentic assessment coupled with Web 2.0 technologies will undoubtedly pave the way for more collaborative and reflective learning and have the potential to extend the range of pedagogical approaches used in higher education, as "authentic assessment is a concept, which has much to offer higher education and is one which matches the philosophy of many higher education innovations" (Bryan & Clegg, 2006, p. 46). Students also need to understand that they can learn from each other and that alternative methods to the face-to-face lectures can just as effectively prepare them for assessments. Incorporating authentic tasks into assessment will encourage students to focus on appropriate learning activities, moving away from knowledge retention and comprehension.

New innovations such as self and peer-assessment, digital badges and simulated professional tasks are becoming the norm in many institutions as they strive to provide the revolutionary context in which assessment will be viewed as inextricably linked to learning in higher education in the twenty-first century. During self-assessment, the learner has to evaluate their learning against some performance criteria (Brown & Harris, 2014), making their learning visible to themselves and reflect on how to improve their performance. Research on the impact of assessment modes during self-assessment confirms that students engaged in self-assessment through computer or mobile devices showed increased motivation compared to paper based methods (Kapsalis et al., 2019). Peer-assessment involves students critically assessing the work of others and can be formative or summative where a variety of products can be peer-assessed such as written assignments, presentations, portfolios, oral statements, scientific problems etc. (Topping, 2017). The significant advantages of this method is that with online tools, learners can give and receive feedback immediately and anonymously, removing the risk of exposure or ridicule in front of peers (Guler, 2016).

With a growing demand for accreditation as learners seek acknowledgement of their informal learning activities, digital badges have emerged as a means to acknowledge these accomplishments. They act as a way to document life-long learning from which both learners and educators benefit (Ellis et al., 2016) and the current institution has been piloting this system since 2016. These badges communicate information about learners' achievements from formal, non-formal and informal education and can increase the expectations for success as they reward not only accomplishment but also engagement (Jovanovic & Devedzic, 2014). There is strong evidence to suggest that these digital badges can help to overcome the assessment challenges of traditional courses as they recognise diverse learning skills and competencies, such as social skills (Farmer & West, 2016). Simulations provide the opportunity to create an environment that imitate the real-world and are considered real instruments for situated learning and transferring of knowledge in the workforce (Lukosch et al., 2016). Simulations permit learners to

practice skills and apply prior knowledge in authentic, genuine, real-like situations, which they will encounter in their professional life and thereby, are considered as innovative assessment tools of immense value. Several other online tools such as blogs, wikis, podcasts, and learning management platforms are available to reach students not in class and as a means of offering online options to extend the classroom learning experience. If innovative and authentic assessment is to be used to good effect, we need to know how students respond to it, as it is possible to promote good learning by using a particular assessment approach that engages the learner.

While we established that assessment events drive learning outcomes and is essential for the design and structure of a learning environment (Comeaux, 2005) it is also important to investigate how assessment techniques can be utilised to make the feedback loop between instruction and assessment more meaningful (Mandinach, 2005). Feedback can also be enhanced by the use of technology and looking for ways of automating feedback might in the longer term assist the students while reducing the workload of the educator. In online learning, instructors are challenged to provide meaningful feedback to assist students achieve the targeted learning outcomes as this permits the online learner to assess their progress and determine areas needed for self-improvement (Higley et al., 2016).

4.3 Feedback

Assessments don't just measure; they can also provide students with useful feedback. Student feedback is a fundamental component of higher education and tutor feedback and student learning should be inseparable (Orsmond & Merry, 2011). Indeed, feedback is arguably the most important aspect of the assessment process in raising achievement (Gibbs & Simpson, 2004), yet there are numerous difficulties with current practice. Although extensive research has been carried out,

studies in higher education repeatedly find that feedback practices are far from ideal, often describing issues such as students failing to act on feedback, misinterpreting feedback and not recognising the benefits of feedback provided (Carless, 2006; Orrell, 2006; Weaver, 2006). Feedback has on the whole continued to be rated relatively less highly than other aspects of the student experience (Merry et al., 2013). While a great deal of time goes into producing assessment feedback, very little effort is made to examine its effectiveness (Price et al., 2010). Assessment feedback is arguably the most fundamental facet of the assessment process and is taken to include "all communications from a teacher to a student following appraisal of a student's response" (Sadler, 2010, p. 537).

While institutions strive to develop problem solvers and analytic learners, research suggests that students are failing to make the connection between feedback and their own development (Weaver, 2006). Dermo (2011) indicated that student engagement with formative assessment, particularly the feedback, posed a challenge. Orsmond and Merry (2011) indicated that there is a lack of alignment between tutor and student practice; that is, tutor's intentions regarding feedback are not always understood by the student receiving the feedback and this view is echoed by Carless (2006), Hounsell (2008), and Scoles et al. (2012), who all make reference to students' misinterpretation of feedback received. Students are diverse and do not react in the same way to feedback. What may be a devastating blow for one student may be good advice to another (McDowell, 2006). This dissonance or mismatch contributes to miscommunication and dissatisfaction and the resulting confusion negates the effectiveness of feedback.

Assessment can take one of two forms, formative and summative. The student and the teacher alike need to know how learning is progressing, with feedback being utilised to enhance the learning experience to the students (Biggs, 2003 cited in Jenkins, 2010). Feedback is commonly regarded as being part of summative assessment and routinely viewed as written comments from the examiner of an assignment. It is intended that students use this feedback to derive guidance that they can transfer to other academic tasks. Unfortunately, in practice, many

students fail to do this as “at best they use feedback to identify ‘where I went wrong’ and at worst they do not read the feedback at all” (Sambell et al., 2012, p. 39). The effectiveness of formative feedback partly rests on the ability of the students “to perceive a gap between where they are, and where they should be” (Covic & Jones, 2008, p. 76).

Feedback by its very nature should be timely, as students are most likely to benefit from feedback if they receive it before they move onto their next assignment:

> Most research is concerned that feedback is timely, is focused on high-level learning and that the tone is not judgemental (Bryan & Clegg, 2006, p. 69).

Timely feedback is essential in student learning, as it motivates students to reflect, allowing them to establish and develop study skills that work. In essence, students can manage without considerable face-to-face teaching, but they cannot cope without systematic feedback. Since feedback is important to the learning process, the art of giving timely, effective online feedback is a critical skill for an educator (Leibold & Schwarz, 2015). An implication of providing effective online feedback is the positive impact for online learner performance (Goldsmith, 2014).

Opportunities for students to receive feedback on how much they have learnt are an essential part of the learning journey. It is particularly helpful if students evaluate their own learning, as this encourages self-regulation. Nicol (2010) argues that feedback should be conceptualised as a dialogue rather than a one-way transmission process and students should be encouraged to be participants in, rather than simply recipients of, feedback processes. He views peer review as an important alternative to feedback where students are immersed in critical thinking, permitting learners to be positioned at the epicentre of the process. If students do not acquire the ability to evaluate their own work, they will remain dependent on others. The abilities to self and peer review, as referenced in the previous section on assessment are therefore essential graduate attributes where Bradley (2013) and Duhring (2013) make reference to the fact that it is being viewed as an

increasingly more popular approach being used by higher education. Carless et al. (2011) argue that helping students to become more self-regulated in their learning can transfer some of the onus from teachers to students, and make giving feedback more manageable. In academic circles, student involvement in making judgements are viewed as key to 'epistemic apprenticeship' (Claxton, 2011). Through critical thinking, these learners will grow to become independent self-regulated learners, which is viewed as one of the main priorities of higher education (Nicol & MacFarlane-Dick, 2006).

Students need to be active and engaged and to consider the feedback they receive in terms of their own learning. Unfortunately, students often show resistance to innovations designed to involve them in assessment, especially if they see assessment predominantly through the lens of measurement culture (Race, 2010). If students fail to see themselves as active partners in the feedback process, then the best intentions of educators will have little impact. Having said this, most students get very little practice in producing feedback or in making sense of it (Nicol, 2011). As Orrell (2006, p. 421) asserts, the majority of university students "don't understand much of the feedback provided". Crook et al. (2012) make the point that students find it hard to apply the feedback because they don't understand, they don't know exactly where they need to improve or they have received the comments too late for them to be useful to them. Carless (2006) identified that students seemed to use feedback for grading and not for learning. Staff in higher education tend to assume that students arrive with strategies to act on feedback but as noted in Weaver's (2006) research, three quarters of students had not received any guidance on using feedback prior to university. Crisp (2007) additionally points out that what may be 'self-evident' to academics is often not to students. Students are ill-equipped to respond effectively to feedback and, as such, it is necessary to teach students how to make use of assessment feedback (Brown, 2007).

The notion of effective learning from feedback to inform future tasks captures the notion of feed-forward. Wimshurst and Manning (2013) make the point that if

students are to develop advanced skills in critical thinking and analysis, meaningful feedback and 'feed-forward' must be offered in order to facilitate improvement. Gibbs and Simpson (2004) argue that feedback must explicitly address future activities, that is, feed-forward as distinct from feedback. Feed-forward is described by Hounsell (2008, p. 5) as a strategy that:

> Increases the value of feedback to the students by focusing comments not only on the past and present…. But also on the future – what the student might aim to do, or do differently in the next assignment or assessment if they are to continue to do well or to do better.

Race (2006) agrees, asserting that feedback should be considered as 'feed-forward' which can be used by students and staff to inform what to do next to improve. Feedback, thus, should encourage students to think about future learning approaches and development and move the feedback emphasis for end of course examinations to 'feed-forward'. The use of feed-forward exercises enables students to comprehend the tacit quality of what is required from them in examinations (Bloxham & Boyd, 2007). In Ferguson's (2011) study of student perceptions of quality feedback, the quintessential factor in 'good' feedback was a clear link between assessment tasks and guidelines. The students sought personalised feedback, with clear guidance on how to improve their work. Researchers agree that in order for students to benefit from feedback, they must have opportunities to construct their own meaning from the received message; they must act on it and connect it to their prior knowledge (Carless et al., 2011; Price et al., 2010; Nicol, 2010).

Both assessment and assessment feedback play a fundamental role in underpinning students' learning in higher education and, as such, should be an integral part of any teaching and learning strategies (Jordan, 2006). The capacity to produce quality feedback is an inherent skill and with the explosion of new technologies in recent years, new theories about learning demand a reconsideration of feedback's role and thus further emphasises the need for much greater attention in higher education. It is, therefore, vital that researchers as well as educators who are

planning on implementing blended courses devise appropriate assessment methods. Feedback forms part of a learning context, where all protagonists need to be engaged in the process (Taras, 2008). After all, feedback ultimately requires a focus on learners needs for improvement, with specific suggestions from both peers and educators to enhance future assignments (Hounsell, 2008; Nicol & Macfarlane-Dick, 2006; Shute, 2008). Specific teaching competencies include communicating expectations for learner performance, grading and comments that are accessible to learners, providing prompt feedback, and giving feedback that is helpful and enhances learning (Bigatel et al., 2012). The agenda for change proposes 'dialogue' in opposition to 'monologue' (Nicol, 2010) and Carless (2006) delineates that for feedback to be re-engineered, it needs to engage with or even confront the belief systems and existing practices of staff. Improved feedback practices can only come about from an understanding of what makes effective feedback and a commitment from all stakeholders to agree to necessary changes to support new practices. Our epistemologies and beliefs of learning and assessment must align with practice if these issues are to be resolved. Multifaceted learning is best advanced when feedback is seen as a relational process that takes place over time, is dialogic and is integral to teaching and learning.

Technology has a pivotal role to play in students' learning (Bakerson & Rodriquez-Campos, 2006) and provides an opportunity for closing the feedback loop on student learning as the practice of frequent feedback promotes online success (Junk et al., 2011). Providing effective online feedback is an important skill for educators to develop as it guides the learner's development and in a robust way to foster learning where the 'Net Generation' of learners prefer personalised feedback (Cramp, 2011; Laryea, 2013) and have grown to expect immediate feedback (Groome, 2011). The great benefit of digital tools lies in the "provision of effective and efficient feedback that can be individualised" (Irons, 2008, p. 92). For example, some educators have now started to use voice technology to provide audio feedback for learners as a timesaver (Lewis & Abdul-Hamid, 2006; Portolese et al., 2014) and research reports that learners were ten times more likely to open audio

feedback than written feedback (Lunt & Curran, 2010). As higher education institutions enter an era of 'evidence based' practice and take greater accountability for monitoring student progress, they must also assess the impact of the diverse environments that help shape student learning.

4.4 Interaction

Garrison and Vaughan (2008) assert that the basic principle of blended learning is the strength of communication and interaction where Banna et al. (2015) make the point that fostering interaction in the online classroom is an essential component in ensuring that students actively create their own knowledge and reach a high level of achievement. E-learning has developed from a process focused on distributing information and knowledge to one that deeply engages learners in sophisticated interactions through communities that transcend geographical barriers (Liebowitz & Frank, 2011). Combining face-to face and online learning environments has the potential to provide a learning environment where student engagement opportunities are much enhanced (Osguthorpe & Graham, 2003). Vonderwell (2004) believes that this collaboration leads to the development of new meaning. Conversation drives learning, through clarifying understanding, problem-solving, building mental representations, and fostering deep learning (Laurillard, 2002). It is often through conversation, discourse and discussion between instructor and student that a new concept is clarified and a learning objective is achieved.

Interaction is a fundamental concept in any learning setting which makes the environment interactive and Sharpe et al. (2006) assert that institutions adopt blended learning to promote interaction among students and their faculty. All learners crave interaction, be it in face-to-face or online settings, and research indicates that interaction can increase learning and lessen the psychological distance involved in online learning (Mayes et al., 2011). Furthermore, online learning engagement provides an interactive setting for communication among

teachers and students in the classroom and may facilitate cooperative activities even beyond the classrooms (Yuen, 2010). By integrating the increased flexibility offered by online classes and social interaction provided by traditional classrooms, effective blended learning can be achieved (Waha & Davis, 2014). The word interactivity is used in a variety of ways. This leads to a definitional discussion on interactive learning, for which Moore (1989) proposed a number of different forms including learner/content, learner/learner and instructor/learner. Learner/content interaction refers to the interaction students have with the content when they reflect on and engage with the course content. Learning that occurs through the use of technology is learner/content interaction, as it utilises content and information without an instructor. Learner-content interaction may take on a number of forms, including watching instructional videos, interacting with multimedia, as well as searching for information (Abrami et al., 2011). Learner/learner interaction consists of the exchanging of information or ideas related to the course of study. Instructor/learner interaction refers to communication between learners and the course instructor and effective instructors need to be skilled and proficient in the development of online programmes. This interaction can include feedback, guidance and evaluation of progress and these interactions promote deeper levels of engagement in student learning.

These interactions are important elements in the design of a Web-based course as learners can experience a *"*sense of community*"*, enjoy mutual interdependence, build a "sense of trust*",* and have shared goals and values (Davies & Graff, 2005; Rovai, 2002). A sense of community and social presence has been widely acknowledged to be a factor in enhancing both the quality of learning and the motivation to study (Haythornthwaite & Andrews, 2011). The social presence of the instructor according to Dixson (2012) is viewed as an integral component of a successful online course; where the instructor carries out activities that translate virtual interaction into an impression of a 'real' person. Sharpe et al. (2006) asserted that consistent and transparent communication with students about their

opinions and expectations is essential for the success of the blended learning experience and interactions among students in online classes can help motivate them to commit to learning (Gabriel, 2004; Rovai & Barnum, 2003) with research on all three modes of interaction showing that each one favourably impacts student achievement (Bernard et al., 2009).

To effectively implement a blended learning model, it is essential that the instructor moves the course from being teacher-centred to a student-centred course. Bonk and Zhang (2008) emphasise the importance of students being provided with rules and guidelines on online discussion participation, as well as training if required. The instructors support helps provide a sense of connectedness and an engaging learning environment for the learners. While some instructors may continue to argue that a traditional classroom is the 'richest' teaching medium, blended instruction allows ample opportunities for building social relationships between student and teacher. Sitter et al. (2009, p. 42) assert that "blended courses offer the convenience and flexibility of wholly online courses without the loss of faculty or student interaction".

Barrie (2004) points out that within higher education much emphasis is placed on the need for graduates to have attributes such as good communication skills, interpersonal skills, and leadership. Webster and Sudweeks, (2007) assert that the development of a relationship between individual learning, group learning and membership of a learning community is an important aspect of students' learning in higher education. Communication between instructor and learner have been found to be more important than other forms of interaction as it is closely linked to student learning experience and is essential in developing a sense of community that contributes to student satisfaction. One such tool is the discussion boards that permit interactions that are not time or situation bound. Online interaction, collaboration and assessment are factors found to be enhancing student performance (Vaughan et al., 2011) and this would be consistent with prior research findings (So & Brush, 2008). Social interaction is an important element in designing online learning where Everson et al. (2013) see social as a way of

encouraging students to participate in their learning experiences. Important differences related to interaction between both face-to-face and online learning are adapted in the following table by McConnell (2000).

Table 3. ***Comparison of interaction between face-to-face and online settings***

	Face-to-Face	Online
Mode	Verbal discussions: a more common mode but impermanent	Discussions through text only; Can be structured; Dense; permanent; limited; stark
Sense of Instructor Control	More sense of leadership from instructor; Not so easy to ignore instructor	Less sense of instructor control; Easier for participants to ignore instruction
Discussion	Little group contact between meetings; Analysis varies, dependent on time available; Discussions occur within a set time frame; Often little time for reflection during meetings; Conversations are less likely being reshaped during meeting	Group contact continually maintained; Depth of analysis often increased; Discussion often stops for periods of time, then picked up and restarted; Level of reflection is high; Able to reshape conversation on basis of ongoing understandings and reflection

	Face-to-Face	Online
Group Dynamics	Anxiety at beginning/during meetings; Participation unequal; More chance of hierarchies; Dynamics evident but lost after the event; Breaks between meetings; Listening without participation may be frowned upon; Medium (room) may have less impact; Certain expectations about participation; Quicker, immediacy of interactions or discussions	Less sense of anxiety; More equal participation; Less hierarchies; Dynamics are 'hidden' but traceable; No breaks, constantly in the meeting; Can be active listening without participation; Medium (technology) has an impact; Different expectation about participation; Slower; time delays in interactions or discussions
Re-joining	Stress of re-joining not so high	High psychological/emotional stress of re-joining
Feedback	Less likely to cover as much detail, often more general discussion; Group hears feedback; Verbal/visual feedback; Possible to 'free-ride' and avoid giving feedback; No permanent record of feedback; Immediate reactions to	Feedback on each individual's piece of work very detailed and focused; Whole group can see and read each other's feedback; Textual feedback only; No one can 'hide' and not give feedback; Permanent record of feedback obtained by all;

	Face-to-Face	Online
	feedback possible; Usually some discussion after feedback, looking at wider issues; Group looks at one participant's work at a time	Delayed reactions to feedback; Sometimes little discussion after feedback; Group looks at all participants' work at same time
Divergence/ Choice Level	More tightly bound, requiring adherence to accepted protocols; Uncertainty less likely due to common understandings about how to take part in discussions	Loose-bound nature encourages divergent talk and adventitious learning; Medium frees the sender but may restrict the other participants (receivers) by increasing their uncertainty

Source: Adapted from McConnell (2000)

Understanding students' online interaction is fundamental, as interaction influences the quality of online learning (Song & McNary, 2011). On balance, the importance of online interaction to students' learning experience seems clear; however, DeWever et al. (2006) make the point that a sound theoretical foundation for determining what good quality interaction is and how it affects students' learning success is somewhat lacking. Through the addition of human interaction to online learning, the educators have made provision for the human need for socialisation which in turn feeds into the process of learning (Sethy, 2008). Students feel less inhibited in the online discussion environment and have time to formulate their thoughts before posting online (Gebric, 2010). Blended learning has paved the way for collaborative interactions, permitting learners to interact

both face-to-face and online while providing them with improved flexibility and connectivity.

4.5 Student Experience/Satisfaction

Student satisfaction is an important instrument in gauging the effectiveness of learning processes and is an essential component in any blended learning programme, as it enhances motivation and thus impacts student success and completion rates. According to Ginns and Ellis (2007), a central aspect of teaching and learning is the students' own experiences of the process. Banerjee (2011) indicates that student satisfaction with blended learning depends largely on the challenges presented by the subject matter, the degree to which self-directed learning and problem solving are required and the effectiveness of the chosen pedagogies by which face-to-face and online method are combined. Today's new learners expect more control of their learning situations, prefer active learning and engage in networked communities for their social and professional lives (Doirin & Asselin, 2011). While student satisfaction is not necessarily linked with achievement (Moore & Kearsley, 2005), it can be an effective tool to gauge the effectiveness of a blended course. The Sloan Consortium define student satisfaction as when "students are successful in the learning and pleased with their experience" (Moore, 2009). Satisfaction can be an indicator of successful completion of a course and satisfied learners are generally those who are motivated and engaged and ultimately achieve their desired outcome. Shivetts (2011) agrees, citing that students' motivation is a major factor for e-learning and blended learning success.

Wu et al. (2010) define satisfaction in a blended learning environment as the sum of student feeling and attitude that results from combining all the benefits that a student hopes to achieve from a blended learning environment. Expectation and student satisfaction are important constructs in the delivery of education as the

students take on the role of consumer expecting an adequate service. The most important influences on student satisfaction are teaching quality and variables directly associated with the student's programme of study. The effectiveness with which an instructor can create, plan and execute a curriculum plays a vital role in how much students learn. Teacher effectiveness can be defined as "how an instructor can best direct, facilitate and support students toward certain academic ends, such as achievement and satisfaction" (Gorsky & Blau, 2009, p. 1).

So and Brush (2008) found that students' satisfaction with online learning is closely associated to the use of proper communication media. Lim and Morris (2009) propose that the application of blended instruction has quickly increased because instructors believe that varied delivery methods can increase students' satisfaction from the learning experience, as well as their learning outcomes. Digital technologies are now an integral aspect of the university experience for today's students (Henderson et al., 2015). The online classroom affords the student who rarely takes part in class discussions the opportunity to participate online. Instructors report that they feel more connected with their students and are able to get to know them better since they communicate both online and face-to-face, as discussions started in class are continued online. Dziuban et al. (2006) research concurs, asserting that student satisfaction has been reported to be higher in blended learning courses compared to purely face-to-face programmes. So and Brush (2008) established that a blended learning format can be an effective solution for reducing transactional distance and in increasing student satisfaction.

Higher education institutions measure and evaluate student satisfaction in an attempt to interpret student needs, modify and update programmes of study and to promote courses and ultimately recruit students where evidence suggests that blended learning can also increase student engagement and satisfaction. As technologies continue to emerge, interaction, motivation and satisfaction continue to play a significant role in students' evaluation of newly implemented blended learning courses. Research indicates that motivation is crucial in ensuring student persistence in learning, retention and achievement, especially in an online

environment (Chen & Jang, 2010). Kelly (2012) proposes five factors to adopt to positively impact on student motivation in an online environment:

- Provide students with a sense of control
- Emphasise how the course is relevant to the students and their future study/career
- Set clear expectations and provide feedback regularly
- Engage students interest
- Indicate to students that you care about and value their contribution and effort through feedback

Satisfaction is also closely aligned to student retention (Allen & Seaman, 2003) an issue highlighted in chapter 2, where research indicates that students' perceptions are negatively influenced by high workload, low support, online technical problems, and tutors lack of online experiences (Overbaugh & Nickel 2011). While a number of advantages are evident from the research, So (2006) reported that insufficient learning satisfaction emerged to be a barrier to the successful adoption of blended courses.

Student satisfaction is considered an important factor in measuring the quality of blended learning. Environmental and instructional factors impact student achievement and personal development in educational institutions and by designing and implementing various instructional environments and practices, student learning can be enhanced. Although students' satisfaction is not necessarily correlated with achievement (Moore & Kearsley, 2005), satisfaction is a fundamental component for the successful completion of programmes of study (Chang & Fisher, 2003). Student satisfaction is, therefore, a key factor in the success of blended learning programmes and results from a combination of factors as regardless of comparisons made by researchers and developers, those studying blended learning have agreed that student satisfaction is a baseline requirement for successful implementation (Naaj et al., 2012).

4.6 Conclusion

In this chapter, due to the significance of pedagogy, four main constructs were examined as elements of pedagogy that transcend technological orientation and have been reviewed and used to shape the design of the research study. Assessment, as pointed out, is fundamental to any educational experience. Assessment informs both teaching and learning, along with reaffirming understanding and progress through the provision of effective feedback. Assessment, ultimately, shapes how students approach the learning experience, so it is incumbent on course designers to ensure that assessment techniques support and enhance intended learning outcomes. The careful design of 'authentic' approaches to assessment will permit learning to happen in appropriate ways if students find relevance and meaning in our assessments. While assessment determines how students approach learning, the challenge is to alter student perceptions of the learning approach and blended learning offers a variety of options for assessment techniques.

While numerous instructional strategies are suggested for classroom and online environments, there is a consistent belief that both varied interactivity and prompt feedback are key to student engagement in blended courses. Collaborative learning tools and the use of peer review and group work encourages and promotes the sharing of ideas which leads to knowledge construction and student autonomy. This type of environment enhances student engagement as faculty direct their time and energies to improving pedagogy in an attempt to engage with the learner through improved methodologies and technologies. The instructor's role has always been fundamental to providing a structured and engaging learning environment and is a key determinant in course satisfaction. Student satisfaction is highly correlated with the performance of the instructor, and the role of the educator in the blended learning environment remains essential. By weaving up-to-date technology and trusted pedagogical methods together, it is possible to offer the learners a learning environment, where they, not only learn how to solve problems, but also how to interact with each other. The next chapter presents the

research methodology and the philosophical assumptions that underpin this study. The section outlines the case study methodology and will describe the subject selection, the survey used, data collection methods and data analysis procedures.

Chapter 5: Methodology

5.1 Introduction

As the literature review shows, blended learning is more than just replicating onsite activities in online environments, the primary goal should be transformative, resulting in better learning than previous modes of delivery. In addition to the claimed benefits of cost saving and flexibility, it offers the potential to create learning-centred environments, where collaboration is enhanced and promoted. While online learning can only ever be one part of the broader learning experience, thinking creatively about the design, can mean that it can be stimulating, interesting and intimate for the learner. The biggest danger in any e-learning or blended solution is becoming focused on technology and not the audience. This study recognises the importance of technological knowledge, pedagogical knowledge and content knowledge as a dynamic framework that supports the integration of technology in teaching and learning. The research questions set out to explore the influence of pedagogy and the positive elements, issues, complexities and challenges that students and tutors experience as they engage in blended learning programmes. This chapter commences with a statement of the research questions and by identifying the research methodology that underpins this study including the justification for a qualitative design. Context is then provided followed by choice of qualitative methodology and finally a detailed description of the research methods including the data collection, data analysis, sampling, demographics, validation and ethics.

5.2 Research Questions Investigated

In curriculum design, we need to consider how to exploit and integrate the comparative advantages of different modes of instruction to specific courses by offering, not only wholly face-to-face or online, but also hybrid classes to overcome

the constraints of time, place and resources. Despite furtive attempts to introduce these approaches into higher education settings, there is limited research exploring the efficacy of interactive online delivery of content, particularly from a student point of view (Williams et al., 2012). This study is aimed at discovering how different groups of students and tutors experience and perceive blended learning. Additionally, this study aims at identifying factors that affect student perceptions of their learning and performance in a blended learning environment and seeks to identify what themes emerge across a wide variety of stakeholder experiences. While PCK has been a focus of review over the past decade, few studies have investigated how the different components are integrated in postgraduate programmes through student and faculty experiences and reflections. Yin (2014) recommends the use of How? Or Why? questions when devising a research question as they are more explanatory and can give an overview of practice and process over time. This study aimed to answer the following questions:

1. How is blended learning perceived and experienced by university tutors?

2. How is pedagogy conceptualised by the students with particular reference to the main constructs; student experience, interaction, assessment and feedback?

3. What are the constraints and factors influencing the implementation of blended learning?

5.3 A Case Study Design

Interpretive researchers use different methodologies such as case studies, phenomenology, and ethnography. Denzin and Lincoln (2008, p. 29) state that "qualitative researchers deploy a wide range of interconnected interpretive methods, always seeking better ways to make more understandable the worlds of experiences they have studied". As this research focused on the examination of

contemporary events and dealt with how-type questions and in particular sought to address people's perceptions and experiences, an exploratory case study methodology was chosen. While an exploratory study is associated with an inductive approach, this study uses a combination of both because it draws this research on extant literature and studies that have been conducted on the topic, informing the semi-structured interviews and identifying the key constructs. This is a single case study as described by Yin (1984), where the case itself involves two programmes in a very established, somewhat traditional university that has been embarking on this e-learning journey. Due to the scale of programmes being rolled out, the work focused on two programmes in different schools in the university.

This study will take the form of an open exploratory study. Even-though not inductive in nature, this study is open to finding other information. To provide adequate information regarding the potential and challenges presented by blended learning implementation, inductive and deductive approaches are executed simultaneously. Principally, the implementation of this combination method is orientated to achieve improved results. Cohen et al. (2011) note that a significant strength of case study research is that it establishes cause and effect, and it enables the researcher to observe such effect in real contexts. A qualitative case study is a holistic description and analysis of the singular entity, phenomenon, or experience. Case study methods are used when the researcher desires to develop a descriptive and heuristic account of a specific phenomenon (Merriam, 2009), meaning that the case study develops the reader's understanding of the phenomenon under investigation. A trademark of case study research is the use of multiple data sources, a strategy which also enhances data credibility (Yin, 2003). While the findings for case studies cannot be generalised in a probabilistic sense, the findings may be relevant to other contexts. 'Comparability' is a concept proposed to address the issue of generalizability from a single or cross-case analysis. Comparability and relatability is the degree to which the elements of the study are sufficiently well described and defined, in order that other researchers can use the results as a basis for comparison.

5.4 Philosophical Underpinnings

A range of 'accepted' research paradigms exist in information systems and it is important to set out the paradigm being adopted for this research. The paradigm sets out the intent of the research including the axiological, epistemological, ontological and methodological assumptions (Creswell, 2012; Lincoln & Guba, 2013). It is the researcher's ontological and epistemological assumptions that inform the choice of methodology and methods of research. From an epistemological perspective, a constructivist approach recognises that the researcher sets out to understand the human experience from the participant's perspective, while the constructivist paradigm, which is also referred to as the interpretivist paradigm, is concerned with how people construct meaning and theory. Interpretivists state that reality is multi-layered and complex and believe that people are creative and actively construct their social reality. Interpretive analysis is generally viewed as being conducted in three stages: deconstruction, interpretation, and reconstruction. The interpretive epistemological assumption states that there is no such thing as objective knowledge since all studies are biased and therefore subjective (Johnson & Duberley, 2000). In line with accepted interpretive beliefs, knowledge creation in this research is subjective, meaning that a researcher's background, the research context, and other research participants will influence the knowledge created through this process. Denzin and Lincoln (2011, p .5) assert that "research is an interactive process shaped by a number of factors including personal history, biography, gender, social class, race, and ethnicity, and by those of the people in the setting". Contrary to the positivist paradigm, theory should generate from the data (Creswell, 2007); it should follow data and not precede it (Cohen, 2003).

To ensure a robust research design, one must select a research paradigm that is congruent with their beliefs. From a constructivist perspective, online learning best provides opportunities for students to make choices about how, when and how much to learn (Martinsen, 2017). Epistemologically, constructivists adhere to a transactional subjectivism and these assumptions support an

interpretive/explanatory method of hermeneutics (Creswell, 2012). Therefore, the axiological presupposition of constructivism rejects objectivity as a possibility, and plausibility, transferability, dependability and confirmability, take the place of internal validity and external validity/generalisability, replicability/reliability, and objectivity (Lincoln & Guba, 2013) and this is revisited later in addressing validity and bias.

5.5 Case Context

The study presented in this thesis is based on the implementation of two blended learning programmes in a single institution. The current institution has a strong tradition of integrating the core activities of research and teaching and the institution is committed to the use of technology to support and enhance student learning to serve its diverse population and offers programmes in Medicine, Science, Engineering, Humanities, Social Science and Business which are embracing an e-learning strategy. A review of all programmes was undertaken (See Appendix I) and an audit carried out on these. A set of programmes had been launched in terms of e-learning and two were selected for this study as these courses had received funding from the e-learning strategy and were established courses. A technology enhanced learning team had been established to provide training to departments on using e-learning tools effectively. In this study, the sample consisted of fifteen students and six faculty across the two programmes, the sampling used for this study was purposive, and all students were in their first year of a postgraduate course and were engaged in blended learning.

5.6 Research Design

The qualitative design in this study allows the researcher to analyse process, rather than outcomes or products. Creswell (2009) describes this approach as a

"theoretical lens or perspective" that the researcher utilises to provide an overall orientation for the study. The goal of this research is to investigate how things look from different vantage points, where the learners' perspectives are just as significant as the educators. While Creswell (2007) asserts that qualitative research is more difficult to conduct than quantitative research, it gives voice to participants and allows educators and researchers to view programmes directly through their eyes and provide insights and perspectives that are impossible to achieve with quantitative methods alone.

Semi-structured interviews that result in qualitative data provide us with the perspectives of the participants without imposing the ideas or bias of the evaluator. Qualitative methods were used to provide research findings with a 'deep' narrative than can usefully inform what is actually taught. Richards (2002) and Bazeley (2009) agree with Miles and Huberman (1994) who advocate that qualitative data can produce significant findings once managed appropriately. This study is an open exploratory approach that has been informed by the literature. Following a review of the literature, the author became interested in these four constructs as they are key components of pedagogy and grounded in modern issues in higher education as referenced earlier in chapter 2. While this approach may be viewed as deductive, the study is not testing a hypothesis but is interested in particular elements as they have been identified as fundamental from a pedagogical point of view and they are the ones that are debated most within the blended learning literature where one of the key points being made by this research is that pedagogy transcends technology.

5.7 Data Collection

This study was designed to investigate both academic staff and student perceptions and attitudes towards blended learning. Cohen et al. (2003) argue that case studies exist in their own right as a significant and legitimate research method and thus data was collected through semi-structured interviews. The focus of the interviews

was to explore the practices of blended learning implementation at a number of schools in an Irish University. In this study, Braun and Clarke's (2006) 6-step framework is adopted as it is arguably the most influential approach that offers such a clear and practical framework for undertaking thematic analysis (Maguire & Delahunt, 2017). This type of analysis is the process of identifying patterns or themes within qualitative data and its popularity reflects its interdependence from any particular theoretical approach or epistemology persuasion, making it is a very flexible approach often used in qualitative analysis.

All the participants on each of the courses (n=40) were invited to take part in the study following a presentation to the group regarding the nature of the study and how it would be undertaken. Of the students interviewed, ten were female and five were male, with an age range of 22-55 years, with a good geographical spread and working in a variety of settings. Six academic staff members were also interviewed including two course coordinators, two lecturers, and two instructional designers. Qualitative semi-structured interviews can be used as much to consider experience, meanings and the 'reality' of participants' experiences as they can be used to explore how these experiences, 'realities' and meanings might be informed by discourses, assumptions or ideas which exist in wider society (Braun & Clarke, 2006).

The interviews commenced with an introduction to the research, the collection of professional background information and proceeded to a series of key questions. Questions posed to both staff and students focused on four main constructs: student experience, interaction, assessment and feedback and the interviews took approximately 25-30 minutes. Questions were open ended allowing for additional themes to emerge, with pedagogy a particular focus of faculty and the need for a good fit between curriculum and pedagogy to meet the changing needs of students as reported in the literature. Students were interviewed at the outset of the course following a settling in period and once again in the second semester to observe if their views and perspectives had altered. The interviews were digitally recorded, transcribed and coded to identify similar themes and query the data. Findings are

reported by drawing upon (anonymised) quotations. The following table represents the phases of data gathering.

Table 4. ***Phases of data collection***

Design and Planning Phase	Data Collection Phase
• Research question formulation • Determine survey research design • Draw the sample • Data gathering techniques • Questionnaire construction • Administer pilot study • Finalise survey instrument	• Locating respondents • Accessing the respondents • Conduct semi-structured interviews • Observations • Access course documentation

In summary, the specific methods outlined were viewed as the most effective way of gathering rich data on both the students' and tutors' opinions about learning within a blended environment. Furthermore, the semi-structured interviews conducted were the primary mode of data collection in this research and provided rich qualitative data on the experiences of the transition process to teaching a blended learning course and the experiences of students and faculty within the environment.

5.7.1 The Participants Involved

Online education is rapidly expanding in this institution and this multi-campus university is no different from other higher education institutions in that this shift from traditional to online learning is playing an ever increasing role. The majority of courses at this campus are taught in the traditional manner, but two blended courses were identified, with one of these courses being treated as a pilot course prior to full scale research. As well as students, course co-ordinators, practitioners and instructional designers were involved in this study to explore, analyse and compare the blended learning experience. The students were recruited with the

assistance of the course coordinators. The participants included fifteen students from two different postgraduate programmes. Table 5 displays the demographic profile of the students who partook in this study. The majority of students (93%) were in the 24-50 years age group and most students were studying part time. 100% of the students in Programme 1 were female and this is congruent with the predominantly female profile in nursing and midwifery, while there was a more even split in Programme 2 with 45% male representation versus 55% female. Over half of the students (53%) involved in the study were in paid employment upwards of 30 hours per week and in some instances in excess of 30 hours, particularly in Programme 1.

Table 5. ***Demographic profile of student participants***

Course Of Study	**School of Nursing**	**School of Psychology**
Number of Students enrolled on Course	24	26
Sample Size	4	11
Percentage of student programme	16.6%	42.3%
Gender		
Male	0	5
Female	4	6
Work Commitments	4	10
Not Working	0	1
1-10 hours of work	0	2
11-20 hours of work	0	4
21-30 hours of work	4	4
Age		
20-30 Years	0	9
30-40 Years	0	2
40-50 Years	3	0
50 Years or Older	1	0

It is worth pointing out that the students on the Nursing course were more mature in age, while the majority of the Psychology students were in most cases recent graduates and in general up to date with recent trends in technology. Six practitioners agreed to participate in recorded interviews and the research was conducted over a twenty-eight-month period, from December 2014 to April 2017.

5.7.2 Sampling Procedure

This study employed a purposive sampling strategy, where the researcher handpicks the cases to be included, based on their judgements of what he or she deems important or satisfactory to the needs of the study. With theoretical and purposive sampling, the researcher is reflexive and makes decisions in response to empirical findings and theoretical developments that occur in the study (Emmel, 2013). The purposive sampling technique, also known as judgement sampling, is the deliberate choice of a participant due to the qualities the participant possesses. The main goal of the sampling procedure used was to focus on particular characteristics of both cohorts of students under review that will best assist in answering the research questions. It is typically used in qualitative research to identify and select the information-rich cases for the most proper utilisation of available resources. The researcher visited the students in one of their face-to-face sessions, where he introduced the students to the research topic and provided them with a participant information sheet (Appendix B) and consent form for students to sign and agree to participate (Appendix C). Usually, this type of sampling is quite small and can be logically assumed to be representative of the population. In this study, a purposive sample was deemed to be most effective as these students were located on one campus.

5.7.3 Data Sources

An attribute of case study research is the use of multiple data sources. The rationale for adopting a case study approach was based on its strength of in-depth analysis and effectiveness in educational research. The ability to explore the cause

and effects associated with a combination of blends and impact on student learning provided a framework which permitted the researcher to investigate, identify, and analyse the issues in depth. Yin (2003) suggested the use of six sources of evidence when using case study research methods. These include; documentation, archival records, interviews, direct observation, participant observation and physical artefacts.

The current study draws on three of these sources of evidence - interviews, observations and documentation. Data from these sources will be converged in the analysis process and will enhance data credibility. The use of semi-structured interviews in this study helped to investigate participants' perceptions of their experiences and social worlds. The richness of the data is attributable directly to its case study design. The following sections will discuss in more detail what is understood by these data sources.

5.7.3.1 Interview Schedules

Punch (2009, p. 144) cites that "interview is the most prominent data collection tool in qualitative research". This is mainly attributed to the fact that the researcher gets a more in-depth analysis and perspective that accurately reflects the participants' experience. Interviews are also widely used, due in part to the flexibility they offer as a tool, since researchers may choose whether to design structured, semi-structured, unstructured interviews; or whether to triangulate and use any two, or all of them, in one study. This means that researchers choose the type of interview that is aligned with the purpose of the study and the research questions. Semi-structured interviews were adopted in this case study as a tool to investigate and gain an understanding of the opinions and experiences of the key stakeholders in this study. This also provided the opportunity to build on students' responses that may not have been anticipated when designing the interview schedule (Kvale & Brinkmann, 2009; Robson, 2011) and afforded the freedom to follow up points as necessary and to probe issues and seek clarification (Thomas, 2011).

The majority of the questions in the interview were open-ended in nature (Creswell, 2014) and were framed in a way to elicit in-depth responses from participants (Merriam, 2009; Yin, 2009). A predetermined set of questions was constructed in such a way that their meaning was clear and there was no element of leading or interview bias. The interview schedule with students built on the key concepts in the literature and the theoretical principles, the research questions and preliminary findings that emerged from observations. The interview schedule with students built on the following key areas: (1) key concepts in the literature and theoretical principles, (2) the research questions, and (3) the main constructs under review. Examples of topics that were probed in the interview included how blended learning supported learning, level of interaction on programme, issues arising, methods of assessment and feedback and recommendations for future improvements (Appendix D). Interviews were transcribed and these detailed transcripts are essential both for an accurate account of what students said and for providing a source of the lengthy quotations that are usually incorporated into qualitative research reports as part of the interpretation validation process. In this way, verbatim transcripts strengthen the 'audit trail' (Table 11) of the study. Participants' responses were coded by assigning words or phrases which accurately described their meaning (Creswell, 2012). Validity of the questionnaire was addressed through a small pilot of students.

5.7.3.2 Observations

Observations were important to get a real picture of what happened on each of the programmes. Observations are widely used in research as they offer the researcher the opportunity to gather 'live data' in natural settings (Cohen et al., 2011). The observations involved sitting in on lectures and observing student forums in an attempt to greater understand the structure of the course. The online LMS provided the opportunity to observe all learning activities that occurred via the courseware. The observations were not audio/video taped but hand written notes of experiences of the learning environments that the researcher shared with the lecturers and students. Field notes were recorded at the end of each observation

session. These notes were compiled under specific headings and prompts to avoid description and provide factual information regarding experience, critical incidents or moments, reflection on role as researcher and identify interesting observations. These observations helped to inform the interviews and probe further in specific areas allowing new perspectives to emerge.

5.7.3.3 Documentation

Organisational and institutional documents have been fundamental in qualitative research for many years. In recent years, there has been an increase in the number of research reports and journal articles that mention document analysis as part of the methodology (Bowen, 2009). Furthermore, as Merriam (1988) pointed out, "documents of all types can help the researcher uncover meaning, develop understanding, and discover insights relevant to the research problem" (p. 118). Documents that may be used can take a variety of forms and in this study it was typically the review of prior literature as part of the research that is incorporated into the study along with information booklets and course information for both programmes of study. Documents can serve a variety of purposes as part of a research undertaking and can provide data on the context within which research participants operate and provide supplementary research data. Information and insights derived from documents can be valuable additions to a knowledge base and equally documents can be used as a way to verify findings or corroborate evidence from other sources.

5.7.4 Pilot Study

Bless et al. (2006) define the pilot study as a small study conducted prior to a larger piece of research to determine whether the methodology, sampling, instruments and analysis are adequate and appropriate. Prior to the current study being conducted, the research procedures and materials had been piloted in May 2014. Piloting of the interview schedules contributes to rigour (Cohen et al., 2003). The pilot study was designed to establish and to ensure that all research instruments

function effectively. The pilot study addressed the same research questions as the present study. The data methods included a small sample of two students and before they went real, the pilot instruments were also shared with supervisors and a number of fellow doctoral students. In addition to obtaining preliminary results, the pilot study afforded the opportunity to test data collection instruments, and refine the interview schedule where minor modifications were made in the interview schedule as a result of the pilot where further clarity was sought to deal with ambiguity arising from question 1 in the feedback question which asked "How do you think you are doing on the course? This question was designed to focus on feedback and needed further clarification so in the prompts section, additions were included such as: how do you know? what types of feedback have you experienced on the course? to add clarity and avoid uncertainty posed by this particular question.

5.8 Research Analysis

Thematic analysis as adopted in this study offers the researcher a more flexible and useful research tool with the potential to provide a rich data set. Thematic analysis, as described by Braun and Clarke (2006, p. 79) as a method for identifying, analysing, and reporting themes and patterns within data and thus is a useful tool for working within the participatory research paradigm, with participators as collaborators. Through gathering data, using a combination of instruments with participants in different environments, thematic analysis affords the opportunity to present the data more effectively and reflect the reality of the data collection.

Table 6. ***Phases of thematic analysis***

	Phases	**Description of Analysis Process**
1	Familiarising myself with	1) Narrative preparation, i.e. transcribing data 2) Re-reading data and noting down initial idea

	Phases	Description of Analysis Process
	data	
2	Generating initial codes	1) Coding interesting features of the data in a systematic fashion across entire data set 2) Collating data relevant to each code
3	Searching for themes	1) Collating codes into potential themes 2) Gathering all data relevant to each potential theme
4	Reviewing themes	1) Checking if themes work in relation to the coded extracts 2) Checking if themes work in relation to the entire data set 3) Reviewing data to search for additional themes 4) Generating a thematic 'map' of the analysis
5	Defining and naming themes	1) On-going analysis to refine the specifics of each theme and the overall story the analysis tells 2) Generating clear definitions and names for each theme
6	Producing the report	1) Selection of vivid, compelling extract examples 2) Final analysis of selected extracts 3) Relating the analysis back to the research question, objectives and previous literature review

Source: Adapted from Braun and Clarke (2006)

Data analysis involves an examination of participants' views and identification of themes that can afford the researcher the opportunity to tease out all possible meaning from a given study. After the data was coded, it was the researcher's task to look for relationships between codes and data sets in an ongoing process. Thematic analysis was used across the data set to find repeated patterns of meaning. The initial information obtained from interviews were transcribed and coded and imported into the research to highlight correlations in key findings. This research endeavoured to establish commonalities amongst key participants' perceptions of the blended learning process by organising the qualitative data into

categories on the basis of common themes and concepts identified. By documenting the actual experiences and interactions of participants, this study gives a human face to the analysis and it provides a richly descriptive account and understanding from participants' perspectives. Descriptive analysis was carried out to inform overall findings. The data was then tied in with current literature rather than just statistical representation, in order to allow substantive theories to be recognised. Triangulation of data from observations, documentation and interviews was then applied to fully evaluate and develop converging lines of enquiry from the outcomes of the study.

Coding and developing themes started from the data level at the bottom. In total, 240 pages were transcribed for the analysis. Due to the large volume of data, a coding system was created to support references to the data.

Table 7. ***Coding system***

Coding System	
Student Participant	SP
Lecturer Participant	LP
Course Coordinator	CC
Instructional Designer	ID
Head of School	HOS

Table 8. ***Pseudonym system***

Pseudonym System	
Amy	SP A
Emma	SP B
Maria	SP C
Marie	SP D
Ide	SP E
Sean	SP F

Pseudonym System	
Matthew	SP G
Sharon	SP H
Laura	SP I
Evelyn	SP J
Aoife	SP K
Susan	SP L
Ann	SP M
Aisling	SP N
Keith	SP O

As evidenced from the above tables, this research study generated a large data set from interview transcripts. Qualitative data analysis is a process of bringing order, structure and meaning to large data sets. A manually designed method of coding was deployed and transferred to digital documents for data and graphic display purposes. According to Creswell (2009), qualitative data can be coded on the basis of emerging information, predetermined codes, or a combination of predetermined and emerging codes. Open coding was performed on transcripts using line-by-line process (Saldana, 2013) which helped to arrange and identify the themes (Appendix G) and code mapping was performed. Code mapping is the process of condensing the initial codes into a selected list of categories, and then into the central themes of the study (Saldana, 2013). Finally, axial coding was completed on the data to determine the codes that are dominant and discard redundant codes (Merriam, 2009; Saldana, 2013).

Building on the literature review, the theoretical principles, and the research questions, codes and themes were developed based on the literature and the research questions in this analysis approach. A thematic technique was adopted to analyse the data and main themes emerged. The data were examined on the basis of keywords and linking phrases. Many qualitative researchers spend great time trying to sort case study data into quantifiable means (Miles & Huberman, 1994). This fails to give a holistic view that is so important in case study research. It was

the researchers aim to stay close to the data in order to produce common or contradictory themes or patterns that would act as a basis for interpretation. The interviews were thematically analysed in an attempt to understand perceptions of blended learning from both student and tutor perspectives. Analysis yielded 24 categories, grouped under seven dominant themes which included the four main constructs of interaction, student experience, assessment and feedback with additional topics emerging inductively including benefits, affordances and challenges.

Table 9. ***Pre-determined constructs***

Constructs	**Themes**
Interaction	Convenience
	More face-to-face
	Efficiency
	Isolation
Student Experience	Flexibility
	Pedagogy
	Structure
	Need for induction
Assessment	Consistency
	Variety
	Even spread
Feedback	Timely
	Specific
	Relevance

Table 10. ***Themes emerging inductively***

Topics	Themes
Benefits	Improved IT skills
	Pedagogical skills
	Enhanced learning
Affordances	Improved engagement
	Asynchronous
	Working together
Challenges	Time
	Technical skills
	Internet connectivity
	Lack of support/training

Because of the large amounts of data generated in this study by qualitative research, it is also highly recommended that analysis of that data be ongoing (Creswell, 2014). As a tool to facilitate ongoing data analysis, this study used a summary form (Miles & Huberman, 1994). After each interview, a summary form (see Appendix F) was completed to process the researcher's thoughts on the interview and to take note of reoccurring themes and this formed part of my documentation analysis. These initial interview sheets developed into codes used in the codification process; Merriam (2009) describes it as the process whereby the researcher identifies data that might be useful for the purpose of research.

Using the Framework Method as developed by Ritchie and Spencer in the 1980s, the researcher took a combined approach to analysis as discussed earlier, enabling themes to be developed both inductively from experiences and deductively from existing research. This framework has a number of key characteristics; it allows a case and theme based approach, reduces the data through summarisation and synthesis, retains links to the original data and allows comprehensive and

transparent data analysis. To apply a structure to the analysis process, the researcher uses the Miles and Huberman Components of Data Analysis, in which data analysis is defined as three concurrent flows of activity: data reduction, data display, and conclusion drawing/verification (1994, p. 10).

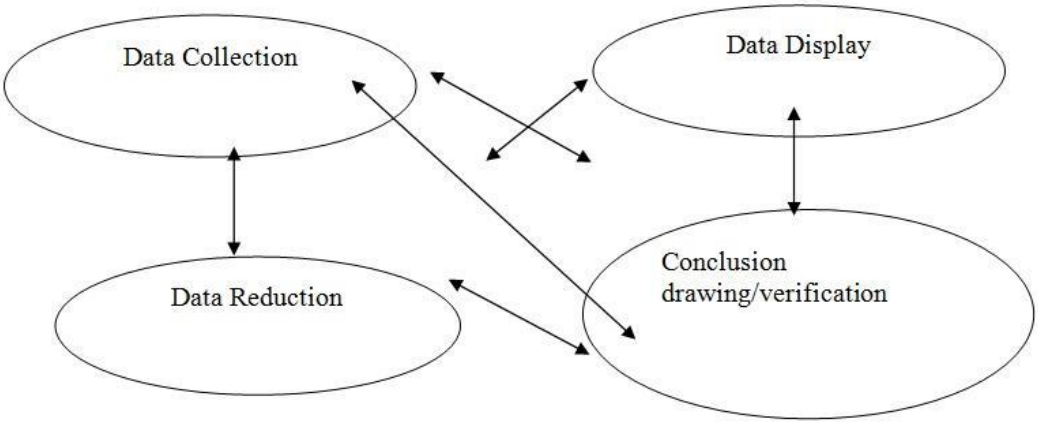


Figure 10. ***Components of data analysis: interactive model (Miles & Huberman, 1994)***

They label this approach 'transcendental realism' and they see these as three concurrent streams or activities, interacting throughout the analysis. The first two, data reduction and display, focus mainly on coding and making sense of the data. The reasons for reducing and displaying data are to assist in drawing conclusions. The data reduction starts at the outset of the research before the data collection phase. At the data collection stage, the reduction flow is primarily concerned with coding, summarising, identifying themes and discerning patterns. The subsequent flow of analysis is data display. This is concerned with a logical, summarised essence of information to the audience. There are a number of different display formats for qualitative data, which include: tables, graphs, charts, and diagrams. The general aim of this flow is to avoid the use of extended text, by replacing it with graphical representations as a means of integrating large amounts of qualitative

data to help develop understanding and to make the routes from raw data to research findings more transparent. Conclusion drawing and verifying is the third part of the analysis and is concerned with interpreting data and answering research questions. The interpretation can be in the form of the identification of themes, emerging patterns and explanation. The verification stage is concerned with testing plausibility, developing propositions, and it is conceptually distinct from the other stages but is likely to happen concurrently with them. In the current case study, these were done through interviews and participant discussions.

Qualitative data analysis is so diverse and complex and depends upon a number of variables. Analysis of qualitative data can be an arduous process but graphical displays can compress and order data to permit drawing coherent conclusions, while guarding against the overload and potential for bias. The adoption of matrices in this study, as evidenced in the findings chapter, helped to organise and display relevant information along with mapping salient properties of the context. Miles et al. (2014, p. 113) describe matric construction as "a creative yet systematic task that furthers your understanding of the substance and meaning of your database". The use of framework matrices in the findings section helped to condense large volumes of interview material into more manageable quantities to gain a better understanding and familiarity with the data.

5.8.1 Ethical Approval

Ethics approval is fundamental for any research that involves human participants. As this study was carried out in real-life events and circumstances, close attention was given to ethical considerations. As Patton (2002, p. 552) points out, "to a large extent, the validity and reliability of a study depends upon the ethics of the investigator". The process of requiring full ethical approval from the Social Research Ethics Committee (SREC) in the university under study was fully adhered to and a copy of this ethics approval letter is included in Appendix A.

Ethical considerations ensure that research findings are not damaging to the participants. Therefore, it was essential that in the conduct of this research, permission was sought from all participants and anonymity guaranteed. Permission letters (Appendix C) were distributed to all participants prior to conducting interviews and focus group sessions. A cover letter was distributed to participants prior to conducting the interview to inform participants of the nature of the study, to guarantee anonymity and reassure participants that all data will be held in confidence. Participation was on a voluntary basis and participants were permitted to withdraw from the research at any time and for any reason. Although anonymity of participants was not possible due to the face-to-face nature of the interview procedure (Cohen et al., 2011), in order to ensure confidentiality and anonymity, codes were applied to collected data and pseudonyms used in the project report, when necessary.

Participants were debriefed at the end of their participation. The debriefing information followed immediately after the last question in the interview. Participants were thanked for their participation and more information as to the purpose of the study was provided. The researcher's contact information was given out in the debriefing section if participants requested any additional information.

5.8.2 Validity and Bias

In the design of this qualitative research, it was imperative to reflect not just on the findings of the case study but to ensure that the analysis and findings represent a reliable and authentic piece of work. This study did not set out to either prove or disprove a hypothesis, but it did aim to produce valid and trustworthy knowledge of blended learning in postgraduate courses. Qualitative research is often criticised due to its lack of validity and reliability (Denzin & Lincoln, 2011). Seminal theorists in the qualitative field (Guba & Lincoln, 1994) reject this criticism and have argued that the "canons of scientific inquiry" are not relevant to qualitative research (Robson, 2011).

The trustworthiness of qualitative research often becomes the focus of attention for positivists, perhaps because their concept of validity and reliability cannot be addressed in the same way in naturalistic work. The central factor of research is the need to be valid and reliable. Validity in its broadest sense is the measure of how well the findings match reality (Gagnon, 2010; Merriam, 2009). To help ensure the validity of data collected, transcripts were shared with the participants and member checks were completed (Creswell, 2013; Merriam, 2009). Guba and Lincoln (1994) consider this the single most important provision that can be made to bolster a study's credibility. Lincoln & Guba (2013) proposed four criteria that they believe must be considered in the pursuit of trustworthy research. These criteria are; credibility, transferability, dependability and confirmability.

To ensure credibility and internal validity, this study endeavoured to measure what is actually intended through a number of measures. These included the adoption of a well-established research methods, i.e. case study; familiarity with the culture through prolonged engagement with the participants in this study. Examination of previous research to frame findings is important and a research journal was also kept to reflect on the researchers' thoughts and document observations throughout the course of the study. Member checks were also completed where participants were asked to verify the authenticity of the data. During the course of this study, all efforts were made to maximise validity by minimising the amount of bias. Transferability refers to external validity and how the findings of one study may be applied to other situations (Gagnon, 2010; Merriam, 2009). To ensure and enhance external validity of this study, a thick, rich description of the case and findings was provided.

Lincoln and Guba (1985) make reference to the close ties between credibility and dependability, arguing that a demonstration of the credibility helps to establish the latter. In order to address the dependability issue, the processes within the study must be reported in detail, thereby enabling a future researcher to achieve similar results if the work is repeated in the same context and same methods. In an attempt to enable readers to develop a thorough understanding of the methods

and their effectiveness, this study describes in detail what was planned and executed on a strategic level and set out to evaluate the effectiveness of the process of inquiry taken. Finally, the concept of confirmability relates to the qualitative investigators comparable concern to objectivity. Admission of the researcher's beliefs, along with a recognition of shortcomings in the study methods, is important. Triangulation is also needed to reduce effect of investigator bias. Critical to this process is the 'audit trail' as detailed in table 11, which permits any observer to trace the course of the research step by step from the procedures described as indicated below:

Table 11*. The audit trail for this study*

Identification of Research Problem	In July 2012 a meeting with my supervisors helped me to discuss and identify my research area and commence formulating a proposal to explore the attitudes and experiences of staff and students enrolled on blended learning courses in the university under study.
Research Proposal	Based on my research problem identified, I submitted my research proposal (see Appendix H) to the research committee in September 2012. The proposal was accepted and forwarded to the ethics approval board in 2013.
Ethical Approval	Ethical approval was applied for to the Social Research Ethics Committee (SREC) and granted in January 2014.
Literature Review	An in-depth review of blended learning and the 4 associated constructs was undertaken throughout the process and drafts submitted to supervisors for revisions and follow up evaluations.
Framework Design	Case study methods were used to develop a descriptive and heuristic account of a specific phenomenon. A case study design was adopted for this study to explore both tutor and student experiences of blended

	learning.
Interview Schedule	This study involved a single case with 2 programmes of study in an institutional setting. A pilot study was conducted in May 2014 prior to interviews with students from Programme 1 in October 2014. Interviews were then conducted with students from the School of Psychology in October 2016.
Data Collection	A total of 36 interviews were conducted with 15 students (x2) and 6 faculty over the course of this study.
Data Analysis	Data was coded and analysed on a continuing basis throughout the course of the study. Data analysis was evaluated by supervisors in March 2017 and their feedback provided clarity of thought to conceptualise my concepts and themes.
Findings and Conclusions	This refers to the themes that developed throughout the course of the study and will be related back to the research questions.

5.9 Chapter Summary

This chapter provides the rationale for using an exploratory case study methodology in order to seek answers to the specific research questions posed in the introductory chapter. The research methodology employed and the tools used to collect data are outlined and the methods used to extract and analyse the data are explained, where Braun and Clarke's (2006) framework for conducting thematic analysis was applied. The case study design was based on an exploratory approach where predetermined constructs were utilised that provided an effective and efficient way of analysing the qualitative data. The initial constructs helped to guide the researcher and provide a focus, while also allowing for additional themes to arise inductively out of it. While the literature review and constructs undoubtedly informed this study, they also provided flexibility and openness for new issues to emerge. Issues of validity and bias, as well as ethical considerations of the study, were also examined. The next chapter describes the findings, in terms

of the participants, their engagement with the course, and their attitudes to technology in education and the potential of the blended model.

Chapter 6: Findings from Student Perspectives

The previous chapter outlined the implementation of the research method looking at the structure, data collection methods and an explanation of the analysis. Building on the previous chapter, which focused on the process of work undertaken, this and the next chapter will focus on the content and findings emerging from the study. The purpose of this study was to examine practices and attitudes towards blended courses in a qualitative study in which faculty and students were interviewed about their experiences of blended learning. Additionally, course material and documentations including observations and summary forms were utilised to provide a more encompassing view of the overall perceptions and experiences. The key constructs of student experience, interaction, assessment and feedback served as a key focus, with additional themes like course structure, timing, and lack of support emerging inductively. This chapter presents the key findings obtained from students and reflects on them from each of the programmes under review. It is important to note that students were interviewed on two occasions. Their perception of the blended learning programme was garnered from the first phase data and their experiences further explored later in the course through phase 2 data.

6.1 Overview of Findings from Student Interviews

The following tables report on interviews conducted with postgraduate students from both programmes under study. The interviews focused on the key constructs under review. This matrix gives a brief synopsis of student perspectives under each of the constructs. This chapter will reflect on students' opinions and findings emerging, where comparisons across both programmes, will then be made.

Table 12. ***Matrix overview of student perceptions in Programme 1***

	Perceptions of BL	Student Experience	Interaction	Assessment	Feedback
SP A	Daunting at the start, could have done with more induction.	Enjoyed the combination of online and face- to-face which meant I didn't feel isolated from others on course.	Enjoyed using the discussion board as a form of interaction. Face-to-face interactions essential.	Good mix of assessment methods on the course. Lacked a bit of consistency amongst faculty.	Could have been provided in a more-timely manner. Would have liked more of it to enhance my confidence and self-esteem.
SP B	I liked the idea of completing tasks in my own time and space.	Enjoyed the flexibility it offered. Bit overwhelming at the outset, it did take a while for me to settle in.	Lack of structure on some of the face-to-face days. Could have been utilised more productively.	I enjoyed the e-tivities and how well structured the course assignments were.	Feedback could have been provided a bit quicker to help inform our future assignments.
SP C	The flexibility of the course appealed to me with my work and family commitments.	Starting at the beginning was difficult, could have done with a bit more guidance.	I enjoyed the interactions and felt that I really learnt a lot from what the others were doing and sharing.	A good mix of assessment methods keeps me engaged and motivated to continue learning.	The online feedback worked well and was a lot quicker and a more effective method than previous courses I completed.

	Perceptions of BL	Student Experience	Interaction	Assessment	Feedback
SP D	I enjoyed the flexibility the course offered and the ability to access online material anytime.	More induction and guidance at the start to help us settle and alleviate any fears or misconceptions of the course.	I enjoyed the face-to-face contact time as it's nice to hear from colleagues and share ideas and opinions.	Preferred the online submission method and the mix of assessment methods on offer.	Feedback could have been given in a more-timely manner so that we could focus on the next one and address any weaknesses or shortcomings previously identified.

Table 13. ***Matrix overview of student perceptions in Programme 2***

	Perceptions of BL	Student Experience	Interaction	Assessment	Feedback
SP E	Requires a motivated team. Flexibility to study online anytime. Makes students think differently, outside the box.	Got very little orientation on the technology side of things. Could have done with more support initially.	I was finding it difficult initially. Took me a while to get to grips with the technology. I enjoy the face-to-face contact.	It seems to be more applied in this format.	To be honest, I'm not really bothered by feedback and don't really take it on board anyway!

	Perceptions of BL	Student Experience	Interaction	Assessment	Feedback
SP F	Flexibility is what makes this course so appealing to me.	Found thinks a bit daunting and overwhelming at the outset. Face-to-face days are mentally draining.	Interesting to share and listen to each other's perspectives. Without the face-to-face it would be very isolating.	Enjoyed the broad range of assessment methods but they were not well spaced out!	I appreciate the feedback as reassurance that I am doing things correctly.
SP G	Blended learning offers flexibility in terms of availability.	I think they assumed that we knew more than we did initially!	E-learning permits more affective interactions through emails and discussion boards.	Lots of variety but all seemed to be taking place around the same time putting added pressure on us.	I would have preferred more of it as it helps me to track my progress.
SP H	Having the lectures online and having some on campus, I quite like that.	I like working on blackboard, mainly because I am used to that kind of interface having worked with Moodle before.	More opportunities for collaboration and reduced isolation. It's a good thing that you get to meet with others.	All the assignments being due in at the end of November, that's not great really!	We have online feedback where our lecturers post comments from time to time but it is really very general and not that helpful.
SP I	I think that this is a great way of learning and has certainly got me motivated and interested.	I like the blended component and the fact that you are not required on campus all the time.	I find the face-to-face interaction works better for me. I don't think that I would do as well if the course was fully online.	I think the timing of the assignment is an issue as they are set quite close to each other.	It would certainly be nice to get a regular update of how we are progressing on the course.

	Perceptions of BL	Student Experience	Interaction	Assessment	Feedback
SP J	I enjoy the face-to-face aspect of the course as I can ask questions and get people's opinions.	Maybe at the outset I didn't realise how much of it was going to be on blackboard.	The way the blackboard is laid out for some of the modules is just, I find that perhaps it's just a bit all over the place!!Very little instruction and guidance also.	We were informed in advance of the types of assessment so that was quite helpful.	I'm doing the reading and submitting stuff but I am not getting back any feedback.
SP K	The flexibility that this course offers is what appeals to me.	I think if this course was delivered fully online it wouldn't be a good fit for me.	Having the collaborative experience with your lecturers and classmates, having the face-to-face is really valuable.	There are some very interesting variations in the assessment methods which keeps it interesting.	Tends to be more general group feedback rather than individual. I would prefer more individual, personalised feedback.
SP L	Moving to online has been quite an experience for me so I have found the whole thing quite an adjustment. Having said this, the flexibility the course offers is good.	I find the face-to-face day's tough going, they are mentally draining. No scheduled breaks between the two hour lectures doesn't help!	I enjoy the fact that face-to-face days are built into the lessons. You need this contact with others for a clearer direction and reassurance that you are doing things right.	There is a good mixture and I personally enjoy the discussion board and sharing ideas.	Got some feedback on our dissertations so that's been good but very little assignment based feedback.

	Perceptions of BL	Student Experience	Interaction	Assessment	Feedback
SP M	Being able to work part-time and support myself is important for me.	My experience of the course to date has been very good.	I enjoy the interaction and think that this course allows you to take more responsibility for your learning.	I am finding the academic writing part a bit of a struggle. Wouldn't have done a lot of referencing or research in the past.	It's hard to know how I am doing on this course with the lack of feedback.
SP N	The opportunity to do more at home and not being tied to definite hours on campus is definitely a selling point for me.	The calibre of the people working on the course is immense, their knowledge and commitment is excellent.	Discussion boards are not as effective as I hoped as there is no real critical discussion.	There is a broad mixture which is appealing and interesting.	Tends to be provided to the group in general. I think I'm doing okay but I'm not 100% sure.
SP O	The course lacked a bit of structure to me.	I felt that it was kind of let's throw it out there and see what happens.	As the discussion boards not graded, I'm not really interested in participating in it.	Enjoyed the broad range but not the timing of assessments!	With the lack of feedback it's hard to gauge how we are getting on overall.

6.1.1 Student Perceptions of Blended Learning

Blended learning challenges the belief that traditional lectures represent the most effective means of engaging students in critical thinking and active learning. This

finding is in keeping with international research, where Sewell (2016) found that student performance improved after transitioning from a traditional face-to-face course to a hybrid online class. Fulkerth (2010), Lopez-Perez et al. (2011), and Vaughan (2010) also found that when blended learning is done well, it can have a positive effect on student satisfaction and motivation. It is important at the outset of this chapter to stress that this research did not set out to compare both programmes of study, but to draw attention to differences and similarities and make sense of this from the students' perspectives. Students on these courses were satisfied with the structured nature of the course and the community of learners helped them learn from others and share ideas.

As increasing numbers of students arrive at universities with effective learning experiences using blended approaches to learning, these students are more likely to demand collaborative e-learning opportunities. The TPACK framework helps to address the issue of overemphasis on technological knowledge in many ICT courses and equally the flexibility offered by blended learning helped provide an enriching and supportive student experience for the students on these courses who continued to work fulltime without being time or situation bound. PCK advocates the interaction of the different types of knowledge (subject matter knowledge, pedagogical knowledge, and knowledge of context) into practical instruction so that it can be used effectively and flexibly in the communication process between tutors and learners.

Participants commented favourably that they learned more through the blended learning format. This finding concurs with studies that suggested that blended learning helped to increase student knowledge (Campbell et al., 2008; Stein & Graham, 2014; Sung et al., 2008):

> Having the collaborative experience with your lecturers and classmates, having the face-to-face is really valuable and helped me learn more effectively (SP K).

> What I like about this course is that it has a good combination and mix with both an educational and a training element to it where we are

> getting clear identifiable and transferable skills. So I think as a preparation to enter a profession it is a very good course (SP N).

Research has found that a blended online environment influences students' satisfaction and engagement, and these are therefore indicators of student acceptance of blended learning (Nortvig et al., 2018; Sharpe et al., 2006). Evidence of this satisfaction was apparent on both programmes:

> I am really enjoying the learning style and you know having those face-to-face days and sharing opinions and having discussions is quite nice to have that I think and the standard of teaching is excellent (SP K).

> Yes, between both the face-to-face and online I think there is that sharing of ideas and we act like a community discussing topics and themes critically amongst ourselves and I think this adds to the learning experience (SP M).

While many were drawn to the course due to its format and structure, others did cite that initially they felt somewhat overwhelmed by the structure of the course and some because of their lack of IT skills:

> At the start, it was a little bit daunting like anything, it was fine but I wouldn't be very computer literate (SP A).

> I found the first two days overwhelming. It would be like; you know I thought I was fairly savvy myself but it was like being handed the keys to a ward and told get on with it (SP B).

> It's quite a difficult adjustment to go from traditional to online you know, getting used to keeping on top of everything and using blackboard which is new to me as well so I have found the whole thing to be quite an adjustment (SP L).

Another initial concern reported by the students focused on the area of academic writing and their ability to be objective and use precise and accurate language, as reported in the following quotations:

> From my perspective, my biggest issue is even though they did tell us on the first few days that we would have to use academic writing, I was not 100% sure what that meant as I'm out of learning so long. I found that quite difficult as there was no place that I could see that would tell me

> what academic writing consisted of. There is a student handbook you know, I just felt for me, it wasn't enough (SP B).
>
> I suppose having been out of academic writing for a while now, you are a bit rusty (SP C).
>
> In this course, it's more academic writing which I would not be so familiar with but I suppose they are making good use of blended learning (SP M).

This is an important point for faculty to bear in mind when implementing courses, that time be set aside to discuss success criteria and the fact that the ability to write well is a critical factor in determining academic success, where poor writing can weaken an argument and impedes student performance, resulting in lower grades that can lead to increased drop-out rates. Having said this, on re-interview and analysis of summary forms it was evident that students came to grips with this and did receive some form of support from faculty over the course of the semester prior to re-interview:

> The academic writing was a challenge at the outset but with persistence and asking questions in the online discussion forum and face-to-face sessions, I was able to get back into the idea of analysing and referencing material to support my written argument and assignments (Re-interview SP C).
>
> I suppose over time I was able to develop my critical reading skills that assisted me to plan, draft and respond appropriately to the assigned assessment tasks (Summary Form Entry, April 2017).

6.1.2 Student Experience

The students in this study all had varying skill levels and experiences of technology in relation to their learning. Having said this, students, on the whole, were positive about the ability of blended learning to influence their learning, which again aligns with recent research (Osgerby, 2013).

> I am delighted with it really as I would never have been able to do a postgrad without this structure (SP B).

> It's well organised and very structured and I can't say anything negative about the course at the moment (SP C).

As a growing number of students have multiple responsibilities, such as work and family commitments, learning flexibility allows students to balance their academic, work, and family lives. There is little doubt that flexible learning makes a significant difference to access for individuals who cannot attend full-time on campus for reasons of distance from an institution, disability or other circumstances (Bennington et al., 2013 cited in Flannery & McGarr, 2014). The dual affordance of flexibility and access were some of the most positively cited reasons for students enrolling on these courses. Blended learning offers a convenient educational alternative that suit today's busy life-style, where many are juggling both work and education:

> I suppose with balancing work, family time and other commitments it makes it more conducive to study (SP C).

> As I work part-time, the flexibility did appeal to me in that respects (SP F).

The flexibility is important and understandable, particularly for students in programme 1 who must continue to be working in their relevant specialist area for the duration of the programme for a minimum of 19.5 hours a week (as per course requirements in the Course Practicalities Handbook). On tracking the students' journey through the course, this comment on re-interview substantiates the satisfaction around the flexibility the course provided to the participants:

> The flexibility for me is great, without it I'm not sure I could have signed up to complete this postgraduate programme (Re-interview SP J).

The course descriptor on Programme 2 outlines how the blended combination is designed to support all those students who are already in employment, or are sponsored by their employer to attend the programme, and very much in keeping with the student experiences represented above.

On review of course documents and outlines of both programmes of study, the face-to-face contact was more prevalent in Programme 2 with a breakdown as per the course strategic plan of approximately 50% of the core modules to be delivered online and 50% in face-to-face sessions on campus. All core classes are set out in the module course strategic plan are scheduled for one day per week from 2-8pm on campus. Electives varied somewhat and required additional time outside of the core hours of 2-8pm. Even though this was much more face-to-face contact than Programme 1 which entailed 18 hours face-to-face per 10 credit module (200hrs), it did present its difficulties. While many cited the flexibility afforded by blended learning, students in Programme 2 had a particular grievance with the structure of the day where they cited little down time or chance to regroup following a two-hour lecture. It was just straight into the next one and was tough going for the majority who felt drained by the end of proceedings, as alluded to in the following comments:

> Yes, it's fairly intense. Especially today, it's like 2-4pm, you know they are doubles and the its 4-6pm followed by 6-8pm with very little breaks and some lecturers keep going and go right up to the time. To be honest, I can only concentrate for 40 minutes (SP E).

> It is heavy going as you are doing two hours on a Tuesday and six hours on a Wednesday straight through (SP F).

While blended provides added convenience as set out in the findings, the introduction of technologies and variation of content and media did prove a difficulty for some, with students citing the huge amounts of information as problematic. The evidence from this finding may suggest that lecturers may be trying to over-compensate through the face-to-face sessions for the reduced interaction and may in turn be creating an unrealistic workload for students. This point is further supported by the following comment on re-interview:

> I must say that there was a lot to get through in the face-to-face sessions and I left feeling drained and overwhelmed by the amount of material covered (Re-interview SP O).

Meaningful learning actions that are active, intentional, authentic and collaborative are fundamental to facilitating effective blended learning and can capitalise upon the affordances of internet technology. Having said this, students on both courses also reported that faculty assumed that they had a certain level of IT skills having enrolled on this course, but this was misconceived:

> I think there is an assumption in terms of blackboard that you know so much but maybe this is something that they could address as it is a completely different tool to use and people who maybe just graduated out of college are ofay with technology and then you have others who are not so up to speed (SP G).

Through blended learning, students are given the power to choose the means of communication most suitable to them which plays to students different learning styles, ultimately engaging them more in their learning. Discussion boards create opportunities for inclusiveness, enhance creativity, developing critical thinking, problem solving and communication skills (Kim, 2008). Blackboard, as adopted on this course, provided a medium for supporting teaching and learning activities, including enhanced interaction and assessment as reported by the students:

> One of the things that is good about it is the group interaction in all of the classes with discussions within the class between students and it's interesting to share and listen to each other's perspectives (SP F).

When asked if they felt under pressure to post comments on the learning management system, the following comments were observed:

> Yeah, I would kind of feel like you should do it, just not even the fact that it will look good for the lecture but there is an awful lot of learning from it (SP M).

> I do think that there is pressure placed on students to post online, even though it isn't graded, you are conscious that the lecturers may be closely observing student involvement and comments (Re-interview SP L).

Other students felt uncomfortable posting material on discussion boards for fear of being ridiculed by others:

> Slightly concerned about posting online for all to see. It's just that kind of peer-review that I am mindful of and what others may think of my input (Re-interview SP H).

This feeling probably arises from the student's lack of good experience with online collaboration, suggesting the need to enhance instructors' competencies for online teaching, particularly in acquiring successful tutoring methods and learning support methods (MacDonald, 2008; Wilson, 2004). While many viewed the learning management system as an effective means of sharing ideas and accessing information, some students did not view it as effectively:

> The way the blackboard is laid out for some of the modules is just, I think that perhaps it's a bit all over the place and it's quite hard to negotiate (SP J).

> With blackboard, there was no instruction on it so it was kind of trial and error really and there are just so many tabs and stuff and you would be there like, have I clicked on the tabs (SP H).

While the module descriptor did reference the use of the VLE (Blackboard) to add an online component to traditional classes that can be used to create web-based learning and support activities, including assessment and examination, the evidence suggests that the support and orientation was lacking.

While the majority of students cited positive experiences in the blended environment, some did allude to and were in agreement that lecturers do not make best use of the blended environment. Students questioned the whole relevance and purpose of some of the online components like the discussion board, as some didn't feel the need to post opinions or share ideas, as the fact it wasn't graded meant that they felt it was a waste of their time: "No it's not graded, so to be honest I don't engage in it at all. It's difficult to engage as you don't have the time" (Re-interview SP O). Some even cited, well into the course (end of second semester), that it wasn't a discussion board in the real sense, as it was just an area to post opinion and not critically discuss topics and views with one another:

> It's not a discussion because everyone is just expressing their own opinion and there is no actual discussion, it's just this is my opinion and that's it (Re-interview SP J).

The availability of online tools is not a good enough reason to use them for the sake of it. The way they are applied requires to be underpinned by pedagogy and knowledge of how people learn and reasons for these types of online tools and this links back to the previous chapter on the need for faculty training (See section 6.1.6).

Mixed results on the experiences of blended learning can be attributed to the wide variation of online education programmes in terms of content, delivery method, instructor characteristics, and student characteristics. McKenzie et al. (2013) highlighted that students become frustrated with inconsistencies between different lectures and need more explicit connections to be made between lectures, readings and assessments. Similar feelings were expressed on these courses:

> I think one of the issues with it is that the format from course to course is different so it's not like there is a standard format that any module will be presented in. There is a little bit of variation and it's really more of a consistency thing (SP N).

Additionally the researcher did note this difference in observations where the following comment was recorded in my field journal:

> Having observed face-to-face sessions in both programmes, I can't help but notice the differences in approach by faculty highlighting the need for faculty to be more in tune with the strategic plan for teaching and learning, particularly with reference to technology! (Entry 25/10/16).

Research cites issues of inconsistency between blended courses (Margolis et al., 2017; Sharpe et al., 2006) that can impact negatively on student learning outcomes in blended environments. There seems to be little consistency in faculty delivery and this finding emerged in the research where students cited that it also "depends on the lecturer you have and how organised that they are" (SP O), as a lack of consistency was evident with "modules where faculty were not as organised or up to date with the technology" (SP M). This is further evidence of the need for more

engagement and support for staff to address inconsistencies experienced by students. Some faculty also seem to perceive web-based platforms as a simple alternative for presenting the traditional format, with little or no consideration for active engagement or improvement of learning outcomes; one student described how "there is an awful amount of information on the LMS and lecturers differ in how they use it" (SP N). Clarity of course navigation and instructions for assignments and tasks were points that were also raised in this study:

> It is very much like, ah just do things on your own and then come into class and there is very little structure, it seems like they don't have it well under control, it's kind of like let's throw it out there and see what happens (SP O).

As a result of these findings, the need for an appropriate student induction programme is clearly evident. Despite these concerns expressed by students, they demonstrated an appreciation for the flexibility the course offered, along with an excellent structure and support mechanism:

> On this course, the structure is excellent and you are really never alone which is great (SP B).

> I think the structure is very well done, the support is there and I am happy with the course to date (SP C).

> I think the structure of the course and the support is great. There are a lot of positives about this course (SP K).

6.1.3 Interaction

Student engagement in learning is critical and becoming actively involved is paramount. Learning involves interaction with the instructor, with content, and with other students. Communication needs to be structured in such a way that it allows for staff-student interaction and also offers opportunities for clarification and student support, which were some of the main concerns of students on the programme. Collaboration can be characterised by ongoing and reflective processes that support participants in increasing self-knowledge, increased knowledge of others perspective and understandings. Teacher-student interaction

is fundamental and at the heart of several constructivist theories which emphasise the role of dialogue to facilitate student learning. While students enjoyed the ability to access course materials from anywhere, which is a key attribute of blended learning (Stein & Graham, 2014), they still preferred to attend face-to-face lectures, rather than the online equivalent:

> I think it's very important to have the face-to-face days, even if it's only once every two weeks, it's important to have the contact (SP A).

> We meet once every two weeks so it mostly online. If I have any queries I write it down to ask them later. It's nice to hear from other students and have a discussion as well (SP D).

The biggest advantage the face-to-face offered to students is summed up in the following comment nearing the end of the course:

> It provides the opportunity to discuss, collaborate, practice, peer-review and share content with the support of an educator and facilitator on hand (Re-interview SP E).

This indicated how being part of a group and being held accountable are powerful learning tools which links to the community of learners as cited earlier (see sub-section 2.2.2), and these opportunities are a good reason to bring learners together. E-learning permits more effective interactions between the learners and their instructors through the use of emails, discussion boards, and chat rooms. This engagement and interaction with resources kept students focused for longer periods of time and helped develop learning through exploration and research. Ginns and Ellis (2007) confirm that interaction and engagement are important constructs for learning and personal development. As the study progressed, it became clear that the students desired the face-to-face learning due to the opportunities it provided for student-teacher interaction and the reassurance of support, permitting them to ask questions directly to their lecturers. These sentiments were shared across both courses:

> I kind of prefer being on campus, even if it's more hours. I just feel face-to-face is better (SP E).

> Personally I prefer the fact that we have to attend for face-to-face lessons as I find it easier and you have a clearer direction as to where you are going with things (SP L).

Students were very positive about the blend of online and face-to-face and the related social aspect of learning. In addition, on review of the summary forms, eight course participants rated the opportunity for direct interaction with the lecturers in the form of discussion and the ability to pose questions as a key decision-making criterion for their choice of that format. It was generally agreed that face-to-face sessions were important, as they facilitated interaction between staff and students and amongst students themselves. Effective interactions are essential to the success of developing a cohesive learning environment among the face-to-face, online students and instructor (Bower et al., 2015). While the importance of the student at the centre of the learning process has been cited in the literature (See sub-section 3.4.5), it was evident through observations and student interviews that the tutors took the lead in the majority of instances providing verbal instruction about learning objectives and learning methods:

> I would have liked more opportunities to have shared opinion and group discussion in the face-to-face days but they were heavily condensed with material and information that was mainly teacher-led (SP M).

In classroom observations, while teacher-led instruction was evident, equally it was witnessed and noted in diary entries that the tutor was:

> A facilitator in the classroom discussion and was very careful not to take over or take away from the students initiative and ownership (Entry 30/11/16).

This point further highlights the desire by students to maintain contact like in the traditional face-to-face environment. Despite the clear evidence of the benefits of using technology in education, there continues to be a notable reluctance by academics to engage with online learning and the research would further suggest that those who do utilise technologies to replicate or supplement their existing pedagogical practices are predominantly teacher-centred (Minstrell, 2012) and this

was evident in the current study. In the findings and observations carried out, there was evidence to suggest that tutors appeared to utilise the face-to-face environment to present knowledge and provide them with opportunities to carry out tasks and as such, it can be said that the teaching methodology was predominantly teacher-led and driven with less autonomy for the student where the onus needs to be on the student to actively carry out independent learning. The main benefit to direct instruction is that it is the most efficient way to get information out to students but a major difficulty with lecture style teaching is that it does not meet the needs of all students (Schwerdt & Wuppermann, 2011). Conderman et al. (2012) believe that peer teaching is a powerful strategy to enhance the learning process and while evident on these programmes, should be encouraged and used more frequently. Peer teaching has been received positively across the education field, and has shown that:

> Greater academic gains were achieved by students engaged in peer tutoring interventions then non-peer tutoring instructional arrangements (Bowman-Perrott et al., 2013, p. 49).

The cases under review highlighted that blended courses can encourage more interaction between teacher and student than face-to-face classes, increasing student metacognition and this would be in line with findings from previous research (Akyol & Garrison, 2011; Bandura, 2011). This is clearly evident in the following comment by a student on re-interview:

> I think it brings it more together having the face-to-face, I mean if you didn't have class and you don't see people it would be very isolating. You learn more obviously by meeting with the lecturers and students and sharing your views (Re-interview SP F).

The quality of communication in an online environment is cited as more important than access to information alone (Kembera et al., 2010). Blended learning seems to address this by providing a mix of both online and face-to-face, where evidence supports that students prefer this blend and the social element that it offers in tandem with the online component:

> I think you need the balance of face-to-face, especially if you haven't done courses before, just to touch base with the other students as it's nice to share ideas and have a discussion as well (SP G).

As the course progressed, these face-to-face days became more important for students so that they could share ideas and opinions and get assurance from peers that they were on the right track:

> As the course progressed, I did get a lot of value out of the face-to-face days as I had the opportunity to ask questions and share ideas and opinions and this acted as reassurance and worked well with the online combination (Re-interview SP M).

Social learning is powerful, so it's important to build community and make interaction and engagement part of the blended approach. Research indicates that absence of learner interaction causes failure and eventual drop-out in online courses (Willing & Johnson, 2009). Previous research reported concerns that students might feel lost and not able to communicate with others, as well as in a traditional face-to-face classroom (Mattern & Shaw, 2010). As learning online can be an isolating experience, one of the key responsibilities of the educator is to make sure that they don't feel this way. Students on this course did cite that this medium of learning can be isolating, as referenced in the following quote, "online can be a cold medium as your views and opinions are not responded to, they just go out into silence" (SP G). For this reason, online learning activities ought to be organised so that they would make silent learners feel more comfortable and included, and hence more inclined to active participation. Additionally, online feedback and increased engagement by faculty may promote more positive attitudes amongst students with greater levels of performance with the discussion boards being more interactive.

Findings in this study have confirmed, unsurprisingly, that students require face-to-face interaction mixed with the online in order to support them in their learning and this became very evident across both programmes in the study. One student when questioned on re-interview if she could have completed the course if it was

fully online stated that it would not have been possible, as she required the face-to-face support:

> No, I wouldn't have been able to as I need the face-to-face interaction and the support as well when they come and they say that you are doing well, I like that support as well (Re-interview SP D).

Encouraging and promoting students' interactions with educators, peers and learning resources in an individually appropriate manner is highlighted in the literature as the key pedagogical principles of blended learning (Glance et al., 2013). While social connectedness can be derived online (Grieve et al., 2013), most students believe that face-to-face contact is essential for building a sense of community and, as reported in the literature review earlier (See section 3.5), combining the face-to-face with online learning permits students to facilitate and better engage with their peers and their lecturers. Garner and Rouse (2016) agree, citing educators need to present a human face to students and share their personal experiences of the subject to create a reciprocal relationship that can inspire learner engagement with improved learning outcomes. Fleming et al. (2017) make the point that blended learning must, like distance education, be designed with a human touch, otherwise there is a risk of low motivation.

As an educator, the primary goal is to encourage independent thought, independent inquiry with the ultimate goal being independent learning. Can technology achieve this? The answer is a resounding NO! While technology can do a lot if incorporated effectively and can teach new concepts and skills, educators inspire our students to be lifelong learners with their enthusiasm and passion, something that can't be replicated by any computer or technology. Education is a complex process and as the world continues to evolve and learners start venturing into the virtual world, the author would argue that the educator is key and now more important than ever. Technology is transient and ever changing and thus, can become outdated and obsolete very quickly. With this in mind, the educator is the constant who can offer the guidance and support through direct interaction. Aristotle stated that "man is a political animal" – making reference to the idea of

mankind's innate desire to interact with one another, learn from one another and socialise with one another and for this reason, it is the educators, the support and the human contact that keep it real, and this is very much reflected in the findings of this study. There are reasons for which students tend to prefer more traditional face-to-face, in-class activities and this is mainly attributed to the fact that most students feel that face-to-face contact is essential for building a sense of community. The significance of interactions is highlighted once again, where social interaction plays an important role in learning, and has proven to be quite effective in peer-learning and effective teaching.

6.1.4 Assessment

The role of assessment is seen to be significant and it is thus necessary to focus students' attention. Assessment has fundamentally three purposes as set out in chapter 4 earlier (See section 4.2): diagnostic, formative and summative. In fact, it is hard to imagine effective blended learning without strong formative assessment as its foundation. Formative assessment is used as a means to get effective feedback on students' progress and, for this reason, all attempts need to be enlisted to make assessment an integrated part of blended e-learning pedagogy.

The students in this study were exposed to a variety of assignments, including those that were practice based, required reflection on practice, and theorisation. As the study progressed, participants became increasingly aware of the motivational role of assessment and the fact that assessment ought to be an integral part of teaching and learning rather than something that is almost an addition onto process. This also suggests that the current study was correct to identify assessment as a key issue for blended learning pedagogy**.** Learning is characterised, not only by greater autonomy for the learner, but also a greater emphasis on active learning, with creation, communication and participation playing key roles for the teacher, indeed, even a collapse of the distinction between teacher and student altogether. A good mix of assessment methods is essential as commented on by one of the students in the latter stages of the course:

> A good mix of assessments is evident on the course with a combination of traditional and group work assignments coupled with online projects and e-tivities, drawing on our digital literacy skills (Re-interview SP B).

The range of assessment methods in use in higher education has significantly increased in recent years. Approaches to assessment are argued to be the cornerstone of enhancing teaching and learning. Students on both courses commented on the good variety and scope of assignments and this would be in agreement with the reviewed literature. Students in Programme 2 particularly likely the group work, as it provided them with opportunities to connect with one another, reducing the isolation often experienced in online classes:

> We have group presentations, in the research methods we do both quantitative and qualitative. The quantitative is your own analysis of data and a repost whereas the qualitative is creating an online method in a group to teach students about a certain area that they give you to teach so there is a lot more group work to do on this course (SP F).

> We had a lot of group assignments that we never had before and this is a good thing as you get to meet and engage with others (SP H).

Assessment helps focus learners' attention and build on their capacity to absorb and learn material. Assessment tasks need to engage the learners and enable them to judge for themselves in how they are doing and offer them opportunities to improve. While students were positive about the mix of assessment methods, several reported some trepidation about posting their assignment on the discussion board for review:

> I suppose initially, a bit daunted about putting your assignment on the discussion board and being peer reviewed (SP C).

Having said this, students saw the merit in looking at and reviewing each other's work:

> At first, I was sceptical about posting online but after a couple of posts I did begin to see the merit in it. While initially, I was conscious of being judged and possibly ridiculed for my comments, then I began to realise that everyone can benefit from reading other people's thoughts and opinions which I think makes total sense (SP K).

Student participants from both courses commented on how well structured the course assignments were on re-interview, with regular updating and the ease at which assignments could be submitted online:

> We get regular updates from faculty on the material to be covered and assignments due. An online calendar alerts our attention to this (Re-interview SP C).

> The variety of assessment helps to keep me focused. It is continuous assessment and the fact that assignments can be submitted online helps as I would be under pressure to deliver to campus or post. At least once sent online, I know that it gets there (Re-interview SP N).

While the structure may be good, many in Programme 2 were critical of the lack of assignments early on, which left them uncertain as to how they were progressing and put them under additional pressure, as the assignment dates were falling in close proximity to each other:

> It's hard to know without any assignment but I think that I am doing okay as I am understanding the material and getting the work done (SP H).

> I do still think that the timing is an issue as assessments are still quite close to each other and its difficult because you have the dissertation and stuff like that to be doing as well (SP I).

> There are a whole load of them coming due at the same time as they are not really well-spaced out and I think this could be addressed (SP N).

While the types of assessment available have increased in comparison to traditional exams, the research continues to indicate that exams are still widely used, particularly at postgraduate level (Brown, 2012). Brown asserts that "most assessment in current use relies principally on very traditional methods" (2012, p. 1) but unfortunately traditional assessment practices fail to equip students for the assessment challenges they will face as lifelong learners (Boud & Falchikov, 2007). It is typical practice for students in general to criticise conventional assessment methods, especially traditional exams, seeing them as artificial and pointless:

> So for my undergrad it was very different in the sense we had to do assessments but it was exams there and then, written exams which I thought were pointless, unfair and very subjective so I suppose I much prefer the current variety of innovative assessments (SP M).

When asked about assignments and similarities between traditional courses, students commented:

> I don't think they differ very much from our undergrad experiences as we still get essays. I suppose it's more applied, I've noticed that but kind of similar also, you are not thrown into do something completely different (SP E).

> I like the fact that our assignments can be submitted through an online platform. The variety of assignments is different from what I am used to but I think the combination of traditional and computer technologies works quite well (Re-interview SP K).

Students were critical of previous conventional assessment methods, especially traditional exams, seeing them as artificial "they were pointless, unfair and very subjective, so I suppose I much prefer the current variety of innovative assessments" (SP M). Additionally, students alluded to issues of lack of clarity around assignments and would have preferred more a continuous method progressing throughout the course. The bottom line here, I think, is that educators rely too much on assessment and have a very narrow form of assessment. Our education systems are built on the idea of standardised assessment to ensure that our educators are doing their job and as a means of measuring student's progress. Unfortunately, students have always been exposed to this assessment model and brought up in a culture where what they achieve is important. Regrettably, we seemed to have missed the whole point and risk restricting their creativity and development by the methods of assessment we have used in the past. It would be important for faculty to integrate a number of different approaches to assessment and also to take students back to review when they perform poorly on formative assessment. Blended methods offer an opportunity to address this and provides a more holistic education to all.

While new models of assessment have enriched the evaluation setting, it would appear that we do not succeed in providing sufficient or appropriate guidance to students about optimum learning approaches:

> I mean we are thrown in there and the practical lessons are kind of happening as we are thinking about our project so it is very difficult to grasp, so I haven't done a whole lot as I don't know how to approach it (SP O).

Interviews later on identified that students need to be better informed of what is expected of them, particularly at the assessment stage. If assessment is deemed to be beneficial to student learning, then educators need to specify desired learning outcomes, as students cited being let down by the lack of consistency and clarity:

> I did find that the LMS was cluttered with information. Some lecturers are very structured and keep regular updates and relevant information while others have either too little information or guidance or information overload. It can be difficult to glean the pertinent information and it's just really a consistency thing and how faculty members use it (Re-interview SP I).

The goal of assessment in the twenty-first century must be to move away from surface approaches to assessment methods that evoke deep approaches to learning. Put simply, assessment practices need to be effective, enabling and efficient that engage the learner and evokes deep learning and problem solving:

> The assessments are good in the sense that they differ slightly from the traditional format. For most it would be essays but there are some interesting variations to that so in one of the modules there would be an essay but there would also be an accompanying assignment so that they would be split and there would be a presentation also. The essays themselves are not your typical essays as there tends to be a little twist in them and they require you to be creative as you are drawing on slight twists to your traditional essay and it keeps it interesting (SP K).

An opportunity does exist for the development of formative assessment methods, with the use of frequent interactive assessments to identify learning needs and adjust teaching accordingly. On meeting with the Vice President for Teaching and Learning seeking permission to meet with the Instructional Designers, he made the

point that the institution is committed to ensuring that all postgraduate courses have some element of online component where “100% of students have access to diagnostic assessment” (Minutes 24/09/15).

An area closely related to pedagogy is that of assessment. In terms of teaching pedagogy, a greater emphasis ought to be placed on developing students’ active and collaborative learning, specifically online assessment tools and increased interactions can help tailor the learning and facilitate student’s reflection to promote and scaffold students’ learning. In Programme 2, there was a consensus amongst participants that assessment played a significant part in motivating students to actually engage with certain learning activities. Unless these activities were going to be assessed, the majority of students cited that they would not waste time completing them. It was found that learning activities that were set as formative exercises were not taken nearly as seriously as summative activities. The issue of summative assessment-driven study was recognised by all. If it did not count towards a module mark, then it was just not taken seriously “as it’s not marked, it’s not a priority for me” (SP O); “There is little value in taking these assignments if they don’t feed into my overall result” (SP N). It was noted early on in the findings that students were predominantly motivated by assessment. Assessment was therefore perceived as a ‘carrot and stick’ in the sense of rewarding good engagement and this observation confirms that students were more committed to activities when they were assessed and this would correlate with the reviewed literature, where MacDonald (2008) cites that assessment drives learning. Respondents reported that when assessment promotes some worthwhile and meaningful activity, they appreciate and engage in the activity.

When we assess students, we need to ask the question, are we preparing students for a life of tests or for the tests of life? Should the focus not be on preparing them to become independent, self-directed learners with an enhanced ability for independent thought, creative capacity and critical thinking? Designing and creating assessments in a variety of forms, grading them and providing feedback in a timely manner, can become quite time consuming. Assessments are most

effective when they occur in real time. Technology, in particular TPACK, with the numerous digital tools available, provides educators with many choices available for assessing students with instant results, equipping them with real time data about students that ultimately helps the tutors to respond to their needs, therefore maximising their student's learning outcomes. Assessment can be a powerful enabler to prepare our students for a lifetime of learning. In order to achieve this, we must focus on building our students' capacity to learn and to assess the learning of others, enabling them to make evaluative judgements and to view learning as a process.

6.1.5 Feedback

Feedback, or more specifically feedback provided on assessment, assists students to enhance their learning and is the cornerstone of all learning. Educators found that using a blended learning environment enabled them to provide more individualised feedback to students and keep better track of progress. In turn, students were more in control, focused, and autonomous in their studies. With technology nowadays operating at 'breakneck speed', students expect instant responses and feedback. While Garner and Rouse (2016) concur, stating that feedback ought to be timely, relevant, meaningful and positive, a review of the current course indicates that some students were dissatisfied with the level of feedback they are receiving:

> They don't really have a whole lot to do with us so they won't give personal feedback I suppose but it depends on the module. It would have been nice to have got some small little bit of feedback on it yeah. You know, the majority of us have been out of it for so long that you need to know whether you are doing things right or wrong (SP A).

> No, we didn't get feedback yet. I felt we could get feedback a bit earlier so that I could improve my second assignment (SP D).

Students cited the timeliness of feedback to be a concern, as they would have hoped to receive some earlier in the course to reassure them of their progress:

> I suppose by the time we hand in our assignments, they are due in November and you have two weeks before you hand in the next one, but we won't get any feedback, we won't get any marks until December or January so it's a bit late then for finding out that you haven't being doing things properly (SP J).

While some students indicated that the timeliness of feedback had improved as the course progressed "Some modules are very quick providing feedback online" (Re-interview SP C). Having said this, others were still critical at the end of the course:

> Again it wasn't really enough, even though our last two assignments were at the beginning of January, we are still waiting for our results so they could be quicker with the feedback in my opinion (Re-interview SP A).

> The feedback could have been given a bit more quickly actually as then we could focus on the next one as you know your weaknesses (Re-interview SP D).

Both assessment and assessment feedback play a fundamental role in underpinning student learning in higher education and, as such, need to be an integral part of any teaching and learning strategy. There appears to be general agreement within the literature of the importance of feedback (Beaumont et al., 2008) and that good quality feedback is an essential component of effective teaching, with students in Programme 2 expressing dissatisfaction with the lack of feedback they are receiving "I would have liked a bit more detail and frequency to be honest" (SP F) with another student commenting:

> It would be nice I think at this stage to get an idea of how we are getting on and ideas for what we could improve on before we submit all the assignments (SP I).

Equally this was made reference to and documented in the summary forms post interview:

> There appears to be a demand for more feedback that is timely to reassure students of progress (Entry 25/10/16).

The literature would be in agreement, where students want feedback that includes detailed explanations and suggestions for improvement (Getzlaf, 2009). In a

blended course, detailed and specific feedback can be provided through discussion forums, online tutorials or face-to-face. This type of instructor feedback and peer interaction can develop digital communication skills. Unfortunately, the view held by faculty is that students are only concerned with the mark they achieve for a piece of work and pay little attention to the feedback and this argument aligns with the idea that, as universities have increasingly become 'customer-service' institutions, the expectations of the students have been affected (Emanuel & Adams, 2006). The following quote by one of the students in Programme 2 would seem to support this notion:

> I don't really take feedback on board, but this is probably bad, if I got an essay back, I kind of look at my mark and I look at what they said and that's it because I reckon that essays are very subjective, like I try if it's really bad criticism I might take it on board (SP E).

Others cited that they didn't value the feedback much, as they viewed it as being very subjective: "the feedback can be hit and miss and very dependent on the lecturer, so I don't give it much attention" (SP G). On further analysis, this was not a typical view shared by all students and what was clear from our research was that students were interested in and looking to feedback for guidance and they viewed feedback as a valuable form of support for learning, countering a concern voiced by faculty that feedback was not being read:

> Yeah definitely, I mean you are never going to be able to learn or change things and do better if you don't take it on board as you are here to learn as we don't know everything. I think it's pretty important to get feedback (SP J).

A lack of prompt feedback for learners from course instructors was found to cause dissatisfaction as Garner and Rouse (2016) make the point that students have a need to feel confident that educators' feedback, assessment outcomes and guidance are timely and responsive. It must be acknowledged that the effectiveness of feedback partly rests on the ability of the students "to perceive a gap between where they are and where they should be" (Covic & Jones, 2008, p. 76). Thus, the question is how to close the gap between student expectations and

tutor feedback practices? More importantly, the feedback and questions delivered by the learning environment should initiate and structure reflection on their practical experiences in order to achieve maximum insights.

It is clear from the evidence in the findings that the students on these programmes were disappointed and unhappy with the quality and efficiency of the feedback offered, which failed to be provided in a manner that could prepare them for their next assignment "to be honest, I would have preferred to have more of it, I don't think it is something that is done an awful lot (SP G)*;* another student commented "yeah well I am doing the reading and stuff but it's difficult to know how I am getting on as I am not getting back any feedback" (SP J). Feedback that is both affirming and corrective is necessary for students to learn. While faculty endeavour to provide feedback within a four to six-week timeframe in line with best practice, unfortunately this sometimes means it's provided too late to inform future assignments. This needs to be addressed, as the absence of prompt feedback reduces students' interest in learning. Having said this, one must bear in mind that providing feedback to a big cohort of students can be a time consuming and arduous process that undoubtedly may require that four to six week timeframe and that can equally become more frustrating (See sub-section 6.1.5), as faculty stated their annoyance at the lack of engagement by students with the feedback provided.

In essence, feedback needs to be given more frequently and it needs to be individual and quantifiable so that students can articulate personal learning goals. Introducing questions before new information is introduced enables learners to think critically about a learning task and feedback can then expand on this learning point. A way to enhance learner satisfaction is to provide feedback to students' work, concerns and queries (Garner & Rouse, 2016). The whole premise of effective feedback is to make the learning experience more engaging, where students can take ownership of their learning and continuously adapt and improve.

6.2 Conclusion

This chapter reported on the findings from the analysis of data in this case study, consisting of interviews with students from two programmes of study within an Irish institution. The findings suggested that blended programmes allowed the participants flexibility and the opportunity to manage their learning more efficiently with interaction and presence being important factors in blended learning environments. The use of online technology to support and enhance teaching and learning has seen the emergence of e-learning to support communication, collaboration and knowledge building which are consistent with constructivist principles as set out in this study. The findings from the data highlighted that students preferred the flexible nature of the learning on offer, coupled with the face-to-face contact where e-learning can enhance the quality of teaching and learning through supporting collaborative approaches. The blended learning format provided opportunities for face-to-face interactions permitting opportunities to ask questions and discuss complex issues, whilst also acting to promote and improve motivation. The blended approach also demonstrated its ability to overcome feelings of isolation associated with difficulties accessing higher education programmes by providing a level of flexibility and interaction not offered by other modes of study. Of course, not every face-to-face session worked well, but however, the key point being made here is that the 'social interactions' were found to be essential to student learning and navigation of the programmes. While technology is a crucial part of any blended learning initiative, good engagement, interaction and instruction are at the core of blended learning.

Overall, students expressed positive attitudes towards the blended learning model. This attractive approach holds great promise for increasing student access, satisfaction and engagement. The study found that both groups credited the enhanced discourse in the learning environment as a factor in their success and completion of the course. The findings highlight how blended learning caters for a multitude of learner, however, design and implementation requires a significant

time commitment and the ongoing need to provide a variety of assessment methods and subsequent feedback on the programmes of study.

Effective integration of technology is a catalyst for real transformation. Although blended learning can be advantageous in the delivery of teaching and learning processes, still the technology and content need to be considered as the TPACK model suggests, and this will help to focus on the different considerations for successful instructional alignment. TPACK recognizes that the integration of technology should not be done in a generic sense, but should be situated within authentic contexts, to enable educators to learn content-specific ways to use technology. In essence, technology and content knowledge is not just an understanding of how technology can be utilised to represent content, but also an understanding of how technology can change or even generate content.

Finally, clarity of expectations had been shown to be fundamental, as assessment has a significant impact on student learning and is a major influence on how students approach their learning. From the above, it is apparent that the emergent pedagogy on a blended learning programme is context bound and one must remember, and as stated in chapter 2 earlier, learning is a facet of the communities of practice of which they are composed. From the vantage of pedagogy alone, it is possible to identify key elements such as interaction, assessment and feedback which were key constructs in this study and permeate all aspects of the learning context and hence could be described as a context within which learning takes place. Learning, as evidenced in this study is seen to manifest itself in collectively shared practices and identities. Thus, is it important when implementing a blended learning programme that such developments take place within a framework that fully recognises the importance of the pedagogy being employed and its implications for all elements of the programme. The next chapter focuses on the analysis of findings from faculty perspectives.

Chapter 7: Findings from Faculty Perspectives

7.1 Overview of Findings from Faculty Interviews

The following tables report on interviews conducted with faculty. The interviews focused on perceptions of blended learning and the four main constructs under review. This matrix gives a brief synopsis of faculty interviews. This chapter will reflect on faculty opinions where similarities and comparisons across both programmes will be identified.

Table 14. ***Matrix overview of faculty perceptions in Programme 1***

	Perceptions of Blended Learning	Student Experience	Interaction	Assessment	Feedback
LP 1	Requires a motivated team. Flexibility to study online anytime. Makes students think differently, outside the box.	Students love the face-to-face contact. Empowered to make changes and challenge practice.	Interaction mainly with peers through discussion board.	Mixed methods with both formative and summative and also peer review as they learn from each other. Rubrics ensure consistency amongst staff.	Students not only see their mark but also qualitative comments in the text.
CC 1	Requires good lead-in time, approx. 12-18 months. Support of learning technologist essential. It's not just online, blended learning is a mix of online & self-directed.	Students enjoy the interaction in class, they value the face-to-face contact.	Some students are very good to interact with each other but you have to provide the mechanism for doing so.	E-tivities are used effectively to peer communicate with each other and make a comment on someone else's post.	It's a quick turnaround result and the feedback is provided within a six week timeframe.

	Perceptions of Blended Learning	Student Experience	Interaction	Assessment	Feedback
ID 1	Level of English proficiency can be more of a barrier than technical ability. Important to meet with everyone involved and negotiate with staff, staff buy in is key.	They like the fact that they don't have to be taking copious notes in class. Learning is self-directed and the flexible nature is what makes it a success.	Very few would work in isolation, the majority would set up some sort of group.	We use a combination of assessment methods; we don't tend to use MCQs because they are pedagogically not great.	We found that someone will post a comment and before a lecturer has time to respond, students will have posted the answer, so that's great as it's self-regulating to some degree.

Table 15. ***Matrix overview of faculty perceptions in Programme 2***

	Perceptions of Blended Learning	Student Experience	Interaction	Assessment	Feedback
ID 2	Significant portion of the module must be delivered online and not just treated as an add-on. Initial time demands significant.	Enjoyed the face-to-face contact but cited more support and induction required at the outset.	Interaction mainly with peers through discussion boards and e-mails.	It's possible to create any type of assignment that the course structure requires to match the learning outcomes.	Students seek feedback but in my view do very little with it!
CC 2	I like the idea of the flipped classroom model and making learning more active where the students come to class prepared.	The flexibility it offers makes it more accessible for those working and with family commitments.	Some students are very good to interact with each other on the discussion board and support and share material and links.	A broad range of assessment methods are available to appeal to all types of learner.	It's a quick turnaround result and the feedback is provided within a four week timeframe. Rubrics also help ensure

	Perceptions of Blended Learning	Student Experience	Interaction	Assessment	Feedback
					consistency.
HOS	Big initial time demands. Need to be developing materials at least a year before hand. Effective blended learning strategy evident.	Students are challenged to think more creatively in this environment.	Students like to meet and be part of a learning community. They need this socialisation and interaction.	We try hard to produce effective assessments that appeal to all learning styles and try to build the assessment into the online activities.	Students need feedback to improve confidence and keep them engaged in the learning process.

7.1.1 Faculty Perceptions of Blended Learning

Excellent opportunities exist for educators to make learning interactive, but this need not involve the utilisation of technology just for the sake of it or as a backup medium. Curriculum development for a blended learning course requires more than simply moving traditional instruction methods into the online environment, as highlighted by the Course Coordinator in Programme 1:

> There is more to blended learning than simply moving learning online, a presence of technology does not constitute a blended approach, unless planned for, it will end up like oil & water (CC 1).

This analogy used by the lecturer is very effective as it addresses the importance of the fundamental idea of the complementary nature of the face-to-face and online as set out in the literature review earlier (see sub-section 3.4.1). While the analogy implies they don't mix, in reality oil and water won't mix immediately but with a bit of persuasion and use of an emulsion, they can mix. Similar to the use of an emulsifier for getting oil and water to mix, with blended learning, online technology

isn't just an add-on to the learning process; if integrated effectively, it's a catalyst for real transformation. Applying ICT to classrooms requires teachers to simultaneously have sufficient pedagogical content knowledge and technological knowledge to maximise teaching effectiveness and efficiency. In line with this, and suggested in the literature review, numerous studies have focused on technological pedagogical and content knowledge (TPACK) to help educators achieve more positive and preferable teaching and learning (Bibi & Khan, 2017; Harris et al., 2010; Valtonen et al., 2019; Voogt & McKenney, 2017).

The lecturers in this study did seem to find the blended environment resulted in students being more creative and self-efficacious than before. Having said this, faculty observed that students had learned to approach courses in a certain way and blended learning required that students become actively involved in their education rather than passive learners:

> You have some very enthusiastic students who have the answers and they say well we don't have to wait for the module leader to answer, I know this and they actively engage with each other and take responsibility for their own learning (CC 1).

Vaughan (2010) conducted a case study with 70 participants which compared a blended course before and after its redesign that focused on key areas such as use of technology, assessment activities, and learning outcomes. The redesigned course witnessed an increase in student satisfaction from 50% to 75%, while retention and the class grade average also increased significantly. The current study discovered similar findings on one of the programmes, with a reported reduction in student attrition rates by the course coordinator as students experienced a higher degree of autonomy and improved motivation and satisfaction in the blended learning environment:

> I have noticed in the past few years that students have a greater tendency to stay the course and I think that this can be mainly attributed to the varied interactions and continued engagement of the learner (CC 2).

This is a significant point bearing in mind that the incidence of dropout rates have been steadily increasing in recent years. Access for students was also enhanced by the blended model, as evidenced from both the Course Coordinator and Head of School in Programme 2:

> I would think that we probably have students on the programme who wouldn't have applied if it wasn't for the blended nature of the course because there are many of these students who are studying the course part-time and working fulltime (CC 2).
>
> This is a great way of ensuring access for people who couldn't do a degree otherwise (HOS).

Additionally, the Head of School found that using a blended learning environment enabled them to cover more material and that students' learning was enhanced by the blended environment.

7.1.2 Student Experience

Blended learning is often associated with flexibility for the learner whilst offering a structure that supports students in managing their learning. It gives students and educators an environment to learn and teach more effectively and this type of flexible education supports different styles of learning. Research reports draw attention to the positive learning gains students have experienced through blended learning (Bernard et al., 2014; Ryan et al., 2016). These courses produced academic gains equivalent to or better than face-to-face instruction, confirming findings discussed earlier in the literature review (See sub-section 3.2 1). Staff, in general, had a positive view of blended learning and this became evident on analysis of the interview transcripts, where the Instructional Designer in Programme 1 stated the following:

> I suppose it's the flexibility it offers that appeals to people, when people think of online they think about sitting in front of a screen and reading all the time, that sort of stuff but that's not what it's about (ID 1).

Blended learning is a flexible approach to learning that suited a lot of these postgraduate students due to their work demands and busy schedules, as commented on by both Course Coordinator and Lecturer on Programme 1:

> The flexibility of being able to login at any time of the day, do their work, do their reading you know especially people who are working fulltime and especially people who have families (CC 1).

> These are busy people, they are working fulltime, they are fulltime mothers, fathers and they are going doing this course despite the difficulties of daily life (LP 1).

Academics in Programme 2 were in agreement, as an increase in student flexibility, autonomy, responsibility and focus are some of the main reasons students choose these courses and why educators choose to adopt blended learning (Davis & Fill, 2007; Vaughan, 2010), as observed by the Head of School:

> One of the main benefits is the flexibility it offers along with the fact that students are challenged to think more creatively and their learning experience becomes more active (HOS).

Today, online learning is part of the student experience for a substantial proportion of university students in a variety of countries (Ituma, 2011; Otter et al., 2013). Faculty pointed out that the classroom contact was important and assisted students as a learning environment, somewhere they could communicate and collaborate with each other:

> Throughout the classroom and community based practice, it created a shared learning experience that allowed students to discuss, relate and share ideas to guide each other's research topics (CC 1).

> They enjoy the face-to-face contact, they like being in the university, just being part of the community as well, they enjoy that part (LP 1).

> They loved the content, they liked the face-to-face meetings where they had lots of friends to speak to and chat about progress (CC 2).

This was also witnessed by the researcher in classroom observations where the following entry was made:

> Clearly, an effective structure in place here for knowledge-sharing that permits the discussion of topics with lecturers and students alike in a safe and informal environment (Entry 29/11/16).

The COP was perceived as being academic and a place for constructive learning by the students, "Yeah, definitely, putting more ideas out there, thinking, just thinking to themselves more how they're actually going to do this" (SP 0). These comments support the idea of learning being situated and the importance of face-to-face contact where the tutor and learner are present. Learning is a social process that is based on mutual engagement in activities and situated in a wider community which manifests itself in collectively shared practices, where communication is immediate. Learner support is a crucial component of an effective learning environment. It focuses on what the educator can do to assist the learners beyond the formal delivery of content. With a widening diversity of learner entering higher education, educators have to engage with a wide range of needs in terms of learner support. Faculty on both these courses felt that the students were well supported on their learning journey:

> I know the difficulties of daily life so they have to be supported (LP 1).

> So if a student is having a particular problem and if they email me with a question, I will answer it on that forum so that it will be available to all (ID 2).

> We always do our best to support the student and we continuously try to think more creatively about how learning becomes more active for the students (CC 2).

Focusing on matching technology to both curriculum and instructional strategies is important. On this course, it was evident that technology matched curriculum goals and supported pedagogy of communicative teaching in which students were active users of the technology highlighting the importance of considering the fit among content, pedagogy and technology as set out in the TPACK model.

7.1.3 Interaction

In every instructional situation, learning needs to be relevant, meaningful, and applicable. Student engagement is a bedrock necessity of attentive and deep learning. Effective, successful teaching and learning have become inherently intertwined with the digital world. Educators must be able to develop and enact rigorous, relevant instructional methods and formats while using digital tools effectively to underpin their instruction. Students and tutors can transform learning so that it not only prepares them to excel in academic life but also endows them with essential digital skills. The Vice President for Teaching and Learning makes the point that:

> Higher education must respond to the needs of an increasingly diverse student community and blended learning provides an opportunity for the university to enhance and support the use of Virtual Learning Environments and enable greater collaboration and peer support using technology (Minutes 24/09/15).

Faculty members have expressed conflicting attitudes regarding blended learning, with some studies referred to earlier in the literature review making reference to its potential to improve the learning environment, team-work skills and human interaction, (Ali et al., 2014; Kim, 2012; Young & Randall, 2014). However, some studies indicated that many traditional faculty resisted or harboured reservations about blended learning environments (Beaudoin, 2007; Jaschik, 2009) and held the view that technology might get in the way of collaboration.

Communication is a fundamental factor in the success of a blended learning course and it is imperative that a good system for communication is established amongst faculty prior to the implementation of blended learning, as referenced by the Instructional Designer in Programme 1:

> It is important to have a meeting and include everyone who is going to be affected by this because you may have to negotiate with staff, staff buy in is key (ID 1).

Faculty on these courses suggested blended courses can encourage more interaction between teacher and student than face-to-face classes, increasing student metacognition and this would be in line with findings from previous research (Akyol & Garrison, 2011; Bandura, 2011). Face-to-face communication is believed to be the richest forms of communication because it supports each of these subdivisions at the highest level, with the most cues and immediacy of feedback possible (Walther, 2011). Importantly, the interviewed lecturer on Programme 1 made the point that the face-to-face sessions were beneficial for structuring learning and supporting students:

> So I think the blend is important, I wouldn't get rid of the face-to-face ever. I know anecdotally from the students through feedback that they like the interaction in class, they like to meet each other (LP 1).

Interaction does not just relate to the face-to-face contact, it relates to the spontaneity, the immediacy, dialogue and relationship building that is part and parcel of learning. While the face-to-face is entirely capable of dealing with the immediacy issue with no time lag involved as in the online model, be it a blog or whatever, this becomes problematic in the virtual plane, as it is not providing immediate feedback and hence the desire for face-to-face.

Blended learning represents an opportunity to integrate the innovative and technological advances offered by online learning with the interaction and participation offered in the best of traditional learning. Blended instruction requires teacher-student interaction, moreover, in an online or blended format, student-teacher interaction is fundamentally different than the experiences that occur in a face-to-face setting and are significant for its successful implementation. Online interactions have been evidenced as a significant component of pedagogy, attaining intended learning outcomes in online learning context (Ravenna et al., 2012). These types of interactions were important and are key components of social presence that contribute to attaining the intended learning outcomes. As blended learning is a student-centred approach, the Instructional Designer

highlights that time must be spent bringing everything together to meet the needs of the student:

> It's best to do a lot of planning in advance as more input and structure at the initial stages will result in a more effectively designed course (ID 1).

However, having said this, some faculty members alluded to the spatial separation experienced in an online environment, where the general corridor and face-to-face interactions are now being replaced online, removing the social connection, the frequency and depth of communication and the ability to create positive dialogue and share best practice. It is important for institutions to understand that no matter how sophisticated the technology may be, it cannot create or guarantee a totally fulfilling experience due to the limited opportunities for personal interaction, highlighting the effectiveness of the blend where fully online can present issues related to isolation. Working online is akin to working alone and can be somewhat isolating for faculty requiring heightened levels of motivation. While there may be no faculty lounge or online cafeteria for lecturers to network, the trick is to try to stay connected through a community of learners. The Course Coordinator on Programme 2 highlighted the importance of the role of social interaction and the need to provide autonomy to the students:

> So in terms of interaction, some of the online work might involve them interacting with each other, either formally via the discussion board or a lot of the time its informally in small groups so however they choose to manage that we don't dictate, whether they want to email or meet face-to-face themselves is entirely up to them (CC 2).

The blended learning model has received increased attention from researchers in recent years (Helms, 2014) as it provides a bridge between fully online and face-to-face learning (Ikpeze, 2015). A good mix of both online and face-to-face is required as half of the faculty interviewed felt that too much content online would overload and confuse students where one Course Coordinator stated that availability of too much online material might act as a deterrent to attend classes:

> I am mindful of making too much material available online as this may discourage some of the students from attending and I feel we need the face-to-face encounters to further reinforce the learning (CC 1).

In an attempt to ensure consistency, the Head of School pointed out that faculty in Programme 2 met regularly with the Instructional Designer to keep everyone up to speed:

> We would have met the Instructional Designer together and it's not that everybody has to do the same thing but just to have some sense of what we are all trying to do, how we might go about it and even within that then you have the different diverse approaches to what you can do, just some kind of consistency really (HOS).

Faculty commented on the fact that having each other to share ideas was a positive aspect of the course and working together seems to also have made the lecturers feel more at ease in their new blended environment according to the Instructional Designer and Head of School:

> The best resource that any educator can have when implementing a blended course is a colleague or a network of colleagues who share ideas from experience (ID 1).

> Developing a community of practice is important where we come together as a team to share ideas and find more appropriate modes of delivery (HOS).

Faculty's role ought to continue to help students become independent learners by providing opportunities for them to be actively involved in the content. In a blended environment, within a constructivist paradigm, educators guide transformative experiences enabling students to feel confident and supported in working independently and with each other. Having said this, faculty are concerned for the future of higher education, where academics have cited that universities are compromising on student quality to increase student numbers (The University Workplace Survey, 2016). In the same survey, almost half of academics surveyed stated that the pressure to give students better grades had increased, with some commenting that they are not teaching at anything like university level. This is very concerning as students' demands are watering down the quality standard, and the

centres of excellence of old are now being viewed as corner shops where students can purchase their degrees and expect to be spoon fed. Thus, it is reasonable to suggest that the competing pressures from university management and paying students, really are difficult to manage and this undoubtedly sheds some light on the complex world of Higher Education Institutions.

7.1.4 Assessment

Assessment is mainly concerned with gathering information about students' achievements. In this digital age, the integration of technology into teaching and learning impacts every aspect of instruction, from course content to pedagogy and assessment. While the majority of people associate the term 'assessment' with exams and quizzes, in reality, these high-stakes activities represent a small group of assessment methods and opportunities. Blended learning incorporates a combination of a variety of assessment modes as referenced in the literature review and as highlighted by the Course Coordinator in Programme 2:

> There is a broad range, they vary from individual presentations, group presentations, professional skills exercises, case study assignments, essays, blogs and discussion boards, there are a lot of different assignments that we incorporate into the programme (CC 2).

The Course Coordinator in Programme 1 stated how they like to get students involved in peer assessment early on in an attempt to critique each other's work and generate discussion:

> We generally ask the students to read something and post their opinion on the discussion board and then also comment on someone else's post in order to get them to critically analyse and also communicate with each other (CC 1).

Dziuban et al., (2018) advocate this practice in the reviewed literature, where he cites the benefits of developing students' critical thinking and improving the quality of learning. When designing assignments, the Head of School argues how a lot of planning is required where:

> We know what we want to teach, we think a bit about how we are going to assess it and then we work back from that and we try to build the assessment into the online activities (HOS).

The Instructional Designer also cited that they are happy to work with faculty to create appropriate assignments to match the learning outcomes, where "any type of assignment that an academic wants to do we can probably find a way to facilitate it" (ID 2). While it is clear that assessment can help drive the learning and focus students, the use of a variety of assessment methods and formative assessment that blended learning lends itself to allow faculty to 'take the temperature' of the class group at any given time to gauge the quality of learning and understanding.

In order to ensure consistency, Instructional Designers in both schools stated how they had developed rubrics and mechanisms to ensure reliability:

> To ensure consistency amongst staff we have one standard rubric and they are based on the marking bands that are given in the school handbook as well (ID 1).

> We have developed a rubric for marking discussion boards which I have used on modules last year and this year (ID 2).

An interesting observation made by the Instructional Designer in Programme 2 regarding assessment was that:

> People who are more flexible on assessment are usually more willing to consider ways to teach online but there are people who just adamantly don't think this form of instruction is legitimate (ID 2).

For this reason, and as referenced by Course Coordinators in both programmes, it is important not to try to impose this blended methodology on staff. On observation, it was interesting to see how some faculty were more open to engagement with technology and that many had adapted their assignments accordingly:

> It is clearly evident here that the lecturer is making every effort to engage with technology even to the point that the assignments have a nice mix of traditional type written projects and a technology integrated unit which allows for more active learning (Entry 26/10/16)

Assessment in blended learning is diversified and contains elements such as classroom performance, examinations, online discussion, online quizzes, and online assessment. Deeper learning is more possible if technology is supporting the instruction and is most meaningful to students when it is authentically rooted in their continued learning and assessment. It is important to keep in mind that the assignments are present in the programme as an essential component of the pedagogy, where the key is to organise instruction using multiple modalities (Picciano, 2009) that permits learners to engage in learning in a way they prefer and are motivated by, while also challenging them to learn in other ways where they have less preference, interest or ability.

Technology enabled learning can be used for more than just tracking results, it can be used to boost engagement, identify knowledge gaps, encourage further learning and promote deeper learning:

> I think the structure and variety of assessment helps student to focus more, requiring deeper thought and encouraging them to engage more with the online discussion and tasks set (LP 1).

Another promising multimodal blend is to involve game-based learning and assessment which also can be designed as collaborative learning and student interaction (Babu et al., 2016). All of this, when used effectively will undoubtedly help to address and alleviate the challenges identified by faculty on these courses. Institutions must assess all components of a blend to ensure completion and, as cited in the literature review, the adoption of fresh approaches to assessment must be preceded by a cautious review of the pedagogical and educational implications (See section 4.2). Assessment, when used effectively can help to consolidate learning as set out by one of the Course Coordinators:

> Online learning programmes help students consolidate what they have learned in face-to-face classes so that they can remember the knowledge and develop further skills (CC 1).

7.1.5 Feedback

Feedback can be considered as an important, if not the most important, support mechanism in a variety of educational contexts. Feedback is important to guide students, to determine the cause of errors and to provide adequate interventions. The impact of high quality assessments is partially lost unless feedback is targeted and timely so that the students can act on the information received. In this study, the Course Coordinator reported a quick turnaround in relation to feedback, where students received it within a short timeframe:

> For the most part, I would say probably within four weeks, it depends because with presentations, feedback tends to be faster and the blogs tend to get general feedback week by week (CC 2).

In the initial programme, a quick turnaround was also cited by both the lecturer and Course Coordinator:

> They do get feedback from their e-tivities, that's fairly quick, it's a quick turnaround result and then their final assessment within six weeks they get their result (CC 1).

> So the turnaround speed is normally between six to eight weeks so students have this feedback to allow them to improve for the next assignment (LP 1).

This is in line with policy as referenced in the course descriptor, that outlined feedback will be provided to students within a six week timeframe in keeping with the new semesterisation of the college year. Lack of adequate feedback can result in anxiety and undue stress to students. In the Irish Survey of Student Engagement (2017), when exploring the extent to which academic staff provide prompt and detailed feedback on tests and completed assignments, 19.9% of postgraduate students cited it as being 'very little', with a further 30% citing just 'some' feedback being provided. Educators have sought to personalise learning for a long time now and with emerging technology tools that can empower student autonomy, we can now save time and effort and empower feedback in real-time.

Feedback is an essential part of effective learning. Specificity of feedback assists the students to understand and identify its relevance. Combining specificity, positivity and constructiveness helps to establish positive working relationships with those providing and receiving feedback. Feedback is more strongly and consistently related to achievement than any other teaching behaviour. For this reason, the Head of School highlighted the importance of letting students know how they are progressing, as "students require feedback as a means of reassurance and to improve confidence, self-awareness and enthusiasm for learning" (HOS). Having said this, the Course Coordinator in Programme 2 cautioned that feedback no doubt enhances learning and improves assessment performance, providing that students engage with the feedback:

> With previous classes, say for example with traditional assignments you can spend a great deal of time providing feedback on assignments and say that these will be available to be collected Tuesday afternoon and two students out of a class of fifty might come to collect them. This can be extremely frustrating! (CC 2).

This frustration may be borne out of the fact that it is now becoming common practice to post marks on a VLE and students no longer have to collect their assignments or papers to see their grades and comments and, unfortunately, many don't. Feedback is fundamental to the assessment process and, at its core, feedback is a communication process that requires information to be transmitted, understood and utilised. However, Course Coordinators in particular, as referenced in the interviews have much difficulty with the lack of engagement of students and cite it as a one-way process that is ineffective. Students expect quick feedback but with increased student numbers, faculty are under pressure to provide it in adequate time. In essence, a trade-off between timing and quality of feedback will have to be negotiated.

Another concern emerging from interviews was the fact that faculty assume that students arrive at university and are prepared to accept feedback and act on it. Unfortunately, students may not fully appreciate or understand the importance of feedback in the learning process and fail to see its relevance and usefulness for

future assignments. Just as students require feedback and guidance to improve, equally, faculty members require feedback and helpful direction if they are to improve their performance, further highlighting the need for support and training of faculty.

7.1.6 Lack of Training

Blended learning has been designed as a model of instruction that eliminates time, place and situational barriers, whilst enabling high quality interactions between student and teachers (Kanuka et al., 2009). Educators tend to be attracted to this model, as it expands access, caters for a variety of learner and facilitates increased opportunity for social interaction. The role of faculty in successful implementation is important and thus, they require adequate support and training. Faculty in Programme 1 cited the need to start technical and pedagogical preparation and training well in advance so that lecturers can formulate and plan their courses ahead of time. So, good advice as stated by the Instructional Designer would be, "if you are planning a new module maybe next September or the following year, think about what you are doing with your teaching now" (ID 1). Faculty involvement is important to student success and the emphasis on faculty involvement supports Vygotsky's theory of engagement affecting learning; faculty engagement is part of the students' learning environment. In addition, recent studies stress the importance of the educator as the motivator for student success in blended learning.

There is an identified need to provide professional development for educators and instructor support. When designing a blended learning programme, teachers and institutional designers must evaluate the degree to which they have an effective institutional support to deliver the technology enhanced learning. What was interesting and somewhat alarming from the findings was the fact that the institution in question has no designated individual or team leading faculty training and development:

> I suppose one drawback is the lack of a designated team or leader to coordinate CPD within the institution (LP 1).

This view was further substantiated in a discussion with the universities Online Learning Project Manager who stressed the need for a project leader with relation to CPD to enhance capacity for digital learning of students:

> It would be important that staff get the opportunity to increase digital literacy skills and this should be coordinated by a designated team with sufficient training capacity to meet demand (Entry 26/10/16)

A fundamental aspect to these professional development courses is the need to encompass all aspects of blended learning; not just the technology side, but also paying close attention to the pedagogical side, thus, a team of professionals should be developed outside of the current system of Instructional Designers to support technology integration and implementation.

Faculty in Programme 1 seemed to work as a well-oiled unit and cited the importance of the Instructional Designer, "luckily we have a very motivated team and having an Instructional Designer within the team is key" (LP 1). Having said this, while the team are proactive and work as a cohesive unit, the lecturer pointed out that little training was provided and this was perceived to be one of the main issues of concern to members of staff who would certainly "benefit from improved resources and technical support with ongoing training for staff being a priority" (LP 1).

Academic interviewees generally had very positive views of the technical support they experienced during the study. While support might be much improved now, the Head of School in Programme 2 did cite the lack of direction and training at the outset, where the movement to blended, was more by trial and error:

> Basically, us academics did not have the right skills to get cracking on this so you are never going to have enough Instructional Designers to do everything that you are going to need to be done if blended learning takes off properly in the university. We all have to be reasonably good

> at running blogs and forums and understanding how to run interactive things. Well there wasn't much training in advance, we are getting it now, so some of us just had to learn by trial and error at the student's expense! (HOS).

The lecturer on Programme 1 stated, "I would have liked to engage more with the technology but I am still finding my way as I haven't had any introduction on how to use it" (LP 1). While support was available, both the Head of School and Course Coordinator in Programme 2 reported that it was difficult to engage with and consult these technical support resources:

> I have been doing my utmost to ensure that the school has access to Instructional Designers but it is very difficult to access them due to availability (HOS).

> It's a bit of a struggle sometimes as we don't have instructional designers in-house, the guys above are really useful but they are stretched (CC 2).

Although faculty are crucial to the success of blended learning, they are under-supported in their efforts. Management were cognisant that the restrictive factor for improvements to pedagogical support was the limited pool of Instructional Designers as emphasised by the Head of School:

> I mean if you think of a college as big as our college and if you have everybody doing bits and pieces or trying to and when you are drawing on one pool of about four or five Instructional Designers, it's very difficult to do so. The guys are very helpful but they are stretched as well (HOS).

One needs to tease this out a bit more as the demand for Instructional Designers is growing to assist faculty to create clear alignment between the intended learning objectives, activities, and assessments such that in-class and out-of-class curricula work together toward common learning objectives. However, on close analysis during class observations and on discussion with Instructional Designers, faculty members weren't always immediately comfortable sharing responsibility for the course design. One Instructional Designer made the point that:

> We are only approached by Course Coordinators or Department Heads when they're overwhelmed, asking us to put together and tailor a blended programme for their school on a very short deadline (CC 2).

The researcher got the sense that faculty used the Instructional Designers as a kind of 'IT Helpdesk' when things went wrong or when they required some immediate guidance. This may be because they are worried about having to learn new ways of teaching or may have fears about struggling with unfamiliar technology, or equally some faculty may view themselves as the only experts in the field, irrespective of whether or not they have experienced any kind of professional development in the necessary IT and teaching and learning. In reality, none of this should occur as an Instructional Designer's key role is to help ensure student success by assisting faculty overcome instructional challenges and by designing more effective learning experiences for the students on the programmes of study.

The lack of staff training was highlighted throughout the interviews and is congruent with the literature, where Reed (2014) cites it as one of the biggest barriers and Christie and Garotte (2011) cite the lack of support as an obstacle to reaching the full potential of the blended learning environment. Emerging from the interviews, it is clear that training with new technologies is required. Prior to implementation of a new system, it is essential that you have all of the resources required for an easy transition and have the necessary budget to finance it. As evident in the literature review (Allen & Seamen, 2013; Moskal et al., 2013) and cited in the Horizon Report (2015), the highest trend emerging from an Irish context is the lack of training being provided for faculty to embrace digital technologies. The NMC 2014 Horizon Report suggests the need for not only students to have digital fluency, but for faculty members to have it as well:

> Digital literacy has been deemed critically important to both students and instructors in higher education, but it is widely acknowledged that there is a lack of effective training to ensure that faculty are getting the skills they need to guide students (p. 22).

The Head of School argues that the lack of training and fear of anticipated technical problems hinder the adopting of VLEs by faculty:

> The unavailability of good infrastructure coupled with the unavailability of training for staff represents a significant barrier for the effective utilisation of the VLE. There is also the added issue of staff reluctance and refusal to engage with technology due to fear of modern technology and lack of awareness of its added potential (HOS).

While the university does provide support through Instructional Designers, these are very thin on the ground and highly sought after by many disciplines looking to initiate blended programmes.

Blended learning will not work without a positive and systematic culture of support, as alluded to by a faculty Head of School "I don't think it will work if they go down that route. I think if people are doing it half-heartedly you will end up with half-baked stuff" (HOS). It will not fulfil its promise of improved learning unless educators can be encouraged to rethink and redesign the courses so that technology and education go hand in hand. Understanding how to balance each of the domains in a way that is most effective for learners is a difficult task but simply teaching technology skill is not enough.

While lecturers may have years of experience, they may have little or no experience teaching in an online environment, thus, it is of paramount importance that they are given the necessary training required to feel comfortable and well equipped to teach in an online setting. Bliuc et al. (2007) review of blended learning studies suggested that "a substantial portion of the literature is written by educators researching their own innovative educational practice" (p. 232), highlighting that institutional administrators have a big influence on why, when and how blended learning is implemented. Acquiring the appropriate software and technology can prove problematic and costly for institutions. For this reason, a great deal of investment is required in software to support the VLEs with pedagogical and technical training provided to support faculty. While investing in reliable technology to support online and blended learning is no doubt costly, it is important that institutions invest in this transformational model to nurture a sense of value and belief in this methodology.

Research indicates that preparing prospective educators to be proficient in digital technologies in order to use them to meet the needs of twenty-first century learners continues to be a challenge in many teacher education programmes (Bakir, 2015; Lei, 2009). Many faculty lack the necessary technical and pedagogical competencies to successfully integrate educational technology into their teaching (Raphael & Mtebe, 2016). In addition, it has been observed that some faculty do not want to engage in blended learning because of a lack of awareness of its potential benefits (Lepi, 2014). The following notes from my reflective journal references the Online Learning Project Manager's views on this matter:

> I know from engaging with my Instructional Designer team in regular meetings that there is resistance on some fronts to engage with technology, mainly due to the lack of awareness and interest to envision the benefits of technology. To address this as a team, we look to reduce faculty anxiety, demystify technology, and promote the use of effective technology to encourage active learning (Entry 26/10/16).

Thus, what seems like an effective strategy going forward is to incorporate induction sessions for both students and faculty, including digital tutorials in the online environment. Faculty need to recognise that the purpose behind technology integration is the improvement of teaching and learning rather than technology for its own sake. Blended and online learning are a reality now and failure to engage with supporting staff in its implementation can negatively affect institutions.

7.1.7 The importance of Time to implement and develop Blended Learning

Time is one of an educator's precious resources. The majority of lecturers will tell you that there is never enough time in the academic day to plan, teach, correct and research. One theory is that blended learning may solve this problem but does blended learning live up to its time-saving potential? Faculty members universally, and also in this course under review, expressed the opinion that although blended learning was more user friendly to students' schedules, this type of coursework required greater commitment on the part of the faculty compared to face-to-face learning. It must be said that faculty in both cases under review found that the

initial development of blended learning programmes requires a great deal of time, coordination, effort and support to deal with the demands of the extra workload as referenced by both the Instructional Designer and Course Coordinator:

> It's pretty intense in the first year so the biggest issue is, I would argue that the time demands are very similar to a new build face-to-face course if you kind of look at both of them over a three to five year period (ID 2).

> There is an extra workload associated with the course when designing it and trying to develop it because it is blended and requires forethought (CC 2).

The Coordinator in Programme 1 and Head of School in Programme 2 make the point that appropriate timing for implementing a learning platform and the need to successfully roll out and embed VLE use is underestimated by many institutions:

> Time, give plenty of time. When you are developing a text for an online programme, you are developing almost a year in advance, so you have to be sure that it's really up to date and all the links are live (CC 1).

> You need to put at least as much effort into online as you do face-to-face and there is a good year before hand where you are just developing materials for it (HOS).

In order for blended learning to work and result in improved student success, satisfaction and retention, faculty and course designers must be up-skilled with the resources and expertise they require, including an appropriate time allocation to create well designed blended classes as one lecturer makes the point that:

> Even if I got support with some training, the actual time required for implementation is so long that it's difficult to carry out and implement (LP 1).

While professional development is essential for the success of blended learning, Allan (2007) cited that this support would not be effective unless account was taken of two factors - the extra time involved in networked learning, and for people new to e-learning to adjust to this learning model. Garotte Jurado (2012) make the point that some kind of incentives for lecturers are needed if educational

institutions want to offer students improved possibilities for collaboration and interaction. The Instructional Designer in Programme 2 pointed out how the institution was trying to address this by hosting 'a series of bite-size sessions' that usually take place at different times during the day to facilitate staff and they compose of "a ten to fifteen-minute presentation by an academic on how he or she has used technology in their teaching" (ID 2). These short sessions with hot beverages as an added incentive are proving effective in bringing academics from different faculties together to share best practice. With this in mind, the institution needs to explore the possibility of a team-based course design process which would bring together technological, pedagogical and information system knowledge to support academic staff who are developing blended courses, as such an approach has been promoted in other studies (Taylor & Newton, 2013; Garrison & Vaughan, 2013).

7.1.8 Catering for a Diversity of Learner

Educators of today face a difficult challenge to adequately address an ever-increasing diversity of student with a varied range of needs and abilities. This is highlighted in the institutions current strategy for teaching and learning (2017-2022) where it makes reference to the requirement for higher education to respond to the needs of an increasingly diverse student community. Blended learning is found to meet the needs of a diverse population of students (Adileh, 2012; Picciano, 2009). In this fast changing and increasingly diverse further and higher education landscape, Universal Design for Learning (UDL) provides an effective framework to improve the learning experience of all students. The goal of UDL is to implement a variety of teaching methods to remove any barriers to learning and provide all students with equal opportunities to succeed. It seeks to achieve this through introducing flexible methods of teaching, assessment and service provision and further highlights the role of technology in serving an increasingly diverse student population and the need for faculty to create online and blended learning opportunities for students. Laumakis et al. (2009) would be in agreement (see Table 1), where they cite that the blended modality has the ability to provide

accessibility to a wide range of learners and this would be in line with the current findings (See sub-section 6.1.1) where faculty highlight enhanced access for students. Giving students access to more learning materials and activities might have the consequence that they spend more time on the course, thus, reducing attrition as referenced as a concern in sub-section 2.1.2 earlier.

Blended learning is being touted as one of the most effective modes of instruction to engage the learner and ensure deep learning occurs. It also caters for the diversity of learner entering our higher education system, as the Instructional Designer on Programme 2 points out "the profile of the students entering education is changing and a lot of this can be attributed to blended learning and its flexibility" (ID 2). Additionally, the Course Coordinator on Programme 2 makes the point that you now have:

> A range of very computer literate students having just completed a postgrad to students in their later years returning to education having been in the workforce for the past 20 years, which is great to see! (CC 1).

A blended learning approach now calls for educators to utilise a variety of methods including text, video, audio and online to power a multi-faceted learning experience where the content is engaging and diverse, as not every learner is the same. Picciano (2009) claims that in today's heterogeneous society, learners are representing various generations, different personality types and learning styles and thus, lecturers and course designers need to utilise multiple approaches and multiple modalities as proposed by the multimodal model to satisfy the needs of these diverse student groups.

The influence of learning styles as an indicator of how a student might respond to a learning environment has grown in recent decades, although it has been found that:

> The term learning styles is often used inappropriately as an umbrella term to include cognitive and learning style and approaches to studying (Evans et al., 2010).

While course design should be learner-centred; acknowledging students' diverse abilities and styles (Lai et al., 2016; Shand et al., 2016), other research has alluded to the fact that learning styles have been criticised by many scholars and researchers who question the scientific basis for the theories on which they are based (Coffield et al., 2004). While the author acknowledges that several recent studies have questioned the idea of learning styles, students with different backgrounds will continue to have different needs and techniques. When designing instruction that takes into account learners' differences, one should assess the cognitive abilities rather than preferred learning styles as abilities are better predictors of how students learn more effectively (Kirschner, 2017).

From an Irish perspective, the Hunt Report (2011) comments that there is an increasing need for the provision of educational opportunities to meet the needs of all learners which differs significantly from the traditional model of old. Learning has moved from an entirely collective process to one that takes into account the requirements of the individual learner of today, as referenced by the Head of School:

> I think that there is a genuine enthusiasm for finding more appropriate modes of delivery for the ways in which students are living their lives today (HOS).

The learner-centred approach is supported by proponents of constructivist learning theories where learners construct knowledge and meaning from their experiences. Constructivist learning theory is a philosophy which encourages and enhances students' logical and conceptual growth and fits with the philosophical underpinnings of this study (See section 5.4). The blended design combines what works best from both the traditional and online delivery methods and fosters learner-centred constructivist learning because it positions students as co-constructors of knowledge through collaborative, active, and problem-based

learning (Abdullahi, 2011; Sullivan & Freishtat, 2013). Using blended learning, the educator can create a mix of learning opportunities that take into account the numerous learning styles and learner needs. The author believes in a more holistic learning experience where no single learning preference stands out, that it is more a combination of preferences known as a multimodal style, closely linked to the proposed model by Picciano (2009) in this research. It is important that learners adapt themselves to different ways of learning and avoid a fixed individual approach.

7.2 Themes of significance to both Student and Faculty Participants

The following section looks at themes emerging inductively from the findings that draw on both student and faculty interview data. Induction is deemed fundamental to the success of technology implementation from both student and faculty perspectives where the induction programme was seen to help students adjust and feel comfortable in the use of digital technologies. Equally important is teacher induction as this can help ease the transition to technology for staff, giving them the time, support and assistance they need to thrive in their new technology enhanced learning environment. Situated learning and communities of practice were important aspects reflected in the findings where learning was seen to takes place 'in situ' through active social participation in the environment. The idea of 'situated learning' in 'communities of practice' emphasises the context-bound nature of learning as evidenced in this research.

7.2.1 Course Induction

Induction was a common theme on the two programmes under review from both student and faculty perspectives. Faculty cited the need for appropriate induction as essential and orientation is the key as participants require an introduction to the blended experience. Course Coordinators and Instructional Designers need to provide an orientation about what students will be experiencing, and how they can

support the students to ensure learning takes place. One Coordinator highlighted the importance of a clear structure and schedule so that students are able to see what the course requires of them:

> I think it's only fair that students are given an idea of what they are about to face into prior to the course. This initial induction is important to introduce students to the online tools and each other (CC 2).

Significant variations in students' knowledge were highlighted in faculty interviews:

> Some of the postgrads would be very familiar with the VLE from their undergrad studies but others who have only recently returned to education after many years in the workplace struggle (CC 1).

At the outset of the course, it is essential to introduce students to the Learner Management System by providing an orientation session:

> As something as simple as a one-hour orientation at the start to show them what it looks like and how it works, sometimes these quite simple things can make a difference (CC 2).

When asked if good familiarity with digital technologies was a prerequisite for engaging in a blended learning course, the Instructional Designer commented:

> No, it's a willingness to try, that's the big thing. One of the big issues is staff comfort with the technology and basically my answer to that is that there is a lot of people who are more capable than they think they are and are just very nervous about doing it (ID 2).

Facilitators ought to be prepared by immersing them in a blended learning programme so they fully understand the participant experience. This is more than just adapting for different students; it is the placing of the control of learning itself into the hands of the learner, with the Head of School making the point, "I see my role as facilitator, guiding the students towards learning activities and resources that are most appropriate for their needs" (HOS). It is important to support new students in an online and blended environment. Continuous professional development, support, mentorship and observation are critical to its successful

implementation. Induction was provided in Programme 1 and proved effective and was well received:

> Yes, we were introduced to the IT. A technician coordinated both days and he answered any questions that he thought that we would have (SP B).

> There was an orientation day and that was really good and set the tone for the programme that followed (SP C).

The induction observed by the researcher included the use of the VLE where the Instructional Designer introduced the different tools, strategies and techniques required, which permitted students to experiment with the variety of tools and techniques within blackboard:

> Delivering induction training provided the opportunity to create a good rapport with students while placing them at the centre of their learning by putting them in control. It introduced them to the course and allowed ease of access for all learners to engage with the learning through digital and online means (Entry 14/09/15).

This is aimed at providing them with both added confidence and competence. This move is in line with the thinking of the 5-Stage Model (Salmon, 2009, see section 3.5), which highlights the importance of ensuring access as a fundamental step. One participant did cite that they would have preferred to have some time to engage with the technology prior to the induction so that they would be better placed to ask questions about the software:

> We hadn't gone on blackboard before coming here so he was telling us basically that 'this is how you get on' and 'this is how you do everything'. I suppose maybe if we could have accessed blackboard before we attended we could have had more questions for him (SP B).

In Programme 2, a lack of orientation and induction prior to commencing the course was stated by a number of students, who were at times frustrated by the learning management system:

> In terms of orientation, there is none and maybe this is something that they could address as it is a completely different tool to use and people

> who maybe just graduated out of college are ofay with the technology and then you have others who are not up to speed (SP G).

What emerged from Programme 2 interviews was that students with little or limited technology skills cited that they struggled and were overwhelmed at the outset of the course and would have benefitted from an improved induction programme:

> I'm finding it particularly hard, especially the discussion board stuff, it took a while to get to grips with the technology. We did get some orientation but not much on the technology side of things (SP E).

There seems to be contradictory evidence at play here, as another student cited that:

> We didn't have any induction or training on how to use it at the outset which we certainly would have benefitted from (SP G).

So, one has to ask the question, is it just a case that they missed the induction session or didn't bother attending? Thus, for this reason, it is imperative that students be provided with ample induction and attend the session in order to put them more at ease and help them engage with the technology from the outset. Preparing students for blended learning would give them more realistic expectations of what is required of them as postgraduate students and would also provide them with the skills required to fully engage with blended courses. A need for a more comprehensive induction programme was highlighted by many students to support and boost confidence and establish an understanding of the student/faculty relationship, as learning rarely happens in isolation and induction is part of the learning process.

7.2.2 Learning as Situated and Communities of Practice

The concept of situated learning is described as "learning processes arising when the learner interacts with members of and participates in shared activities in a community of practice" (Aadala et al., 2014, p. 349). The notion of situated learning as set out in sub-section 2.2.1 earlier advances the idea that learning

should not be viewed as simply the transmission of knowledge. Learning is seen as acquisition and application of knowledge and should take place in multiple contexts to support flexible knowledge transfer and should be applicable in different situations. Learning is a social process during which knowledge is co-constructed and it occurs in physical and social environments which provide an authentic contextual framework as evident in the following comment by a student "I am usually a hands on learner where I like to learn by doing and this helped in my understanding of real life scenarios" (SP E).

Drummond (2010) indicates that the benefits of situated learning programmes include promoting profound learning, perceived value for learners, increased student engagement, and positive student evaluations. As highlighted in the literature review earlier, TPACK is a complex and highly situated construct that's not easily applied. Thus, a curriculum change including situated learning, might be made for the benefit of the students, to make the learning more interesting, and more effective. This demonstrates the benefits of situated learning as a method of instruction. Social interaction and authenticity are key elements of situated learning and students on these programmes felt a strong sense of situation and liked being able to interact socially with their peers and tutors on the course:

> The combination of situated and self-regulated learning is helping me to learn more effectively as well as improving my interest and motivation to engage (SP G).

Learning and knowing are viewed as social processes that are based on mutual engagement in activities and situated in a wider community (Hotho et al., 2014). Increasingly, the concept of communities of practice is suggested in the findings by both faculty and students as an effective tool for sharing of practice, resources and ideas. A sense of community and an understanding of how learners learn in physical and online spaces can contribute to the effectiveness of a learning experience for students and this idea links in with the Community of Inquiry framework as set out by Garrison & Vaughan (2008, see section 3.5). Research

indicates that social learning is a powerful tool for learners to learn with and from in the physical classroom environment (Dabbagh & Kitsantas, 2012; Deng & Yuen, 2011). Communities of practice provide an active, connected approach with the potential to enhance and expand professional growth opportunities in university faculties (Reilly et al., 2012). For one student on re-interview, the capacity to interact with peers in an online space was key to the sense of community:

> The ability to engage in class, where you get to share ideas and have fruitful exchanges where ideas and possible solutions can be discussed is important (Re-interview SP F).

Another student cited that "it is a lot easier to collaborative within a community" (SP B), where the benefits are reaped from building on the members' shared knowledge to develop new ideas and strategies. Equally, in Murdock and Williams (2011) research, students viewed the instructors' role as crucial to the development of the learning community further emphasising the role and significance of the human contact.

Social learning is one way that people learn from others in social contexts and also simultaneously change their environment in a two-way process (Blackmore, 2010). Effective learning environments are learner-centred, assessment-centred and community-centred where online communities enable the development of a supportive peer network which brings together the social and academic roles and facilitates collaborative and interactive learning. The introduction of technology may give the sense that the natural socialisation of students could be significantly diminished. However, as learning is social and culturally determined, the context is important as cited in section 2.2.1 and equally important is permitting students to interact with others in order to facilitate their learning. In the current study, it was evident through observations that student-student interaction was designed into both programmes, and learning was facilitated by a number of group assignments and peer collaborations in face-to-face sessions:

> In today's classroom observation setting, I have witnessed many examples of student-student interactions and these tended to occur very naturally, as students listen to each other's comments, ask each other questions, and build rapport through frequent contact and feedback. This to me is an essential part of course experience (Entry 29/11/16).

7.3 Conclusion

This chapter brings together the qualitative findings of both programmes of study in this case study to provide a comprehensive exploration of the attitudes, experiences and opinions of faculty to a blended learning approach. A variety of interactional patterns among the faculty and student were observed with educators taking several roles such as those of instructors, facilitators, and mentors. This highlights that the lecturer is creating and nurturing an online community of students, indicating that blended learning fits within a constructivist pedagogy. In fostering active participation, a visible presence by the online educator is deemed important, as students value the human contact. Learning in face-to-face sessions was highlighted as an important part of interaction on both programmes where the evidence suggests that face-to-face discussions and group work were perceived as advantageous for learning. Situated learning involving students in cooperative activities and working on authentic tasks helped to promote more active learning.

While blended learning has the ability to enhance the effectiveness of meaningful learning experiences, it's not without its challenges. Evidence from this research would suggest that the success of blended learning is not based so much on the form or type of technology used or the quality of the instructional design but in the pedagogical skills of the instructor. One of the main barriers impeding integration of blended learning is faculty educators, who may lack appropriate skills to teach effectively using technology. Traditional education is undergoing change and will require educators to be prepared for that change, by becoming digital literate and participating in educational programmes. Thus, the TPACK model is expected to

facilitate faculty members' development including the many related elements that are needed to conduct successful online instruction. Additional obstacles found in this research, across both programmes, were the isolation with the physical distance between the instructor and students; using technology to communicate on forums; workload and more crucially, student induction is essential during blended learning implementation. In this research, student induction has been found to be particularly important for part-time postgraduate students from both students and faculty perspectives, as they have reduced face-to-face contact on the programmes of study where the quality of interaction, including effective induction in student groups can be a strong predictor of learning outcomes.

It is important when implementing blended courses to avoid treating the online parts as just add-ons and secure the assistance and support of an Instructional Designer. Administrators and Course Coordinators can enhance cooperation between faculty and designers by involving Instructional Designers throughout an institution's shift to digital teaching by implementing clear, consistent standards of course design, as failure to do so will result in a level of disconnect that may impact the implementation of the design model adversely.

In order to provide students with authentic learning experiences, we need to have our students' entire landscape in view, including their unique and diverse learning styles and this would be in agreement with Picciano's (2009) multiple approaches and multiple modalities framework. This transformation requires a shift in culture to meet the needs of todays' learner who seek opportunities for collaboration, opportunities to lead and frequent meaningful feedback.

Chapter 8: Conclusions and Reflections

This chapter reflects on and concludes the research. It summarises the major findings in response to the research questions and highlights the contributions to the field of blended learning. A goal of this research was to contribute to the growing theoretical framework and empirical research in the field of blended learning where the main aim of this study was to investigate the attitudes of students and faculty to blended learning from an institutional perspective. In this chapter, an overview of the study is firstly presented and the major findings are then reviewed through the research questions posed in this study. Limitations are discussed and the implications for further research are considered.

8.1 Overview of Study

In this exploratory study, a case study methodology was used to investigate student and faculty perceptions on a number of blended learning courses. As blended learning is an emerging trend in higher education, research is needed to identify challenges and strengths of such implementation. Blended courses are not traditional courses with add-on technology, they are built with a transformative redesign process. In order to implement blended learning courses successfully, it emerged from this study, that more focus and emphasis must be put on the instructional design and pedagogy as distinct from the technology in the blended learning concept as technology is only a tool to deliver effective instruction.

In this study, the researcher is interested in exploring the perceptions of both faculty and students, which are socially constructed towards blended learning. While Mayes and de Freitas (2007) argue earlier in the literature review that there are no theories of e-learning, only enhancements of existing models of learning, Jones and Jones (2004) cites that there is currently no clear pedagogical philosophy

underpinning online courses, as technology users interact with learning materials and this is best expressed by social constructivism, as developed by Vygotsky. According to the Blended Learning Research Report (2007, p. 11) "The theory of blended learning does not seem to 'belong' to one learning theory but is rather a method used within different pedagogical approaches". Woo and Reeves (2007) make the point that many educators in recent times have come to see the value of constructivism as a foundation for the design of more effective learning environments. Consequently, a constructivist approach was adopted in this study and constructivist approaches ought to be built into blended and all learning environments as they emphasise the role of social aspects in generating knowledge and shaping the views and opinions of faculty and students.

This study explores the challenges and benefits of a holistic approach to digital learning for a modern university. Blended learning's main objective is to engage students in a highly interactive environment supported by a number of learning modalities. In conducting this study, the TPACK model of Mishra and Koehler (2006) and the Multimodal Model by Picciano (2009) have been the basis of the conceptual frameworks adopted. The TPACK framework considers three distinct areas in a teacher's ability to integrate technology and improve the effectiveness of their instruction. TPACK helps to provide educators with a guide to effectively use technology in teaching, integrating the three bodies of knowledge namely content, pedagogy and technology, while the blended with purpose multimodal model was proposed to meet the needs of a wide spectrum of learner through the blending of objectives, activities, and approaches within multiple modalities. It posits that pedagogical objectives and activities should drive the approaches that faculty use in their instruction. Through exploring faculty and student experiences in this study, challenges of pedagogy in blended learning have been identified and recommendations put forward to help address these issues.

8.2 Transactional Relationship

Any effective implementation of technology in the classroom requires acknowledgment of the important relationship among the key components of content, pedagogy, and technology. In her seminal work Rosenblatt (1986) expounds on the dynamic nature of transactions between reader and text and defines the process as a 'reciprocal, mutually defining relationship.' The idea of transactional theory links well with the idea of TPACK described earlier in the literature review by Koehler et al. (2007, p. 741) as "the dynamic, transactional relationship between content, pedagogy and technology". In using the word 'transactional' they draw on the early work of Rosenblatt and others. Rosenblatt (1985, p. 98) refers to 'transaction' as "an ongoing process in which elements or parts are seen as aspects or phases of a total situation". This speaks clearly to TPACK where the key elements are content, pedagogy and technology, with the emphasis on the relationship between them. Hence 'transactional' is used to convey relationships among these elements, in this way they are not just parts that mechanically interact but rather are organic and blend with each other. Rosenblatt has been particularly influential in framing how researchers and practitioners approach interaction that is shaped by private and social contexts, one's interpretations are never stagnant and result from the simultaneous interaction of many stances.

A constructivist classroom is a student-centred classroom where a significant quality of a constructivist class according to Rosenblatt is its interactive nature, which allows the learner to construct meaning drawing on their own 'lived-worlds' to connect with and develop meaning. This real world context is a hallmark of situated learning as referenced earlier in the literature review and many argue that applying previous knowledge to real situations and building upon previous understandings through interactions better prepares learners for their future practice. In this sense, TPACK may be considered as knowledge that grows and develops through participation, knowledge sharing and negotiation as a productive

member of a community and links well with the participation metaphor described earlier in chapter 2, where it provides a useful way of conceptualising situated learning theory such as cognitive apprenticeship, situativity theory and communities of practice.

Many researchers have recognised that technology can facilitate situated learning by providing an environment in which learners can interact and share ideas using collaborative technologies. For example, Lave and Wenger (1991) and Wenger (1998) promoted concepts such as "communities of practice" and situated learning. Their position was that learning involves a deepening process situated in, and derived from, participation in a learning community of practice and this links well with Rosenblatt's seminal work and the current study. Situational interest is important where the interest is tied to the immediate situation or context. Our attention is not only captured but held and may even become the seeds of personal interest. Engagement and prior knowledge are key components of situational interest and have a significant role to play in student learning. Each situation presented to teachers is a unique combination of content, pedagogy and technology, and accordingly, there is no single technological solution that applies for every educator, every course, or every view of teaching. Rather, solutions lie in the ability of an educator to flexibly navigate the spaces defined by a unique combination of these three factors and the complex interactions among these elements in specific contexts. This order is important because the technology being implemented must communicate the content and support the pedagogy in order to enhance students' learning experience.

Many studies note that some face-to-face contact is essential and make a case for multimodal learning that mixes physical interaction with asynchronous learning (Hammond, 1998), where multimodal learning refers to an embodied learning situation which engages multiple sensory systems and action systems of the learner. Furthermore, Bower (2011, p. 63) makes the point that online educators require an understanding in relation to synchronous tools and that there is a

requirement for the users to develop "technical and collaborative competencies in synchronous multimodal learning environments". This study drew from a large body of research on blended learning, including constructivism, conceptual frameworks, communities of practice and situated learning and one fundamental conclusion is that the most effective online learning is social and active rather than isolated and is connected with authentic classroom contexts and a shared domain of pedagogic and subject knowledge which is at the heart of the TPACK model.

8.3 Review of Findings through Research Questions

This section looks at the key findings that have emerged from the analysis of results which are summarised in accordance to the three research questions proposed at the outset of this study:

1. **How is blended learning perceived and experienced by university tutors?**

On evidence from the findings, there are a number of differences between tutors' perceptions and experiences of blended learning and the desirable approaches and practices demonstrated in the growing body of literature. In an attempt to engage the learner, evidence from the study suggests that all academic staff adopted the use of technology and web based tools to enhance and enrich the learning environment but in terms of understanding the concept of blended learning, the difference is that a number of tutors tend to regard blended as solely the employment of online resources. This notion, where some educators believe blended learning is when you put your entire course into the LMS and students work on it 100% asynchronously is misguided, as this model ignores the benefits of working as a community of learners and the positive implications of face-to-face interaction that students desire in the learning process. A main focus tends to be

on adopting blended learning to replicate conventional teaching practices rather than to facilitate transformative improvements. Hence the tutors need technical support to take advantage of mobile devices and online instructional content to reconsider the impact of their pedagogical and curricular approaches and to reduce the reliance on traditional lectures and personalised learning for each student. However, as will be discussed further in the next section, the students interviewed were unanimous in their view that face-to-face opportunities are essential to their progress as learners.

While cost, access, and time often form considerable barriers to technology implementation, another significant obstacle is a lack of knowledge regarding how technology can best be utilised to benefit students across diverse subject matter. Some tutors cited their lack of knowledge about employing the online environment in teaching and pedagogical strategies for online instruction. It was observed in the conduct of this study that the pedagogical strategies witnessed mainly focused on monitoring and directing students' online learning as opposed to scaffolding and supporting student active and collaborative learning. Thus, some of the tutors seem to be unaware of the need to change the pedagogy in face-to-face settings as a result of technological employment resulting in the failure of blended courses to reach their potential. To facilitate a pedagogical shift towards blended learning, educators require the opportunity for experimentation, institutional support and encouragement in order to feel confident in the area of blended teaching and learning.

While technology is a crucial part of any blended learning initiative, good instruction and good instructors are at the heart of blended learning where studies stress the importance of the teacher as the motivator for student success in blended learning (Poon, 2013). Student success in blended learning requires more active learning on the part of the student and more active teaching on the part of faculty. The emphasis on faculty involvement supports Vygotsky's theory of engagement affecting learning; where faculty engagement is part of the students' learning environment. Faculty opinion on the whole in this study was positive, but

having said this, some faculty had less than favourable opinions of blended learning as it requires additional training, upskilling and planning. This speaks to the challenges raised earlier in the chapter 2, where concerns were expressed about the adequacy of current professional development programmes in preparing tutors to design ICT integrated lessons. While many educators have issues and concerns around the 'loss of control', and unfamiliarity with the technology, others are quite fearful and apprehensive about the time demands involved, as migrating a course from lecture to blended learning format can be as much work as developing an entirely new course.

Easy access to and good familiarity with digital technologies among the learners is a prerequisite for successful implementation of blended learning (Harris et al., 2009). In a blended learning environment, students benefit from flexibility in time and place, as well as accessibility. Students enjoy greater autonomy over their learning progress and take greater responsibility for their studies. Students embrace the possibilities provided by technology to allow them to engage in learning activities at any time and any place. Having said this, faculty commented that students lacked the learning skills to work independently or invest quality time when learning online, and in this case, research would be in agreement (Taylor & Newton, 2013). Blended learning provides autonomy for students to be responsible in their learning, which calls for self-discipline and self-motivation. Students who are self-disciplined can advance at their own learning pace but equally, the student who lacks self-discipline would be at a disadvantage which may lead to poorer learning outcomes.

While faculty and students shared similar positive views regarding flexibility with the learning mode and access for students, their main difference of opinion centred around feedback. The findings identified a significant dissonance in both faculty and students' interpretations of timely feedback and this ambiguity should be addressed when students are inducted into their studies. From the study, the evidence would suggest that faculty place feedback more centrally to learning and are positive about its effectiveness on this course. While the majority of students

saw the merit in receiving feedback, some students were quick to draw attention to the slow turnaround, as they felt it wasn't provided in ample time to address their next assignment. There appears to be a significant dissonance, as the groups seem to perceive and interpret the timeliness of the feedback in very different ways and this resonated with Brown's (2007) earlier research where he stated that students are ill-equipped to respond effectively to feedback. As such, it is important for faculty to produce feedback in a more-timely manner and promote feedback strategies such as peer-review and feed-forward. Peer-review can speed up the turnaround time and encourages self-reflexivity and critical thinking. While most of feedback's time and energy is spent on reviewing and looking back and grading performance that's already over, feed-forward helps focus on what can be done from now on to improve in subsequent assessments. Additionally, using appropriate technology in the classroom will permit faculty to experiment more in pedagogy and provide instant feedback.

It is fundamental when designing a blended learning course that one selects approaches that will fulfil the learning outcomes, rather than focusing on a specific technology. The appropriateness of meeting the learning objectives should take precedence over the design. A blended approach requires a new perspective and fresh approach, with the Instructional Designer stating the importance of having the architecture in place before building the content, which makes perfect sense, as if you want to rework an existing course you are already constrained by the previous approach. Adding online activities to an existing face-to-face course is one of the common drawbacks of blended course design, which results in additional work for students with no guarantee of improvements in learning outcomes. Technology mapping is important and deeply rooted as it places emphasis on the situated nature of educators' thinking and the critical role of educators becoming aware of and understanding their students as well as the setting and context in their instructional decisions. This links well with the literature review and idea of learning as situated through active social participation in the environment as noted in the previous chapter. If blended learning continues to grow, determining how

faculty can use this pedagogical delivery method to its fullest potential becomes crucial, where undoubtedly, institutions will have to provide faculty CPD in order to meet the needs that foster a quality blended learning initiative.

2. **How is pedagogy conceptualised by the students with particular reference to the main constructs; student experience, interaction, assessment and feedback?**

The students displayed a high level of satisfaction with the blended learning model and this would be in agreement with earlier research cited in the literature (Bernard et al., 2014; Briggs, 2014; Nguyen, 2015; Ryan et al., 2016). While some students argued that the online resources were not well-designed with regard to content, navigation, usability, and structure, they understood the concept that 'knowledge is constructed', and how lecturers were trying to engage students in real-life problem solving situations. Students agreed that the conceptualisation phase helped them to construct their own knowledge and provided motivating tasks. Students pointed out that the course content was closely aligned with the intended course objectives and goals and that the knowledge demands and the level of difficulty of the course were appropriate.

The lack of orientation and induction prior to commencing the course was also cited by a number of students who were at times frustrated by the learning management system. This relates to a lack of TK knowledge on faculties part. It was observed during the course of this study that some faculty have limited technological knowledge and their acquisition of that knowledge appears to rely largely on the requirements of their work. Specifically, they lack knowledge in using assessment and communication tools and such technological knowledge is essential for effective use of online learning. The resultant absence of meaningful support and technology integration in classrooms has the potential to lead to a deep disconnect between the current generation of students who have spent their formative years immersed in technology, and their tutors. Thus, it is recommended that

programme support be increased with additional Instructional Designers, to meet the growing needs and increased development and use of blended programmes.

Interactions by means of discussion forum are still important, but mentoring, coaching, and helping students is not just a matter of online dialogue, it is a human relation as well. Online resources cannot fully replace human dialogue and relationships in the programming process. Thus, many things still need to be done face-to-face, such as providing motivation, helping students with learning difficulties, explaining, discussing, evaluating, reflecting on solutions, etc. The finding that students strongly preferred the blended learning model, due to its combination of online and face-to-face interaction, is a significant component of the overall findings. Having said this, some students on re-interview had negative experiences as they cited becoming frustrated with inconsistencies between different lectures, intensive classroom sessions and looked for more connections to be made between lectures, readings and assessments. These demanding face-to-face sessions may have arisen due to an over use of 'classroom pedagogy'. The implication of this finding is that blended learning at any level should promote collaborative work, giving the students a sense of how learning can be achieved through interaction with fellow students and the 'flipped classroom' may be one such example. Equally, the TPACK model would provide the opportunity to make sensible choices in the uses of technology to support the learning when teaching particular content to a specific target group.

Students reported that the activities lecturers created for online classes did not achieve the same level of authentic dialogue as in class conversation. Students commented that discussion boards produced forced responses from peers that felt artificial and fake that seemed to take from the face-to-face communication. Several students felt as the course went on that, online activities were not as authentic or interactive as face-to-face sessions, the assignments felt like busy work, and that collaboration between students was more difficult and this emerged in the second set of interviews showing disparity between perception and actual

experience. Some students felt that the online activities were more about task completion than authentic, real-world learning scenarios and some students found themselves confused, not only by the technology, but also by the requirements of the course. Students also shared that they found the blackboard sites varied immensely between lecturers, with issues around course navigation and assignments. In order to address this, it is recommended that students be given clear expectations regarding online discussion requirements and that faculty be actively involved in the discussion. Assessing the discussion board posts and providing marks for engagement and involvement will lend itself to more critical thinking.

3. **<u>What are the constraints and factors influencing the implementation of blended learning?</u>**

8.3.1 Constraints of Blended Learning

The time-consuming nature associated with the initiation of a blended learning programme emerged as an issue and was acknowledged by all faculty on this programme and, in fact, has been acknowledged to reflect reality by many other studies (Charles & Anthony, 2007; Moskal et al., 2013; Betts, 2014). The importance of not making assumptions regarding students' prerequisite knowledge and IT capabilities was also evident, highlighting the need for sufficient training to be provided to all students commencing a blended learning course to familiarise them with the technology tools. A similar conclusion has been drawn in previous studies (Henderson et al., 2015) and research advises caution with overestimating students' technological abilities, as the current study reported that some did have difficulty navigating technology and admitted feeling alienated or overwhelmed by it. Educators need time, resources, and professional development to use blended learning well. What also became apparent from the findings was that altering pedagogy for a blended delivery can be a challenge for staff, requiring support at all levels of the institution. The problem is that most lecturers have not been prepared

during pre-service training to use these tools, nor have they learned to instruct students in how and why to use such tools in their learning. To shift their instructional practices to include new digital pedagogies and practices, faculty require appropriate, sustained professional development and support and this is available through the Office of the Vice President for Teaching, Learning and Research where an appointment to meet an Instructional Designer can be made or equally CPD opportunities can be availed of, like the recent introduction of the workshop equipping staff with tools and techniques to harness the power of video technology for learning and teaching.

Another limitation of promoting the blended learning model was creating awareness of the support services available to faculty to help with its implementation. It is recommended that some of the champions in the various schools or disciplines could offer similar types of workshops to encourage widespread adoption and access to open education resources, with tools to enable educators to build on each other's work. Faculty should work as a cohesive team, including the support of the Instructional Designer in developing concepts, methods and procedures that articulate the desired learning outcomes and by generating these as a team, lends itself towards coherence and promotes consistency throughout the course.

Deep learning, something non-traditional blended delivery methods may especially lend themselves to, might not be valued by every student. This complexity highlights the importance of comprehensively assessing, not only what is being delivered, but also how different students learn and use technology. Overall, barriers would include lack of training, issues with time, students' reluctance to move from a passive to an active student role and insufficient pedagogical and technical support to promote and develop blended learning initiatives. Incorporating technology into the classroom is not as straight-forward task as it may seem. There are a multitude of barriers that can prevent successful technology integration. Understanding the existing technologies and potential barriers, as well as how teachers experience those barriers, is critical to effective

integration and adaptation over time and the TPACK framework offers a lens into the integration of technology in classrooms.

8.3.2 Enablers of Blended Learning

On-going innovation is important in ensuring that the learning and teaching in universities is of high quality, up-to-date, relevant, and delivered in a variety of suitable ways. The university, in this case study, is certainly committed to the use of technology to enhance teaching and learning. Lunch-time programmes and seminars are offered by the Office of the Vice President for Teaching and Learning (e.g. bite-size sessions). These seminars are designed to give teaching staff, and postgraduate students who teach, an opportunity to develop their teaching in support of student learning and links well with the current institutional strategy (2017-2022) that aims to respond to demands for greater lifelong and life-wide learning through the promotion of continuing professional development. An added incentive would be the continued rolling out of digital badges to faculty as referenced in chapter 4 earlier as an innovative form of assessment, to validate their engagement and significant achievement with a specific technology, skill or area of knowledge. This would provide added proof of one's life-long learning trajectory and can be added to their digital resume, personal blog or website.

In addition to this, students also described their satisfaction with the learner autonomy provided, where a shift from passive learner to independent researcher takes place. Student satisfaction with their university experience is paramount where motivation and faculty and peer interactions can result in reduced attrition rates in blended and online classes. The availability of online technologies increased the level of integration of computer mediated learning into traditional face-to-face lectures, which has helped engage the learner, contributing to reduced student attrition. Keeping these factors in mind when designing online courses may help retain student numbers and alleviate concerns expressed in chapter 2 earlier regarding student dropout rates.

The majority of the students acknowledged that the face-to-face interaction yielded more powerful learning. On analysis of the student interviews, 80% of the students highlighted their satisfaction with the blended model, with the majority citing its flexibility, convenience and flexible learning environment. Blended learning introduced a good mix of activities on these programmes of study, reducing the limitations of merely applying face-to-face instruction and in turn, enhanced the face-to-face learning with the use of online technologies without replacing regular classroom contact hours. This is an important finding of this study that students value the relationality of the teaching and learning. They appreciate the human, social and interactive dimension of learning. In other words, they desire opportunities to have authentic, meaningful experiences that involve sustained relationships with peers and tutors. All of this fits well with the discussion in the literature review about contemporary learning theory, especially the notion of learning as situated.

From a pedagogical perspective, blended learning provides instructors a unique opportunity to create assignments and activities that facilitate, not only retention and comprehension, but also higher order learning such as application, analysis, creativity, and evaluation. These findings have shown that blended environments have the potential to encourage approaches that foster active learning, appeal to students with varying learning styles, and lead to improved learning outcomes for students. Pedagogy can be transformed towards more active learning with wider use of learner-centred approaches through blended learning curriculum delivery which links well with the constructivist approach set out in this study and the TPACK framework. For students, blended provides greater accessibility and flexibility where classes can be more active in design and not a lecture based didactic session, where students get the opportunity to read materials in advance and thus, the face-to-face sessions are more constructivist.

8.4 Conclusion

This study reported on attitudes and experiences of blended learning from an institutional perspective. Blended learning can extend teaching and learning beyond the classroom walls, developing critical thinking, problem solving, communication, collaboration, and global awareness. While the flexibility offered by blended learning worked particularly well for the postgraduate students on these courses, who had work and family commitments, they stated clearly that they still required the face-to-face contact and support on the course. Educators do not simply impart information and knowledge, it is not merely about concepts, systems, and facts and figures. Learning is inherently very social, and while the effective use of technology can help to speed up theory building and understanding, in order to learn how to communicate and gain fluency, nothing trumps the human contact. What this study confirms is that students value the relational aspect of their learning such that face-to-face on campus contact is desired by all. Technology can never replace the need for human interaction in a social face-to-face context.

Blended learning is appealing, and of interest, to the postgraduate students enrolled on both these courses under review. They express a desire for more blended opportunities in their courses, but only if they are highly structured, of good quality, and supported by faculty. This would suggest the use of the multimodal model as it promotes educators to seek to use multiple approaches including face-to-face methods and online technologies that meet the needs of a wide spectrum of learners. An induction programme and tutorial are also important, as overestimating the technology readiness of students can prove costly, as a key reason for disengagement and increased attrition rates in online courses is related to poor course design and preconceived notions of online learners' ability. Equally, faculty require ongoing professional development, as in its absence, the introduction of technology does little more than replicate existing practice in an online environment. If an institution is truly committed to increasing faculty engagement with digital learning practices, incentives such as release time and

financial support to attend digital learning conferences should be considered. Proactive professional development strategies will give faculty the knowledge and skills they will need to embrace innovative digital teaching strategies.

Blended formats do not necessarily provide students with more interactive and flexible learning experiences, so careful consideration of course objectives and the use of student-centred pedagogies at the heart of blended learning are essential, as the poor integration of learning components in blended courses can negatively affect the approach. The support of the Instructional Designer should not be underestimated or taken for granted as by building an effective programme team, institutions can embed principles of learning to produce the best student outcomes, reducing student attrition. This confirms that future blended and online learning research should look beyond the physical layer of instruction and focus on the pedagogical layer, the core attributes of a design most likely to determine instructional success. Most researchers have agreed that course design and pedagogy are the decisive factors in student experience, rather than the online or hybrid format themselves. It is widely accepted and further confirmed in this research study that improving educational practices must not be driven by technology but by pedagogical priorities.

While technology has undoubtedly increased the breadth and depth of access to education, shifts of this magnitude need a reconfigured approach from faculty and administrators in higher education, where the face-to-face lectures still dominate teaching practice. This study found that preparation for online discussions and explanation of the link between assessment and learning provides an incentive for effective online participation. This supports the view of Gee (2015) where the focus ought to be on assessing bodies of experience for more effective learning in the future and the building of new capacities (See sub-section 2.2.2). Blended learning is endorsed as a strategy that helps to create a more integrated approach for both instructors and learners. What also emerged was that a holistic, seamless, and well integrated blended learning approach using pedagogically appropriate tools can enhance student learning and the quality of the student experience. Overall,

students valued this learning and assessment strategy and viewed the online environment as an inclusive space in which to collaborate and share ideas.

In higher education, there is no designated framework to scaffold blended learning for all programmes. Instead of selecting a pedagogical model that could fit all blended learning implementations, both the TPACK and multimodal model helped to address this through their flexible approach to support an integrated and unified framework for blended learning. The findings from this study help validate both models as effective frameworks enabling deployment of a vast variety of modalities, to guide educators in the use of ICT in a way that significantly enhances the design, and tailoring it appropriately for use in blended learning environments. In fact, as TPACK implies, tutors require additional support to understand the impact of their existing teaching practices on students' learning and the significance of active and collaborative learning. The proposed models include many of the key attributes of other learning and online education theories and models and perhaps the most significant element of the models is their flexibility and ability to expand as new learning approaches and technological advances continue to evolve.

Effective pedagogy is currently underdeveloped and ought to be a priority for policymakers and educators in order to successfully integrate technology. For this reason, the researcher would recommend the TPACK model as a more appropriate and useful conceptual model as it introduces students to another form of learning, a blended approach using technology which improves students' digital competency. Educators need to understand that instructional practices are best shaped by content-driven, pedagogically-sound, and technological knowledge. Teaching with technology is a difficult thing to do well and requires continually creating, maintaining, and re-establishing a dynamic equilibrium among all components. One must remember that technologies are neither neutral nor unbiased and some may be more useful for certain tasks than others. Rather than suggest that teachers change the way they plan to accommodate the technology, they ought to be assisted in considering the most appropriate technologies to utilise, to match the various learning activities. TPACK needs to be considered as a fundamentally

multifaceted concept and can be used as a possible way for tutors to reflect on and to view their own use of technology through a different lens; a way to think about integration as multifaceted and context dependent.

8.5 Research Limitations

While generalisation of the findings may not be possible due to the qualitative approach; the small sample size (n=25); and the focus on two programmes within one institution, the interviews did provide an insight into the opportunities and challenges in a blended learning environment for this group of postgraduate students and it is hoped that despite its limitations, this research might assist other educators when designing and implementing similar blended learning programmes. The researcher approached this data analysis with a narrative framework and while he acknowledges the subjective nature of this research, he feels the findings are true to the experience, as the goal of this exploratory research was to examine the data and formulate understandings about the blended learning landscape. Further research in the field could contribute to the generalizability of the findings through a quantitative study.

8.6 Recommendations and Suggestions for Future Research

The study findings highlight a number of key points, namely, that the inception of a blended learning course is time-consuming, with an increased workload and requirement for up-skilling, but that staff are positive about what technology can offer once they can see the benefits of the blended learning mode. As regards students, issues with engagement, familiarity with technology, and lack of feedback were apparent.

8.6.1 Recommendations:

- As emerged from this research, and in keeping with findings from Ally (2008), it is the institutional strategy that influences the quality of learning and not the technology. In the current institution, there is a growing need to address pedagogical issues at the early stages of implementation so that challenges can be identified and addressed. It is thus, recommended that careful consideration of the concept of blended learning and pedagogical strategies be given in order to ensure positive outcomes and the current strategic plan (2017-2022) sets out to promote digital learning technologies, but must equally pay attention to enhancing greater collaboration and peer support using technology, and incorporate educational technologies to support assessment, thus, enhancing the overall capacity for digital learning of students.
- With growing concerns around student attrition, course quality, assessment and feedback in the online setting, it is required that higher education institutions do more to engage students. An enhanced understanding of the connection between effective pedagogy and the use of technology is required as technology driven approaches, without adequate consideration of learner needs and expectations, are limited in their effectiveness.
- There seems to be little consistency in faculty delivery and this finding emerged in the current research. It is thus, recommended that additional professional development courses be provided so educators will know how to interpret and manipulate the content to deliver and apply it effectively in an online setting. Plans for this are evident in the current institutional strategy under priority 3 'Unlocking the Potential of Technology'. Equally, a support team of academics should be developed to coordinate CPD within the institution.
- Design and implementation of blended learning also requires a significant time commitment. This includes time for staff training, time for material

development, and crucially, time for student support and evaluation of effectiveness.

8.6.2 Further Research

Further research and innovation in the blended learning field will help advance the key contributions, benefits, and impacts of this model. As a result of this study, the following research areas have been put forward:

- It is not known whether the experiences of both faculty and students in this study will differ from those in other institutions, but this study should be expanded to other universities and colleges in order to develop a more encompassing view of blended learning in higher education.
- Integrating reflection into the blended model can be a powerful pedagogical strategy. Pedagogical activities that require students to reflect on what they are learning and share opinions are viewed very positively. Students in this study welcomed the collaborative and reflective dialogue, thus the importance of reflective practice and its contribution to professional learning merits further research.
- The current study focused on the experiences of faculty and postgraduate students in a blended model. More research could be conducted, examining the experiences and success rates for other populations, including undergraduate students, as when it comes to learning in different modalities, they may have very different views to that of the current students in this study.
- While the positive impact of blended learning is clearly evident, the pragmatic success does not diminish the need for more studies looking into the range of its applications and pedagogical complexities. While both the multimodal and TPACK frameworks helped to inform this research, it would be important to carry out further research into tutor's Technological Pedagogical Content Knowledge.

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Appendices

Appendix A Ethical Approval

UCC
University College Cork, Ireland
Coláiste na hOllscoile Corcaigh

Oifig an Leas - Uachtaráin Taighde agus Nuálaíochta
Office of the Vice President for Research and Innovation

4th Floor, Block E,
Food Science Building,
University College Cork,
College Road, Cork, Ireland.

T +353 (0)21 4903500
E vpresearch@ucc.ie
www.ucc.ie

Tom Foley,
School of Education

31st January 2014

Dear Tom,

Thank you for submitting your research (project entitled: Assessment and Blended Learning in Higher Education) to SREC for ethical perusal. I am pleased to say that we see no ethical impediment to your research as proposed and we are happy to grant approval.

We wish you every success in your research.

Yours sincerely,

S Hammond

Sean Hammond
Chair of Social Research Ethics Committee

Professor Anita R.Maguire BSc PhD CChem MRSC
Vice President for Research and Innovation

Ollscoil na hÉireann, Corcaigh
National University of Ireland, Cork

Appendix B Research Participants Information Sheet

Study Title: Attitudes to Blended Learning in a Leading University: An Exploratory Study

Background

Information Communication Technology (ICT) has witnessed an expansive growth in all aspects of modern society and has played a major role in the popularity of blended courses. Blended learning is a mix of online and face-to-face learning and involves the combination of multiple approaches to teaching with two main fields of concern: technology and education. Despite the increase in blended learning courses being offered by higher education institutions, current literature fails to the give due consideration to the potential gap in the blended learning experience. This study aims to explore, analyse and compare the blended learning experience in higher education due to the shortage of programme wide research.

Purpose of this Study

The study will seek to establish the current blended learning experiences in a modern university and the extent to which these experiences vary across disciplines. The knowledge gained from this study will contribute to a better understanding of both the importance and the practice of blended learning along with the practical implications and pedagogical foundations.

Do I have to take part?

Your participation in this project is voluntary and you may withdraw and discontinue participation at any time. We would like you to consent to participate in this study as we believe that you can make an important contribution to the research.

What will taking part involve?

If you agree to participate in this study you will be asked to take part in a semi-structured interview where we will seek your views on particular aspects of your blended learning course.

Are there any risks associated with taking part?

All responses to interview questions and information provided will be held in the strictest of confidence. Faculty and administrators from my campus will neither be present at the interview nor have access to raw notes or transcripts. This precaution will prevent my individual comments from having any negative repercussions.

What are the benefits of taking part?

Whilst there are no personal benefits to your participation in this study, the information you provide will help to inform future policy, practice and research.

Who is funding the research?

This research is being funded by the Arts Leading Learning Project (ALL) and is being undertaken at the School of Education at University College Cork.

Contact Details

Appendix C Participant Consent Form



I volunteer to participate in this research project being conducted by Tom Foley from University College Cork. I understand that the project is designed to gather information about the experience of students and faculty participating in blended learning courses in a leading University. I will be one of approximately 20 people being interviewed for this research.

- My participation in this project is voluntary and I may withdraw and discontinue participation at any time.
- Participation involves being interviewed by the researcher for approximately 30-40 minutes and I can refuse to answer specific questions or discuss certain topics during the course of this interview.
- To facilitate the interviewer's job, notes will be written and the interview may be recorded. However, the recording will be destroyed as soon as it has been transcribed.
- I understand that the researcher will not identify me by name in any reports using information obtained from this interview, and that my confidentiality as a participant in this study will remain secure. Therefore, no names will be used and information will be coded.
- Faculty and administrators from my campus will neither be present at the interview nor have access to raw notes or transcripts. This precaution will prevent my individual comments from having any negative repercussions.
- I understand that this research study has been reviewed and approved by the Social Research Ethics Committee (SREC). For research problems or questions regarding subjects, the Ethics Review Board may be contacted at srec@ucc.ie.
- I have read and understand the explanation provided to me. I have had all my questions answered to my satisfaction, and I voluntarily agree to participate in this study.
- I have been given a copy of this consent form.

Participant Signature: _____ Date: _____

Signature of the Researcher: _____ Date: _____

For further information, please contact:

Tom Foley

E-mail: 108116571@umail.ucc.ie or Tel: 085-1231896

STUDY TITLE

Attitudes towards Blended Learning in a Leading University: An Exploratory Study

CONSENT FORM

The Participant must complete this form himself/herself.

PLEASE TICK YOUR RESPONSE IN THE APPROPRIATE BOX

- I have read and understood the attached participant Information Leaflet YES ☐ NO ☐
- I have had the opportunity to ask questions and discuss the study YES ☐ NO ☐
- I have received satisfactory answers to all my questions YES ☐ NO ☐
- I have received enough information about this study YES ☐ NO ☐
- I understand that I am free to withdraw from the study at any time without having to give a specific reason YES ☐ NO ☐
- I agree to take part in the study YES ☐ NO ☐

Participant's Signature: _____ Date: _____

Researcher's Signature: _____ Date: _____

Appendix D Student Semi-Structured Interview Schedule



Pre-Interview

- Confirm the length of the interview and seek consent to record the interview for transcribing purposes.
- Inform the participant how information from the interview will be used and disseminated.
- Reassure the interviewee that all individual responses are anonymous and all data will be held in confidence.

Student Experience

Main Questions	Additional Questions/Prompts	Clarifying Questions
Can you describe your experience of the course to date?	Structure, new technologies, capabilities, combination of modes	
How do you find the balance of both f2f and interactive online sessions on the current course?	Was this mode of delivery a major factor in you selecting this module?	Can you expand a little on this?
Can you tell me a little bit about accessing material online?	Availability, access Was support available, IT technician? Did you require IT support or encounter IT issues at any stage and were these appropriately resolved?	Can you give me some examples/stories? Can you tell me anything else?
Can you give me one example of where the combination of BL techniques helped you to better understand course material?		

Interaction

Main Questions	Additional Questions/Prompts	Clarifying Questions
Tell me about the level of interaction on the programme?	Whom do you interact with most on this course? Peers Tutor Technician	
	Has your level of interaction increased in comparison to traditional courses?	Can you expand a little on this?
Does online interaction help you to learn on this course? If so, how?	What was your experience of online discussions/Blogs/Forums?	Can you give me some examples/stories?
	More engaging/less engaging than f2f interaction?	Can you tell me anything else?
What has been your experience of the online environment to date?	Does it make you feel part of a community of learners?	
	Do you actively exchange and share your ideas with group members?	

Assessment

Main Questions	Additional Questions/Prompts	Clarifying Questions
How do you find the assignments on this course?	Were assessments appropriate for the module? Well-structured / On-going Do you find they keep you focused?	
		Can you expand a little on this?
What impact does having assessment exercises posted online have on course experience, if any? Please elaborate.		Can you give me some examples/stories?
		Can you tell me anything else?
Tell me about your experiences of the assessment methods that are used on this course?	-Online quizzes -Multiple choice questions -Presentations -Videoconferencing -Journal -Discussion postings -Peer/Self/Tutor	
	Formative v Summative	
	Homework/on-going	

What has helped you to prepare well for assignments?	worksheets/ good feedback	

Feedback

Main Questions	Additional Questions/Prompts	Clarifying Questions
How do you feel you are doing on this course?	How do you know?	
Are you happy with the level of feedback provided on this course?	What types of feedback have you experienced on this course? How do find the feedback?	
Describe what feedback means to you?	Important/ Useful Guiding	Can you expand a little on this? Can you give me some examples/stories?
What do you do when you receive feedback?	How do you receive it? E-mail, discussion or f2f? Does it inform your future submissions?	Can you tell me anything else?
Can you tell me about the level of detail given in feedback?	Grade only Written comments Summary Group/ Individual Feedback	
If you wanted to discuss your work, who would you contact?	How? Is feedback timely? Have you contacted peers to discuss your work?	

- How would you compare this blended learning course to previous traditional non-blended learning courses that you have taken?
- Given the opportunity, would you take another blended learning course in the future? Why? Why not?
- I'd like to know how you think the current course you are studying could be improved?

Thank You for participating in this Interview

Appendix E Faculty Semi-Structured Interview Schedule



Pre-Interview

- Introduce myself.
- Thank the participant for agreeing to take part.
- Provide a background/context and short overview of the aims of the project.
- Confirm the length of the interview and seek consent to record the interview for transcribing purposes.
- Inform the participant how information from the interview will be used and disseminated.
- Reassure the interviewee that all individual responses are anonymous and all data will be held in confidence.

Interview

Introduction

Main Questions	Additional Questions/Prompts	Clarifying Questions
How many years have you been teaching in an online environment?	1/2/3/4/5 Years	
What percentage of the course is online?	50/50 60/40 70/30 80/20 90/10	
What does the term blended learning mean to you?	Combination of online and face-to-face. Describe an effective combination?	Can you expand a little on this? Can you tell me anything else?
How do you prepare for a blended learning course?	Learning outcomes, resources etc.	
What is your level of technical expertise?	Use of Internet, E-mail, Blogs, Wikis, Facebook and VLEs Novice, Beginner, Advanced	
In a typical year how many blended components/courses		

do you teach?		

Interaction

Main Questions	Additional Questions/Prompts	Clarifying Questions
Tell me about the level of interaction on the programme?	Do you have more interaction or less with the students? More engaging/less engaging than f2f interaction?	Can you expand a little on this?
Typically on your courses, is there the development of an online community?	Do students interact with each other through online forums?	Can you give me some examples/stories?
What strategies do you use to interact with students online?	E-mail/Blogs/Wikis/Blackboard/ Forums Which are most effective?	Can you tell me anything else?
What has been your experience of the online environment to date?	Effective/Dynamic etc.	

Student Experience

Main Questions	Additional Questions/Prompts	Clarifying Questions
What are the student's perceptions of the online part of the course?	How do you know this? Feedback, surveys etc.	
Have you evidence to support that blended learning is making a significant difference to your students?	Satisfaction surveys Grade analysis	Can you expand a little on this?
Can you tell me a little bit about posting and accessing material online?	Students ability to access Blackboard, availability etc. Is support available, IT technician?	Can you give me some examples/stories? Can you tell me anything else?
In your opinion does the combination of BL techniques help students to better understand course material?		

Assessment

Main Questions	Additional Questions/Prompts	Clarifying Questions
Describe the methods of assessment utilised on this course?	-Online quizzes -Multiple choice questions -Presentations -Videoconferencing -Journal -Discussion postings -Peer/Self/Tutor	Can you expand a little on this?
In your opinion are assessments appropriate for the module?	Formative v Summative	Can you give me some examples/stories?
		Can you tell me anything else?
What impact does having assessment exercises posted online have on course experience, if any? Please elaborate.		
What new learning activities or assessments did you use to attempt to achieve your goals and outcomes?		

Feedback

Main Questions	Additional Questions/Prompts	Clarifying Questions
In what way do students know how they are progressing on this course?	Results/ Feedback	
What are the feedback mechanisms that are used on this course if any?	How do you receive it? E-mail, discussion or f2f? Does it inform your future submissions?	Can you expand a little on this?
How important would you rate feedback in the learning process?	Opportunity to reflect and inform future assignments and submissions	Can you give me some examples/stories?
Can you tell me about the level of detail given in feedback?	Grade only Written comments Summary Group/ Individual feedback	Can you tell me anything else?

If a student wanted to discuss their work, would you meet with them?	Is feedback timely?	

- How would you compare this blended learning course to previous traditional non-blended learning courses that you have taught?
- What advice would you offer to other faculty members who are planning to design and implement a blended learning course?
- Would you recommend the use of blended learning to other faculty members? What in your opinion are the pros and cons of utilising blended learning?

Thank You for participating in this Interview

Appendix F Contact Summary Form

Participant:	**Date:**

(1) What were the main issues or themes arising from this interview?

(2) What were the main points made by the respondent?

(3) What new information did you gain through this interview compared to previous interviews?

(4) Was there anything surprising or interesting that emerged for this particular interview not cited by previous respondents?

(5) Any new target questions that emerge to consider for subsequent interviews?

Appendix G Transcript of Interview with Lecturer of Gerontology

15th Dec 2014

This interview is being conducted with [redacted] from the School of Nursing and Midwifery and she is currently the Postgraduate Programme Coordinator. It is now 1:10pm on the 15th of December 2014. Just to start this interview, I might ask you [redacted] to give me a brief overview of yourself, your own qualifications and number of years lecturing and how many years you are teaching in an online setting?

Okay, well my background is in General Nursing first of all and then I did my Midwifery a long time ago and I worked for a very short time in Midwifery and went into working in general medical wards and Gerontology settings for specialist and older adults. I have clinical practice for over 30-35 years and I studied for my degree in the mid to late 90's and then I went back to do a Master's Degree in Education and then I started working as a part-time lecturer in Waterford Institute of Technology around the year 2000 when I was Clinical Nurse Manager of a Rehabilitation Unit for older people in Waterford. So I suppose I was working part-time as a teacher, part-time as a clinician and manager of a unit which is very helpful as it does help with your teaching to have that experience. Then I started here in UCC in 2001 just before the Undergraduate programme became a fulltime UCC 3rd level programme. Since then I have been teaching mainly in the areas of Gerontology, older adult care, management and research.

Can you tell me about your involvement in introducing blended learning specifically on the course here in Gerontology?

Well, I suppose I was the first coordinator of the Gerontology programme here in 2001 and then by 2005 or so [redacted] took over as Coordinator but I was still teaching and leading one of the modules. That was the first module that became a blended learning module. My first involvement was developing the text for that blended learning format and I was like I suppose one of the guinea pigs in the whole thing because it was our first dip into providing information for a blended programme. I didn't realise how much that was involved in it I supposed I'd be very excited about providing any kind of, or facilitating learning in any way with my background in Education and Masters in Education and I have done some online learning myself and I would have an interest in it certainly and I would have been very excited by it but again, I knew that once I saw what had to be done and the time it takes to actually do the text, I just thought this isn't for everybody you know but we put our shoulders to the wheel and we got it done very quickly. Actually that first year that we started we

just had the first module ready before the students came in the door so we were hitting the ground running really, we had no time to look at it, to evaluate it, to think about it very much. We just started with it you know.

Was it very much a team effort?

Oh certainly yes, I had three other people working on the module with me and we all had different elements and sections of the text to produce. It was not as if we didn't have the material already, we had it in the format that we would be used to for lecturing face-to-face but it's not the same thing. In a lecture you can decide to change something before you go into class. You can decide even the content if something had been updated yesterday from a Department of Health Circular you can put it into your lecture not a problem, but when you are actually developing a text for an online programme, you are developing almost a year in advance so you have to be sure that its really up to date and that all the links are live and everything is working you know. It takes an awful lot more effort I think to have the whole thing ready, it's not just piecemeal. So everybody did put a lot of effort into it I must say and we were a very good team when there were timelines involved and people did really help.

How would you describe blended learning or what does the term mean to you?

To me well, it's not just online, blended learning to me is a mix of online plus self-directed plus reading plus face-to-face so it's probably the best type of learning I would say because it has the flexibility or students being able to do work on their own time but also has the importance of meeting with your lecturers, of meeting with your peer group and I think that's a real help when it comes to Postgrads because I think they feel a bit isolated you know and having that kind of interaction is good. Blended is the mix.

What percentage of the current course is blended then would it be 50/50 60/40 70/30 approximately?

Approximately I would say, I suppose for a 10 credit module you have two days in class with us, a number of hours, I can't remember, I suppose it would be 60/40 maybe I would think, but I would say that most of it would be online.

If we can move onto discuss interaction, can you tell me about the level of interaction on the programme, would you find that you have more interaction or less with the students now or is it more or less engaging that face-to-face or how does that play out?

It's different, it's a different type of interaction but I wouldn't say that it would be any less. I would say that I'm more aware that I have to interact online you know, I'm more aware that students might feel isolated and I would feel very responsible as a module leader that I would keep that communication and connection with the students at all times and keep them engaged with me and the content of the module and them knowing that I am there, that's really important. If you are face-to-face it is very easy to do that because in Nursing I suppose we are very personable anyway so you would have the chat and let them makes themselves relax in class and then they are able to come to you with any problems whereas when its online if you don't engage with them on daily basis or even more than that sometimes just to keep them interested and also to show that you are there to support them. I think the type of interaction is important, like it isn't just being very formal, I think you need to be very friendly in the interaction and that's something that I had to learn. **Okay!!** I can do it verbally easily but writing you find that you formalise things very easily, I know I do anyway for e-mails particularly, I formalise my e-mails because I think it's important, it's a record you know. With the interaction online, I learned over time that if I was more friendly they were more inclined to come back to me you know and I did an online learning course myself during this summer, just a quick course about how to teach online myself and I learnt even more about the types of words that you would use then but I actually had learnt while I was delivering this module in the first year I learnt to change the way I interacted with them verbally online.

You mentioned there that you are conscious of isolation and students. Would you feel that there is a kind of community of learner spirit in the fact that they share ideas with each other and they come on-board? Is it conducive to that where they actually discuss and share with each other?

I think you have to facilitate it, you know as a module leader or as a coordinator it's not automatic. Although some, I suppose maybe, again I would qualify this by saying not all students are the same and maybe the more the younger generation are more inclined to be engaged in a social media type way whereas the older students, we would have many students on this programme that would be of all ages from early twenties to late twenties maybe up to fifty something, so you have different abilities and different ways of dealing with IT etc. knowledge etc. and I suppose ease with use of IT. You find that some students are very good to interact with each

other but I think if you don't provide the mechanism of how they can do it, I don't think they will, they might do it outside of the programme and then you don't know what's happening. So as a module leader I was happy to see them, I was encouraging them to interact with each other online and discussion boards and I could see what they were doing then, talking to each other, but maybe they had other ways of doing it as well, e-mailing each other **Yeah!!** and meeting during class, meeting during breaks etc. and that was encouraged as well.

Very good, so I was going to touch on the strategies next, it's not only just blackboard, there's e-mails as well directly to you as course leaders and ye would e-mail vice-versa?

Yeah**,** well we would have tried not to have them e-mailing us too much as you would have no time, it's not realistic to have each individual student e-mailing, so what we did is that we set up a discussion board on blackboard especially for communication with the module leader, so it wasn't used as some kind of assessment or anything, it was a forum where they could ask questions but if they wanted something private and they were told that in class, that if it was something that they didn't want others to see and that was really important to them they could of course e-mail the course coordinator or module leader at any time for that reason. If it was to do with the module and the content and they just wanted clarification about something like the assignment or something they are better off to communicate within the discussion board, **Okay, and it's not, only lecturers who get back to you on the discussion board, a few other students may answer their queries also!** Well, they could have yes and sometimes they did, you know if it was a query like you know, does anyone know when you should do such and such a thing then a student might get in there and answer it before you do and I found that happening more often this year as I did last year where you have these very enthusiastic students who have the answers and they say well we don't have to wait for the module leader to answer, I know this and they say thanks very much and then they feel they can actually interact with each other. Last year I suppose that didn't happen as much as this year I noticed now I must say.

What would you think of the student's online experience to date from your point of view or how do you know how they are getting on?

How do I think that they are getting on within the course? **Yes**. I think fine, I think that they are well able to manage it, I think a lot of it has to do with originally a little bit of fear maybe of not being able to handle things on their own but then when they realised that they weren't exactly on their

own that they had a lot of interaction and engagement they were okay I think yeah!

Would you have evidence to support that blended learning is helping their progress?

Oh yes, definitely, well I know anecdotally from the students through feedback that they like the interaction in class, they like to meet each other, they like to see the lecturers, they like to think that they are part of UCC you know that kind of thing but they also like and a lot of people you can see from the engagement statistics they engage at night time, they are on night duty where it's 1 o'clock in the morning, you can see the times that they are logging in and its helpful for them. They do say that, that flexibility of being able to login at any time of the day, do their work then, do their reading you know especially people who are working fulltime and especially people who have families, they found that late at night and during work time on their breaks that they found it very flexible.

Can you tell me a bit about posting and accessing material online for students, has that been an issue or is it just generally at the start of the year I imagine they get some orientation, Oh god yeah!! **because you touched on that some students are undergraduates feeding into this course where you have other students who have left education for maybe 15 or 20 years and are returning to education who wouldn't be familiar so in a sense you would have digital natives** Oh Absolutely! **who would be very much used to it and you would have digital immigrants then on the opposite end of the scale, so it there an orientation provided at the start of this course?**

Oh definitely, absolutely, yes, we found that even for face-to-face learning, students need orientation now. From the very beginning we started with an orientation for Gerontology students anyway and that then was built as we discussed developing the online programme, it was absolutely imperative that we had orientation to blackboard in a virtual learning environment because we knew that a lot of them as you say were coming back to education and wouldn't ever have had the experience of using blackboard whereas others would you know but then it's a different type of use of blackboard as well whereas in previous years with the undergraduate programme we would just upload their lectures on blackboard in a certain part of blackboard where they would have their materials and that's all there was to it, there was nothing else. We used blackboard for them to access their hand-outs let's say or some paper we wanted them to read or whatever whereas this was far more engagement with blackboard and they really needed to understand where to go, how to find it, what would they do

if they had an issue with it so [redacted] was fantastic our Learning Technologist, we really needed him. I think it's just the technical aspect, if anything went wrong, he was there and he replied to the students if they communicated that there was something wrong; **A technical issue?** Yes and he would see that and he would answer it immediately and that was a great weight off my shoulders, I didn't have to worry about anything technical, even for myself, I had technical problems myself at first. **Is the instructional designer solely assigned to this course?** Yes, well actually not just this course actually the school itself and any of the programmes, he is supporting blended learning.

Can we discuss assessment, can you describe the methods of assessment utilised on the course? Would it be multiple choice, presentations, discussion postings, peer/self/tutor evaluations, how are assessments carried out?

Through the whole programme? **Yes throughout the Programme.** In my module it is an essay and some e-tivities, some activities and the first e-tivity is getting them to peer communicate with each other and make a comment on someone else's post, that's what's included in the first e-tivity. I ask them to read something and come back and comment and then somebody else comments on their comment, just one so that it gets them to evaluate each other; **so it's a form of peer assessment so?** Yes it is, I suppose it gets them to communicate with each other as well a bit as well. The other e-tivity then is a bit more on the academic side where you want them to actually go off and read certain material and then come back and comment again on it and also use referencing as it's more theoretical so it gets a bit more complicated, more academic and then the final assignment is an essay, a case study in actual fact where they are given, they are asked to go and develop a case and apply the theory and the knowledge; **so it's kind of a staged approach to build on their academic writing as once again students may not be used to academic writing,** they do actually get tutorials on academic writing as well that's particular for them, referencing that's not just included. The module actually starts with the particular subject a specialism whatever, so we don't devote any time within the module to academic writing, we will correct people and help people as they go along but their actual tutorial is outside of that during their orientation time and that's important because I think it's a short period enough to have to cover a 10 credit module so you need to give people a lot of pace in between and space.

Who devises the assessments, is it a team consensus, do ye come together?

Yes, the team within the module, we get together, we look at what we had maybe written as an assessment in previous years, we look at how well they worked and particularly now for this year we changed the assignment title, we didn't change the type of assignment but we also changed the e-tivity and we look at now when we go back to evaluate the module, we look at how that worked and did it work as we wanted it to as we have an outcome, you have something at the end that you hope to gain as an assessment of their knowledge rather than just an assessment of their ability. **So you are constantly reviewing and updating**? Absolutely, and then there might be certain parts that we might like to focus on for this year rather than you know what we did last year, something that's more topical you know. The module is quite broad, there a lot of theories of ageing in it, topics like socially interesting, psychological and biological, we don't always focus on the biological side as we like to make it more holistic particularly.

In your opinion are assessments appropriate for the module in the sense that they actually catch a broad spectrum of formative and summative?

Oh yes, absolutely, and if you go past the whole module and look at the programme there are so many different types of assessment with presentations and essays but we don't have an examination, **No formal exam at the end?** No formal exam but for the assignments we use Turnitin as a mechanism for submitting the final assessment.

Do you think that the online aspect of the course impacts on your workload? Do you find it's more time demanding, does it take a lot of time to get things up and running? Once it's up and running are you finding it now that it's not so bad in comparison to face-to-face and do you feel your part of a team here, a good well-structured team and you are not isolated on the course?

Oh yeah, well there's a few things there. You have the materials all prepared, that's for sure before you start and that doesn't always happen when your face-to-face teaching, you might be preparing it the week before or a few days before but you have it prepared but it still doesn't take from the fact that you still might have to update material because it's a year old or it's a few months old. You might want to upload some new reading material or whatever as you go through the modules but I certainly think it doesn't reduce your time, to have an online course. It doesn't because you are still interacting with the students online, you might be on your own, in

your office but you still have to spend the time interacting with them and you have to think how you put things because you're writing. **Would it be more demanding, the blended learning course on your time as opposed to a fully face-to-face module?** No I don't think so, they are different demands. Okay your time when you're teaching face-to-face, you have a timetable and you have to be there whereas the online you can be more flexible, you can do it, whereas we do try not to set a precedent thought of having after 5 and before 9 but if you really wanted to do that. Now for example I was away this year at a conference in Europe during the time that this module was being taught and I was able to login and still teach the module, interact with the students and answer their queries even though I wasn't in the country at all and I couldn't do that you know, you are always available to them that's the thing you are always available to them and I think we are becoming more and more like that where you can't get away too easily from anything but that's a good thing if you're a student because the expectation I presume is that your tutors even if it's online they are still available to you which is a good thing and I think it gives them a lot of confidence and reassurance.

How do students know how they are progressing on the course?

Well they do get feedback from their e-tivities, that's fairly quick, it's a quick turnaround result and the feedback from the e-tivities as they go along and then their final assessment within six weeks they get their result.

What form would the feedback take, would it be written comments on the document?

Well its online, we do online assessments, we have an assessment rubric that we use that we all agreed to and then we have comments as well. If you are using Turnitin, you can use automatic comments but you can also write in a comment box. You also, when you are giving feedback on the e-tivities there's a part of the discussion board, but when you are actually giving feedback you can write a comment in your own writing as well or else you can also comment in the discussion board on the communication with students, you know 'I noticed that you haven't engaged with the you know whatever, contact me if you have any issue' then of course there are the statistics that are gathered from using blackboard where you know where the people are and you are alerted if they are not engaging with your module as much as they should, so there's a lot of different ways and I suppose the feedback is given; **and it's a quick turnaround for the students?** It is yeah, they are told when to expect the feedback you know, the date that they will get it.

Just before I conclude, I have one or two more questions I'd like to ask, how would you compare this blended learning course to the previous traditional non-blended learning course that you would have taught? How would you make comparisons, how have you found the changeover?

I suppose as you and as everyone else was taught in the teaching mode of interacting in class and changing things if you feel the class dynamics are different you can change to a group session or something else, you could put a case up and let's discuss this or whatever. You are constrained by the way it's written and the way the programme is delivered in that particular way , we can't deliver it any other way except the workshops I think you can make different if you wish because we did actually change this year from what we did the previous year. We thought maybe it might work better because they like to work in groups and when given the opportunity to work in groups they always come back with the feedback, it's always better. How have I found it? I do like teaching face-to-face and I miss that teaching but I still think that given that the online or blended learning gives more flexibility to students, we have to weigh that up and you will have more students coming on board if they can access the course in different ways. So I think the blend is important, I wouldn't get rid of the face-to-face ever because I think students, unless they are in Australia or something, but students will always benefit from face-to-face, at least even meeting their tutors, saying they were part of UCC, being on campus, having that experience, that's very important being a student and having that experience.

Finally just before I finish, what advice would you offer to other faculty members who are contemplating or planning to design and implement a blended learning course from your experience?

Time, give them plenty of time, get a good team and set out, it's a project, it's not going to happen very quickly. You have to say you know, this is the first module, we will look at how we are going to develop that into blended learning. We have a template here which is good, when you are starting from scratch it is not easy. We have got a template here that works really well and I would say go with the template but give yourself plenty of time, divide up the work because it's going to take a while, you need to research all the material and be absolutely up to date and all the bibliography, we have a very good librarian as well here, I think you need your instructional designer, you need a very good librarian, you need a team that will work very closely together and to a timeline and definitely plenty of time. You need to start the year before the programme if possible. Start writing the text and getting the module written up, if you could start then people are not under pressure, start the year before. I suppose just talk to people who

have done it because that will help you, even the text proforma, what worked what didn't work because we were the guinea pigs, the first module and we learnt an awful lot from doing that so I think yes, definitely sit down and talk to people and discuss how it should work.

That's great. That brings the interview to a conclusion. Thanks very much for your time [redacted]. The time is now 1:35pm

End of Interview

Time: 25 Mins

Appendix H Project Proposal

TITLE

Attitudes towards Blended Learning in a Leading University: An Exploratory Study

DESCRIPTION OF THE PROJECT

Aims of the project:

Information Communication Technology (ICT) has witnessed an expansive growth in all aspects of modern society and has played a major role in the popularity of blended courses. Blended learning is a mix of online and face-to-face learning and involves the combination of multiple approaches to teaching with two main fields of concern: technology and education. Despite the increase in blended learning courses being offered by higher education institutions, current literature fails to the give due consideration to the potential gap in the blended learning experience. This study aims to explore, analyse and compare the blended learning experience in higher education due to the shortage of programme wide research, a gap which this work attempts to address.

This research will focus on the introduction of a blended learning approach to the delivery of two new postgraduate programmes in a leading University. The knowledge gained from the perspectives of key stakeholders will contribute to a better understanding of both the importance and the practice of blended learning along with the practical implications and pedagogical foundations. This study will focus on current assessment methods utilised in higher education, examining it from the point of view of what assessment does and investigates the role of assessment in courses that have embraced on-line technologies to better prepare students for lifelong learning. It will look to the future exploring potential in new forms of assessment and e-assessment and focus on how we can improve assessment and feedback practices in a technology-enhanced learning environment.

It is envisaged that the findings will have practical implications for course designers and educators and theoretical implications for blended learning frameworks that informed it. The aim of this study is to review existing research and practice on blended e-learning and assessment, conduct case study analysis and make recommendations to guide future policy, practice and research.

Brief description and justification of methods and measures to be used:

Case study research is suitable for this study as it will produce more comprehensive knowledge that will inform the blended learning design. A trademark of case study

research is the use of multiple data sources, a strategy which also enhances data credibility (Patton, 1990; Yin, 2003). This study will use a qualitative design which allows the researcher to analyse process, rather than outcomes or products. In this type of research the researcher increasingly uses a 'theoretical lens or perspective' (Creswell, 2009) which provides an overall orientation for the study. The goal of this research is to investigate how things look from different vantage points, where the learner's perspectives are just as significant as the educators. While Creswell (2007) asserts that qualitative research is more difficult to conduct than quantitative research it gives voice to participants and allows educators and researchers to view programs directly through their eyes and provide insights and perspectives that are impossible to achieve with quantitative methods alone.

Data collection will be carried out through interviews and documentation/archival records to produce analysis and make recommendations based on this analysis. Data from these sources will be converged in the analysis process and will enhance data credibility. The use of semi-structured interviews in this study will help to investigate participant's perceptions of their experiences and social worlds. The use of multiple methods of data collection will help to triangulate findings by making comparisons with findings from co-ordinator, lecturer and student interviews and documentation. The comparison of themes across the data sources will support the construct validity of the study.

A pilot study will be carried out initially utilising the interview schedule attached. The use of a pilot study will help to test data collection methods and further refine the instrument used.

Participants: recruitment methods, number, age, gender, exclusion/inclusion criteria

The sample of participants will be drawn from students enrolled on postgraduate blended learning courses/modules in a modern University. The pilot study will consist of between 2 and 4 postgraduate students while the final study will survey in the region of 15-20 students. The age of participant will vary from 20 - 40+ and it is hoped that a good gender balance (in the context of a typical cohort) between participants will be achieved.

Concise statement of ethical issues raised by the project and how you intend to deal with them

As this study is carried out in real-life events and circumstances, close attention must be attributed to ethical considerations. Therefore it is essential that in the conduct of this research, permission be sought from all participants and anonymity guaranteed. Permission letters will be distributed to all participants prior to conducting interviews. Participation will be on a voluntary basis and participants may withdraw from the research at any time and for any reason. To ensure confidentiality and

anonymity, codes will be applied to collected data and aliases be used in the project report if necessary.

How you will obtain Informed Consent

A consent letter will be issued to all participants prior to interview. Each student participant will be briefed prior to the interview and will be informed about the nature of the research with an accompanying cover letter. By participating in the study it will be assumed that the student has agreed to the conditions described and is willingly volunteering to participate in the research.

Outline of the debriefing process

Participants will be debriefed at the end of their participation. The debriefing information will follow immediately after the last question in the interview. Participants will be thanked for participation and more information as to the purpose of the study will be provided. The researcher's contact information will also be included in the debriefing section if they request any additional information.

Estimated start date and duration of project.

This PhD commenced in July of 2012. It is envisaged that the pilot study will be conducted in April 2014 with a view to conducting the initial full scale interviews at the end of the Autumn Semester (Teaching Period One). Participants will be re-interviewed at the end of the Spring Semester (Teaching Period Two). Following on from the data collection, results will be analysed and findings provided from the data. Coding in NVivo will be used when all interviews have been transcribed allowing for the tracking of ideas and emergence of subtle trends. Final chapters will then be written up, including research papers and it is envisaged that the final thesis will be ready for submission in May 2017. It is envisaged that joint output with the programme team will include a teaching and learning workshop (e.g. under the auspices of Ionad Bairre) and a case study publication.

Appendix I Audit of Programmes

Overview of programmes of study available by distance learning at this institution

Programme	Department/School	Blended Delivery	Online Delivery
Autism Studies (Cert/Dip)	Arts, Celtic Studies and Social Sciences		✓
Co-operative and Social Enterprise (MSc)	Business & Law		✓
Credit Union Business (BSc)	Business & Law	✓	
Dairy Technology & Innovation	Science, Engineering & Food Science	✓	
Digital Cultures (MA)	Arts, Celtic Studies and Social Sciences		✓
Economics-Health Economics Practice (PG Dip)	Business & Law		✓
Freshwater Quality Monitoring and Assessment	Science, Engineering & Food Science		✓
Gaelic Literature (MA)	Arts, Celtic Studies and Social Sciences		✓
Gerontoligical Nursing (PG Cert)	Medicine & Health		✓
Government & Public Policy (MComm)	Business & Law		✓
Health Protection (PG Cert)	Medicine & Health		✓
Mathematical Modelling and	Science, Engineering & Food Science		✓

Programme	Department/School	Blended Delivery	Online Delivery
Scientific Computing (MSc)			
Marine Renewable Energy	Science, Engineering & Food Science	✓	
Masters of Public Health (MPH)	Medicine & Health		✓
Medical-Surgical Science (MCh)	Medicine & Health		✓
Medical-Surgical Nursing (PG Cert)	Medicine & Health		✓
Medical-Surgical Nursing (MSc)	Medicine & Health	✓	
Music-Digital Music and Media Composition (MA)	Arts, Celtic Studies and Social Sciences		✓
Nursing-Gerontological Nursing (PG Dip/MSc)	Medicine & Health	✓	
Nursing-Oncology (PG Cert)	Medicine & Health		✓
Nursing-Oncology (PG Dip/MSc)	Medicine & Health	✓	
Nursing and Healthcare Quality Improvement (MSc)	Medicine & Health		✓
Occupational Health (MSc)	Medicine & Health		✓
Older Person Rehabilitation (MSc)	Medicine & Health	✓	

Programme	Department/School	Blended Delivery	Online Delivery
Paramedic Studies (BSc Hons)	Medicine & Health	✓	
Pharmaceutical Technology and Quality Systems (MSc)	Medicine & Health		✓
Pharmacy-Clinical Pharmacy (MSc)	Medicine & Health		✓
Psychology-Work and Organisational Psychology/Behaviour (MA)	Arts, Celtic Studies and Social Sciences	✓	
Strategic Strategies (MA)	Arts, Celtic Studies and Social Sciences		✓
Teaching and Learning in Higher Education (for third level teachers) (PG Cert)	Arts, Celtic Studies and Social Sciences		✓
Technology Enhanced Learning for Health	Medicine & Health	✓	