THE PEDAGOGICAL REASONING UNDERPINNING THE ADOPTION AND NON-ADOPTION OF THE FLIPPED CLASSROOM MODEL IN NEW ZEALAND HIGHER EDUCATION INSTITUTIONS

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Abstract

Research evidence suggests that active learning and student engagement are important considerations in teaching and learning environment within higher education. Notably, existing research has frequently focused on the design of teaching models/approaches that could provide more flexible and focused learning opportunities for learners on campus and at home. The Flipped Classroom Model is considered one possible model that promotes active approaches to teaching and learning and can help increase the levels of students’ interaction in the classroom. However, the introduction of the Flipped Classroom Model in higher education has received both positive and negative responses from the main stakeholders, lecturers and students. Studies have found that teacher attitudes and their beliefs about teaching and learning determine the adoption of any instructional methods. In addition, barriers and/or challenges in implementing new instructional methods have also been found to affect teachers’ response to pedagogy change.

The objective of this study was to investigate the pedagogical reasoning underpinning the adoption or non-adoption of a Flipped Classroom Model in higher education. The study explored what influences the teachers’ adoption of the model and what drives or inhibits adoption. In addition, contextual factors that foster and undermine the adoption of the flipped model are identified.

The research design utilised a mixed-method approach using a convenience sample of lecturers teaching in three universities in New Zealand. Individual, semi-structured interviews and questionnaire data were collected. The data collection and analysis process produced a rich set of data that provided a multi-layered view of the participants, both of adopters and non-adopters of the Flipped Classroom Model.

Findings indicate that the pedagogical reasoning underpinning the adoption and non-adoption of a Flipped Classroom Model within higher education was multidimensional. Participants’ positive attitude towards technology-based instruction in general and disinterested attitude towards the implementation of Flipped Classroom Model were shown to co-exist. The emphasis on technology use, especially the use of video-clips as opposed to live lectures, and a lack of understanding of the Flipped Classroom Model concept may be possible reasons that some participants steered away from adopting the model. In addition,
assumptions about students’ inability to embrace autonomous learning were also shown to be reasons why some participants did not want to adopt the Flipped Model. A range of other factors also undermined the adoption of Flipped Classroom Model, most notably, time pressures, lack of institutional support, and general ideas about pedagogies for effective student learning.
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“Don’t try to be the best. Just do your best”
-Sadhguru

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1 http://isha.sadhguru.org/
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This thesis is dedicated to my husband, Raja Sivam, my two beautiful children; my son, Vishvan and my daughter, Shanaya Sanvi. Also, to my best friend, Audrey Santana. I am who I have become because of these special individuals. These beautiful souls lighted up every tunnel that I travelled, with love, and support. Thank you.

Audrey,
Because of you,
I laugh a little harder,
Cry a little less, and
Smile a lot more.
Friendship forever and
Love you always
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- This journal article is based on the data presented in chapter 4

Book Chapter


- This chapter is based on the challenges section in the literature review

Presentations


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CHAPTER ONE: INTRODUCTION TO THE STUDY

This study is about a relatively recent development in teaching and learning, initially referred to as the ‘Flipped Classroom Model’ by those who coined the phrase (Bergmann & Sams, 2014; Abeysekera & Dawson, 2014; Pierce, 2012; Siegle, 2014) and more recently transforming into ‘Flipped Learning’ (Bergmann & Sams, 2014). There is a great diversity of how these terms are used and interpreted. This will be more fully explored in the literature review chapter. In other articles, the terms ‘Flipped Classroom Model (O’Flaherty & Phillips, 2015) ‘Flipped approach’(Hamdan, McKnight, McKnight, & Arfstom, 2013; Flipped Learning Network, 2014), or ‘inverted class’ (Lage & Platt, 2000) are used. To orient readers who may be new to this area, this definition may provisionally provide some indication of these terms:

The Flipped Classroom is a hybrid approach to learning, using video recording to move lecture-type direct instruction to ‘self-directed’ status and using face-to-face classroom time to interactive learning (Missildine et al., 2013)

From here on, the term “Flipped Classroom Model” will be used. In this chapter, I will provide the rationale for the study, the context, and the objectives of the study.

Rationale for the Study

More and more lecturers and/or institutions are adopting the Flipped Classroom Model (O'Flaherty & Phillips, 2015). In fact, some writers have predicted the Flipped Classroom Model may become a popular pedagogy in higher education (Abeysekera & Dawson, 2014; Davies, Dean, & Ball, 2013; Lo & Hew, 2017; Moravec, Williams, Aguilar-Roca, & O'Dowd, 2010; Roehl, 2013). Institutional rationales for adopting the Flipped Classroom Model typically relate to enhanced learning outcomes, students’ active engagement, faculty satisfaction, and flexible learning opportunities (Betihavas et al, 2016; McLaughlin, Roth, Glatt, Gharkholonarehe, Davidson, Griffin, & Mumper, 2014; O'Flaherty & Phillips, 2015)

A review of the literature on the Flipped Classroom Model revealed several gaps with regard to adopting the model. For example, there are few published, controlled experiments comparing course instruction in a Flipped Classroom Model to a traditional, lecture-based
model. Another issue is that few studies focus on the perception of teachers/lecturers regarding adopting and/or not adopting the Flipped Classroom Model, in particular in higher education. However, student engagement, performance, and learning activities in a Flipped Classroom Model in comparison to the traditional classroom model have received some attention (O’Flaherty & Phillips, 2015). In considering these gaps, more research into the perception of teachers could contribute to a better understanding of what they perceive to be the challenges and opportunities.

One reason why some teachers may resist adopting this new teaching approach is that they may find using technology challenging and complex. Frustrations with the technology and time constraints due to the other responsibilities have all been identified as possible factors influencing teachers’ decisions to withdraw from adopting innovative teaching approaches (O’Flaherty & Phillips, 2015). Recent research has documented factors that are likely to contribute to resistance to technology adoption: Institutional strategy (e.g., purpose for implementation and degree of implementation); and support for adoption (e.g., providing technical and pedagogical support) (Porter, 2016). Other reasons may include not being convinced that using technology matters in teaching and learning (Butler, 2002). With regards to the technology adoption issues, adopting the Flipped Classroom Model in teaching may therefore meet with resistance among teachers (Betihavas, Bridgman, Kornhaber & Cross, 2016; Long, Cummins, & Waugh, 2017).

For many teachers, the Flipped Classroom Model is seen as synonymous with the use of technology in general, particularly videos (Overmyer, 2014). For others, it seems synonymous with lesser contact time with students. It is important to note that the Flipped Classroom Model does not necessarily reduce contact time, but reformulates the contact time with learners (Little, 2015) and can support traditional in-class activities (Herreid & Schiller, 2013). The use of videos in the Flipped Classroom Model is a choice. There are a variety of methods to achieve student engagement, active learning, and autonomous learning among students. However, the use of video offers teachers a new way of learning where learners are able to pause, rewind and fast-forward their lectures (Bergmann & Sams, 2012; 2014).

If teachers are the key to success or failure of educational changes and the decision makers, then understanding the perceptions and concerns of teachers is important, especially when
trying a new pedagogy (Herried & Schiller, 2013). If these conditions are met, teachers are more likely to be motivated and attempt to try new pedagogy (Deci, Vallerand, Pelletier, & Ryan, 1991).

Successful implementation of any educational change depends on various factors such as a perceived need for a solution to a problem or issue, and the quality of the suggested programme (Fullan, 2015). As for the implementation of the Flipped Classroom Model, a few studies have identified why teachers were not adopting the Flipped Classroom Model. For example, Betihavas et al. (2016) conducted a literature review in nursing education research. They classified three main challenges pertaining to the adoption of the Flipped Classroom Model: student-related, faculty-related and operational challenges (Betihavas et al., 2016). Similarly, O’Flaherty and Phillips conducted a broader literature review and identified student, teacher, economic, and time (O’Flaherty & Phillips, 2015) as challenges. These two reviews highlighted some overlapping themes as well as many similar issues that relate to the adoption of the Flipped Classroom Model. For example, operational factors can be classified as content coverage expectations, departmental policy and management, and infrastructure (Betihavas et al., 2016; O’Flaherty & Phillips, 2015). On the other hand, factors that were identified in O’Flaherty and Phillips (2015) study related to the teacher factor; time constraints, lack of experience, and preferred teaching methods. In addition, factors that relate to the students were responsibility, intention, motivation, and resistance (O’Flaherty & Phillips, 2015). Based on these factors from both reviews, there were many challenges identified with regards to the implementation of the Flipped Classroom Model.

Fullan (2015) pointed out that teachers are the primary agent for the success or failure of any educational change implemented. After all, teachers are the primary pedagogical decision makers (Graham, 2007; Herreid, & Schiller, 2013; O’Flaherty & Phillips, 2015; Porter, 2016). While Flipped Classroom Model proposed learner-centred instruction (Bergmann & Sams, 2014), some teachers may not be ready to make that change (Betihavas et al, 2016; Hutchings & Quinney, 2015; O’Flaherty & Phillips, 2015). To ‘flip’ a class, teachers need to give students the control of their own learning, but not all teachers feel comfortable in doing so (Betihavas et al, 2016; Findlay-Thompson & Mombourguette, 2014; O’Flahery & Phillips, 2015). For example, teachers may have the fear of looking stupid (Matthews, 2017) or incompetent handling the technical issues in front of the class.
(Betihavas et al., 2016; O’Flaherty & Phillips, 2015). This could be an issue for the teachers; they may feel uncomfortable (Findlay-Thompson & Mombourguette, 2014).

Some research involving the Flipped Classroom Model has recognised the importance of considering teachers’ attitudes and experiences if institutions adopt pedagogical change. However, research on Flipped Classroom Model adoption has to some extent neglected the instructors’ pedagogical perspectives (Hermanns, Post, & Deal, 2015; Long et al., 2017). In addition, while some researchers have focused on barriers to the adoption of Flipped Classroom Model relatively few have examined the factors that facilitate or impede teachers’ adoption of Flipped Classroom Model (Chellapan & van der Meer, 2015; Herreid & Schiller, 2013).

The available research tends to adopt a limited view of pedagogical designs with a strong theoretical underpinning and/or lack of pedagogical principles to guide the design when adopting new pedagogy (Abeysekera & Dawson, 2014). However, scholars have explored many different issues related to teachers’ adoption of various types of educational technology such as: how does gender matter (Chen, Yang, & Hsiao, 2016); issues and barriers of adoption of instructional technology in higher education (Abrahams, 2010); use of open educational resources (Mtebe & Raisamo, 2014); distance education (Chen, 2009) and social networking sites (Scott, 2013). There is much research that examines what impedes or facilitates teachers’ adoption of technology in teaching. However, with regards to the theoretical underpinning or the pedagogical principles to guide a Flipped Classroom Model design that also uses technology to support learning is still lacking (Bishop & Verleger, 2013; Roach, 2014; Seery, 2015).

The preceding discussion has highlighted several factors that point to timeliness of this research in order to start addressing some gaps in the research so far. They include:

1. A lack of a universal definition for Flipped Classroom Model.
2. The reasons why teachers, especially in Higher Education, choose not to adopt the Flipped Classroom Model is as yet not well understood.
3. The perception and knowledge of teachers regarding the Flipped Classroom Model is under-researched.
4. The support and guidance needed by teachers pertaining to the Flipped Classroom Model, especially in higher education, is under-investigated.
Context of the Study

There is a vast amount of research that the Flipped Classroom Model is successfully being implemented by educators globally (Kim & Jang, 2017; Kim, Kim, Khera, & Getman, 2014; Roach, 2014). Many studies on Flipped Classroom Model focus on how learners actively engaged in classroom activities. This reflects the beliefs that active learning or student engagement takes place primarily through the adoption of the Flipped model. It is a belief that is well supported by empirical studies with regards to Flipped Classroom Model approach. However, one should not overlook the fact that not all learners participate in-class or out-of-class activities and neither all instructors are adopting the flipped approach. The main goal of this study is to investigate the pedagogical reasons that underpin the adoption and non-adoption of the Flipped Classroom Model in higher education. It is hoped that this study can provide a clearer picture of why teachers are adopting and/or rejecting the model in their practice. Three New Zealand universities provide the context for this investigation. Participants in this research investigation had generally had experience teaching for more than three years.

Objective

The study aimed to explore the pedagogical reasoning underpinning the adoption and non-adoption of the Flipped Classroom Model. That is, understanding teachers’ knowledge of the concept Flipped Classroom Model, challenges faced adopting the model, and also seeking to understand why some teachers resist adopting the Flipped Classroom Model.

Theoretical Foundation of the Study

In order to explore teachers’ decision making, three theoretical domains were drawn throughout this study that provide a lens for analysis. First, theories related to teacher-centred and student-centred approaches. The literature is mixed in its description of the Flipped Classroom Model from the perspective of theory. Sometimes the model is described as a method of instruction (Bishop & Verleger, 2013). At other times it is described as a specific learning theory with a focus on a more student-centred approach, often under a constructive umbrella (Bergmann & Sams, 2014). No matter how the model is viewed, it requires teachers to make at least some use of a student-centred approach. As such it’s likely
that teachers' beliefs regarding student-centred and teacher-centred learning will impact on their adoption decision-making.

Second, theories related to technology uptake. While teachers have been using Flipped Classroom Model type pedagogical approaches for some time, the affordances of technology have meant it is easier to adopt the Flipped Model. This has also led to an understanding of the Flipped Classroom Model that integrates the use of video clips and other technologies as part of a student-centred learning experience. Given the part technology plays in Flipped Classroom Model, and previous literature that shows that not all teachers are comfortable using technology, or believe it enhances learning, understanding technology uptake is likely to be a key factor in teachers’ adoption decision-making. As Roger’s (2003) identified, teachers fall into three categories of technology adoption: early majority, late majority and laggards. Which a group a teacher is in will impact on the likelihood they want to adopt new approach that integrates technology such as the Flipped Classroom Model.

Third, theories related to adoption or resistance to change. Fullan (2015) noted that any kind of educational change is complex due to the number of factors at play. For most teachers, a Flipped Classroom Model will be a change. While teachers may be encouraged to adopt a the Flipped Classroom Model, how they react to this proposed change is a key question in this study. A number of researchers (e.g., Eley, 2006; Fullan, 2015; Shephard, 2004 and Strayer, 2007) note, the challenge of change means that the teachers have to see a reason to change. At the same time, educational technology is constantly developing and has grown to be dominated by an interest in the process of how students can learn with digital technology (Selwyn, 2010). While issues related to developing and implementing effective learning using technologies is of central importance in the field of education, educators find it difficult to ignore the possibility of change that brings into their teaching and learning experiences. Teachers are placed in a position of having to respond to the technological change and make best use of technologies because they need to keep abreast with the 21st century digitized learners (Selwyn, 2010). With thousands of hours and millions of dollars being directed towards the exploration of how technology is capable of supporting or enhancing student learning in higher education (Fullan, 2015), more and more options for technology based learning (e.g., mobile learning, wikis, podcasts, video-clips) are being used for instructional purposes (Cochrane, Narayan & Antonnczak, 2016). However, with the introduction of educational technology, several issues related to adoption of technology
in teaching have surfaced. These issues range from theoretical to practical considerations, for example, pedagogical principles, implementation and effectiveness of using technology-based instruction, the role of teachers, institutional support, challenges in implementing effective curricula, facilitating web-based activities (e.g., forums, wikis, discussion), design and development of web-based tools (e.g., blended learning: video-clips), teachers’ pedagogical and technological experience, time factor and copyright issues (Abrahams, 2010; Beggs, 2000; Butler & Sellbom, 2002; Shohel & Kirkwood, 2012; Richardson, 2011). All these issues may affect their response to technological change and decision-making (Fullan, 2015). In order to understand this, it is vital to distinguish between factors that lead to people’s intention to use technologies, and those that are likely to contribute to resistance to adoption.

There are numerous models with regard to adoption theory. Major contributions to the field include Roger’s (2003) Innovation Diffusion Theory (IDT), Davis’s (1989) Technology Acceptance Model (TAM), Fishbein’s and Ajzen’s (1975, 1980) Theory of Reasons Action (TRA) and Bhattacherjee’s (2001) Post-Acceptance Model of Information System (IS) - Continuance that identify challenges in adopting an innovation. However, as a major component of this study is investigating the pedagogical reasoning underpinning the adoption and non-adoption of the Flipped Classroom Model, the aforementioned models will only be used as a lens to understand university instructors’ perceptions and the reasons why the model is either adopted or rejected. Figure 1 illustrates the theoretical framework of the study.
This study investigated university teachers’ pedagogical reasoning regarding the adoption and non-adoption of the Flipped Classroom Model reflected through teachers’ current teaching practice and the use of technology in teaching and learning. The questions guiding the investigation were as follows:

1. Is there a relationship between technology use in general and the adoption of Flipped Classroom Model?
2. To what extent does teachers’ understanding of the concept Flipped Classroom Model and pedagogy determine their adoption and/or resistance of the Flipped Classroom Model?
3. What is the educational philosophy of teaching and learning that could be the reason behind of teachers’ decisions making to adopt and/or resist the Flipped Classroom Model?
4. What are the challenges in adopting the Flipped Classroom Model?

**The Place of the Researcher**

Prior to this research, I was an educator in a range of disciplines for several education organisations within Malaysia. I worked as an instructor and a teacher trainer. In addition to teaching, I decided to expand my knowledge abroad. I undertook a Masters of Education degree in New Zealand. I completed this degree as a full-time student over the course of two years. After completing my studies, I was working as a teacher trainer. I trained pre-service
teachers and developed courses that related to teaching and learning. I used to manage my courses and communicate with my participants face to face and via electronic mail. I also used technology to facilitate group work and encourage my participants to participate in discussion forums. I realised that technology plays a vital role in teaching and learning. I was keen to learn more about technology and find alternative ways rather using PowerPoint slides and internet into my teaching. I was searching for more complex-based activities and other pedagogy innovations such as active learning techniques involving videoconferencing and using podcasts. At the same time, I realised that my colleagues had different responses to technology adoption and instructional technology, including negative reactions. Some told me that, if given a choice, they would prefer to use the lecture method for effective instruction in class because it is person-oriented and not technology-oriented. This surprised me, because some of my colleagues resisted integrating technology in their own teaching yet had strong opinions about its value for teaching and learning. This led me to search through literature on instructional technology and I came across the Flipped Classroom Model idea, and ultimately to the focus of my study on teachers’ understanding regarding flexible learning with regard to Flipped Classroom Model and on pedagogical reasoning that they resist the use of instructional technology in teaching. This decision is based on two reasons. First, studies on technology adoption among teachers (e.g., Abrahams, 2010; Beggs, 2000; Butler & Sellbom, 2002; Fuchs & Akbar, 2013; Richardson, 2011) have shown the perceived benefits and drawbacks of using technology in teaching as well as the contextual factors that affect teaching with technology. This matched my interest with how my colleagues perceived the idea of using video-clips as opposed to live lectures. Second, there is a lack of studies in the area of Flipped Classroom Model that address teachers’ perceptions of the issues related to the flipped approach especially in higher education (Long et al. (2017). My research could contribute to our understanding of how university teachers in New Zealand perceived the Flipped Classroom Model and what challenges they faced when deciding to implement the model in teaching practice.

**Thesis Overview**

The thesis is organised into eight chapters. Chapter One states the aims and rationale for the study and provides a background in which to place and interpret the research. Chapter Two
reviews the literature on Flipped Classroom Model that informs and supports the aims of the investigation. Chapter Three discusses the methodology that underpins this study and outlines the methods used to generate and analyse data. Chapter Four presents the findings of the quantitative data from the survey. This is followed by the qualitative data findings of the survey in Chapter Five. In Chapter Six, the findings from the interview data will be presented before Chapter Seven brings together the discussion of the overall findings. Chapter Eight completes the thesis by presenting the conclusions and implications for theory, research, and practice, as well as recommendations for future research.
CHAPTER TWO: LITERATURE REVIEW

This study is focused on the nature of investigating the pedagogical reasoning underpinning the adoption and non-adoption of the Flipped Classroom Model, possible relationship between technology use and adoption of the Flipped Classroom Model and factors that may influence teachers’ decision-making either to adopt or resist the model. Therefore, this chapter reviews research literature relevant to pedagogy, technology and Flipped Classroom Model. First, reviews on the Pedagogical Change and Teachers’ decision-making are discussed. Next, integration of technology into teaching and learning, especially in higher education is presented. Third, a paradigm shift that has occurred in the field of instructional technology often referred to as the blended learning approach, will be discussed. This then provides a segue into a discussion of the current interest in the Flipped Classroom Model in higher education, and a discussion about its use in instruction. Finally, the varied influences upon the adoption of Flipped Classroom Model will be discussed, such as the pedagogical, technological and institutional challenges. Finally, this chapter concludes with an overview of the Flipped Classroom Model and the factors that may impede and/or expedite the adoption of the model in higher education context.

Pedagogical Change and Teachers’ Decision-making

The introduction of technology and digital learning into education may be seen as an educational change. Teachers’ perceptions and experiences with a new teaching approach may have an impact on the adoption process if the change is not beneficial, managed and does not take account of individual needs (Fullan, 2015). Then, resistance to the change is more likely to occur. There is a need to understand why there is a need to change and what can it offer. Pedagogical change, for teachers can make a difference either in their teaching styles or strategies. Increasingly, technology becomes an essential component in pedagogy (Fulton, 2012). Constant pedagogical change demands that teachers change their strategies to meet the needs of the millennial student population (Selwyn, 2010).

Teachers are encouraged to incorporate the newest digital learning tools such as mobile, tablets, video-clips and podcasts to assist the delivery of quality teaching (Cochrane, 2014). In theory, the purpose of pedagogical change presumably is to help students achieve their learning outcomes and accomplish their learning goals. Fullan (2015) posits that a change
in pedagogy depends on what teachers do and think. He adds that to see some changes in educational setting, there should be a change in teaching practice, particularly in relation to new materials, new teaching approaches and alteration of teachers’ beliefs. However, considering change, it is important to understand what that change means to the teachers and what factors assist and/or hinder in adapting to the process of change. For change to be successfully implemented by teachers, policy makers or administrators need to understand that change involves human, not merely technological issues.

Several researchers emphasised teachers’ attitudes towards change are dependant upon how change affects them personally. Fullan (2015) asserts that is critical to understand the point of view of those involved in the change effort. Pedagogical change can be influenced by the teachers’ ideologies, in other words, by their beliefs and values (Fullan, 2015; Ramsden, 1993). For example, Flipped Classroom Model is an instructional model that can be affected by the change. One of the characteristics in flipped approach is using video-clips as opposed to lectures in the classroom. What is believed that some teachers may adopt the technology and diffused the approach among their peers, but some may resist adopting the innovation as they fear appearing incompetent at handling technology or they may fear losing control of their role as the one who delivers the knowledge (Fullan, 2015). Selwyn (2010) pointed out that technology based instruction requires not only technical proficiency but also the acceptance of the person who controls the teaching and learning, in this case the role relies heavily on the teacher. If indeed the teacher is key to the success or failure of change implementation, then the issue of teachers’ beliefs should be examined (Fullan, 2015) with regards to the adoption of the Flipped Classroom Model.

Teachers’ beliefs about their role, their learners and their discipline are important factors that determine what happens in the classroom (Biggs & Tang, 2011). There are numerous studies that show relationship between teachers’ beliefs and practice. Some studies documented teachers’ belief and decision-making (Chen, 2009), others on relationship between beliefs and teaching practice (Drent & Meelissen, 2008), and some others focused on the teaching styles, approaches, strategies and methodologies (Ramsden, 1999). Adopting a new model such as the Flipped Classroom Model as part of instruction purposes presumably relies on these beliefs factors as well. O’Flaherty and Phillips (2015) identified issues or concerns related to the introduction of the model in teaching by instructors. The findings provide insights into teachers’ attitudes that contribute to their willingness to
continue adopt the Flipped Classroom Model into their teaching practice. Some teachers assess the advantages and disadvantages of using the model primarily in terms of how Flipped Classroom Model implementation will impact on them personally rather than how it might impact on student growth (Tucker, 2012). This is about teacher’s belief and decision making. Teachers who perceived the model is no better than any other instructional models make a decision either to adopt the model or not. Those who beliefs in their own practice and espoused to teaching and learning theories that they believe work well with their learners, will also consider on their decision making adopting a new instructional approach (Fullan, 2015; Chellapan & van der Meer 2015). Fullan (2015) states that if a change to occur in a form of teaching strategies, effectiveness of the Flipped Classroom Model must be proven in terms of the personal and professional growth of all involved, and not just the student growth.

In addition, views on pedagogical change, Bogdan and Biklen (1992) state, change can be complicated due to individual beliefs, lifestyles, and behaviour which directly form into a conflict. For example, policy makers, who try to change education in a system or introduced new learning strategies, be it in a classroom or through web-based learning, seldom understand how people involved in the change process think (Fullan, 2015, Ramsden, 1993). Consequently, they are unable to anticipate the reaction of the people involved. Since it is the individual in the context who must live with the change, it is their understanding and experience of the situation that are important if change is going to work (Fullan, 2015).

On the other hand, teachers’ conception of effective teaching is influenced by their espoused theories (Orrell, 2006). Bishop and Verleger (2013) noted two learning theories that have served as methods of teaching and learning and the technological applications associated with Flipped Classroom Model. The first was known as direct instruction, which was derived mainly from cognitive learning theories and behaviour learning theories. In-class activities that take form through discussion, group learning and problem-solving are examples of direct instruction. The second view was referred to as constructivist, which was derived from the cognitive learning theories. Web-based learning such as using video-clips, and podcasts could be considered as examples of both directed and constructivist learning. Bishop and Verleger (2013) suggested, Flipped Classroom Model combine both directed teaching and constructivist approaches. To implement each of these strategies, teachers must select technology resources and integration methods that are best suited to the learners’ need.
However, a number of researchers suggested that in-class activities suggested by the Flipped Classroom Model proponents were naturally done in a traditional classroom for decades (Ash, 2012). Seemingly, the only difference is perhaps through the reduction of direct instruction (e.g. lecturing) where teacher generally dominates the classroom interaction. Whereas in the Flipped Classroom, students take in-charge and the teacher’s role is more of a facilitator (Bergmann & Sams, 2013). Hamdan et al., (2013) stated that there are many teachers who are sceptical to flip their classroom and claimed their teaching strategy is generally on the Socratic teaching methodology- teaching is more about engaging students with the in-class activities, assessing their tasks, observing their participation in the assigned tasks/activities, provide immediate feedback and facilitates students’ learning (Hamdan et al., 2013). Fung and Chow (2002) studies, found that teachers’ espoused conception of teaching do not concur with their actual classroom practices. It was found that teachers viewed their practice to be student-centred, however, they were more teacher-centred. But alternatively, how teachers think about and describe their own teaching practices may not exist as how it was described in the actual classroom setting (Eley, 06).

The classroom is a place where knowledge is shared and transmitted (Ramsden, 1999) and a space that connects instructor and the learners (Biggs & Tang, 2011). The most commonly claimed pedagogical mechanism of the Flipped Classroom Model is using active learning rather than transmissive lectures (Bergamann & Sams, 2014). However, there is also an important methodological point here. Does the possibility of moving lectures out-of-class make students do the homework? Freeman et al.’s (2014) meta-analysis of active learning versus lectures investigated the students’ performance level in the STEM course. Their studies found that students performed better in the active learning course compared with those in the traditional lecturing practice. Freeman et al’s caution can be related to Flipped Classroom Model studies in the context of teaching literature. In their own disciplinary fields, teachers are usually well schooled in the need to develop coherent arguments on any topic about pedagogical change which they wish to adopt. It would not be surprising were they asked something like ‘What if students come unprepared?’ ‘What if students prefer direct instruction than watching a clip’? that they might bring to mind whatever relevant information they could, and then construct some sort of reasoned in response. So long as such responses are used only as indicators of pedagogical change, then no particular methodological issues arise. But if such responses are used to argue something about the detail of teacher thinking, then there could be issues in teachers’ decision making (e.g.
doubts on the effectiveness of the model). In line with Freeman et al. (2014) caution, response to ‘Does active learning actually cultivates student positive learning outcomes?’ might not be direct recollections of teacher thinking processes, but rather the outcomes of reasoning about decision making adopting Flipped Classroom Model. Interestingly, Freeman et al.’s findings that compared higher education lectures and active learning in STEM disciplines incorporated both dissertations and papers and reported students in traditional lecturing more likely to fail compared to their active learning peers. The results prompted extensive reporting in educational research that questioned the further use of conventional teaching (e.g., lecturing). However, questions were raised whether there is a bias in reporting the finding in research of higher education (Dawson & Dawson, 2016). Freeman et al. (2014) data supported positive results of active learning from the published papers rather than the dissertation. In addition, there seems also to be a need to consider the impact of literature on publishing successful implementation of the Flipped Classroom Model compared to the unsuccessful ones (Dawson & Dawson, 2016), for these issues can have powerful influences on teachers’ decision-making in adopting the Flipped Classroom Model. For example, not many will adopt the Flipped Classroom Model because the literature has reported as such. Some teachers are likely to reject and/or resist the model based on their own experience or from others (Ent, 2016; Jensen et al., 2015).

Technology, Learning, and Teaching in the Higher Education Context

Over the past few decades, technology has become an important tool in the teaching and learning context which demands teachers change their practices to cater for the needs of the millennial generation (Selwyn, 2010). Most current students have grown up with technology surrounding them. Where paper and pen are slowly exiting, laptops, tablets, mobile phones are coming in to the extent that whatever human do often now involves technology (Garrison & Akyol, 2009). The affordances that technology offers have changed the way students learn, in particular in higher education. For example, in a conventional way of learning, students sit and listen to a lecture in the lecture hall, but having the technology, students can choose either to attend the live lecture or download the lecture via podcast and view the lecture at their own pace at any time (Abeysekara & Dawson, 2014; Cunningham, 2016; Scutter, 2010). With technology students no longer have to rely on the printed materials or resources; most is accessible via an LMS (Learning Management System) such as Blackboard, Moodle, or Canvas provided in their institutions.
Students’ learning habits and their learning preferences in the digital world may be directly related to the technology environment that they grew up in, however, it is difficult to assume that their teachers have had the same digitalised experience (Johnson, 2015; Selwyn, 2010). Even though technological developments have accelerated and have offered innovative modes of teaching to disseminate information to students, and even though in most institutions teachers have devoted considerable time and resources to respond to the change that technology demands, this has not always necessarily resulted in radical changes (Selwyn, 2010).

The lecture style mode still prevails in many universities as the dominant instructional approach (Buchanan, Sainter, & Saunders, 2013; Saavedra & Opfer, 2012). Teachers see it as perhaps not the most recommended practice, but as a practice they find difficult to stop completely. It is, for various reasons, teachers continuing to use it, or alternatively, having to declare a commitment to no longer use it. For many teachers it is likely that abandoning this familiar practice completely would take some time and effort (Fullan, 2015). This traditional type of teaching undergoes a series of inversions when technology is used in teaching. The most apparent transformation, for example, the blended learning, that have provided new possibilities where teachers are able to create and sustain collaborative learning communities that are not constrained by “time and space” (Garrison & Akyol, 2009, p. 20). Through this exchange, both the lecture content and the online activities are transformed in a variety of ways. For example, online content can be more visual, infused with media and provides flexibility for students. Alternatively, classroom activities, may look quite different where there will be more active learning, problem-solving, and students can work either in groups together or individually. The incorporation of technology, such as video-clips, or any learning media into teaching may demonstrate a shift from the centralized presentation of content (e.g., lecturing) to a more active learning.

Equally important, teacher presenting content in the classroom (e.g., lecturing) has the benefit of providing a sense of teacher presence in the classroom environment. On the other hand, the incorporation of technology and varied teaching aids (e.g., video-clips, and audio) out-of-the classroom present students with different perspectives and additional choice. Thus, the teacher’s role shifts, changing from being a didactic expert and teacher who facilitates and guide students towards their learning. However, it must also be noted that
calling for a shift from traditional type teaching to a more active learning is not new and has been around for decades (Biggs & Tang, 2011; Fullan, 2015; Ramsden, 1993). So where does the incorporation of technology fit into all these concepts? It is not that no one thought of or tried innovative teaching and learning practices before. However, due to the technology affordances, teachers are able to access technology learning tools that can make teaching practices easier for teachers. Also, assuming that the tools are the only way to achieve student learning outcomes is not acceptable as well, but they do offer new alternatives and benefits to both teacher and student (Prensky, 2001). Nevertheless, it is a valuable tool that will prove beneficial into the future of teaching and learning.

The concept of the Digital Native (Prensky, 2001) has led educators to believe that the millennial generation is profoundly proficient in using digital technologies, however, some studies have reported that this is not necessarily the case (Cochrane, 2014; White & Cornu, 2011). Studies conducted by Cochrane, Narayan and Antoneczak (2016) on mobile learning found that students do not utilise the mobile social media as critical educational tools or for sharing multimedia content to the full extent, in fact the use was limited to social networking (e.g. Facebook) and media consumption (e.g. YouTube). If technology only used to access traditional forms of lecture content then technology is not really enhancing their educational engagement and experience (Massingham & Herrington, 2006; Selwyn, 2010). Hence, the role of the teacher is still critical and important in order to support student learning experiences (Cochrane et al., 2016). In contrast, if technology is to act as a catalyst to change instruction, then teachers may be willing to adjust their teaching approach and style and create environments that provide various learning opportunities that can influence students’ attitudes, for example, by developing teaching styles that can motivate students rather than generate boredom in the classroom environment (Massingham & Herrington, 2006).

Higher education and instructional technology

In recent decades, institutions of higher education have promoted educational technology to transform teaching and learning (Selwyn, 2010). Students do not have to be in a particular space at a particular time to receive their education. In fact, technology offers synchronous and asynchronous settings where students can choose either to be present in a particular learning space (synchronous) or not present at the same time or place (asynchronous)
(Cunningham, 2016; Howard & Scott, 2017). In addition, with technology, the modes of delivery are not necessarily restricted to one particular mode of delivery (e.g., lecture), in fact they can be varied. For example, the use of e-learning tools such as podcasts, video links, discussion forums, blogs, wikis, and learning management system (LMS) allow teachers to upload digital learning materials and resources easily which provide flexibility to the teaching and learning environment (Conole, de Laat, Dillon, & Darby, 2008). On the other hand, Laurillard (2008) pointed out, “education is on the brink of being transformed through learning technologies; however, it has been on that brink for some decades now” (p. 1). Despite a long history of technology, many of the fundamental elements of learning and teaching remained ‘untouched’ by the potential of educational technology (Selwyn, 2010).

As much as in the past, educators and researchers continue to stress that pedagogy must drive technology (Rourke & Coleman, 2011). They continue investigating and reporting on the many possibilities, benefits, and limitations of integrating instructional technologies into effective lessons for their students (see, for example, Kirkwood, 2014; Shohel, 2012). Other studies investigated what factors or issues that impede or facilitate technology adoption into the teaching and learning environment (Hodgson & Shah, 2017; Ngimwa & Wilson, 2012). Several other indicated that technology is used to enhance student achievement (Stein, Shephard, & Harris, 2011) while some have indicated that using technology may not result in such improvement (Jacobson, 2006). While similar tensions between using technology in teaching and the reality of teaching can be found within many areas of educational technology, a particular resilient of cognitive dissonance appears to pervade the educational technology (Selwyn, 2010). As such, teachers continue focusing on what best can the technology offer (Shohel & Kirkwood, 2012) but occasionally acknowledging the barriers that are presumed to be restricting the use of technology in practice (Stein, Shephard & Harris, 2011). Research related to online learning and distance education as an example, provides some worthwhile insights into the use of technology in education.

Xu and Jaggars (2013) conducted a study that focussed on a course completion involving 24,000 students across 23 community colleges. They found that students tended to complete online courses at lower rates and earn lower grades than face-to-face courses. This finding suggested that online education may not always be the best option for students who are struggling with academic and basic learning skills (e.g., reading, writing, etc.) which are
necessary to succeed in an online learning environment (Harrington, 2010). Although online education offers several advantages over more ‘traditional’ pedagogical methods (e.g., paper-based or face-to-face learning), such as convenience and flexibility (Smart & Saxon, 2016) it is important for any tertiary institution to carefully examine the impact of pedagogical changes on student learning before committing to a change of learning mode (Emerson & MacKay, 2011; Wanner & Palmer, 2015).

While there is much in the research literature about the pros and cons of online learning (Reid-Martinez & Grooms, 2018), there is also much literature that focuses on how technology has changed educational practices (Kirkwood & Price, 2014; Qutab, Shafi-Ullah, Safdar, & Khan, 2016) and how successful integration of technology in instructional practices will lead to enhanced learning outcomes. However, these claims need to be carefully considered as measures of students’ learning outcomes are not always clearly defined and the research on the impact of technology on student learning is limited and needs further exploration (Cope & Ward, 2002; Howard & Scott, 2017). Research by Kirkwood (2014) has avoided focussing on investigating how the successful integration of technology in instructional practice could impact student learning outcomes and instead focused on how teachers can design technology that enhances learning and how to measure that enhancement (Kirkwood & Price, 2014; Selwyn, 2010). Kirkwood refers to ‘technical determinism’ by which he means that too much emphasis is placed on the affordance and use of technology as an end itself rather than whether it can enhance the learning outcomes teachers are trying to achieve.

Although the standard modes of delivery (face-to-face lectures and tutorials) as early as the 18th century still remain dominant in much of the educational sector (Keengwe, Georgina, & Wachira, 2010; Reid-Martinez & Groom, 2018), with the emerging technologies many universities have invested heavily in learning technologies which they believe facilitate and improve the learning performance of students and possibly enhance the quality of learning in higher education (Keengwe et al., 2010). The use of technology in teaching for instructional purposes has dramatically challenged the old paradigm of learning (Keengwe et al., 2010). The use of traditional methods such as lecturing or use of textbooks as the source of all knowledge was perhaps less demanding. The ubiquitous presence of technology such as LMS (Watson, Watson, & Reigeluth, 2015), online tools (Garrison & Akyol, 2009), and the affordances of mobile technology such as smart phones and tablets (Cochrane,
Narayan, & Oldfield, 2013; Nguyen, Barton, & Nguyen, 2015) challenge teachers to consider how integration of these learning technologies for instructional purposes may provide new opportunities for student learning (Keengwe, Onchwari, & Oigara, 2014).

There is a widespread belief that such technologies can help to transform teaching and learning practices (Karasavvidis & Kollias, 2014), and can support and innovate teaching approaches (Fernández-Ferrer & Cano, 2016). This does not mean, however, that traditional methods of teaching need to be abandoned wholesale. This has led to the development of the blended learning approach which integrates technology in the traditional method of teaching (Porter, Graham, Bodily, & Sandberg, 2016) in higher education.

**Development of Blended Learning in Higher Education**

The blended learning approach is believed to create a tension in some sectors of higher education (Moskal, 2013). A positive side-effect of this tension comes in the form of offering new learning environments that may promise effective contemporary teaching and learning environments that cater more responsively to the needs of the millennial students and may challenge teachers to consider the status quo (Garrison, 2011; Moskal, 2013; Porter, Graham, Spring, & Welch, 2014).

With rapid technological advances, the online or e-learning and blended learning ideas have begun to shift the thinking and practice of teaching staff in higher education (Reid-Martinez & Groom, 2018). The term ‘blended’ and ‘hybrid’ are used interchangeably as both approaches feature traditional face-to-face and technology-based elements (Porter et al, 2014). In some studies, blended learning is defined as a more student-centred, self-paced, flexible and multi-modal approach for learning enhancement (Garrison, 2011; Means, Toyama, Murphy, & Baki, 2013). Garrison and Kanuka (2004) point out that the essence and potential of blended learning are about “rethinking and redesigning the teaching and learning relationship… it is not enough to deliver old content in a new medium” (p. 99). Garrison's (2011) definition also clarifies blended learning as integration of face-to-face instruction and online instruction to maximise student engagement and focus on strengthening the synchronous (face-to-face) and asynchronous (text-based, audio or video-based Internet) learning activities.
In the blended learning mode, video or audio lectures are often uploaded online for students’ viewing. Recorded lectures or audios are added for the purpose of enhancing in-class learning (Garrison & Kanuka, 2004). Students have the opportunity to work at their own pace whenever and wherever they want by switching from one learning platform to another easily and quickly (Garrison & Kanuka, 2004). Blended learning is not just a different instructional model that offers flexibility of time and place, but also challenges the traditional classroom paradigm. In addition, with such rapid technological advances, educational models such as the blended model is designed to marry the traditional and online methods to move the uni-directional to multi-directional learning that meets the needs of today’s millennial generation (Reid-Martinez & Groom, 2018).

Research on blended learning approaches suggest that different models of blended learning (Staker & Horn, 2012) have emerged across the compulsory schooling sector (see Figure 2). While this model was not designed for higher education, the practices and variations may still apply. The models vary in terms of a combination of face-to-face and online, where students are physically based, how much control they have over the learning, and lastly with whom they are enrolled. Within this blended learning branch there are four models: Enriched Virtual Model; Self-Blend Model; Flex-Model; and Rotation Model. For this study, the focus will be on the Flipped Classroom Model, hence, the discussion that follows focuses briefly on the Rotation Model as a whole because it associates directly to the Flipped Classroom Model.
In Staker and Horn’s (2012) model, the Rotation Model involves students moving between learning approaches on a fixed schedule or following any types of learning modalities that teachers decide on. At least one of the learning modalities will be online learning while others can involve small groups or lectures, tutorials, project-based learning or written assignments. In addition, students’ learning takes place on campus unless they are assigned any homework assignments.

Within this Rotation Model, there are sub-models such as the Station Rotation where students rotate in all of the stations within a classroom; the Lab Rotation where students rotate to a computer lab with online learning stations. The Flex Model is more focused on online learning, but does have face to face instruction. Activities that take place in face to face instruction are typically in the form of small group instruction, group projects and individual tutoring. In the Flipped Classroom Model students participate in online learning and face-to-face instruction, with the main mode of content delivery and instruction generally online. Lastly, the Individual Rotation Model students rotate on an individually customised, fixed schedule among other learning modalities including one online learning.
The sub-model, *Flipped Classroom Model*, has received much attention in recent years and is considered as an emerging approach, especially in higher education, according to the Horizon Report in 2014 and 2015 (Johnson, Adams Becker, Estrada, & Freeman, 2015). Similar to blended learning term, there is also no universal definition of the term ‘Flipped Classroom Model’. However, some studies (Cunningham, 2016; Kim & Jang, 2017; Long et al., 2017; Long, Logan, Cummins, & Waugh, 2016) emphasise that the Flipped Classroom Model focuses on providing pre-recorded lectures (mostly in the form of video, but they could be audio as well) for content delivery which are then followed up by in-class activities. The use of videos in a Flipped Classroom Model is as a tool to alternate the traditional content coverage methods. The use of video-clips or any types of recorded media is merely act as an educational tool and promoted as one way to make higher education more millennial-friendly (Bergmann & Sams, 2012).

In the Flipped Classroom Model, the learning scenario is typically different from the other blended learning modalities: students view videos outside the classroom prior to coming to class, and the freed-up time in the classroom is devoted to interactive activities where students work together on the assignments that were traditionally done as homework (Delozier & Rhodes, 2017; McNally et al., 2017; Veeramani, Madhugiri, & Chand, 2015). The premise of the Flipped Classroom Model is to maximise the best advantages of what technology offers and using face-to-face instruction and technology elements to deliver, improve and enhance the teaching and learning experience (Bergmann & Sams, 2012: 2014).

**Flipped Classroom Model Background Definition**

In considering the literature related to the Flipped Classroom Model, there are many different definitions and descriptions used, however, there is no unified terminological and conceptual understanding of the Flipped Classroom Model in education (Bishop & Verleger, 2013; Moore, Gillett, & Steele, 2014). Moore et al. (2014) critiqued the research as being limited to descriptions of implementation that include various applications of videos, in-class activities, and assessment. Therefore, it is important to consider definitions the Flipped Classroom Model based on what has been documented in some studies by educators around the world and as it relates to the context of this study.
Definition of Flipped Classroom Model

The Flipped Learning Network provided the following definition of flipped learning:

Flipped Learning is a pedagogical approach in which direct instruction moves from the group learning space to the individual learning space, and the resulting group space is transformed into a dynamic, interactive learning environment where the educator guides students as they apply concepts and engage creatively in the subject matter (Flipped Learning Network, 2014, p. 1)

Abeysekera and Dawson (2014) provide a more succinct definition, also foregrounding the active nature of what happens in class instead of merely focusing on the use of videos: “Flipped Classroom approaches remove the traditional transmissive lecture and replace it with active in-class tasks and pre/post-class work” (p. 1). On the other hand, Missildine et al.’s (2013) definition is used throughout this study to guide the readers understand the relationship between technology use and the Flipped Classroom Model; “The Flipped Classroom is a hybrid approach to learning, using video recording to move lecture-type direct instruction to ‘self-directed’ status and using face-to-face classroom time to interactive learning” (p.1).

Although the literature suggests that the Flipped Classroom Model has been a particular issue of interest in United States education for some years now, it has also started to attract attention elsewhere in the world (see, for example, Chellapan & van der Meer, 2015; Chen, Long et al., 2017; Roehling, Luna, Richie, & Shaughnessy, 2017; Thai, De Wever, & Valcke, 2017; Veeramani et al., 2015; Wang, & Chen, 2014). However, there is not just one way of flipping the classroom. The literature provides an increasing number of examples of teachers who have reported on their version of what a Flipped Classroom could look like (Cunningham, 2016; Long et al., 2016; Unruh, Peters, & Willis, 2016).

As far as it can be established, the specific term ‘Flipped Classroom Model’ was first used in writing by Bergmann and Sams (2014), although similar terms and the concepts have been around for a longer period. Initially Bergmann and Sams sought to be responsive to the needs of students who were not able to attend their lessons due to outdoor activities or for other reasons. They began with the idea of making videos of their lectures and posting these online so that students who missed classes could catch up. Their intention of making the
videos, however, was not only to allow the students to view what had been taught but also to have more productive learning in their face-to-face contact with each student during class. Both authors believe that by allowing students to watch the videos prior to coming to class, they were able to spend more time in facilitating constructive activities such as problem-solving and project-based activities. Their aim was also to use the freed-up time to help struggling students on a one-to-one basis in the classroom and allow for differentiated teaching approaches.

The research on the Flipped Classroom Model is fairly recent (Ash, 2012; Enfield, 2013; Fulton, 2012). In order to develop an understanding of how the Flipped Classroom Model could be understood, it is important to identify the various components that typically are assumed to constitute the model.

Concepts of learning related to the development of the Flipped Classroom Model

It is not the intention here to offer a comprehensive review of the theories and concepts that may have influenced developments of thinking in relation to the Flipped Classroom Model. However, it is important to briefly review two theoretical concepts that could be considered as having been influential in the overall development of the Flipped Classroom Model and continue to influence the understanding of ‘what’ learning actually takes place in the Flipped Classroom context (Cunningham, 2016; Davies et al., 2013; Enfield, 2013; Topale, 2016; Wanner & Palmer, 2015). These concepts are active learning and flexible learning.

Bonwell and Eison (1991) posited that active learning is a term that “involves students in doing things and thinking about the things they are doing” (p. 2). This definition is broad, however, it is widely accepted that this definition links active learning-to-learn activities, instructional strategies, teaching methods, and any pedagogical approach that helps to develop students’ learning process (Settles, 2010). Active learning in the Flipped Classroom Model occurs, for example, when a teacher employs instructional strategies that engage students in the learning process as opposed to passive lecturing (van der Meer, 2012). In the classroom, students are given the opportunity to discuss, communicate, and reflect on the content. These elements occur in the Flipped Classroom when students are engaging with the content prior coming to class, and activities in the class entail discussions on the topic area rather than the instructor delivering the content via a lecture (Cunningham, 2016). This
engages the students with the content in an active manner. Other activities are group-based activities that draw on approaches such as problem-based learning, inquiry-based learning, collaborative learning, case studies and project-based learning, discussions, and others also help to develop students’ thinking and learning process (Abeysekera & Dawson, 2014; Davies et al., 2013; Missildine, Fountain, Summers, & Gosselin, 2013; Strayer, 2007). Activities such as students working in pairs, discussing and exchanging ideas, working on problems, designing, creating case studies can also promote active engagement among students (Halili, Abdul Razak, & Zainuddin, 2014; Hamdan et al., 2013).

Active learning has also been associated with higher student motivation and critical thinking (Settles, 2010). Prensky (2011) stated that active learning is important and relevant to the millennial student (those who are born after 1982). This generation (millennial student), according to Prensky, succeeds in an atmosphere that offers variety and change in a pedagogy. As previously discussed, the rapid growth of technology continues to offer opportunities for innovative teaching (Fulton, 2012), and when traditional teaching (behaviourist approach) is combined to a contemporary teaching (constructivist approach), it presents opportunities for a pedagogical change (Settles, 2010). While scholars such as Prensky (2011) noted the importance of incorporating technology into teaching and learning to promote active learning, others, such as Freeman et al. (2014) noted unsound pedagogy using active learning in STEM courses. Just a short time later, others, such as Stein et al. (2011) continue to reinforce the critical role of pedagogy using technology. They argued, that good pedagogy is the driver of learning, not new technologies. This helps resolve Eley (2006) observation and concern that teachers’ conception of teaching and their espoused theories of learning remains the dominant challenge because some teachers believe in engaging learners in reflective and collaborative thought process, may result in effective learning whether the setting is a traditional classroom or technology based environment.

Today’s technologies allow for interaction between students and teachers, students and peers in unprecedented ways. Students can communicate with teachers by accessing through social media and e-learning platforms (e.g., emails). Indeed, learning is no longer ‘just in time’ but with other capacities that allow for learning that is ‘just with you’ (Reid-Martinez & Groom, 2018), for example, contemporary learning, means, using smart devices, mobile technology and other advancing technologies. This contemporary learning provides opportunities for active learning, and networking (Cunningham, 2016). While these
dimensions of active learning undergrid contemporary education, other psychological dimensions are becoming more prevalent in understanding how active learning can increase. For example, Bristol (2014) surfaced awareness using various learning experience for students. Bristol stated that to provide students with varied learning experiences and promote engagement in the classroom without content overload, the teaching community has been prompted to reconsider the methods of teaching which can generate more idea awareness in a constructivist learning environment. As Bristol suggests, the Flipped Classroom Model has not just provided opportunity to disseminate information in a new medium, it is considered one of the models that allows for a variety of learning modes and actively support constructivist pedagogy in the blended education paradigm (Cunningham, 2016; Flipped Learning Network, 2014; Foldnes, 2016).

One of the more prominent aspects that is typically associated with a Flipped Classroom Model is the use of content-focused video clips that replace the typical content-focused lectures. Although it could be argued that the use of video clips would appeal more to the current generation of learners, the purpose of using video clips is not just the use of technological affordances (technological determinism, see pg., 18 discussion), but creating more time and opportunities to enhance students’ learning experiences and outcomes. The use of videos or other technology tools to deliver content outside of the class does not guarantee students have achieved the learning outcomes during the class time (Herreid & Schiller, 2013). As has been argued, the Flipped Classroom Model is to ensure students become the agents of their own learning rather the object of instruction (Seery 2015; Thai et al. 2017) and actively participate during class time (Merlin 2016; Sherrow, Lang, & Corbett, 2016). As for the instructor, it is important that they can facilitate productive class time by ensuring that students do the necessary preparation prior coming to class (O’Flaherty & Phillips, 2015).

Early adopters of the Flipped Classroom Model such as Marrs and Novak (2004), in their biology course, Davies et al. (2013) in a Microsoft Excel course, Strayer (2007) in a statistics course, and Talley and Scherer (2013) in a STEM course, reported that the Flipped Classroom Model enhanced class preparation, increased classroom interactivity and improved academic performance. These academics, along with other Flipped Classroom Model proponents, reported their experience that the Flipped Classroom Model encouraged active learning and learning flexibility for students (Burke & Fedorek, 2017; Forsey, Low,
Flexibility can be defined as giving students the freedom to choose how their own learning takes place (Pratt & Trewern, 2011; Wanner & Palmer, 2015). This can be understood as giving students the choice of making learning decision (e.g., when, where and what to learn) (Wanner & Palmer, 2015). Wanner and Palmer described flexibility in learning as the key element to promote students’ engagement and motivation in learning. Flexibility is one of the advantages identified in online education as well as in blended learning approaches. Pratt and Trewern (2015) found that flexibility was an important key element for students who learned from multiple providers, including their school. Pratt and Trewern concluded that when students are given the options for flexible and personalised learning, they tended to develop additional skills and were able to widen their knowledge. However, critical in this process is if the students come unprepared, expecting that the teacher will cover whatever they need to know in the in-class lecture.

In response to the flexible learning, learning management system (LMS), which provide a private online space for students enable teachers to supplement learning experiences not only in the classroom environment, but also out-of-class experiences where students can access information in their homes, libraries or any places where they have access to the internet (Lage & Platt, 2000). With regards to the flexibility that the Flipped Classroom Model offers, the use of video-clips or audio-recorded lecture in the Flipped Classroom Model is seen as a good alternative to the traditional way of teaching (Fulton, 2012). When the recorded lecture is posted on the LMS it provides another way of delivering course content. Alternatively, the class time is used for application and practice of skills (Bergmann & Sams, 2014). The Flipped Classroom Model make use of technologies to restructure the traditional based approach to a more learner-centred. Additionally, the model promotes no lecture, and with a class structure that focused on the engagement and instruction as well as input of the students. While these practices may not show any difference to past practices (Laurillard, 2008), it could suggest a change to convert a classroom-based learning environment, for instance, the traditional model to a more innovative teaching and learning environment (e.g., transferring of lecture to the online environment and homework activities in the classroom). By exchanging both the lecture and homework activities, the teacher has the benefit of having more time for the classroom activities and become a facilitator. As for
the students, they take on more responsibility of their own learning and may be rewarded with flexible learning experiences and opportunities to make choices (Bergmann & Sams, 2012). This model provides a way to make use of technologies that supports learner-centred approach and steer toward a constructivist teaching (Bishop & Verleger, 2013).

Bandura’s (1994) concept of autonomous learner is an important dimension of the constructivist teaching. Of special interest in the above description of giving students the freedom in their own learning, over the years, teachers have experimented with and successfully employed multiple teaching strategies to cater the needs of students’ learning (Orrell, 2016). Today, as much as in the past, teachers claimed that despite their attempts to achieve some balance between traditional teaching and contemporary teaching, ultimately the traditional teaching dominated (Fullan, 2015; Orrell, 2016). Although the learning technologies of the 21st century—audio, video, digital and the internet cover a broad spectrum of education, lectures are still the preferred delivery platform. Researchers such as Fawley (2014), Jensen et al., (2015) critiqued that a typical factor that some teachers resist to adopt the Flipped Classroom Model is because those teachers claimed students take advantage of the flexibility given to them. Teachers felt pressured when students do not turn up for classes, failed to complete assigned tasks (O’Flaherty & Phillips, 2015). Because of behaviour and poor learning habits in students, teachers felt adopting the Flipped Classroom Model is challenging (O’Flaherty & Phillips, 2015).

Although much has been written about the advantages of active learning and flexible learning, there are still sceptics who suggest there is a need for further evidence that Flipped Classroom Model approach to teaching and learning produces the claimed results (e.g., a successful model for teaching and learning) of improvement in students’ learning (Enfield, 2013; Jensen et al., 2015; McNally et al., 2017).
Debates about Effectiveness and Purpose of the Flipped Classroom Model

Researchers in the field of education have argued that the Flipped Classroom Model has suffered from a lack of clear explanation of how effective this model can be (Ent, 2016; Fawley, 2014; Jensen et al., 2015). O’Flaherty and Phillips (2015), for example, contend that the Flipped Classroom Model requires more research to support its efficacy. It could be argued that as the Flipped Classroom Model appeared to gain in popularity as an alternative approach to the didactic method of teaching. It is important, especially by those who advocate for the model, to develop research and provide evidence that it is effective in promoting student academic achievement as well as improving students’ attitudes and engagement towards learning (Fawley, 2014; O’Flaherty & Phillips, 2015). It is also important that those involved in this research field who question the concepts and efficacy underpinning the Flipped Classroom Model be provided with a clear explanation and specifics of what is being examined.

A few authors undertook a review study to identify issues pertaining to the Flipped Classroom Model (Bishop & Verleger, 2013; Delozier & Rhodes, 2017; O'Flaherty & Phillips, 2015). They have brought together the results of several studies quantitatively or qualitatively that examined the impact of the flipped approach. However, Jensen et al (2015) argued that the results of these types of studies may pose pitfalls if the results can be easily misinterpreted or reported. This may be due to the various components that are involved in the Flipped Classroom Model. Overall, it could be argued that in regard to promoting academic achievement the answer seems to be that some components of the Flipped Classroom Model might work and other components might not (Bergmann & Sams, 2012; Milman, 2014). Since different applications of the Flipped Classroom Model emphasise different components, the literature results in the overall effectiveness of Flipped Classroom Model are bound to be confusing (O'Flaherty & Phillips, 2015)

Much of the research done on the Flipped Classroom Model consists of case studies where researchers document the implementation of this model either in their own classroom or report them as empirical data (see Fulton, 2012). Some researchers have also performed comparative studies between the Flipped Classroom Model and traditional classroom methods (see Strayer, 2007; Tucker, 2012; Tune, Sturek, & Basile, 2013). Strayer (2007) addressed the issue of students’ resistance in the Flipped Classroom. In his study,
investigating the effect of the classroom flip on the learning environment, the findings reported that students in the flipped class were less satisfied with the flipped approach structure and tasks. While a study by Findlay-Thompson and Mombourquette (2014) showed that there were no differences or changes in students’ learning outcomes in a flipped class, even though the results of the investigation showed students’ positive attitudes towards the flipped approach. Quite a number of studies have reported positive outcomes of using the Flipped Classroom Model compared with outcomes of more traditional didactic teaching approaches (Betihavas et al., 2016; Evseeva & Solozhenko, 2015; Merlin, 2016; Thai et al., 2017). However, according to Jensen et al. (2015), current studies on the Flipped Classroom Model are limited due to some “potential relevant mechanisms that are being changed between treatments such as shifting to active learning, teaching materials and peer instruction and it is difficult and impossible to separate them” (p. 2). Jensen argued that most of the studies produced confusion associated with the learning outcomes, especially in the flipped classroom environment. For example, Tune et al. (2013) undertook research on a physiology course and McLaughlin (2014) on an introductory pharmacuetics course at a pharmacy school. Findings in both studies reported on the effectiveness of the Flipped Classroom Model. Tune et al.’s (2013) study, used quantified improvement measures in students’ conceptual understanding, but because the variables such as active learning approaches, course materials, and instructional lessons were different between the two conditions (Traditional and Flipped Classroom Model), it is difficult to establish definitively what contributed to the success of the model based on any possible causal factor. McLaughlin et al.’s (2014) along the above scholars, reported that students’ attitude towards flipped learning showed positive outcomes, however, no quantitative learning gains were reported. In addition, the flipped learning in the McLaughlin et al. (2014) study was compared with the didactic teaching method. Hamdan et al. (2013), too, reported “Quantitative and rigorous qualitative research on flipped learning is limited” (p. 6).

On the other hand, in their study O’Flaherty and Phillips (2015) pointed out that having students work in small groups has a positive effect on academic achievement while self-directed learning had a slight negative effect on academic achievement. Similarly, Fawley (2014) pointed out that, Flipped approach without a doubt displayed some advantage over the didactic teaching approach in terms of moving lecture out-of-class and use the lecture time for active learning. However, she argued that the approach is not new and needed more research to determine whether the approach improves student learning, and because it
engages the learners in an active learning environment, does it results as the most effective learning. With this in mind, the Flipped Classroom Model can impact on the adoption decision making (O’Flaherty & Phillips, 2015).

*Misconceptions of the Flipped Classroom Model*

A common assumption about the Flipped Classroom Model is that this is just about new technologies being used to convert traditional lectures through digital recordings and place these lectures online for easy access by students outside of traditional face-to-face class time (Tucker, 2012). However, as explained previously, the Flipped Classroom Model is typically understood as meaning that students get the opportunity to watch the lectures prior coming to class, and then during the class session they work together on the given tasks which supposedly would have been done as homework in the more ‘traditional’ model. By doing so, it helps both teachers and students in enhancing teaching and learning. For example, the student can work together with their peers solving problems and discuss issues that they find difficult to comprehend, whilst the teacher are able to monitor students’ learning and understanding through the class activities and provide remedial support immediately for those who are struggling (Cunningham, 2016).

Some critics have argued that the Flipped Classroom Model is not a new approach and that these practices have been applied in all levels of education for some time, including in primary, secondary and tertiary education (Siegle, 2014). Harel-Caperton (2012) and Hertz (2015) pointed out that even though the central focus of the Flipped Classroom Model is to shift or replace teacher-centred instruction with student-centred instruction, for some who have introduced videos of lectures, their main teaching method in their classroom remains a passive teacher-centred mode of instruction. Ash (2012) criticised the Flipped Classroom Model for being no different from the didactic, lecture-based philosophy, but just presenting a better version of a bad thing. Likewise, Mackice (2012) pointed out that the use of the digital form of lectures is a different version of what normally traditional assignments look like, for example; replacing reading a textbook with modern technologies. Mackie argued that rather than reading, students are given the opportunity to absorb content through video-clips or audio recordings.
With regards to the critics’ arguments, Bergmann and Sams (2014) posited that many teachers are misinformed about the concept of the Flipped Classroom Model. The authors proposed that the common misconception is that Flipped Classroom Model suits all students and that the model always involves video lectures. They explained that the use of recorded lectures or any digital tools in a Flipped Classroom is essentially an option within the Flipped Model. The main focus of the Flipped Classroom Model is placing an importance on face-to-face interaction and quality time with the learners in class (Bergmann & Sams, 2012). To address the many confusions, as a follow-up to their first book “Flip your classroom”, Bergmann and Sams named their new book “Flipped learning” (2014), explaining that:

… What we originally called the Flipped Classroom is just a stage leading to what we were really promoting – Flipped learning. This may seem like mincing words, but we want to be clear that what has popularly become known as the Flipped Classroom is only one basic form of the Flipped Learning Model (Bergmann & Sams, 2014, p. 5).

In this context, they challenge teachers at all levels to answer ‘the one question’: “what is the best use of your face to face time with students?” (Bergmann & Sams, p. 3).

Another misconception addressed in the literature is the perception that the Flipped Classroom Model leads to a diminishing role of the teacher when online instructional videos are introduced (Enfield, 2013; O’Flaherty & Phillips, 2015). Enfield (2013) noted a concern among teachers with regards to the use of recorded lecture that this may be used as leverage to diminish the roles of teacher and the classroom lecture. It is common that in a traditional classroom, a significant portion of the learning is by information transfer through the mode of the lecture. The associated concern is that this would threaten face-to-face instruction, which is assumed to foster a dynamic relationship between the learner and the teacher because it adds a personal element for both teacher and learner through gestures, tone, language and volume of voice which not only can be heard but also seen and felt. Such an experience is feared to be minimised or lost when physical stimulation is limited to learning through watching an instructional videos (Ash, 2012). Using an instructional video as opposed to lectures is feared to adversely affect the teacher-student interaction, thus leading to the Flipped Classroom Model being perceived as a non-effective method by some teachers (Ash, 2012). However, it is important to note again, that one of the key elements of the Flipped Classroom Model is the freeing up of class time for more face to face interaction.
Furthermore, in traditional teaching, teachers may not be able to provide individualised or customised learning experiences for students who need extra time or have trouble understanding certain concepts (Fulton, 2012).

In summary, it is important to understand that the Flipped Classroom Model is about much more than the videos. This is one of the reasons why the changes that occur in the pedagogy are important aspects of the Flipped Classroom Model (Bergmann & Sams, 2014).

**Potential of the Flipped Classroom Model in Higher Education**

Despite all the previously mentioned misconceptions, the Flipped Classroom Model is increasingly being considered as one of the preferred model of delivery in higher education (Faculty Focus, 2015) and the traditional way of teaching (lectures) is increasingly perceived as an obsolete or ineffective method. It can be argued that the most beneficial potential aspects of the Flipped Classroom Model could be summarised as flexible learning opportunities, student-centred learning, active student engagement, and enhancing of student learning outcomes (O'Flaherty & Phillips, 2015; Wanner & Palmer, 2015). Flexibility could be considered one of the benefits that may not always be highlighted as much as the benefits of students’ active engagement in classroom-based learning activities.

Providing flexible learning opportunities to students is increasingly widely supported in Australia, New Zealand and elsewhere in the world (Abeysekera & Dawson, 2015; Cunningham, 2016; Pratt & Trewern, 2011; Wanner & Palmer, 2015). Cunningham (2016) focused on flexibility in describing how Flipped Classroom Model can be used effectively in a language class. She claimed that the affordances of non-transient recorded lectures or presentations prior to coming to class enabled students to take responsibility for their own learning and afforded them flexibility. In her paper, Cunningham presented four quadrants of teaching and learning strategies (see Figure 3) that are common in teaching and learning environment. She designated that the main characteristics of the material used in the Flipped Classroom Model are the Non-Transient, for example the use of video-clips and podcasts, because students will be able to rewind lectures whenever or wherever they want. Consequently, it develops a sense of autonomy. On the other hand, the Transient approach, such as a live lecture, demands attention and concentration. Negative aspects of this approach according to Cunningham could be students ‘missing class’, getting ‘distracted’ or
suffering from ‘overloaded information’ because of having to grasp or process information in a single setting (p. 49). Cunningham’s claims with regards to students struggling with ‘overloaded information’ were also reported in another study by Abesyekera and Dawson (2015).

Abesyekera and Dawson (2014) discussed motivation and cognitive load in the Flipped Classroom Model, which may explain how flipped teaching can help students manage cognitive load and increase motivation in their learning. The authors emphasised that a great level of motivation is needed in a flipped learning environment. Similar to Cunningham’s (2016) argument, Abesyekera and Dawson (2014) argued that the transmission of a vast amount of information across multiple subjects, students’ competence to master the knowledge, skills, as well as their behaviours towards their own learning, can either promote or impede the satisfaction of their basic cognitive needs and their motivation level.

Therefore, Cunningham (2016) and Abesyekera and Dawson (2014) proposed that Flipped Classroom Model might improve student motivation if it created the most valuable properties: “a sense of competence, autonomy and relatedness’ among students” (Abesyekera & Dawson, p. 4). Both Cunningham and Abesyekera and Dawson concluded that the Flipped Classroom Model can create a learning environment that encourages self-directed learning and provides convenience and flexibility in learning. Additionally, the pre-recorded lecture may reduce cognitive load and help student learning. They also suggested

Figure 3. Examples of synchrony and transience and their interaction (adapted from Cunningham, 2016, p. 48)
that changes may occur in student learning experience, which is students taking more responsibility for their learning and reflecting on the assigned tasks before coming to classes.

Although there are clear benefits of Flipped Classroom Model, such as; students able to obtain course content outside of the classroom, classroom time is spent on higher-order learning activities, and viewing recorded lectures as opposed to live transmission-focused lectures (Abeysekera & Dawson, 2014; Bergmann & Sams, 2012, Betihavas et al., 2016), there are also some challenges that need to be addressed before flipping or implementing the Flipped Classroom Model.

**Challenges in Implementing the Flipped Classroom Model**

On balance, the literature abounds with enthusiastic accounts of the adoption of this new model, with relatively less attention to the challenges that introduction of this model faces. The aim of this section is to explore some of the possible challenges that may be barriers to adoption. There are four main challenges that have come through in the literature regarding the adoption of the Flipped Classroom Model. The following broad categories of challenges will be discussed:

1. Technology challenges;
2. Institutional challenges;
3. Challenges related to learners’ acceptance of the new mode; and
4. Pedagogical challenges.

**Technology challenges**

Technology challenges refers to any barriers that may relate to the use of information and communication technologies (ICT) in the context of teaching or learning. These were identified as relating to: Student access and response to technology; staff confidence levels with new technology; and, a ‘wait and see’ attitude with regards to adopting new technological tools.

**Student access and response to technology**

Introduction of new technology, such as the use of video clips or lecture podcasts, requires that students are able to use or access the provided resources. Although there may be an
assumption by advocates of the Flipped Classroom Model that most students will have easy access to a computer, this cannot always be assumed (Hertz, 2015; Nielsen, 2012). Even though the home use of computers and the internet are increasing rapidly worldwide, some students, for example those of families on low incomes and students with parents who have received little education, may have less access to computers and the internet (Flipped Learning Network, 2014). Where academic staff invest considerable time in developing new resources, they may need to ascertain that all students can access the resources, whether at home or through school/university provided technology. Hertz (2015), for example, proposed the provision of after-school programmes with access to computers so as to lessen these disparities.

Staff also need to ensure that students with hearing/visual impairments can access the course material. This may mean close collaboration with both stakeholders and assistive learning technologists to make this both doable and effective. It could be argued that providing course content in video clips might enhance the opportunities for vision and hearing-impaired to access course material easier and faster (Wanner & Palmer, 2015). There is much technology available that makes it easy to quickly create video clips and provide these with captions.

Another challenge relates to students’ possible resistance to technology-integrated learning. This relates to students’ experience and levels of comfort with using technology. For example, students with different learning preferences will adjust differently to a technologically-rich learning environment (Findlay-Thompson & Mombourguette, 2014). If the classroom instructions are too fast for those with limited technological backgrounds, students may fall behind and perform poorly (Henderson, & Dancy, 2007). Likewise, if the pacing is too slow, it could result in those with moderate to extensive technological experience to feel less satisfied with the learning process (Davies et al., 2013). Hence, ideally learning should be organised in such a way that learners at different levels of experience can find ways to learn that are comfortable for them (Strayer, 2007). Consideration could be given to providing peer-learning opportunities whereby students in either the same class or in a more advanced year groups could be involved as peer tutors. Not only does this relieve pressure on teachers, but peer learning is an effective and powerful strategy to support students, whether they are those that do the peer teaching or those that receive the peer teaching (Graziano, 2017).
Staff confidence levels with new technology

A key characteristic of the Flipped Classroom Model is the use of video or screencast technology to create the content material that would typically be delivered in class time/lectures in the traditional teaching approach. As these technologies may be new to many staff, they may feel less confident to embark on adopting the Flipped Classroom Model (Betihavas et al., 2016; Frydenberg, 2017). Even if teachers experienced a positive and effective ICT professional development course, it does not necessarily follow that these teachers will possess the confidence to follow through on what they have learned (Findlay-Thompson & Mombourguette, 2014). Even if they possess the skills and the commitment to practice in a training context with their colleagues, it does not necessarily follow that they feel confident to practice what they have learned with students (Findlay-Thompson & Mombourguette, 2014; Khanova et al., 2015; O’Flaherty & Phillips, 2015). This may be the case, especially if other academic and administrative staff in their department do not share their commitment to change, experimentation or innovation. Shephard (2004) argued that the reasons why staff may fail to use, or be comfortable using, technology could be due to a lack of institutional vision and available support. Many teachers in higher education, he said, feel pressured to use ICT to support student learning. He expressed concerns that new developments in technology are happening more hastily than educational research might justify. He argued that without access to adequate or appropriate support or development opportunities, the introduction of new technologies may not be effective. Finally, he suggested that a number of developmental phases should be included when introducing ICT to support student learning, such as opportunity to learn how to use the specific software or technology; opportunity to experiment with the resources; understanding of the pedagogic model to be used with the new technology; embedding of the new technology within a learning programme; piloting the technology with colleagues or students; analysis of the pilot’s evaluation data to determine if the innovation is likely to be successful; and, reflection on whether the innovation provides the hoped-for added-value to student learning.

A ‘wait and see’ attitude with regard to adopting new technological tools

Not all staff members may be equally enthusiastic about adopting new ways of teaching, especially if it involves the use of new technologies. Academics who are more reticent, even as they see that a majority within their community has already adopted a particular technology, are sometimes labelled as the “late majority” or even “laggards” (Shephard, 2004, p. 69). The reasons they resist, however, may be due to their preference to wait and...
see whether the innovation develops into mainstream use (Strayer, 2007) after initial problems have been ironed out. The ‘laggards’ may also have a strong preference for traditional teaching methods, and a discomfort to change their approach to teaching that has served them well for a long time, along the lines of ‘Why fix something if it isn’t broken?’

Institutional challenges

This category of challenges refers to institutional barriers and obstacles that may impede the introduction of the flipped model. Although some of these challenges may affect the education sector as a whole, some of these are specific to the higher education sector. These may include the absence of an institutional culture of innovation and resource constraints, such as staff time, small-class teaching spaces, and inadequate professional development support.

Absence of an institutional culture of innovation

Considering the novelty of the Flipped Classroom Model, teachers who are considering adopting this new approach may feel somewhat reticent when there are no other teachers who have charted this unknown territory within their institutions. Depending on the organisational culture, they may feel more or less encouraged to enter unfamiliar territory and accept the risks that typically come with the introduction of new ways of doing things (O’Flaherty & Phillips, 2015). Not every school or university may embrace the culture of a learning organisation (Abrahams, 2010; Reid, 2014) that seeks to encourage and reward its staff to innovate and focus on an on-going process of enhancement and maintenance of relevance with regards to the world for which students are educated (Smith, 2012).

A particular concern of academic staff who are considering adopting a new approach to teaching and learning may be the impact of their innovation on students’ evaluation of their teaching (Shephard, 2004). In many universities, academic staff progression and promotion depends on a satisfactory record of teaching, research and service (Fullan, 2015; Robertson, 2007)). Progression often directly translates into salary increases and opportunities for career advancement (Abrahams, 2010; Butler & Sellbom, 2002). Making fundamental changes in teaching do not necessarily result in the hoped-for, or expected outcomes straight away; innovation through trial and error takes time (Fullan, 2015; Hockings, 2005). This process of trial and error may be reflected in less than stellar teaching evaluations. Fear of
this occurring, and the consequential impact on salary and career may, therefore, restrain the willingness of academics to innovate in any but marginal ways (Fullan, 2015; Smith, 2012). It could be argued, therefore, that universities need to enact career progression policies that would guard against this possible disincentive to innovate.

Resource constraints: Staff time, small-class teaching spaces

It could be argued that adopting a new method would add a considerable burden to the workload of teachers. Initially, teachers may need to invest considerable extra time to get familiar with new technology (Shephard, 2004; Smith, 2012), prepare materials like video clips, and develop a repertoire of interactive classroom teaching ideas to engage students in the freed-up class time (O’Flaherty & Phillips, 2015; Hodgson & Shah, 2017). Although pressures in the higher education sector may vary in different parts of the world, the massification of higher education, the rising costs of education for many governments, and the competition for attracting students, are familiar concerns in many universities, especially those in the Western world (Reid, 2014). This pressure on finances and other resources may result in a higher teaching workload for academics (Hockings, 2005; Robertson, 2007). Furthermore, the pressure on teachers to publish (and therefore engage in research) is considerable, and may at times be at the expense of investing time in teaching (Smith, 2012). Typically, the research activity and output are more directly related to the reputation and prestige of the institutions; prestige that may result in attracting more full fee-paying international students (van de Meer et al., 2010). Innovation in teaching approaches, therefore, may not always be high on the agenda for financially-constrained institutions and time-pressured academics. This barrier could be mitigated through the careful and strategic use of staffing resources, such as teaching assistants, to support academic staff to develop the necessary resources (Shephard, 2004; Smith, 2012).

A good case could be made to involve postgraduate students in this process, who have an interest in teaching innovation. Not only do they have recent experience of being a student, and therefore bring a valuable student perspective, from a financial point of view employing students are also more affordable. It is likely that some academic staff may be hesitant relinquishing ‘control’ over the production of, for example, some of the video clips (Ryan & Deci, 2000). However, with careful oversight, and some clear guidelines, student-produced video clips may provide a different input into the teaching and learning process. Also, it does not have to be ‘all or nothing’: a library of both teacher and student-produced
video clips could be created. Furthermore, consideration could be given to making the production of short video clips part of a marked assessment, whereby the best video clips would be added to an ever-growing resource library for future students to draw on.

Apart from the pressure on time, in those institutions where large-scale lectures are increasingly being replaced by more small-group class sessions, such as workshops or seminars, additional pressure may be put on the stock of available smaller classrooms on campus to accommodate the increased demand for smaller teaching spaces. Adoption of a new pedagogy, therefore, could be restrained by limitations in the available teaching spaces within an institution (Henderson & Dancy, 2007). This, then, may need to be considered in the medium and long-term campus space planning.

**Adequate professional development support**

The absence of professional development could be argued to be one of the main reasons why teachers may be reticent to adopt a Flipped Classroom Model (O’Flaherty & Phillips, 2015). For example, teachers may feel a need for professional development to help them learn to make or find relevant videos, and how to best utilise the additional classroom time (Flipped Learning Network, 2014). Many institutions provide some type of support to teachers (Herried, & Schiller, 2013). They typically do this through the provision of professional development, instructional technology and/or technical support offices or staff. However, this type of support is vastly variable between institutions (O’Flaherty & Phillips, 2015; Wanner & Palmer, 2015). As the availability of new technology tools increases rapidly, most institutions and university teachers have devoted considerable time and resources to keeping pace with the changes that technology demands (Stein, Shepard, & Harris, 2011). However, the Flipped Classroom Model does not rely on the use of technology for teaching only (Abeysekera & Dawson, 2014; Bergmann & Sams, 2012:2014). ‘Flipping a class’ involves both out-of-class and in-class strategies for teaching students. Moreover, this model entails a shift of focus from a more teacher-centred and didactic approach, to a more learner-centred approach, away from a dominant focus on knowledge acquisition (Halili et al., 2014). This is what Biggs and Tang (2011) called a shift from teaching to learning. This shift may put additional pressure on the preparation and training of teachers in higher education. It could be argued that, similar to the demand to prepare students to become life-long learners, schools and institutions of higher education may need to focus their professional development on fostering teachers’ willingness and ability to be lifelong learners and
become comfortable in an environment where considering new pedagogies technologies is a normal part of the job (Mishra & Koehler, 2006).

Pedagogical challenges

This category of challenges refers to issues associated with implementing new ways of doing things. As mentioned previously, innovation often involves a process of trial and error, and this may provide teachers with considerable challenges. These may include: a lack of appreciation pedagogical rationale and effectiveness; instructional design guidance for video clip production; students’ expectations and adjustment; and, students’ reluctance to do work outside the classroom.

A lack of appreciation of the pedagogical rationale and effectiveness

The challenge in many institutions may be one of ‘what is wrong with how we have always done things’; the ‘why fix something if it isn’t broken’ attitude. The Flipped Classroom Model challenges the most common mode of teacher-centred instruction, that is, lectures, that have traditionally been the primary teaching method in most institutions (Biggs & Tang, 2011). It could be argued that as knowledge expands and disciplines become more complex, this teacher-centred instruction requires a dramatic change. With a focus on access to technology-integrated teaching and learning and a more diverse 21st-century technology-savvy population, it could be argued that a teacher-centred approach to teaching may no longer be defensible as the best way forward (Biggs & Tang, 2011).

The shift away from traditional, didactic teaching to self-directed learning, however, is not entirely new (Biggs & Tang, 2011). The Flipped Classroom Model provides just one possible structure and strategy that enables teachers to transform their classes to learner-centred environments. Teachers may perceive these different approaches to be as yet unproven and may be holding back until evidence shows these approaches to be effective. However, it could be argued that evidence of effectiveness may already be available, albeit not collected in the context of studies on Flipped classroom effectiveness. Abeysekera and Dawson (2014) argued that “… removing the traditional lecture is in many cases an evidence-based move” (p. 1). They also referred to research related to cognitive load theory that suggests that students benefit from a course organisation that provides students with the opportunity to pace their preparation for classes.
From the learning technologies perspectives, there are two types of courses that integrates technology; online courses, and blended courses. The online courses do not have in-person contact. Interaction between the instructor and students is conducted online. On the other hand, the blended courses typically consist of fewer face-to-face meetings and online interaction. One of the concerns that could arise is that, the Flipped Classroom model may be positioned at one end from both blended and online courses (Bergmann & Sams 2012). Bergmann and Sams pointed out that some teachers perceived that Flipped Classroom Model is a model without any face-to-face contact time. In this context, Bergmann and Sams refer to the concerns expressed by Stager, an educator, speaker, and journalist, who expressed the fear that the video lectures would probably substitute the role of the teachers’ role in the classroom. As discussed previously, these misconceptions could arise from the perception that ‘flipping’ the classroom is just about replacing face-to-face lecture time with video lectures.

**Instructional design guidance for video clip production**

Some teachers may prefer to use/hire videos from other sources rather than making their own, such as video clips available from other schools or an organisation like the Khan Academy. They make this choice because of time pressures, problems in working with new technology, as well as a general lack of confidence in making changes to their familiar mode of instruction (Abrahams, 2010; Reid, 2014). One of the perceived challenges is that because of the relatively new approach of this model, there is not much research yet on how to create video clips/lectures that are perceived to be of a good enough quality (Tucker, 2012). Sam and Bergmann (2012), too, mentioned this category of criticisms of the Flipped Classroom model and refer to critics who commented that not all teachers may be necessarily skilful in creating videos of lectures. There are as yet few resources around with guidance for the optimal instructional design of short video clips. Enfield (2013) did identify some features that students considered desirable, including a format whereby content slides and the face of the presenter are visible at the same time and brevity; shorter was considered better, preferably under 15 minutes’ maximum (van der Meer et al., 2015). Enfield’s (2013) findings from the students’ feedback can be summarised as follows: 1. The average length of the video should be appropriate for the given content; 2. Videos should be concise and/or edited to remove errors, pauses, and redundant instruction.
**Student expectations and adjustment**

Academic staff may underestimate students’ levels of comfort with unfamiliar class time practices and the expectations that they have to develop new study skills and habits. Strayer (2007) noted that it takes time for students to get familiar with a new system of learning. In a comparative study of the Flipped Classroom and a traditional classroom, Strayer found that students participating in his Flipped Classroom were less satisfied with the teaching format students in his ‘traditional’ classroom. Though the students preferred the high level of innovation and enjoyed sharing knowledge through collaborative learning in the classroom, they were less satisfied with the structure of the course (learning tasks that were not clearly defined). The variety of learning activities delivered in the flipped classroom contributed to a sense of academic pressure for them. They could not cope with the activities and absorb the content fully compared with their peers in the traditional classroom. From this comparative study, Strayer concluded that the class activities may need to be less open-ended and more step-by-step and students should be given an opportunity to reflect on their own learning.

Students who start university with particular expectations of how teaching will take place in that context, may not necessarily understand the rationale for a ‘non-traditional’, ‘non-lecture’ model of teaching. In any process of transition, it is important to manage students’ expectations, whether this is the transition from high school to university or the transition to a new way of teaching. Especially in higher education, academic staff do not always fully appreciate the needs of students to understand the rationale for why they have to learn, study or work in a particular way (van der Meer et al, 2010). This is particularly relevant when teaching first-year students (van der Meer, 2012).

Possible resistance to adopt new teaching and learning systems may also arise from students’ learning preferences (O’Flaherty & Phillips, 2015). Some students may prefer to learn through lectures and/or being provided with printed handouts, rather than active engagement, such as brainstorming, discussion, so forth. Again, it is important for teaching staff to be transparent in why they have chosen to adopt a new way of doing things. Students are likely to be more willing to go along with changes if they understand why and how it will benefit them (van der Meer, 2012). Most university teachers will be able to point to the official graduate outcomes, or graduate profile of their institutions, which often include such
competencies as the ability to communicate and collaborate, two competencies that are more likely to be developed in the context of active learning environments. If nothing else, teachers will be able to explain the benefits of active engagement for student learning, even if students do not necessarily like to be actively involved.

**Students may be reluctant to do more work outside the classroom**

Learners’ reluctance to perceive themselves as responsible in certain areas of their learning can be attributed to their expectations that teaching conforms to the more ‘traditional’ transmission/didactic approach to course content delivery. Other forms of teaching and expectations in which they take a more active role in preparing for classes may cause students to resist the changes. Toto and Nguyen's (2009) findings concur with this; students in their research reported that they were easily distracted while watching the videos, and experienced the number of tasks that they needed to complete in a particular period as overwhelming. Hence, they valued traditional face-to-face lectures, which were perceived as less ‘heavy’ in terms of assignments and preparation work.

It can be argued that the focus for educators in the 21st century is not just for students to get good marks, but to prepare them for life beyond the classroom (Biggs & Tang, 2011). Biggs and Tang’s concerns about the nature of learning and teaching are also reflective of Paulo Freire’s (1972) ideas about teaching and learning. Freire stated that it was the role of the teachers to move away from a paradigm of learning as ‘depositing knowledge’ towards a paradigm of acquiring critical consciousness. In Freire’s view, the banking concept of education will lead students to develop a passive role in their learning and the harder the students work to store the deposited knowledge, the less likely they are to develop a critical consciousness. As a result, students may end up with a disconnected view of the world to which they are forced to adapt (Freire, 2000). This also reflects the views of Ramsden, (1993), that the knowledge content of education should be generated in collaboration with students and should be relevant and meaningful for them. As learners in higher education are increasingly expected to take responsibility for their own learning (Strayer, 2007), teachers are likely to encounter more learners who struggle to manage their homework, and may not be willing to fully engage with working in groups. An over-dependence on the teacher and a tendency to rely on a passive role in learning activities (Fulton, 2012), therefore, is likely to be challenged for a teacher who decides to change to a flipped classroom model.
The Flipped Classroom Model is more dependent on students’ motivation than the ‘traditional’ model (Abeysekera & Dawson, 2014). Students need to be motivated to complete out-of-class assignments, such as watching a video, exploring a website, or completing readings. Students who are not motivated are more likely to fall behind their peers when they fail to complete the assigned preparatory tasks prior to attending class (Siegle, 2014).

**Theoretical Foundation**

The focus of this study was investigating why teachers choose to adopt or resist the Flipped Classroom Model. With this focus, the study is not looking at the effectiveness or implementation of the model in teaching. In fact the interest was more in finding out how or why teachers decided to use it or not use it.

There are many different theoretical perspectives on innovation adoption discernible in the literature. A variety of educational and social theories were drawn upon to help interpret research findings. When studying innovation and pedagogy in an educational setting, importance is given to the human interactions and responses. Studies investigating instructors’ use of technology in higher education have largely focused on attitudes, beliefs, self-efficacy, and other social cognitive factors (Chen et al., 2016; Rogers, 2003).

The foundation for this study was formed with the aid of three pertinent theoretical frameworks- teacher-centred and student-centred approaches, technology uptake and teachers' decision-making. These guiding frameworks assisted in defining the research outcomes and the emerging themes. The selected theoretical frameworks for this study are viewed together as an interrelated network. These frameworks help to frame the research questions in this study.

**Chapter Summary**

It is interesting to note that the above studies of Flipped Classroom Model have mainly looked into the development of the model in higher education and what could be the reasons in teachers’ decision making either to adopt or reject the model into teaching practice. Studies on use of innovative teaching and active learning have tended to either quantify
teacher’s experiences, or investigate the nature teacher-centred and student-centred approach. Implicit in these studies is an assumption that the Flipped Classroom Model is an approach that is not new and perhaps not only the way to encourage active learning. The teacher, is perceived as the imparter of knowledge is responsible for orchestrating the classroom-based experiences so that maximum opportunities for face-to-face participation are available to the learners. The literature also revealed that the teacher has the power in decision making whether they agree to a pedagogical change. Selwyn (2010) and a few other researchers (e.g., Fullan, 2015; Laurillard, 2008 and Ramsden, 1993) in a discussion on issues of teacher’s conception of pedagogical change has pointed out these under the section ‘pedagogical change and teacher’s decision making’.

The use of technology can offer multiple benefits to students’ learning rather than being perceived as a catalyst to replace teachers. The Flipped Classroom Model may offer an innovative, student-centred, and personalised teaching and learning experience. However, the effectiveness of implementing this model depends on “attitudes, beliefs and values-based of educators and learners” (O’Flaherty & Phillips, 2015; Wanner & Palmer, 2015, p. 609). Wanner and Palmer (2015) pointed out that teachers are a core and integral part of the teaching and learning process and they need support and encouragement as well as new knowledge, skills and abilities to be to integrate technology into their teaching. The success of adopting a Flipped Classroom Model, as mentioned earlier, depends on teachers and the design of the courses (Wanner & Palmer, 2016). In addition, developing a Flipped Classroom Model requires a high level of time commitment and if there is no support from the institution in the form of teaching assistants or available spaces, it can be difficult and de-motivating for the teachers to design or implement the model. (Milman, 2014; Nielsen, 2012; Tawfik & Lilly, 2015; Wilson, 2013). The Flipped Classroom Model still plays only a modest role in education and the key is to view the model not as the sole solution to disseminate live lectures or other content material, but as an enabler within a culture of learning that offers collaboration, flexibility of space and time (Wanner & Palmer, 2015).

The studies discussed in this chapter mainly used observations, and survey as techniques for data collection. Teachers’ pedagogical reasonings and decision making are an issue that needs to be investigated and can be better understood by addressing from the individual’s point of view (Bogdan & Biklen, 1993). A study that adopts the views of participants aims
at understanding a phenomenon as experienced, understood, and stated by the participants. Methodologically, the present study is in line with other mixed methods studies that have investigated teachers’ perception of technology adoption and identify challenges in the process of adoption. First, this study employs quantitative data, i.e. survey to obtain an overall picture of understanding teachers’ views of teaching and technology use as well as their understanding of the concept Flipped Classroom Model. Second, it employs qualitative data approach to gain an in-depth understanding of the phenomenon under study. However, it differs from other mixed methods studies that have investigated teachers’ view of the Flipped Classroom Model. For example:

1. In order to gain a better understanding of teachers’ decision making, three theoretical domains were drawn in this study. First, theories related to teacher-centred and student-centred. Second, theories related to the technology uptake and finally, theories related to the adoption and resistance to change. However, some important insights from technology adoption models, such as Diffusion of Innovation Theory, TAM model and IS-continuance theory are drawn upon to aid the analysis for the technology uptake results.

2. It needs to be highlighted that the present inquiry is grounded in the concept that external factors can influence teachers’ decision making in adopting and resisting the Flipped Classroom Model.

3. Unlike previous studies that focus either successful implementation of the Flipped Classroom Model, or comparing the Traditional and Flipped Classroom, the present study seeks to understand teachers’ pedagogical reasonings rather investigating the effectiveness of the model.

This chapter began by looking at the pedagogical reasonings underpinning the adoption and non-adoption of the Flipped Classroom Model. Then, the three domains of theories and technology adoption models are used as a guide to obtain a broader understanding of the phenomenon. Through this understanding, researcher hoped to explore the issues from a different perspective. In the next chapter, the research design, methodology and data analysis of the present study is presented.
CHAPTER THREE: METHODOLOGY

This study sought to explore the pedagogical reasoning underpinning the adoption and non-adoption of the Flipped Classroom Model in a higher education context. Inherent in this aim was the importance of revealing the voices of teachers in these institutions, reporting their perception, motivations, and experiences involving the Flipped Classroom Model. This study was also designed to investigate what influences teachers to adopt and/or resist the use of the model within their teaching and learning environment. This chapter will report on the methodology used in this study. It will begin by describing the research philosophy, followed by a description of the methodological approach, research design, the context of the study and research procedures. The subsequent sections describe the ethics and methods of analysis.

Research Questions

The questions guiding the investigation were:

1. Is there a relationship between technology use in general and adoption of Flipped Classroom Model?
2. To what extent does teachers’ understanding of the concept Flipped Classroom Model and pedagogy determine their adoption and/or resistance of the flipped model?
3. What is the educational philosophy of teaching and learning that could be the reason behind teachers’ decision to adopt and/or resist the Flipped Classroom Model?
4. What are the challenges in adopting the Flipped Classroom Model?

This investigation used a mixed methods approach to enable a wide array of adoption and implementation process information to be explored. In the first phase of the research, eighty-four university teachers were surveyed. The second phase comprised interviews with ten of the surveyed university teachers. The purpose of using the quantitative survey and qualitative interview data was to provide both breadth and depth of information concerning the adoption and non-adoption of the Flipped Classroom Model in teaching and learning. In order to achieve the aforementioned objectives and to answer the research questions, it is important to outline the philosophical approach for the current study, which will be discussed in the next section.
Research Philosophy

A clear understanding of the development of research involves considering philosophical assumptions. It is indispensable for researchers to clarify the fundamental beliefs and to justify what they bring to “the study, the research design that is related to the worldwide and the specific method of research that transforms the approach into practice” (Creswell, 2014, p. 5). In addition, Guba and Lincoln (1994) described a research paradigm as a “basic belief system or world view that guides the investigation” (p. 105). This belief shapes how the paradigm guides the researcher’s action and behaviour in conducting the research and “influences what will be discovered” (p. 54). As a philosophical underpinning for mixed methods studies, Patton (2015) posited that in social science it is important to concentrate on the research problem and utilise all approaches available to infer knowledge about the problem. With regards to this, to answer the main research question it is important to highlight the philosophical worldview proposed in the study.

Creswell (2014) highlighted four philosophical worldviews that influence the practice of research: Postpositivism, Constructivism, Transformative, and Pragmatism. The research world view espoused here is predominantly pragmatism. This paradigm is premised on the research questions rather than antecedent conditions (Creswell, 2007; Onwuegbuzie & Leech, 2005). This is in line with the researcher’s belief that this question should be explored using the most appropriate methods. In this study, the research questions are the central guide in assisting the researcher to select the most appropriate methods, techniques, and processes that will provide insights into the research problem, without any commitment to a specific research approach (Tashakkori, 1998).

A researcher operating from a pragmatic paradigm pays close attention to the research question and uses the most appropriate data collection techniques and strategies to understand the research problem (Creswell, 2007). For example, the inclusion of quantitative data can help compensate for the fact that qualitative data typically cannot generalise. Likewise, the inclusion of qualitative data can help explain relationships discovered by quantitative data. This view contrasts with the pure positivist position of seeking an unquestionable truth through quantitative inquiry and the pure constructivist position of describing the reality through solely qualitative methods (Savin-Baden & Major, 2013; Teddlie, 2009). Based on Newman and Benz (1998) conceptualization of the role of
theory in quantitative and qualitative inquiries, pragmatic researchers generally view research as a holistic endeavour that requires prolonged engagement, persistent observation and triangulation (Guba & Lincoln, 2011).

Mixed methods is less well known than the quantitative and qualitative traditions, because it emerged as a separate orientation only in the “past 20 years” (Newman & Benz, 1998, p. 7). It is philosophically oriented to pragmatism, and acknowledges that the values of the researcher play a large role in the interpretation of results (Teddlie, 2009). When utilising a pragmatism stance, the researcher has the freedom of choosing what methods, techniques, and procedures of research best met her needs and purposes. Moreover, data are collected from multiple methods with the focus on answering the research questions. Thus, the focus of the study emphasises the importance of conducting research that best addresses the research problem and what works and not, and how to solve the problem (Tashakkori & Teddlie, 2003).

Choosing and combining qualitative and quantitative data to investigate the pedagogical reasoning underpinning the adoption and non-adoption of the Flipped Classroom Model in the higher education context was purposeful. The researcher was aware that combining both components may strengthen and provide completeness to the study. Using both components, however, can also be problematic (Patton, 2015) if the researcher fails to understand the purpose of integrating both components to the study (Anderson & Poole, 1998). In order to combine both components in this study, the researcher paid close attention to how each method could answer the research questions. With regards to this, using a pragmatic approach, the researcher saw the rationale of how both components could create a richer picture of the pedagogical reasoning underpinning the adoption and non-adoption process with regards to teachers’ pedagogical philosophy, as well as determining the barriers to adopting this model in higher education.

Research from the educational technology literature to date has focused more on the aspects of students’ performance in a Flipped Classroom Model (e.g., Bryman, 2006; Davies et al., 2013) and comparing traditional teaching and flipped teaching (e.g., Jamaludin & Osman, 2014) than a more holistic view of teachers’ personal views and experiences of the Flipped Classroom Model and adoption process. This is clearly an under researched area which is of
great interest and importance to the education community worldwide, especially higher education stakeholders, policy makers, and professional groups.

**Methodological Approach**

As noted previously, this study employed a mixed methods approach utilizing a mixed modal study design (Ferreri & O'Connor, 2013). In order to investigate what teachers thought about the Flipped Classroom Model and how they described the model through their knowledge and experience, a self-reporting survey with largely closed choice responses was used. The need for more in-depth information from the teachers prompted the inclusion of face-to-face interviews with participants who volunteered to take part in this phase of the study.

*Research method: Mixed methods*

Mixed methods research is recognised as the third major research approach or research paradigm used today (Doyle, Brady, & Byrne, 2016; Klassen, Creswell, Plano Clark, Smith, & Meissner, 2012). It has been described in a number of ways, but, in general, it involves the use of quantitative and qualitative research techniques, methods, and approaches, in a single study. Proponents of mixed-methods research assert that quantitative and qualitative research paradigms provide researchers with many options when designing research methodology (Creswell & Clark, 2011; Onwuegbuzie & Collins, 2007). As noted by Johnson and Onwuegbuzie (2004), both quantitative and qualitative research have advantages and disadvantages; however, in a pragmatist paradigm the research question(s) should drive the choice of research methods, according to which method offers the best chance to obtain useful answers.

Several authors (Creswell & Clark, 2011; Klassen et al., 2012) have identified a number of key features of mixed methods research. These include recognising that the intention of a researcher to conduct a mixed method study is not arguing that quantitative nor qualitative methods are sufficient, but rather confirming that the use of both methodologies may provide a better understanding of the research problem rather than using each approach individually. Similarly, the use of a mixed methods approach means that the researcher can incorporate the strengths of both methodologies techniques within the same framework. In addition,
having a positive attitude towards both techniques means researchers are in a better position to use qualitative research to inform the quantitative portion of research studies, and vice versa.

Bryman (1984) argued that mixed methods researchers do not always bring their findings together and both quantitative and qualitative components are treated as separate domains. This is a problem that has been debated a great deal in the literature (e.g., Creswell & Clark, 2011; Sale, Lohfeld & Brazil, 2002; Sandelowski, 2014). For instance, Sale, Lohfeld and Brazil (2002) argue that mixed method researchers do not study the same phenomenon in a single study. In fact, using both qualitative and quantitative methods represent two different paradigms which are “incommensurate” (p. 50). That is, the researchers who uses a quantitative and qualitative paradigm do not study the same phenomenon and combining methods for triangulation purposes is not a practical option. Sale et al. (2000) further argued that a combination of data types (quantitative and qualitative) is not advisable if the researcher intends to study different aspects of the same phenomenon that may result in misrepresenting data (Sale et al., 2002). On the other hand, Sandelowski (2000) argued that a researcher can use various techniques to collect data and those techniques are tied either to a “paradigm or to methods”, in fact research techniques can be used for a variety of purposes (p. 248). That means, it is not possible to combine a view of reality as a positivist and interpretivist. However, using one method is not adequate to collect various perspectives of reality.

Yin (2014) posited that a lack of integration means mixed methods researchers may not be making the most of the data collected and the research is in danger of becoming multiple, related studies, rather than a single study. Both Yin (2014) and Bryman (2007) suggested that combining both quantitative and qualitative data has the potential to offer insights that could not otherwise be gleaned, and it is valuable to consider whether the findings suggest interesting contrasts or help to clarify each other (Bryman, 2006). Qualitative and quantitative approaches can be mixed in a single study and what is important is what works in research and how it is useful regardless of any philosophical assumptions (Johnson & Onwuegbuzie, 2004).

A strictly quantitative analysis of pedagogical reasoning towards the adoption and non-adoption of the flipped classroom model in higher education would have limited the research to specific variables or questions on a survey and kept the inquiry from arising in a
naturalistic and intuitive fashion (Stake, 1995). Analysis through the survey alone would have excluded important information about the teaching and learning methods and overlooked a key means of corroborating or triangulating the qualitative data (Johnson & Onwuegbuzie, 2004). Therefore, as discussed previously, for the present study, both quantitative and qualitative data sets were collected separately before finally comparing and contrasting the results.

Quantitative data obtained from the survey allowed data analysis using descriptive statistics. This allowed the researcher to describe and summarise the data regarding teachers’ perceptions of technology use without making conclusions or generalizing what goes beyond the data. It was used to identify patterns within the data. The results of the descriptive data are presented in tables and graphs illustrating responses frequencies, mean, and standard deviations of key questions on the survey (see Chapter 4). The quantitative data in this study was also used to inform and direct the qualitative inquiry (Creswell & Clark, 2011), to provide a broader perspective to further examine the factors that motivate or inhibit the adoption of the flipped classroom model.

In this study, qualitative methods were utilised to seek a deep understanding and personalised accounts of how university teachers’ experiences and perceptions of the flipped model impacted the adoption of the model in teaching and learning. Several authors (Bogdan, 2007; Merriam, 2002; Miles & Huberman, 1994; Onwuegbuzie & Combs, 2011; Patton, 2015) identified a number of key features of qualitative research relevant to this study. These include: the researcher is the primary tool for data collection and analysis; the analysis process is often inductive in that meaning and understandings emerge from the data itself; the product of qualitative inquiry is richly descriptive using the participants’ own words; and the quality of the research is judged using criteria for trustworthiness. Hence, in seeking to gain insight into a perspective (Jabar, Sidi, Selamat, Ghani, & Ibrahim, 2009) of the university teachers, this study used the qualitative method of interviews to allow the voice of teachers to be heard.

The mixed methods design allowed the researcher to consider “multiple viewpoints, perspectives, positions, and standpoints” (Johnson, Onwuegbuzie, & Turner, 2007, p. 113) surrounding the issues of adoption and non-adoption of Flipped Classroom Model in higher education; a perspective that could not be reached through a simple quantitative or
qualitative investigation. Table 1 provides an overview of how the methods chosen were used to answer the research questions.

Table 1: The relation between the research questions and methods used for data collection

<table>
<thead>
<tr>
<th>Research questions</th>
<th>Research method</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Is there a relationship between technology use in general and adoption of flipped classroom?</td>
<td>Quantitative (survey) + Qualitative (open-ended questions)</td>
</tr>
<tr>
<td>2. To what extent does teachers’ understanding of the concept flipped classroom and pedagogy determine their adoption and/or resistance of the flipped model?</td>
<td>Qualitative (Interview)</td>
</tr>
<tr>
<td>3. What is the educational philosophy of teaching and learning that could be the reason of teachers’ decision making adopting and/or resisting the flipped model?</td>
<td>Qualitative (Interview)</td>
</tr>
<tr>
<td>4. What are the challenges in adopting the flipped classroom model?</td>
<td>Quantitative + Qualitative (Survey and interview)</td>
</tr>
</tbody>
</table>

Existing research studies exploring the flipped classroom model have tended to also adopt the mixed methods approach (see Bogdan, 2007; Wanner & Palmer, 2015). However, as mentioned previously, the research into investigating the pedagogical reasoning underpinning the adoption and non-adoption of the Flipped Classroom Model is scarce. Therefore, this research fills that gap.

Ensuring Quality

Any inquiry, irrespective of its approach, is usually evaluated by readers or peers (Yin, 1994). Usually the evaluator adopts some trustworthiness criteria that are agreed within the literature with regard to the research approaches used. In this context, trustworthiness is defined as a process that ensures the interpretation of the researcher and the conclusions made are credible and reliable (Young, Bailey, Guptill, Thorp, & Thomas, 2014). The criteria for assessing both quantitative and qualitative research in the research literature have been in use for more than a century (Denzin & Lincoln, 2013; Creswell, 2013). As both inquiries have different philosophical and methodological assumptions, each research approach employs different evaluation criteria to ensure the rigor of the inquiry. In quantitative research approaches, reliability and validity are emphasised as means of
ensuring the trustworthiness of the inquiry (Bogdan, 2007; Bryman, 1984; Onwuegbuzie & Collins, 2007; Teddlie, 2009). In contrast, within a qualitative approach, dependability, credibility, transferability, and confirmability, are used as trustworthiness criteria (Cohen, Manion, & Morrison, 2013; Yin, 2014). Within this study, these criteria formed the framework for determining the rigour of the research.

Quantitative research

Two main issues that underpin the quality of quantitative data collected in a research study are validity and reliability (Creswell, 2013; Yin, 2014). There are two types of validity: internal and external (Yin, 2003). Internal validity is concerned with the question: Does the research measure what it was supposed to measure (Cohen et al., 2013)? It is a way to identify whether the research, including the methods used and conclusions drawn, are sound (Cohen, 2011). There are multiple ways to examine a variable or construct in a study (Cohen, 2011). For this study, content validity, and face validity is undertaken (Denzin & Lincoln, 2013).

Content validity was undertaken to ascertain whether the content of the survey was appropriate and relevant to the study. For this study, to estimate the content validity of the survey, the researcher undertook a thorough literature review and sought her supervisors’ opinion in order to gain the knowledge necessary to develop a questionnaire using a 5-point Likert scale (1 - strongly disagree, 2 - somewhat disagree, 3 - somewhat agree, 4 - agree, and 5 - strongly agree).

Face validity is a subjective assessment of whether the measurement procedure used in a study appears to be a valid measure of a given variable or construct (Denzin & Lincoln, 2013). It is the easiest validation process to undertake but also the weakest form of validity (Denzin & Lincoln, 2013). It evaluates the appearance of the questionnaire in terms of feasibility, readability, consistency of style and formatting and the clarity of the language used (Denzin & Lincoln, 2013). In this study, to determine the face validity of the survey, a pilot was developed in which respondents were asked to assess each question in term of a) clarity of the wording, b) the likelihood the target audience would be able to answer the questions, c) the layout and style. Twenty tertiary academic staff from four countries were
contacted and asked to complete the survey and make comments regarding its face validity. Eighteen staffs provided feedback.

In contrast to internal validity, external validity helps to answer the question: Can the research be generalised to a wider population (Cohen, 2011; Onwuegbuzie, 2000)? This research drew on data from a small sample of university teachers from three institutions, which limits its external validity. As such, the findings of this study cannot be used to understand the research questions in terms of all New Zealand university teachers. However, it can be indicative of the perceptions of university teachers at these universities, and add to our understanding of the process underlying pedagogical decision-making processes of teaching staff as well as contextual factors that foster and undermine the Flipped Classroom Model adoption.

Reliability refers to consistency and dependability in measurement over time (Cohen et al, 2013). In this study, reliability of the survey instrument was determined through the use of factor analysis (see Chapter 4). Factor analysis is a statistical method used during instrument developments to cluster items into common factors, interpret each factor according to the items and summarise the items into a small number of factors (Bryman & Cramer, 1999). A factor is a list of items that belong together and those related items that define a part of the construct will be grouped together, and the unrelated items that do not define the construct will be deleted (Munro, 2005). For this study, SPSS software was used to examine the factor analysis and examine the relationship among the variables (Bryman & Cramer, 2005).

Qualitative research

The quality of qualitative research requires considering its credibility, transferability, confirmability, and dependability (Bogdan, 2007). Credibility refers to the confidence that researcher can have in the truth of the findings and interpretations (Guba & Lincoln, 2011). Onwuegbuzie (2000) argued that ensuring credibility is one of the most important factors in establishing trustworthiness in a qualitative research study. In this study, four strategies were adopted to ensure credibility: a) audio recording of participants’ interviews; b) clarification of participant meanings during the interview process, in the form of rephrasing questions or the use of probes; c) inclusion of “thick” descriptions of participants’ accounts in the research findings; and d) the summary of research findings.
Another strategy that contributed to the credibility of this study was the use of ‘triangulation’. Denzin and Lincoln (2013) described triangulation as a process that involved the use of different methods, such as observation, focus groups, and individual interviews. They suggested that the triangulation technique is often used to avoid redundancy of data gathering and procedural challenges to explanations while also reducing the likelihood of misinterpretations. The use of a mixed methods approach in this study enabled the researcher to incorporate the strength of both methods within the same framework.

Using multiple sources of data collection can also be used to increase the validity of the research (Guba & Lincoln, 2011). In this study, quantitative and qualitative methods are used, providing both methodological triangulation (combining qualitative and quantitative approaches) (Denzin & Lincoln, 2013) and data triangulation (using more than one method of data collection; survey and interviews) (Cohen, 2011). For example, the survey offers multiple choice questions which are used to generate the quantitative data as well as some open-ended questions that give freedom to the respondents to answer the question in their own words. The multiple questions in the survey together with the open-ended questions helped the researcher to compare the results further in detail.

In this context, transferability refers to whether or not particular findings can be transferred to another similar context or situation, while still preserving the meaning and inferences from the findings of the study (Onwuegbuzie & Combs, 2011). Onwuegbuzie and Combs (2011) further explained that a researcher cannot determine the transferability of findings but can only provide sufficient information to the reader. It is up to the readers to decide whether the findings are applicable to a new context. In this study, the researcher used transferability criteria (Guba & Lincoln, 2011) by documenting ‘thick descriptions’ of the respondents and their contexts so that reader has sufficient information to determine whether or not the findings are applicable to other contexts.

Confirmability refers to the neutrality and accuracy of the data in terms of findings, interpretation, and recommendations (Guba & Lincoln, 2011; Yin, 2014). Yin (2009) suggested that both neutrality and accuracy can be accomplished using an audit trail which someone else can then use to confirm or contradict the analysis. In this study, the researcher has provided a chain of evidence as to how the study was conducted, thus providing evidence of confirmability.
Dependability refers to the stability of findings and confirmability to the internal coherence of the data in terms of findings, interpretations, and recommendations (Guba & Lincoln, 2011). This can be accomplished using an audit trail which a reviewer or external observer can then confirm or contradict the analysis (Yin, 2014). Dependability in this study is achieved through the open-ended survey questions and semi-structured interview questions. Responses from the survey were compared with the responses from the interview in order to check whether they are both in agreement or contradict the analysis (Teddlie, 2009).

**Context of the Study**

The site of this research study was three universities in New Zealand. In order to protect the identity of the institutions, they will only be referred to as a ‘university’ within this document. The study was conducted with faculty from various departments within these universities. With such a multitude of disciplines, it was believed that the findings of this study could render feedback that was representative of a diverse population. At the time of the study researcher’s place in the research setting was as a PhD candidate.

**Procedure**

As noted, this research utilised both quantitative and qualitative methods. In Phase 1, university teachers were surveyed. Data gained from the survey in Phase 1 (N=84) provided a landscape of the respondents’ perceptions of technology, teaching, and learning. It provided information about teachers’ perception and understanding of the Flipped Classroom Model and also investigated teachers’ beliefs, their experience of and barriers in adopting the Flipped Classroom Model. Within Phase 1, qualitative data were drawn from the semi-structured responses to the survey. Results from Phase 1 also served as a reference point for comparison and triangulation of subsequent data (Phase 2).

In Phase 2, ten of the survey participants were interviewed. The aim of the interviews was to seek a deeper understanding and personalised accounts of the pedagogical reasoning that underpinned the adoption or non-adoption of the Flipped Classroom Model among these teachers, and the barriers encountered by them during the process of adoption. Through individual interviews, this study also sought to investigate the reasons for resisting or
discontinuing the process of Flipped Classroom Model adoption for some teachers. Table 2 provides an overview of the procedure, processes and products for the study.

Table 2: Description of procedure, processes and products in phase 1 and 2

<table>
<thead>
<tr>
<th>Study, sample and time frame</th>
<th>Procedure</th>
<th>Product</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pilot</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quantitative</td>
<td>Sample: University teachers</td>
<td>Technology, Learning, and Teaching survey using Google Forms</td>
</tr>
<tr>
<td></td>
<td><em>Number of participants:</em> 30</td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>Time frame:</em> August to September, 2015</td>
<td></td>
</tr>
<tr>
<td><strong>Phase 1: Survey</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quantitative</td>
<td>Sample: University teachers from multiple disciplines across three universities in New Zealand</td>
<td>Technology, Learning and Teaching survey using Google forms</td>
</tr>
<tr>
<td></td>
<td><em>Number of Participants:</em> 84</td>
<td>Data screening</td>
</tr>
<tr>
<td></td>
<td><em>Time Frame:</em> October until December, 2015</td>
<td>Quantitative analysis (SPSS)</td>
</tr>
<tr>
<td>Qualitative (open-ended questions)</td>
<td></td>
<td>Semi-structured responses-reduction of wording (removing of long sentences and not subject related responses)</td>
</tr>
</tbody>
</table>
## Phase 2: Interviews

<table>
<thead>
<tr>
<th>Qualitative</th>
<th>Sample: University teachers from a variety of disciplines across three universities in New Zealand</th>
<th>Individual, semi-structured interviews</th>
<th>Audio and text data (audio recordings and transcripts)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number of participants: 10</td>
<td>Coding and thematic analysis</td>
<td>Codes and themes</td>
</tr>
<tr>
<td></td>
<td>Time Frame: May until August 2016</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Survey development

The purpose of the survey was to gain information about university academic staff's perceptions of their current teaching practice, use of technology in teaching and learning, students' learning and study habits and the use of video-clips in teaching. Questions aimed at identifying this information were developed/established through issues identified in the literature relating to the Flipped Classroom Model, and further developed through the pilot process.

As the survey was being developed, a pilot test was conducted with 30 lecturers from Malaysia, Maldives, Australia, and the United Kingdom, who were not among the participants of the main study. The purpose of the pilot test was to ensure the content validity of the instrument, including the relevance and clarity of the items or wording. In order to ensure the clarity of the questions, lecturers were asked to comment on any ambiguous items. Based on the feedback, a number of questions were rephrased, reworded or omitted. In addition, some questions were deleted to shorten the length of the questionnaire. However, the researcher deliberately left a number of similar questions in the survey in order to allow the possibility of the creation of scales that would capture a number of key constructs, and reliability testing of those scales. A future iteration of the survey likely contain fewer questions that would be sufficient for the established scales.

The final instrument was a 69-item online questionnaire (see Appendix A), and took approximately 20 minutes to complete. Respondents were asked to rate a number of statements using a Likert-type scale (1 strongly disagree, 2 disagree, 3 somewhat disagree/agree, 4 agree and 5 strongly agree). In the first part, respondents were asked to
indicate their level of agreement with statements related to technology in teaching and learning. It measured how technology for instruction was successfully adopted at a university. For example:

1. I think using technology will improve my overall teaching performance
2. Interacting with technology does not require a lot of mental effort for me

The second part of the survey comprised statements related to the teachers’ teaching approach. This was designed to measure whether teachers are comfortable with their current teaching as well as their perception of using video-clips in teaching and learning. For example:

1. I prefer the lecture mode as my primary teaching approach
2. Lectures could be more effective if they would be interactive
3. Providing students with video-clips of lecture content would take too much time in preparing course materials

The third part of the survey was related to teachers’ perception about students and their learning. For example:

1. Most students do not prepare before coming to class
2. Students learn best by me explaining the material in lectures
3. Using pre-recorded/video-clips, lectures does not guarantee students’ understanding

The final part of the survey comprised open-ended questions that explored teachers’ perceptions of their current pedagogy, and decision making related to their current practice. In addition, they explored their opinions on the use of video-clips and Flipped Classroom Model. For example:

1. What are your main approaches to course delivery at the moment?
2. If you are, or have considered changing your current course delivery method, what changes have you or are you considering?
3. Have you heard of the term “Flipped Classroom Model”?
Research procedure

The study obtained approval from the University of Otago Human Ethics Committee. Proposals for each phase of the study were reviewed and approved. Once the ethics was approved and permission to collect data was granted, participant recruitment begun.

Participant recruitment

The sampling procedure for the Phase One and Phase Two of this study was convenience sampling. Sampling is a process of selecting participants for a research study (Larson-Hall, 2015). There are two types of sampling methods or procedures - probability and non-probability sampling (Cohen, 2011). For this study, a non-probability form of sampling was chosen. As Bryman (2006) defines, this form of sampling, is “a sample that has not been selected using a random selection method” (p. 85). In particular, the selection of the sample for this study used a convenience sampling method, which involves using a sample that is easy to access (Cohen 2011). In this case, the researcher used convenience sampling to elicit participants from willing universities in New Zealand. Because of the use of a convenience sample, the study sample is not representative of the population, but they can provide information and contribute information regarding the phenomenon being studied.

There were hurdles in recruiting participants for this study, particularly getting permission and finding people to participate from other universities. There were concerns about sending emails to a large number of staff both in terms of unsolicited emails and also the number of research projects seeking staff as participants. Permission to get participants was sought from the relevant institutions through their Heads of Department. This was done by sending email invitations to the teaching staff. The email addresses were obtained from the mailing list of the university staff who worked in professional development-type centres in three New Zealand universities. The email was sent out in mid-November after the end of the second semester of one year and closed off at the beginning of the first semester of the subsequent year at the end of February. No reminders were sent.

Phase 1

Data collection stages began with the Phase 1 study that was the survey instrument, and it was open for the teachers to respond to over a three-month period. The questionnaire was administered online using Google Forms. Interested participants were provided with
information about the project in the email invitation. Participants were told that clicking on the survey link and completing the survey was deemed to imply consent (Appendix B). A total of 84 responses was received, with 27 from university 1, 48 from university 2 and 11 from university 3. A total of 10 participants volunteered for an individual interview. The questionnaire asked teachers to complete a technology scale, and answer open-ended questions about the flipped classroom model. When all the participants in each university had completed the online questionnaire, results were downloaded from the website and online responses deleted. Later, an email was sent to the participants to thank those who had participated in the survey and to those who agreed to volunteer to take part in the Phase 2 stages.

**Phase 2**

For practical reasons, the interviews for Phase 2 were required to be conducted within a four-month period from May until August 2016. Twenty-four participants from various faculties and disciplines volunteered to take part in the interviews, however, finding time and dates for the interviews to take place was challenging. Based on the dates given by the participants, ten potential candidates were selected; those who provided a time outside this desired frame of the interview process were sent an email explaining why they had been excluded (see Appendix C).

Three interviews were conducted face-to-face and the rest were remote interviews, conducted via videoconferencing (Skype or Zoom). Each interview took approximately 30 to 40 minutes. For the face-to-face interviews, a digital voice recorder (DVR) was used. For the remote interviews, a built-in audio recorder in the researcher’s laptop was used to record the conversation. In addition, to avoid any issues with the recording device, the researcher also used her personal mobile phone as a backup recorder.

At the outset of each interview, the researcher, encouraged participants to express their opinion freely as their identity would remain confidential in the reporting of any research findings. The interviews were semi-structured in nature. Interview questions were developed using information from the literature and the surveys, to obtain additional information from the participants as to their adoption of the flipped model, experiences, awareness and concerns on Flipped Classroom Model in their teaching and practice (see Appendix D). Questions were organised according to key variables, including teaching practices,
experiences, innovativeness, and support. The goal of the interviews was to identify issues and reasons that might influence or impede the adoption of the flipped model, as well as to collect information on their needs and expectations for creating an optimal learning environment for students and for professional development resources.

Upon completion of the interview phase, the interviews were transcribed by a professional transcriber who had signed a confidentiality agreement (see Appendix E). When all the interview transcripts were completed, a digital copy of the relevant transcript was sent to participants for review and editing to ensure they were an accurate representation of what was said. No requests were made by any of the participants to amend or edit the interview transcripts. Table 3 provides an overview of the research procedures.

Table 3: Summary of the research procedures

<table>
<thead>
<tr>
<th>Timeframe</th>
<th>Stage</th>
<th>Procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Early November 2015 to early May, 2016</td>
<td>Preparation fr Phase 1 and Phase 2</td>
<td>• Ethics approval (Application D16/096)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Identified universities for suitable studies</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Request letter sent to relevant Universities</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Permission granted by respected Institutions to conduct the survey</td>
</tr>
<tr>
<td>Late May, 2016</td>
<td>Phase 1 begins</td>
<td>• Survey</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• on completion of online questionnaire, participants contacted to arrange suitable interview time and place</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Researcher responded, via email, to interested potential participants for the interview</td>
</tr>
<tr>
<td>Early June to mid-August, 2016</td>
<td>Phase 2 begins</td>
<td>• Information sheet and consent form sent to interested potential interview participants (see Appendix F)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Interviews conducted with lecturers</td>
</tr>
<tr>
<td>Early Sept to Late October, 2016</td>
<td>Completion of Phase 2</td>
<td>• Completed interview transcripts sent to lecturer</td>
</tr>
<tr>
<td>Early Jan to Late April, 2017</td>
<td>Phase 1 and Phase 2 data analysis begins</td>
<td>• Analysis of data and discussion of emerging themes with supervisors</td>
</tr>
</tbody>
</table>
Early May to End July, 2017  Finalising main themes  
- Discussion with supervisors  
- Summary of main findings from study case sent to relevant participants (upon request)

Early August to Late Nov, 2017  Writing Process begins  
- Discussion with supervisor  
- Polishing final product

### Research Ethics

Ethical consideration is critical in any research study and requires consideration at every turn of the research journey. It was important for the researcher to address the rights of the teachers involved in the study and treat them with due respect. Issues of privacy and anonymity, voluntary and informed consent, the protection of the rights and interests of participants, and foreseeable consequences of withdrawing or declining (Teddle, 2009) were overarching ethical principles adopted in this study.

*Informed consent and information sheet*

Informed consent provides participants with sufficiently detailed information on what is being researched or studied so that they can make an informed, voluntary, and rational decision to participate in the study (Cohen, 2000). In this research, obtaining informed consent involved informing the participant about his or her rights, the purpose of the study, the procedures to follow, and the potential risks. This was done through the provision of the information sheet. The sheet clearly outlined the study purpose, duration, procedures, risks and benefits in participating in the study (see Appendices G and H). Participants were also reminded that it was their right to withdraw at any time. In addition, at the start of the survey, participants were informed that submitting the survey would be seen as an indication of consent, while interview participants were emailed additional consent forms for the interviews for them to consider and decide whether to continue with the study before the interview occurred.

*Privacy, anonymity and confidentiality*

Berg (2012) identified three perspectives of privacy that must be considered in conducting research ethically. These are the sensitivity of the information being given, the setting being
observed, and the dissemination of information. Sensitivity of information refers to how personal or potentially threatening the information being collected is. In this case, although the information being collected was about their perceptions, the anonymity of participants meant it was not potentially threatening. Only the researcher and her supervisors were given the authorisation to access information. The interview data was collected using Skype and Zoom and the researcher used the built-in audio recorder to record conversations between researcher and her participant. Permission was sought from participants and the researcher ensured them that the recorded information would only be transcribed for the purpose of data analysis and would remain private.

Each participant chose their own setting for the interviews and decided how much information they gave about the context within which they worked. In this study the participants were advised that the results of the research would be published and made available in the library at the University of Otago. Their privacy, however, was protected through the promise of confidentiality. Privacy is more than simple confidentiality (Cohen, 2011). Research participants must have the right to withdraw from the investigation and have the right not to take part in the research at any time without penalty (Berg, 2012). All individual views and opinions provided in the interview remain confidential throughout the process. Participants were assured that any information that was shared at the time of data collection would not be disclosed in any way that might identify them or enable them to be traced.

**Methods of Analysis**

This study adopted a mixed-methods approach, hence, the analysis involved both qualitative and quantitative components. Yin (2009) stated that in order to achieve a high-quality analysis, a researcher should take into consideration the principles of data analysis, that is, the researcher must seek as much relevant evidence as available and will indicate all pertinent alternative perspectives, based upon current thinking, and the researcher’s own prior, expert knowledge. This study adopted Yin’s principles in the data analysis process for both components so that the trustworthiness of the findings could be demonstrated. The section that follows describes the techniques used to analyse the collected data.
Phase 1 - Quantitative analysis

In this study, quantitative data were derived from the survey. The raw data were collected and analysed using the SPSS statistical software package. The study used descriptive and factor analysis to combine individual item scales. ANOVA was used to look for participants’ scale results in their use and non-use of video-clips.

Phase 2 - Qualitative analysis

This study adopted the general inductive approach by (Thomas, 2006) for the survey and the interview data analysis. A general inductive approach focuses on detailed readings of the qualitative data (the open-ended questions from the survey and the interview transcripts) to derive additional patterns, themes and categories. (Thomas, 2006) identified the process that was used for coding data in this study, as shown below.

Step 1: Preparation of raw data

Upon receiving the transcriptions of the interview data, the researcher identified any grammatical errors, repetition or non-relevant issues and these were edited or corrected for easy reading and understanding. A similar process was used to prepare the data from the open-ended questions in the survey.

Step 2: Close reading of the text

The researcher next read the verbatim transcriptions several times to ensure she was familiar with all the qualitative data, and had an overview of the breadth and depth of the data.

Step 3: Creation of themes

The close reading of the text allowed the researcher to find common categories. Initially there were twenty-one categories. The data were then revisited several times and shuffled around. As each category was identified, it was assigned a description so that it was easier to refer to throughout the process.

Step 4: Overlapping and uncoded text

As the categories processes continued, the established categories were repeatedly reviewed to ensure consistency, and to identify overlaps. The coding structure began to emerge, with three categories initially identified: Pedagogical,
Technological and Institutional. Each of these themes was then further developed into sub-themes (e.g., time, unwillingness, technical skill, etc.).

Step 5: Continuing revision and refinement of theme system

Further exploration of the data resulted in these initial themes being adjusted into challenges or factors that impacted on the teachers’ decision to adopt flipped model versus challenges that occur to those who were flipping. It also identified sub-themes which were shifted between themes as the coding developed further.

Table 4 provides a summary of the themes as they developed throughout the coding process. Consistent with Thomas (2006), this iterative process served to clarify and deepen the researcher’s emerging understanding of the key themes within the data.
Table 4: Stages involved in the production of codes and themes

<table>
<thead>
<tr>
<th>Initial Codes</th>
<th>Theme (Pedagogy, Technology and Institutional)</th>
<th>Final themes</th>
<th>Sub-themes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Busy</td>
<td>Pedagogy</td>
<td>▪ Student assessment</td>
<td>▪ Time</td>
</tr>
<tr>
<td></td>
<td></td>
<td>▪ Developing course modules</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>▪ Preparing materials for different course units</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>▪ Personal tasks/responsibility</td>
<td></td>
</tr>
<tr>
<td>Workload</td>
<td>Institutional/ Pedagogy</td>
<td>▪ Research</td>
<td>▪ Time</td>
</tr>
<tr>
<td></td>
<td></td>
<td>▪ Assessment</td>
<td>▪ Decision making whether to change or not</td>
</tr>
<tr>
<td></td>
<td></td>
<td>▪ Teaching</td>
<td>▪ PBRF (^2) policy</td>
</tr>
<tr>
<td></td>
<td>Additional burden Pedagogy</td>
<td>▪ Developing new teaching materials from the existing</td>
<td>▪ Not willing to invest time and effort</td>
</tr>
<tr>
<td></td>
<td></td>
<td>▪ Learning new skill</td>
<td>▪ Institutional support</td>
</tr>
<tr>
<td></td>
<td></td>
<td>▪ Recording lectures/finding suitable online video-clips</td>
<td></td>
</tr>
<tr>
<td>Technical skill</td>
<td>Technology</td>
<td>▪ Lack of technical skill using new and/or unfamiliar software</td>
<td>▪ Technology challenges</td>
</tr>
<tr>
<td></td>
<td></td>
<td>▪ Recording high quality videos</td>
<td>▪ Copy right issues and licensing</td>
</tr>
<tr>
<td></td>
<td>Students’ attitude Pedagogy</td>
<td>▪ Not prepared prior to class</td>
<td>▪ Access to online resources other than the</td>
</tr>
<tr>
<td></td>
<td></td>
<td>▪ Unwilling to change</td>
<td>university</td>
</tr>
<tr>
<td></td>
<td></td>
<td>▪ lack of motivation</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>▪ busy with other things (working part-time)</td>
<td>▪ resistance to a new method of learning</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>▪ Transition- experiencing new learning style</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>which is different from the secondary level.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>▪ Uncertainty to embrace autonomy and empowerment</td>
</tr>
</tbody>
</table>

\(^2\) PBRF is the acronym for Performance Based Research Fund. This is the New Zealand Government’s research evaluation tool and is used to determine levels of funding for tertiary institutions.
<table>
<thead>
<tr>
<th>Teachers’ mindset and understanding of the flipped concept</th>
<th>Pedagogy</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>- unwilling to change</td>
<td>- Time</td>
<td></td>
</tr>
<tr>
<td>- unwilling to take a risk</td>
<td>- Lack of understanding about Flipped concept</td>
<td></td>
</tr>
<tr>
<td>- Fear of teaching evaluation</td>
<td>- Hesitant- to adopt something that may not last long</td>
<td></td>
</tr>
<tr>
<td>- Feeling demotivated</td>
<td>- Frustration and demotivated- lack of recognition and reward for being innovative</td>
<td></td>
</tr>
<tr>
<td>- Lack of time trying something new or to develop new materials</td>
<td>- Need teaching support</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Status-Quo</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Reducing face time</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- The use of video-clips</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Assumption that students will resist to new style of teaching</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Students prefer lecture-based style</td>
<td></td>
</tr>
</tbody>
</table>
Chapter Summary

This chapter has explored both the methodology underpinning the study and described the methods used to generate and analyse the data. Research questions were outlined and the pragmatic paradigm on which this study is premised was discussed. Consideration of ethical issues were also discussed. The research procedure, data collection methods and analysis techniques were explained in detail. Having described the methodology underpinning the research study, research findings for the case study are presented in Chapter Four, Five and Six, with discussion of these in Chapter Seven, and conclusions presented in Chapter Eight.
CHAPTER FOUR: FINDINGS OF THE SURVEY QUANTITATIVE DATA

In this chapter, the results for the Phase 1 study are presented. Phase 1 study comprised survey results from 84 respondents in the form of 69 item online questionnaire. Respondents answered the questions using Likert-type question. Respondents were asked to indicate their level of agreement (from “Strongly disagree” to “Strongly agree”) with statements related to:

a) Technology in Teaching and Learning
b) Teaching Approach
c) Respondents’ Perception about their Students and their Learning.

The final part of the survey comprised open-ended questions that explore teachers’ perception of their current teaching practice and decision-making related to their current practice (these results will be presented in chapter 5). The chapter begins with a presentation of the descriptive results based on the aforementioned statements.

Descriptive Statistics of Survey Items

The survey was designed to enquire into the respondents’ experience and views of technology, and their experience and views on teaching, and students’ learning and study behaviours.

Table 5 shows the percentage of participants who gave each response to questions directly related to technology. As can be seen, most respondents seemed reasonably comfortable with technology.
Table 5: Questions related to technology

<table>
<thead>
<tr>
<th>Question</th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I think that using technology improves my overall teaching performance</td>
<td>6.0%</td>
<td>7.1%</td>
<td>28.6%</td>
<td>34.5%</td>
<td>23.8%</td>
</tr>
<tr>
<td>2. I am comfortable using a range of technologies in my teaching</td>
<td>0.0%</td>
<td>9.8%</td>
<td>25.6%</td>
<td>30.5%</td>
<td>34.1%</td>
</tr>
<tr>
<td>3. Interacting with technology does not require a lot of mental effort for me</td>
<td>6.0%</td>
<td>16.7%</td>
<td>26.2%</td>
<td>39.3%</td>
<td>11.9%</td>
</tr>
<tr>
<td>4. I believe that I can effectively use technology tools to deliver an engaging course</td>
<td>0.0%</td>
<td>10.8%</td>
<td>16.9%</td>
<td>53.0%</td>
<td>19.3%</td>
</tr>
<tr>
<td>5. I am able to use learning technology tools with minimum support and assistance</td>
<td>3.6%</td>
<td>18.1%</td>
<td>27.7%</td>
<td>31.3%</td>
<td>19.3%</td>
</tr>
<tr>
<td>6. The availability of technology tools helped me to change my course delivery to a more interactive approach</td>
<td>15.7%</td>
<td>19.3%</td>
<td>24.1%</td>
<td>27.7%</td>
<td>13.3%</td>
</tr>
<tr>
<td>7. Technology-enhanced pedagogies allow for a more interactive learning environment</td>
<td>10.7%</td>
<td>20.2%</td>
<td>26.2%</td>
<td>31.0%</td>
<td>11.9%</td>
</tr>
</tbody>
</table>

The results related to questions about lectures, as shown in Table 6, suggests that for most respondents, lectures are an essential part of their teaching, partly because it was an easier way to deliver course content. Even though 43.1% of the respondents also seemed to think that lectures were not the best way to teach students. Also of note is that most respondents, 60.2%, did not seem to consider the provision of video clips to be ‘spoon-feeding’ of students.
Table 6: Questions related to lectures

<table>
<thead>
<tr>
<th>Question</th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>8. I prefer the lecture mode as my primary teaching approach</td>
<td>20.2%</td>
<td>17.9%</td>
<td>29.8%</td>
<td>22.6%</td>
<td>9.5%</td>
</tr>
<tr>
<td>9. Lectures are currently an essential part of my course</td>
<td>8.3%</td>
<td>4.8%</td>
<td>15.5%</td>
<td>32.1%</td>
<td>39.3%</td>
</tr>
<tr>
<td>10. Lectures have been proven to be the best method to teach students</td>
<td>25.0%</td>
<td>26.2%</td>
<td>31.0%</td>
<td>14.3%</td>
<td>3.6%</td>
</tr>
<tr>
<td>because they enhance students understanding of the course material</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. I am comfortable with continuing with my lectures; they have served</td>
<td>12.3%</td>
<td>25.9%</td>
<td>27.2%</td>
<td>21.0%</td>
<td>13.6%</td>
</tr>
<tr>
<td>me well for a long time</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. I find it easier to deliver my course content in a lecture-based</td>
<td>13.1%</td>
<td>17.9%</td>
<td>22.6%</td>
<td>31.0%</td>
<td>15.5%</td>
</tr>
<tr>
<td>teaching method.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. Lecturing is the only way for me to get through the content of the</td>
<td>36.1%</td>
<td>20.5%</td>
<td>20.5%</td>
<td>15.7%</td>
<td>7.2%</td>
</tr>
<tr>
<td>course(s) I teach</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14. The tutorials provide enough interaction in my course- none is</td>
<td>48.8%</td>
<td>26.8%</td>
<td>17.1%</td>
<td>4.9%</td>
<td>2.4%</td>
</tr>
<tr>
<td>needed in my lectures.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15. Teaching formats other than lectures would take too much time in</td>
<td>21.4%</td>
<td>31.0%</td>
<td>21.4%</td>
<td>20.2%</td>
<td>6.0%</td>
</tr>
<tr>
<td>preparing course materials</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16. Providing students with video clips of lecture content is just</td>
<td>37.3%</td>
<td>22.9%</td>
<td>22.9%</td>
<td>10.8%</td>
<td>6.0%</td>
</tr>
<tr>
<td>spoon feeding them</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17. Lectures are not the best way to teach students</td>
<td>4.9%</td>
<td>14.6%</td>
<td>37.8%</td>
<td>24.4%</td>
<td>18.3%</td>
</tr>
</tbody>
</table>

Responses to the questions about consideration of possible changes, as shown in Table 7, suggest that there was a moderate interest by respondents to make some possible changes. Over 80% of the respondents indicated that lectures could be more effective if they were more interactive, and 47% indicated that providing some video clips in addition to lectures may be beneficial. However, just over a third of the respondents indicated that they felt there were not enough opportunities in their institutions to develop new teaching approaches.
Table 7: Questions related to possible changes

<table>
<thead>
<tr>
<th>Question</th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>18. Most lectures should be abolished and replaced by interactive tutorials or workshops</td>
<td>31.3%</td>
<td>19.3%</td>
<td>15.7%</td>
<td>16.9%</td>
<td>16.9%</td>
</tr>
<tr>
<td>19. Lectures could be more effective if they would be more interactive</td>
<td>3.6%</td>
<td>3.6%</td>
<td>13.3%</td>
<td>37.3%</td>
<td>42.2%</td>
</tr>
<tr>
<td>20. Short video clips would be a better way to deliver course material rather than just through lectures</td>
<td>16.7%</td>
<td>16.7%</td>
<td>36.9%</td>
<td>20.2%</td>
<td>9.5%</td>
</tr>
<tr>
<td>21. In my institution/department, I don't have enough opportunities and support to develop new teaching approaches</td>
<td>17.1%</td>
<td>32.9%</td>
<td>13.4%</td>
<td>24.4%</td>
<td>12.2%</td>
</tr>
<tr>
<td>22. The only reason I lecture is because my institution requires this of me</td>
<td>32.9%</td>
<td>25.6%</td>
<td>24.4%</td>
<td>12.2%</td>
<td>4.9%</td>
</tr>
<tr>
<td>23. The only reason I lecture is because other teaching formats take up too much staffing</td>
<td>23.2%</td>
<td>24.4%</td>
<td>29.3%</td>
<td>14.6%</td>
<td>8.5%</td>
</tr>
<tr>
<td>24. Limitations on available smaller classroom spaces limits my opportunities to make many changes in my approach to teaching</td>
<td>26.6%</td>
<td>25.3%</td>
<td>22.8%</td>
<td>13.9%</td>
<td>11.4%</td>
</tr>
<tr>
<td>25. Short video clips in addition to one or more lectures would be a better way to deliver course material rather than just through lectures alone.</td>
<td>10.8%</td>
<td>10.8%</td>
<td>31.3%</td>
<td>25.3%</td>
<td>21.7%</td>
</tr>
</tbody>
</table>

The responses to the questions related to students’ learning and study habits (see Table 8) show an interesting mixture of negative perceptions as well as recognition what type of teaching might best serve students’ learning. Some of the negative perceptions seem to express a ‘deficit’ view of students as being lazy, disengaged, not capable and expected to be provided with the ‘right’ knowledge. Other views seem to express an idea that lecturers need to guide students and plan for students’ active engagement.
Table 8: Questions related to students’ learning and study habits

<table>
<thead>
<tr>
<th>Question</th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>26. Most students do not prepare before coming to lectures</td>
<td>0.0%</td>
<td>10.7%</td>
<td>10.7%</td>
<td>33.3%</td>
<td>45.2%</td>
</tr>
<tr>
<td>27. Students prefer to get a copy of the lecture PowerPoint slides rather than attempt to make their own notes</td>
<td>3.6%</td>
<td>6.0%</td>
<td>10.7%</td>
<td>36.9%</td>
<td>42.9%</td>
</tr>
<tr>
<td>28. Even though students often take notes, I believe that many students do not look at them after class.</td>
<td>11.9%</td>
<td>23.8%</td>
<td>28.6%</td>
<td>23.8%</td>
<td>11.9%</td>
</tr>
<tr>
<td>29. Most students find it difficult to maintain their attention during lectures if there are no activities.</td>
<td>4.8%</td>
<td>10.7%</td>
<td>19.0%</td>
<td>35.7%</td>
<td>29.8%</td>
</tr>
<tr>
<td>30. My experience is that, students in lecture-based classes are often disengaged (e.g. texting, sleeping, not bothered to attend to lecture)</td>
<td>7.1%</td>
<td>22.6%</td>
<td>33.3%</td>
<td>23.8%</td>
<td>13.1%</td>
</tr>
<tr>
<td>31. Students depend on teachers to provide them with appropriate learning materials (e.g. lecture notes/slides, websites with resources, reading materials)</td>
<td>2.4%</td>
<td>6.0%</td>
<td>10.7%</td>
<td>52.4%</td>
<td>28.6%</td>
</tr>
<tr>
<td>32. My students prefer to learn through lectures, rather than through active engagement (e.g. brainstorming, discussion...)</td>
<td>15.5%</td>
<td>38.1%</td>
<td>29.8%</td>
<td>15.5%</td>
<td>1.2%</td>
</tr>
<tr>
<td>33. Most students prefer to be told what they have to know, rather than develop their own understanding of the course materials</td>
<td>8.3%</td>
<td>14.3%</td>
<td>31.0%</td>
<td>27.4%</td>
<td>19.0%</td>
</tr>
<tr>
<td>34. Many students find it difficult to make good notes in lectures</td>
<td>1.2%</td>
<td>10.7%</td>
<td>38.1%</td>
<td>34.5%</td>
<td>15.5%</td>
</tr>
<tr>
<td>35. Students learn best by me explaining the material in lectures</td>
<td>13.1%</td>
<td>23.8%</td>
<td>53.6%</td>
<td>6.0%</td>
<td>3.6%</td>
</tr>
<tr>
<td>36. A change in pedagogy is necessary as many students in the 21st century do not feel engaged by just listening and taking notes.</td>
<td>9.5%</td>
<td>10.7%</td>
<td>25.0%</td>
<td>34.5%</td>
<td>20.2%</td>
</tr>
</tbody>
</table>
As can be seen in Table 9, respondents were moderately positive about educational technology and its role in enhancing the student experience, especially as a way to enhance student engagement, and allowing for students to take more control over the pace of their learning.

Table 9: Questions related to possible changes

<table>
<thead>
<tr>
<th>Q</th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>37. The introduction of technologies in higher education has enhanced students’ engagement</td>
<td>14.5%</td>
<td>10.8%</td>
<td>36.1%</td>
<td>27.7%</td>
<td>10.8%</td>
</tr>
<tr>
<td>38. I believe that technology enhanced pedagogies develop a more positive attitude towards learning in students</td>
<td>12.0%</td>
<td>13.3%</td>
<td>38.6%</td>
<td>26.5%</td>
<td>9.6%</td>
</tr>
<tr>
<td>39. Technology enhanced pedagogies can contribute to students' academic engagement</td>
<td>6.1%</td>
<td>11.0%</td>
<td>23.2%</td>
<td>36.6%</td>
<td>23.2%</td>
</tr>
<tr>
<td>40. Using technology in teaching and learning is likely to enhance students' motivation</td>
<td>9.5%</td>
<td>15.5%</td>
<td>33.3%</td>
<td>31.0%</td>
<td>10.7%</td>
</tr>
<tr>
<td>41. Technology use in teaching and learning is likely to satisfy students’ learning needs</td>
<td>8.6%</td>
<td>18.5%</td>
<td>38.3%</td>
<td>24.7%</td>
<td>9.9%</td>
</tr>
<tr>
<td>42. Technology can provide for a self-paced instructional setting that could support mastery learning for students</td>
<td>3.8%</td>
<td>11.3%</td>
<td>23.8%</td>
<td>38.8%</td>
<td>22.5%</td>
</tr>
</tbody>
</table>

Lastly, in line with the typical understanding of what the Flipped Model entails, a range of questions were asked with regards to the use of and utility of recorded lectures or video clips. As can be seen in Table 10, respondents overall seemed positive about this particular use of technology to enhance support for students and provide more time in class for other activities. However, it was also clear that video clips by themselves were not considered to enhance students’ understanding or ensure students would automatically pace their own learning.
Table 10: Questions related to video use

<table>
<thead>
<tr>
<th>Question</th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>43. Pre-recorded lectures enable students to pause and replay video</td>
<td>2.4%</td>
<td>6.0%</td>
<td>30.1%</td>
<td>30.1%</td>
<td>31.3%</td>
</tr>
<tr>
<td>segments to help their understanding</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>44. The use of video clips/podcasts for homework allows the class time</td>
<td>6.0%</td>
<td>4.8%</td>
<td>31.3%</td>
<td>30.1%</td>
<td>27.7%</td>
</tr>
<tr>
<td>to be used for activities such as problem solving, discussion and</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>developing students' understanding</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>45. Activities in the classroom such as solving problems, and peer-led</td>
<td>1.2%</td>
<td>1.2%</td>
<td>12.0%</td>
<td>31.3%</td>
<td>54.2%</td>
</tr>
<tr>
<td>discussions can help students to develop a deeper understanding of the</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>course material</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>46. Students are responsible themselves for learning from the lecture</td>
<td>0.0%</td>
<td>4.8%</td>
<td>22.9%</td>
<td>44.6%</td>
<td>27.7%</td>
</tr>
<tr>
<td>material</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>47. Students learn best by active engagement with the material</td>
<td>0.0%</td>
<td>0.0%</td>
<td>4.8%</td>
<td>30.1%</td>
<td>65.1%</td>
</tr>
<tr>
<td>48. Using pre-recorded/video clips lectures does not guarantee students'</td>
<td>0.0%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>understanding</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>49. Using pre-recorded/video clips lectures does not necessarily</td>
<td>1.2%</td>
<td>3.6%</td>
<td>10.8%</td>
<td>28.9%</td>
<td>55.4%</td>
</tr>
<tr>
<td>guarantee that students will pace their own learning effectively</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>50. A problem with providing video clips might be that many students will</td>
<td>4.9%</td>
<td>18.3%</td>
<td>39.0%</td>
<td>25.6%</td>
<td>12.2%</td>
</tr>
<tr>
<td>be easily distracted while watching the videos</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>51. Having to watch video clips or podcasts independently may be</td>
<td>8.4%</td>
<td>20.5%</td>
<td>31.3%</td>
<td>31.3%</td>
<td>8.4%</td>
</tr>
<tr>
<td>overwhelming for some students</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>52. I don't believe most students have the self-motivation to watch</td>
<td>17.1%</td>
<td>22.0%</td>
<td>35.4%</td>
<td>19.5%</td>
<td>6.1%</td>
</tr>
<tr>
<td>video-clips by themselves</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>53. Most first-year students need to receive guidance from teachers into</td>
<td>1.2%</td>
<td>3.7%</td>
<td>17.3%</td>
<td>44.4%</td>
<td>33.3%</td>
</tr>
<tr>
<td>how to become independent learners</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The use of video-clips with course content may be especially helpful for first-year students as they may find it difficult to make good notes in lectures.  

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>7.3%</td>
<td>8.5%</td>
<td>42.7%</td>
<td>32.9%</td>
<td>8.5%</td>
</tr>
</tbody>
</table>

The use of video-clips with course content may be especially helpful for international students as they may find it difficult to make good notes in lectures.  

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>5.0%</td>
<td>6.3%</td>
<td>30.0%</td>
<td>41.3%</td>
<td>17.5%</td>
</tr>
</tbody>
</table>

Scales

The large number of questions, with some seeming duplication, were intended to allow for the reduction of these into a number of meaningful scales that would encapsulate some broader concepts, attitudes, or beliefs. In order to do this, a factor analysis with Varimax Rotation was performed using all the variables from Tables 5-10 that loaded on a component with a value of .40 or above. From these results, seven scales were created with reliability exceeding .70:

1. The Technology Positive scale included statements related to respondents’ positive views on the use of technology, e.g., “Using technology in teaching and learning is likely to enhance students' motivation”, and “I believe that a technology enhanced pedagogies develop a more positive attitude towards learning in students”.

2. The Lecture Preference scale included statements that expressed a positive attitude to the use of lectures, such as “I prefer the lecture mode as my primary teaching approach” and “Lectures have been proven to be the best method to teach students because they enhance students understanding of the course material”.

3. The Student Deficit scale included questions related to statements that expressed a view of students as not being independent or possibly being lazy, such as “Students prefer to get a copy of the lecture PowerPoint slides rather than attempt to make their own notes”, and “Most students do not prepare before coming to lectures”

4. The Technology Comfortable scale included statements such as “I am comfortable using a range of technologies in my teaching” and “I am able to use learning technology tools with minimum support and assistance”.

5. The Video Clip Positive scale included statements such as “The use of video-clips with course content may be especially helpful for international students as they may
find it difficult to make good notes in lectures” and “Short video clips would be a better way to deliver course material rather than just through lectures”.

6. The Change Challenge is the scale name given to a group of statements that reflect possible institutional pressures that may hinder making changes. For example: “In my institution/department, I don't have enough opportunities and support to develop new teaching approaches”, “The only reason I lecture is because my institution requires this of me”, and “The only reason I lecture is because other teaching formats take up too much staffing”.

7. The Student Active Learning scale includes statements that position the students as active participants in their learning, in the classroom and their use of video clips, for example: “Students learn best by active engagement with the material”, “Activities in the classroom such as solving problems, and peer-led discussions can help students to develop a deeper understanding of the course material”, and “Pre-recorded lectures enable students to pause and replay video segments to help their understanding”.

Table 11: Scale descriptive statistics

<table>
<thead>
<tr>
<th>Scale name</th>
<th>Number of items in scale</th>
<th>Cronbach α</th>
<th>N</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technology positive</td>
<td>8</td>
<td>.93</td>
<td>76</td>
<td>3.19</td>
</tr>
<tr>
<td>Lecture preference</td>
<td>8</td>
<td>.87</td>
<td>80</td>
<td>2.86</td>
</tr>
<tr>
<td>Student deficit</td>
<td>5</td>
<td>.78</td>
<td>84</td>
<td>3.71</td>
</tr>
<tr>
<td>Technology comfortable</td>
<td>3</td>
<td>.84</td>
<td>81</td>
<td>3.55</td>
</tr>
<tr>
<td>Video-clip positive</td>
<td>4</td>
<td>.81</td>
<td>80</td>
<td>3.41</td>
</tr>
<tr>
<td>Change challenge</td>
<td>5</td>
<td>.76</td>
<td>77</td>
<td>2.57</td>
</tr>
<tr>
<td>Student active learning</td>
<td>4</td>
<td>.82</td>
<td>80</td>
<td>4.09</td>
</tr>
</tbody>
</table>

In order to identify any relationship of respondents’ perceptions around pedagogy, technology and perceptions of students, a correlation analysis was performed. The correlation matrix in Table 12 shows that respondents’ beliefs and ideas about students’ active learning strongly correlates with both positive ideas about technology, being technologically comfortable, not preferring the lectures as teaching mode, and the use of video clips. In addition, positive ideas about the use of video clips also strongly correlate with a generally positive attitude to technology and not preferring lectures. On the other hand, a correlation can be seen between a lecture preference and deficit view of students.
All this together may suggest that thoughts about aspects related to the Flipped Classroom Model may be mediated through thoughts and comfort levels related to technology.

Table 12: Scale correlations

<table>
<thead>
<tr>
<th></th>
<th>Technology positive</th>
<th>Lecture preference</th>
<th>Student deficit</th>
<th>Technology comfortable</th>
<th>Change challenge</th>
<th>Student active learning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technology positive</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lecture preference</td>
<td>-0.77</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Student deficit</td>
<td>-0.013</td>
<td>.263*</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Technology comfortable</td>
<td>0.111</td>
<td>-0.173</td>
<td>-0.023</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Change challenge</td>
<td>0.034</td>
<td>0.120</td>
<td>.290*</td>
<td>-.231*</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Student active learning</td>
<td>.526**</td>
<td>-.463**</td>
<td>-0.119</td>
<td>.292**</td>
<td>-0.035</td>
<td>1</td>
</tr>
<tr>
<td>Video clip positive</td>
<td>.669**</td>
<td>-.310**</td>
<td>-0.022</td>
<td>0.164</td>
<td>-0.017</td>
<td>.582**</td>
</tr>
</tbody>
</table>

* Correlation is significant at the 0.05 level (2-tailed).
** Correlation is significant at the 0.01 level (2-tailed).

To explore further the relationship between technology and other aspects of teaching and learning as expressed in the different scales, analyses of variance were performed using the scale results as dependent variables and the following two categorical questions (Yes/No) as independent variables:

- Are you currently using short video-clips rather than lectures in your course? (Yes=16)
- Are you currently using short video clips in addition to lectures in your course? (Yes=42)

Tables 13 and 14 show the mean result for the first two questions related to the use of video clips and the F values of the analyses of variance.
Table 13: Mean results between respondents who answered Yes/No to the question: Do you use video clips instead of lectures?

<table>
<thead>
<tr>
<th></th>
<th>No Mean</th>
<th>SD</th>
<th>N</th>
<th>Yes Mean</th>
<th>SD</th>
<th>F value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technology positive</td>
<td>3.09</td>
<td>0.96</td>
<td>62</td>
<td>3.63</td>
<td>0.88</td>
<td>3.77</td>
</tr>
<tr>
<td>Lecture preference</td>
<td>2.99</td>
<td>0.79</td>
<td>64</td>
<td>2.33</td>
<td>0.88</td>
<td>8.57**</td>
</tr>
<tr>
<td>Student deficit</td>
<td>3.85</td>
<td>0.73</td>
<td>68</td>
<td>3.14</td>
<td>0.78</td>
<td>11.83**</td>
</tr>
<tr>
<td>Techno comfortable</td>
<td>3.54</td>
<td>0.96</td>
<td>67</td>
<td>3.6</td>
<td>0.81</td>
<td>0.045</td>
</tr>
<tr>
<td>Video clip positive</td>
<td>3.29</td>
<td>0.85</td>
<td>64</td>
<td>3.91</td>
<td>0.98</td>
<td>6.34*</td>
</tr>
<tr>
<td>Change challenge</td>
<td>2.63</td>
<td>0.83</td>
<td>61</td>
<td>2.31</td>
<td>1.17</td>
<td>1.59</td>
</tr>
<tr>
<td>Student active learning</td>
<td>3.98</td>
<td>0.7</td>
<td>65</td>
<td>4.57</td>
<td>0.65</td>
<td>8.86**</td>
</tr>
</tbody>
</table>

*p < 0.05, ** p < 0.01

Table 14: Mean results between respondents who answered Yes/No to the question: Do you use video clips in addition to lectures

<table>
<thead>
<tr>
<th></th>
<th>No Mean</th>
<th>SD</th>
<th>N</th>
<th>Yes Mean</th>
<th>SD</th>
<th>F values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technology positive</td>
<td>2.86</td>
<td>1.04</td>
<td>41</td>
<td>3.58</td>
<td>0.71</td>
<td>11.83**</td>
</tr>
<tr>
<td>Lecture preference</td>
<td>2.82</td>
<td>0.92</td>
<td>40</td>
<td>2.9</td>
<td>0.79</td>
<td>1.54</td>
</tr>
<tr>
<td>Student deficit</td>
<td>3.81</td>
<td>0.85</td>
<td>42</td>
<td>3.61</td>
<td>0.72</td>
<td>1.42</td>
</tr>
<tr>
<td>Techno comfortable</td>
<td>3.42</td>
<td>1.04</td>
<td>42</td>
<td>3.68</td>
<td>0.78</td>
<td>1.64</td>
</tr>
<tr>
<td>Video clip positive</td>
<td>3.1</td>
<td>0.95</td>
<td>40</td>
<td>3.73</td>
<td>0.75</td>
<td>10.68**</td>
</tr>
<tr>
<td>Change challenge</td>
<td>2.65</td>
<td>0.91</td>
<td>39</td>
<td>2.48</td>
<td>0.91</td>
<td>0.61</td>
</tr>
<tr>
<td>Student active learning</td>
<td>3.93</td>
<td>0.75</td>
<td>40</td>
<td>4.26</td>
<td>0.66</td>
<td>4.41*</td>
</tr>
</tbody>
</table>

*p < 0.05, ** p < 0.01
What these results seem to suggest is that those respondents who used video clips instead of lectures, or in addition to lectures, were not significantly more comfortable with technology than those who did not. However, those who did use the video clips in addition to lectures seemed more positive about technology than those who used video clips instead of lectures. Both groups were also more positive about active learning approaches and positive about the use of video clips. In addition, those who used video clips instead of lectures were less inclined to have a deficit view about students.
CHAPTER FIVE: FINDINGS – SURVEY OPEN-ENDED QUESTIONS

This chapter reports on the findings from the analysis of the qualitative data gathered in Phase 1 of the research study utilising a customised survey instrument. As stated in Chapter 1, the aim of the study is to explore the pedagogical reasoning underpinning the adoption and non- adoption of Flipped Classroom Model in the Higher Education. This chapter explores the participants’ pedagogical reasoning, and their acceptance of and/or resistance to the Flipped Classroom Model as evidenced in their responses to six open-ended questions:

1. What are your main approaches to course delivery at the moment (e.g. lecture, workshops, labs, etc.)?
2. If you are, or have considered changing your current course delivery method, what changes have you, or are you considering?
3. What does the term "flipped classrooms" mean to you?
4. To what extent is this model used in your university?
5. If you are using this model yourself, what have been your experiences so far?
6. What are/were the main challenges or barriers implementing this model?

These questions sought to probe respondents’ thinking about their current approaches to teaching and their consideration of making changes to their approaches, especially with regards to a Flipped Classroom Model. The first two questions sought to more indirectly probe respondents’ thinking about their reasoning regarding choices for particular approaches to teaching.

In this chapter, the responses to each question will be summarised with illustrative examples for the various categories or themes that emerged through the data analysis.

**Question 1: What are your main approaches to course delivery at the moment (e.g. lecture, workshops, labs, etc.)?**

This question aimed to identify participants’ current approaches to the delivery of their courses. The 84 participants identified 32 different responses (see Appendix G). Although the question was phrased to suggest delivery mode (lecture, workshops, etc.), a number of participants focused on their pedagogical approach (e.g., team-based learning, student-centred learning). Some participants (47) identified a single mode of delivery, while slightly
more identified a combination of delivery modes (58 participants). Lectures were very common, with the majority of participants (72) using lectures as one of their delivery approaches. Lectures alone were the most common practice (20 participants), followed by a combination of lectures and tutorials (13 participants). Smaller numbers of participants reported using less traditional modes of course delivery, including Flipped Classroom Model and team-based learning (3 participants each).

A small number of the participants elaborated on their responses, explaining why they used the course delivery approaches they did. As Table 15 shows, three main themes emerged: lectures have to be used, lectures are more than content delivery, and there are variations in how courses are being delivered.

Table 15: Explanation for delivery mode, categorised by theme

<table>
<thead>
<tr>
<th>Theme</th>
<th>Subtheme</th>
<th>Illustrative examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lectures have to be used</td>
<td>Class size</td>
<td>. . . depends on class sizes (usually humungous) lectures to large classes (250 and 100 students respectively) (Survey Participant (SP) 61)</td>
</tr>
<tr>
<td>Cost effectiveness</td>
<td></td>
<td>Lecturing is the only cost effective way of delivering material that the students have to learn. . . The ideal teaching format would be small groups meeting several times a week, but it is too expensive to do that (SP17)</td>
</tr>
<tr>
<td>Amount of content/effectiveness</td>
<td></td>
<td>The course is very skills and content demanding and with a clinical focus so the amount of time we have for formal teaching is limited and we need to give outlines over very wide areas in a short period of time. Alternative approaches including videos and tutorials simply do not lead to adequate knowledge or skills or attitudes (SP7)</td>
</tr>
<tr>
<td>Lectures are more than content delivery</td>
<td>Interactive lectures</td>
<td>Lectures offer the possibility of asking questions and challenging the class in an interactive and very human way (SP15)</td>
</tr>
<tr>
<td>------------------------------------------</td>
<td>----------------------</td>
<td>-----------------------------------------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Lectures as interactive as I can make them (students often very reluctant to engage (SP57))</td>
</tr>
<tr>
<td></td>
<td></td>
<td>I see lectures as being forums in which there is sharing of information integrated with interactive discussion and often problem based learning activities, with lectures supplementing other learning material (mostly text based) and self-directed learning activities (SP40)</td>
</tr>
</tbody>
</table>

| Recorded lectures | Pre-recorded lectures for entire course (1 quiz per lecture to highlight main teaching points) (SP54) |

<table>
<thead>
<tr>
<th>Course delivery variations</th>
<th>General variations</th>
<th>Problem solving coupled with small group discussion for the first third of a session, followed by a small amount of whole class discussion, leading to a brief lecture to explain concepts about which there seems to be confusion. Conclude by introducing homework and questions for next session (SP21)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Interactive teaching using collaborative tools such as Google slides (SP52)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1. Case-based teach (Harvard style). No content delivery per se in class (except to clarify misconceptions).</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Team-based learning No content delivery per se in class (except to clarify misconceptions)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. Experiential learning. No content delivery per se in class (except to clarify misconceptions); In all three cases, students main source of content is through reading stuff (SP67)</td>
</tr>
</tbody>
</table>

| Distance learning | Totally web-based. Moodle Forums, webinars, blogs and podcasts are central to the dynamic nature of our teaching (SP47) |
Question 2: If you are, or have considered changing your current course delivery method, what changes have you, or are you considering?

This question sought to elicit insight into the respondents’ perceptions about what changes in their teaching they considered desirable. Some respondents (15) indicated that they were considering or had considered multiple changes. Ten respondents answered that they did not consider any changes, four respondents mentioned that they continuously considered improvements, and 14 respondents did not answer this question. The most commonly considered changes were related to the use of technology and increases in the amount of interactivity (Table 16).

Table 16: Consideration of changes in teaching in order of frequency

<table>
<thead>
<tr>
<th>Area in which changes have been or were being considered</th>
<th>Number of respondents</th>
<th>Illustrative examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use of technology</td>
<td>28</td>
<td>I have introduced audience response technology into some key lectures with major improvements in engagement (SP41)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>I'd consider a Student Response System if there were (a lot) more support for it here (SP57)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Have, introducing ZOOM for tutor sessions and have incorporated short video lectures available on BB (SP79)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Current doing peer discussion groups with Zoom. YouTube videos as integral class materials. Pop quizzes using Wi-Fi in lectures. Asking for Internet searches during lectures (SP80)</td>
</tr>
<tr>
<td>Interactivity</td>
<td>21</td>
<td>Interactive discussion sessions, but it does take quite a bit of effort and time to get students to interact/discuss (SP32)</td>
</tr>
<tr>
<td>---------------</td>
<td>----</td>
<td>-----------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td>I have increased the amount of &quot;learning-by-doing&quot; activities during lectures, for example: posing questions during lectures and getting the students to discuss either as whole class or by breaking into groups to discuss followed by group feedback to whole class; passing out objects during lectures for students to manipulate to demonstrate to themselves a concept (SP44)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1/3rd of 24 lecture course has been pre-recorded and lecture time is used to problem solve, discuss and is more like a tutorial (SP54)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>To break up the lecture with &quot;confirmation of understanding&quot; times. use more videos for demonstrating clinical skills (try to produce our own) (SP26)</td>
</tr>
<tr>
<td>Flipping</td>
<td>20</td>
<td>I am flipping content in some classes to test the water with respect to student opinion and feeling towards the different methods. Also - I am recording summary sessions to consolidate material in themes and sections of the course (SP2)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Using flipped classroom style where students present back their understanding of the self-directed readings prior to interactive group workshops (SP42)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Hoping to switch to videos/online material and interactive lectures in 2016 - yet to develop the material though, and suspect that will be time-consuming (SP65)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Would like to get more interaction, so giving notes and prerecording beforehand and then review and practice in class (SP70)</td>
</tr>
<tr>
<td>Peer interaction</td>
<td>8</td>
<td>I've provided more guidance on what to take from the preparatory material, I've included more class time for discussion, I've included more group work to encourage peer learning (SP37)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>More peer-to-peer learning e.g. group work and then reporting back (SP45)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Embracing a collaborative approach to learning that exploits the students search skills and includes short didactic elements including youtube or micro lectures (SP52)</td>
</tr>
</tbody>
</table>
Content changes

2 Keeping the material current is important and relevant to the class. I normally ask students in the first lab what they are doing a major in and then use examples from their subjects to show how what I teach is directly relevant to their area of study (SP15)

Reducing the volume of content of the online course (SP59)

Assessment improvement

2 More internal assessment to build up their skills of application (SP17)

More emphasis on problem sets outside of class to reinforce material. This would likely be coupled with peer-marking, perhaps in class (SP21)

Teaching space use

2 We may reconsider when we have a new (refurbished) department (SP5)

Making better use of physical learning environments (e.g. marae settings) (SP13)

Other responses to this question did not identify changes they were considering, but rather factors considered in making a decision regarding change. For example, lack of students’ preparedness, and/or class attendance came up in a number of responses.

I introduced lecture recordings for one course a few years ago, although there is some evidence that that has not been overly helpful (low lecture attendance, and few students watching the recordings (SP11)

[There are] many and varied changes, [I] have tried flip teaching but it has challenges around content and student preparedness. I find a mixed method approach works best, some lectures some workshops. Technology can be great but only if used appropriately and well. Students benefit from coming to class and I'd like to encourage them to do that (SP18)

At 400-level, I have assigned readings and attempted to use class time for interactive discussion for 12 years. In my experience, few students do the readings ahead of time (unless some assessment is directly attached) and inevitably I have to go through them more or less as a lecture. This year, I was thanked for this more “structured” approach in student evaluations! (SP39)
Time constraints also came up when indicating a desire to introduce more interaction or a flipped classroom:

I have considered trying the flipped classroom idea but PBRF demands mean that, unfortunately, my time has to be spend on publications rather than refining my teaching. I have tried using a blog for discussion - didn't work very well. I try to engage in more activities in the classroom - utilising students’ computers (SP22)

I would like to make my courses more interactive, but don't have the time to investigate options (SP3)

One respondent made a point of indicating what s/he considered doing less of:

Less teamwork. Students need advanced skills to make small team discussions meaningful. Otherwise, it becomes collective brainstorming with a feel-good factor (SP56)

**Question 3: What does the term “Flipped Classrooms” mean to you?**

Question three asked participants their opinion and understanding of the term Flipped Classroom. The findings identified that 57 of the respondents had a clear understanding of at least one of key elements of what flipped classroom involves; that is, it is about students taking ownership of their own learning, combines face to face instruction and technology, and involves a form of tutorial type learning. However, there were variations in their answers in term of their understanding what a Flipped Classroom Model was, frequently focusing on one of the elements. As such, the Flipped Classroom was perceived by some participants as an instructional model that allowed the individual learner to take responsibility for their own learning; others saw it as a model that integrated technology to create a flexible learning environment, while others described it as a blended or tutorial learning approach (see Table 17).
<table>
<thead>
<tr>
<th>Key characterisation</th>
<th>Key aspects</th>
<th>Number of respondents</th>
<th>Illustrative examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student-centred</td>
<td>Autonomous learning</td>
<td>46</td>
<td>It places the learning and content in the hands of students. At best the learning environment proceeds at a pace with the students rather than with the lecturer. The power is with the students (SP52) Students takes central role, class activities based on student independent study (SP82)</td>
</tr>
<tr>
<td>Blended learning</td>
<td>Face to face instruction and online learning</td>
<td>5</td>
<td>Recording the lecture (broadcast) component of a class (usually in video format) so students can access them online before the class, which can then be used for more interactive forms of teaching (SP34) The lecture content is taught via videos that students watch BEFORE coming to the lecture. The lecture time is used for discussions and doing problems together (SP71)</td>
</tr>
<tr>
<td>Tutorial</td>
<td>Diagnosis and follow-up</td>
<td>3</td>
<td>Moving information delivery to recorded/written sources, which students study themselves before engaging in tutorial discussions or practical work (SP11) Students working in small groups after reading lecture material (or watching videos) beforehand, more like primary school (SP10)</td>
</tr>
</tbody>
</table>
Question 4: To what extent is this model used in your university?

Question four reports on the participants’ perceptions of the levels of use of the Flipped Classroom Model within their institutions. Only 56 respondents answered question four, with 28 not responding. They responded both in terms on the amount of usage within their intuitions, and their awareness of this.

Thirty respondents commented on the amount of usage of the Flipped Classroom Model within their institutions. The majority of these respondents (20) reported the model was used minimally within their institutions (Table 18). A number of respondents (6) highlighted the variation in the use of the Flipped Classroom Model, based on the teaching and learning context. For example, one respondent mentioned that the model is extensively used in the Humanities but not in Science. In contrast, a respondent from a different university commented that the model as not much used in the Humanities.
Table 18: The amount the Flipped Classroom Model is used within respondents’ universities

<table>
<thead>
<tr>
<th>Theme</th>
<th>Number of respondents</th>
<th>Illustrative examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimally</td>
<td>20</td>
<td>Used with a few tutors (SP42)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Very little. I know of one or two who use it (particularly for very large first year . . . courses) (SP34)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Not much at all, sadly (SP55)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Occasionally (sometimes as team-based learning) - although it has similarities with the traditional pedagogical model of pre-class readings addressed or discussed in class (SP18)</td>
</tr>
<tr>
<td>Frequently</td>
<td>4</td>
<td>Reasonably frequently but lecturing prevails generally due to content constraints balanced with available teaching time (SP7)</td>
</tr>
<tr>
<td>Varies based on the area</td>
<td>6</td>
<td>Impossible in teaching within [my area]</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Not much in the HUMS Division, that I'm aware of... (SP45)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Extensively in humanities. Hardly at all in the sciences (SP58)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Extensively in Stage 1 (SP61)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Hardly ever, quite difficult in lectures with over 100 students! (SP75)</td>
</tr>
</tbody>
</table>

A number of respondents (23) reported that they felt unable to comment on the extent the Flipped Classroom Model was used within their institutions. As Table 19 shows, these respondents reported that they only knew their area and did not have enough knowledge to estimate the level of usage within their institutions.
Table 19: Awareness of the extent to which the flipped model is used within respondents’ universities

<table>
<thead>
<tr>
<th>Theme</th>
<th>Number of respondents</th>
<th>Illustrative examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not sure</td>
<td>11</td>
<td>Don't know. I know it is talked of and I know it is done in some areas and I have attended a course about it (SP22)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>I don't know, but I do know it is gaining traction (SP23)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>I don't know but I guess it's limited (SP71)</td>
</tr>
<tr>
<td>Limited knowledge</td>
<td>6</td>
<td>From my knowledge it is being used minimally across the campus. Some people are trying it but i wouldn't think it is widespread (SP2)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Very little to my knowledge (SP39)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>I can’t comment on a university-wide basis (SP73)</td>
</tr>
<tr>
<td>Only know my area</td>
<td>6</td>
<td>In the Department of [subject], it is not used in the large courses at present (SP63)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Not sure - not used at all within my department/school (SP60)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Highly used in my Faculty - no idea about the uni (SP74)</td>
</tr>
</tbody>
</table>

Despite the perception of respondents that the model is being used minimally, some respondents felt that they were being encouraged to use the model. As they said,

Quite a few people are experimenting with it, widely publicised (SP78)

It is being encouraged (SP81)

I have read of some teachers using the method and helping others to be able to use it (SP26)
Two other respondents used this question to explain their thoughts on what practices were currently being used, and why the Flipped Classroom Model doesn’t come into the picture.

A variety of approaches to teaching and learning are used at the [University]. The teaching and learning plan of the university promotes active learning approaches for students, however, traditional modes of teaching (lecture) are still common to my knowledge (SP19)

I can't comment on a university-wide basis. However, while I support the notion of using contact time for workshops and other activities, it's unrealistic to think that students will learn content prior to attending lectures (SP73)

**Question 5: If you are using this model yourself, what have been your experiences so far?**

Respondents who were using the model were asked to report on their experiences of using the flipped model, with 44 respondents taking this opportunity. Some of the respondents (5) described their teaching and learning practices with regards to the Flipped Classroom Model.

I think the purpose made video clips were useful to introduce key ideas. Students can manage their concentration and engagement better than sitting for 50 minutes in a lecture - although an interactive lecture can be engaging and has the benefit of group discussion. There was an attempt to have groups of student watch video clips together but this didn't seem to happen. In one year there were video clips and lectures. This could work if one developed more on the ideas introduced in the other. Definitely still need a workshop component to have staff respond to students' developing understandings (SP43)

Like noted, my model is semi-flipped in that we do lots of activities in class time. But, I don't expect students to read material in their own time (SP55)

Other respondents (3) talked about the pedagogy associated with using a Flipped Classroom Model that made it more or less appropriate for a particular context.
A fit for purpose model for a particular course in which I am explicitly engaging with a particular theory of pedagogy for the course (SP4)

Important to make students understand why you are using this approach, and to make sure class time adds value to content (SP31)

How else could you do it? There's no way to discuss a text or an artefact if the students have not already examined it closely, and prepared themselves with a few theoretical frameworks and cases of what scholars have tried before them. For us, it's not enough to have our students just quote the words back at us. It's much harder than the algorithmic learning in STEM. (I've been there all the way to postgrad level. STEM courses really are much easier) (SP58)

OK. It de-skills teaching however, as content expertise is devolved - you just have to be a facilitator (SP61)

A small number of respondents (5) mentioned the complexity of adopting the Flipped Classroom Model in teaching and learning.

Implementing a flipped classroom approach is not a simple endeavour. I am working primarily with first year undergraduate students and because many of them are in transition from high school to university, there are additional factors to consider when course planning. Next year will be my 5th year of teaching in a particular course, and I think we are getting close to an optimal design for our course (SP19)

Great! But you have to have a plan for students who can't make it to class (SP53).

Another group of respondents talked about the nature of their experiences in using the Flipped Classroom Model (see Table 20). The highest number of respondents (14) talked about their experience in positive terms, while six had mixed experiences, and four negative experiences. Although most reported their experiences in positive terms, two noted that it took time, while four reported that it only worked under certain conditions.
<table>
<thead>
<tr>
<th>Type of experience</th>
<th>Subthemes</th>
<th>Number of respondents</th>
<th>Illustrative comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive experience</td>
<td>Generally positive</td>
<td>8</td>
<td>What I did like is that students will ask you questions that you can clarify and breaking into smaller groups seems to be effective in getting more questions (i.e. you are not asking in front of the entire classroom) (SP54)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Great - high expectations gets good results (SP74)</td>
</tr>
<tr>
<td>Eventually positive</td>
<td>2</td>
<td></td>
<td>Students are scared of it initially, learn soft competencies, like making lectures by recording voice files into PowerPoint, and leading asynchronous discussion threads as an assessed activity. By the end of the course, they rave about how good an experience it was (SP47)</td>
</tr>
<tr>
<td>Positive under certain conditions</td>
<td>4</td>
<td></td>
<td>Only worked if students had to give a presentation on the materials they had read prior to class (SP43)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>I really enjoy it and students respond positively, but it does require an adeptness with technology and an openness to new ideas (SP52)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>When students prepare thoroughly it works well, but not all students do the homework and come prepared and therefore free ride on the others (SP75)</td>
</tr>
</tbody>
</table>

Table 20: Respondents’ perceptions of their Flipped Classroom Model experiences
<table>
<thead>
<tr>
<th>Experience Type</th>
<th>Rating</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mixed experience</td>
<td>4</td>
<td>Mixed, can be good but I've found I still need to lecture to help introduce content. I now do a mixed model with interactive lectures and some lecture sessions being replaced by workshops or discussions (SP18)</td>
</tr>
<tr>
<td>Mixed experience for students</td>
<td>2</td>
<td>Yes. Some students (not all) are more engaged during lecture times. They are able to form questions that are meaningful to them (SP23)</td>
</tr>
<tr>
<td>Negative experience</td>
<td>4</td>
<td>Student engagement is quite variable. Effective for simple concepts. Students and I both feel that it is not effective in exploring complex, highly abstract concepts (SP21)</td>
</tr>
<tr>
<td>Do not use it</td>
<td>5</td>
<td>I haven't used this method much to date, but I am aware that it is a better approach (SP34). I don't use it because I think it's just &quot;the emperor's new clothes&quot; (SP45)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Think it's a great idea but not very applicable to content I teach which doesn't involve &quot;problems&quot; to solve, per se (SP57).</td>
</tr>
<tr>
<td>Do not like technology</td>
<td>I am already engaging with students in my 'lectures/classes' and I don't like technology as a teaching tool: it alienates students from me and from each other (SP45)</td>
<td></td>
</tr>
<tr>
<td>------------------------</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Technology is not a panacea. it doesn't make anything more likely to happen or not happen. It is a tool to use to vary the style and method of teaching/ learning (SP59)</td>
<td></td>
</tr>
<tr>
<td>Would like to use it</td>
<td>I haven't used the model yet but am planning on trying it next year (SP60)</td>
<td></td>
</tr>
</tbody>
</table>

In answering question five, a further three respondents commented on the effectiveness of the model, with two expressing an opinion that the model was effective, albeit for different reasons.

The students seem to like it but I am not convinced that there are any changes in learning per se. What I did like is that students will ask you questions that you can clarify and breaking into smaller groups seems to be effective in getting more questions (i.e. you are not asking in front of the entire classroom) (SP54)

Great - high expectations gets good results (SP74)

As respondents reported on their experiences using the Flipped Classroom Model a number of challenges became apparent. The responses to this question were recoded with a focus on these challenges. As Table 21 shows, 11 respondents reported on challenges associated with students’ preparation prior to class and their engagement in class, while five identified the time required to prepare the materials as a challenge.
Table 21: Challenges implementing the Flipped Classroom Model

<table>
<thead>
<tr>
<th>Theme</th>
<th>Number of respondents</th>
<th>Illustrative comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student preparation</td>
<td>6</td>
<td>It has been hard to get all students to participate in the preparation and watch the video clip before the scheduled meeting. Then at the meeting some students are more prepared than others for the applied session and this creates a disparity in the class (SP2)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>By and large it's very difficult to persuade students that they need to prepare before they attend class. Often they don't properly engage with difficult material until there's some assessment based on it (SP73)</td>
</tr>
<tr>
<td>Student engagement</td>
<td>5</td>
<td>Student engagement is quite variable. Effective for simple concepts. Students and I both feel that it is not effective in exploring complex, highly abstract concepts (SP21)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The main problem is student expectations are very old fashioned. They come from school expecting to be taught face to face and to be told what to learn. NCEA school assessment style has created significant barriers to getting students to engage rather than succeeding-by-ticking. Many students question why they paying high fees to watch videos and teach themselves at home (SP80)</td>
</tr>
<tr>
<td>Technology</td>
<td>2</td>
<td>Students are scared of it initially, learn soft competencies, like making lectures by recording voice files into PowerPoint, and leading asynchronous discussion threads as an assessed activity (SP37)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>It does require an adeptness with technology (SP52)</td>
</tr>
<tr>
<td>Preparation time</td>
<td>5</td>
<td>It is a lot more work but students get more out of it (SP72)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The key to good learning is engaging the students and that is hard work no matter which way you achieve it. Time famine is the enemy of good teaching, it is very difficult to work simultaneously for service, research and teaching and so being innovative if it takes more time is quite a burden. So my experiences of being innovative with my teaching is that it has placed me and my family under a lot of stress through taking up my additional time beyond my 37½ hours per week (SP8)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>University regulations mandate certain lecture/tutorial/assessment formulations. Any proposed changes have to go through . . . Board approval which discourages short term experimentation (SP80)</td>
</tr>
</tbody>
</table>
Question 6: What are/were the main challenges or barriers to implement this model?

In the final open-ended question, survey respondents were asked to identify what they considered to be challenges to implementing the Flipped Classroom Model in their classrooms. Three major themes were identified in respondents’ answers to this question: motivational, practical and pedagogical, with each discussed in turn.

Table 22 highlights the comments related to motivational themes. As it shows, both students and staff needed to be convinced the value of the Flipped Classroom Model. It was also clear in the responses that students not doing the out of class work was a concern for a number of respondents (12).

The second theme, practical issues, included three subthemes: time, technological issues, and physical issues. As Table 23 shows, time was the most common issue, with 19 respondents identifying with this. An underlying theme implicit in all the practical subthemes was the need for support from both institutions and colleagues. Two respondents identified this specifically:

Colleagues lack of support/understanding for wanting to change lectures (SP22)

It requires support from colleagues and from the department. Neither have been supportive in my case (SP34)

Table 22: Motivational challenges

<table>
<thead>
<tr>
<th>Category</th>
<th>Subcategory</th>
<th>Number of respondents</th>
<th>Illustrative comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Issues related to students’ motivation</td>
<td>Engagement/seeing the benefits</td>
<td>5</td>
<td>Eliciting engagement from the students, they quite like the passive model (SP18)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Student resistance is strong initially, but give them training materials and they run with new technologies (SP47)</td>
</tr>
</tbody>
</table>
Expectations 12

The main barrier is student expectations. This includes both their expectations of what we should provide (if we're not lecturing, we're not seen as teaching) and what should be expected of them (many students don't attend lectures, don't watch the recordings of them, and don't tell us about any issues that might be the cause of this) (SP11)

Students sometimes comment that the lecturer is being lazy and making them do all the work! (SP75)

For students, not violating their expectations of university, they expect to see a "sage on the stage" so how to give them that experience but in a highly interactive way (SP19)

I would consider barriers to include students not covering the 'lecture material' prior to class, and therefore undermining the learning process (SP77)

Convincing staff of value 6

Convincing colleagues who co-teach that this is a useful and productive way to teach - now, they wouldn't look back (SP4)

Own nervousness in standing in front of students trying new approach (SP70)

Sadly, and quite bluntly, most academics are not interested in teaching (effectively). Being research-driven, teaching is largely seen as a chore to many academics. In this regard, the "get it over" model is to broadcast in traditional sage on the stage style. There is no need to prepare or gauge student learning (SP55)
Table 23: Practical issues

<table>
<thead>
<tr>
<th>Theme</th>
<th>Subtheme</th>
<th>Number of respondents</th>
<th>Indicative comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time</td>
<td>In general</td>
<td>1</td>
<td>Time!! (SP3)</td>
</tr>
<tr>
<td></td>
<td>To prepare</td>
<td>12</td>
<td>Friends in other disciplines who have used it say learning curve and start-up time to prepare videos etc. is <em>enormous</em> (SP57)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Time. I have lectures that are ready to go, whereas developing materials and exercises for in-class use takes a lot of time (SP37)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>It takes more time to prepare this type of teaching. Effective and engaging classroom tasks have to be designed (SP75)</td>
</tr>
<tr>
<td></td>
<td>To polish</td>
<td>2</td>
<td>Time it takes to really see the components of the course develop if people (teachers) are starting at different levels, trying things out in a year etc... it's taken 4 years for the pedagogy to really settle into place (SP4)</td>
</tr>
<tr>
<td>Competing demands</td>
<td>1</td>
<td></td>
<td>Time - PBRF is demanding a research (writing) focus and not a teaching focus (SP22)</td>
</tr>
<tr>
<td>Related to using the</td>
<td>3</td>
<td></td>
<td>You can't simply use lecture recordings as the videos for students to watch. Therefore, it requires a massive effort to produce these videos in the first place (SP71)</td>
</tr>
<tr>
<td>technology</td>
<td></td>
<td></td>
<td>Finding the technology to do it in the way I wanted. Learning how to use that technology (SP31)</td>
</tr>
</tbody>
</table>
The third type of challenges identified were those related to pedagogy. The majority of respondents reporting pedagogical challenges identified general challenges, with others being more specific (see Table 24). Ten respondents reported needing support in implementing the model, whilst five reported that they need support based specifically on their teaching and learning context.
<table>
<thead>
<tr>
<th>Theme</th>
<th>Number of respondents</th>
<th>Indicative comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>General issues</td>
<td>10</td>
<td>[Students] need to be taught how. Have tried encouraging students to speak up and discuss topics in the past and have given up due to their lack of interest in doing so! Have to get a certain amount of information across in the time and just delivering it seems most efficient. Can refine details when we use the information in the [classes] (SP26)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Learning how best to use the model - how much pre-work for students, what to do in class, how to make class still a positive experience for those that hadn't done the pre-work (SP31)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>To do this properly requires a complete rethinking of how we &quot;deliver&quot; our courses, and a change in our understanding of how our students learn. Flipping (or other ways of putting content online) enables an ecosystem of shared educational resources. However, the health of such an ecosystem would require these practices to be more widespread. It requires a change in attitudes, in our values, and in our pedagogical philosophy. This is not just about the introduction of new teaching practices and technologies; it's about a complete change in the education and business models at the institutional level. Until that happens, innovation will continue to happen in traditional institutions, but only by a few, at the margins, and under the radar (SP34)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>For teachers, it requires thinking from a student's perspective to essentially reverse engineer your planning (SP19)</td>
</tr>
<tr>
<td>Issues based on the subject being taught</td>
<td>3</td>
<td>The anti-intellectual, content-driven focus of the medical curriculum makes it difficult to teach the . . . programme in an interactive fashion, with the consequence that many . . . students (who go through the same programme) enter second year with very passive, unhelpful study habits (SP21)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>As I say I haven't seen a way to apply model to my own content at this point (SP57)</td>
</tr>
<tr>
<td>How to teach in particular contexts</td>
<td>2</td>
<td>Large classes, I don’t know how to implement this with 100+ students (S70)</td>
</tr>
<tr>
<td>-----------------------------------</td>
<td>---</td>
<td>-----------------------------------------------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Worry about students not being used to this mode of delivery and being confused by it when it's used as a part of a team taught course when other lecturers are not using this approach (SP30)</td>
</tr>
</tbody>
</table>

**Conclusion**

The majority of respondents had at least some understanding of the Flipped Classroom Model. They recognised at least one of the key elements, that is, student-centred, active learning, students watching videos prior to class, with classes more tutorial-like in nature. Although the model was at least somewhat understood, its use was believed to be limited. Around half the respondents answered the question regarding their experience of adopting the model, generally reporting that their perception was that it was used infrequently within their wider institutions, although its use was more common in small pockets.

Lectures were the most common form of teaching and learning reported by respondents, although it was noted that these were not necessarily the transmission model they are typically perceived to be. Respondents used a variety of teaching practices, ranging from interactive lecturing to problem-based learning and blended learning. The use of a combination of different approaches was common, with teaching practices varying based on the course content as well as the discipline.

It was also clear that respondents understood that Flipped Classrooms were not the only alternative to lectures. A number of respondents tended to be cautious about the use of technology in teaching and learning, particularly where it was perceived to be replacing in-person learning experience. The majority of respondents also noted that the most effective teaching practice depends on the content and objectives of the course, as well as class size.

Respondents reported that active learning teaching (such as experiential learning, Problem-based learning and lab work) is more conducive for learning compared to a more static (lecture), and one-way (teacher-student) learning environment, however, it was also reported that the more passive learning style of lecturing remained common. On the other hand, those
who adopted the Flipped Classroom Model reported that it allowed more time for engaging in active and collaborative learning.

Those that were flipping their classrooms noted that there were benefits, with some students more engaged, however, there were a number of challenges. Almost all who adopted the Flipped Classroom Model emphasised that there was a steep learning curve for using this model in their teaching and learning. They recognised that it took time and effort to create content and mastering the learning technology, and using it effectively, was not an easy task.

A number of other challenges were identified, including student preparedness and expectations. Respondents were particularly concerned about students’ self-motivation, their disengagement in class, and their resistance towards pedagogy change. While a small number reported that students had positive attitudes towards the pre- and in class activities, and that they led to better learning outcomes, others reported that students tended to resist the pre- and in-class activities.

Overall it is clear that the respondents varied in their knowledge and experience of Flipped Classrooms. While a number of common themes emerged, there was also large variation. These themes, and new themes that arise, will be further investigated in the exploration of the individual interviews in Chapter Six.
In this chapter, I present the findings and analysis of the teachers’ perceptions and experiences in relation to their adoption or resistance of the Flipped Classroom Model, as provided through the interviews. The interviews aimed to further explore information regarding key issues and/or challenges in the process of implementing or adopting the Flipped Classroom Model. Key themes that arose regarding were: 1) Teachers’ understanding of what the Flipped Classroom Model is, 2) Factors that impacted on teachers’ decision making to adopt/not adopt the Flipped Classroom Model, 3) The challenges faced by those who adopted the Flipped Model (see Figure 4). Each of these themes incorporates a number of sub-themes, which are discussed alongside the major themes.

Figure 4: Factors affecting the adoption the Flipped Classroom Model

Throughout the analysis of the interview data it became apparent that the participants represented three different groups of teachers: those who had adopted the Flipped Classroom Model (A) and continued to use it; those who had adopted the Flipped Classroom Model but discontinued its use (AD) and those who had never used the Flipped Classroom Model (NA). Comments from participants in each of these three groups have been identified through the addition of A, AD, and NA, respectively, to the comment attribution. This attribution also contains a participant number, which is used to ensure the participants remain anonymous.
Teachers’ Knowledge and Understanding of the Flipped Classroom Model

During the interviews, I asked the participants about their understanding of the Flipped Classroom Model concept. Although all interview participants had at least some understanding of what the Flipped Classroom Model was, there was variation in their definitions. As they noted, it is difficult to agree on a definition of a ‘flipped classroom’. As one participant said:

In my point of view, there is no one definite definition for the Flipped Model. It has many meanings depending on the context. The term ‘flipped’ sounded sophisticated but the approach is nothing new (AD: P7)

Almost all the participants agreed that the Flipped Classroom Model has multiple meanings and that it is difficult to define it precisely:

The approach is similar to the blended learning and what we do in a normal tutorial class. The buzz about this approach may be due to the term ‘flipped’ but there is a lack of single definition about this model. People just do research and define it according to their interest (AD: P5)

Several participants commented that there are various teaching models that are being used in teaching and learning, and this is just one more. A number of participants commented on the similarity of the Flipped Classroom Model to other approaches.

I like the idea and thought it would be much better from what I have read but I don’t think the model is actually offering us anything new. The approach is similar to the blended approach where you integrate face-to-face instruction and online learning. The classroom discussion sounded more like a tutorial that we run (AD: P2)

To me, it means that they deal with the content before they come. They use the time in class to discuss, assimilate, kind of deal with that in whatever form that might be. So it might be in a structured tutorial (NA: P3)
Four participants mentioned that Flipped Classroom Model was difficult to define. This was consistent with much of the academic literature (see Abeysekera & Dawson, 2014; Bishop & Verleger, 2013; Sharples et al., 2016). What was apparent during the interview is that participants understood the Flipped Classroom Model to be an integration of both face-to-face and online delivery modes, which they claimed is similar to the blended learning. The fundamental approach in a blended learning is the redesign of the pedagogy structure and approach to teaching and learning (Garrison & Vaughan, 2011) whereas, the flipped approach is more concerned with flexible learning environments, where students can choose ‘when’, ‘where’, ‘what’ and ‘how’ to study and ‘learn’ (Wanner & Palmer, 2015, p. 356). However, what was lacking during the interview were participants’ understanding of active learning (e.g., NA: P3); the main objectives in the flipped approach which may lead to misconceptions about Flipped Classroom Model, what it involves and the impact on its adoption.

**Teachers’ Decision Making in Pedagogy: Factors that Impact on Whether to Implement the Flipped Model**

Several factors emerged from the interview data related to teachers’ decision making about whether or not to implement the Flipped Classroom Model. These fell into four broad categories: Issues related to students, Personal beliefs, Institutional issues and Practical issues. Each of these included a number of subthemes, and will be considered in turn.

*Issues related to students*

Teachers were very concerned about how students would react to the change of the current pedagogy, particularly in terms of their comfort with unfamiliar methods and their resistance to embrace new teaching. Some participants cited concerns regarding this as reasons why they had not adopted this model.

Most of my international students prefer face-to-face interaction to get immediate feedback (NA: P1)

Recorded lectures are still lectures and you don’t know how many students are willing to listen to the lecture online (NA: P4)
Other participants had tried the Flipped Classroom Model, but discontinued its use, due to student reaction.

I flipped once, my students didn’t like the recorded lecture and demanded for a face-to-face lecture (AD: P6)

Some students had difficulty engaging with the new method. They resist the idea of a recorded lecture because they simply do not have time to either listen or watch it. Some are not familiar with the style. They felt a little bit uncomfortable with the change (AD: P8)

There was an incredible queue of students at the office saying we (students) can’t do this because if the lectures are online we (students) won’t even remember to watch them (AD: P2)

Other participants had similar experiences, and discontinued the use of the Flipped Classroom Model because the students were not prepared for class.

I tried using video-clips and expected that my students would come well prepared. You know, talking about the Flipped Classroom, they just go nuts (AD: P5)

If you tell them to watch a clip online, they just don’t do it and they don’t put the critical thought in either. You got students who come prepared and yet you have got the student that doesn’t come prepared. We will just do it in a lecture. It’s just much easier (AD: P7)

The issues experienced with adopting the Flipped Classroom Model were related to learner autonomy. A number of participants commented that acquisition of a certain level of autonomy in learning is often seen by university teachers as the main stumbling block in the transition from secondary to tertiary education. As P4 explained, the fundamental problem faced by the learners at the beginning of their journey at the tertiary level is that many teachers assumed high school graduates know everything and expected them to take responsibility for their own learning. Students’ ability to take charge of their own learning varied as two of the teachers who chose not to adopt explained:
I believe the lecturer has knowledge in this area and it’s my job to impart it. Students cannot guide their own learning because they don’t know and this is where the role of a teacher and a lecturer comes in. Flipped classroom and other strategies assume a high level of autonomy and cultural capital that I think underplays the reality at times (NA: P4)

It is not easy when you have a large number of students and each one of them have different learning styles and needs. You can’t simply put up a video and expect them to understand. It doesn’t work like that (NA: P3)

Just as teachers’ beliefs about students and their ability or willingness to effectively use the Flipped Classroom Model impacted on their decision whether or not to adopt it, so too did their beliefs about teaching and learning.

*Teachers’ beliefs*

Teachers’ beliefs about the value of the Flipped Classroom Model, and more generally about teaching and learning were identified as affecting their decision to adopt. As one participant commented:

One thing that I’m not fully convinced with this approach is, how long this model is going to be in the education market? We have seen so many changes in the past. People keep developing new methods and it’s all presented in papers. Some are proven to be effective and some not. They just don’t last because when you try something new, before you can even enjoy using it, you see another new model in the market. Our curriculum keeps changing (NA: P4)

It was apparent in the interviews that teachers’ perception of the Flipped Classroom Model, the ways the model meant to be implemented and how it supposedly fitted with the subject both in content and pedagogy, was a significant issue in the adoption of the model. For example, one participant explained,
It is not easy to implement something that you are not sure of. You have to carefully think about why you want to adopt the approach and how are you going to use it in your class (NA: P1)

A number of participants highlighted the need to use a variety of teaching and learning approaches.

I personally think lecturing is not that bad and it can be effective if you know how to make your students engaged with the activities. I can assume that my students would watch the video-clips but I can assure you that they would demand for more explanation. It is way better to explain that in the beginning of the lecture and give them the feedback immediately. This can be easily done if it is a live lecture (AD: P6)

Either you record your lecture or you deliver it live, you would still have students who demand for more. Some wanted live lectures, some prefer to watch it at home, and some do not opt for either one. At the end of the day, you end up posting everything online to make it easy for them. There is no one best way of learning because you have diversity in your class and their learning needs and styles vary (AD: P5)

As Participant 5 went on to explain,

Lecturing needs to be incorporated with the face-to-face instruction. I hate the idea of moving the lecture outside and do homework in the classroom. It is important to engage students in the classroom activities but you can’t let them do all by themselves. You need to be there to see how it works. (AD: P5)

This importance of being present in the teaching and learning context to see what is and is not working was echoed in comments by a number of participants.

I could produce a video and deliver this online but the difference was the interaction of human beings that create learning can’t happen through digital learning. It is the relational aspect of the teacher and the student where learning happens (NA: P3)
We can’t simply use the technology because it is available. You can’t direct your student to watch a video and assume that he would understand the content. Lecture helps student to understand the content and we make use of the communication in the classroom. If the purpose of what you are doing is to give them some information quickly, then recorded lecture is great. But again, how many will watch it and come prepared? (NA: P4)

It was clear from participants’ comments that they saw the use of videos as a key component of the Flipped Classroom Model. A number of participants mentioned during the interview that using a video-captured lecture would not result in an effective teacher questioning strategy, which is described as an important domain in the classroom.

You ask your student to critique a little video or things like that, there will be not much information channelled for you. I would say that like a keyboard warrior, they just type and then they just discuss, whereby if it is in a lecture, face to face you get more information (AD: P8)

Moving lectures out of the classroom is not a good idea. You need that time to interact with your students in the classroom, you answer their question immediately, you give feedback during and after the lecture. I doubt, that you can get similar experience with a recorded lecture (NA: P1)

This desire to be present to see students’ understanding did not mean that participants could not see value in using technology to enhance their teaching, but rather that it should only be one component of their teaching and learning programme.

I’ve been doing the program for 27 years now and so we have kind of grown with technology and it’s been an iterative process which hasn’t necessarily been driven totally by strategy. We don’t use flipped, but more distance education and its better (AD: P5)

I would probably still have some lectures in the classroom, use online resources and aim for more exercises and discussions in the face to face time (AD: P2)
In line with this, while one participant mentioned that,

The videos helped those who have language problem (A: P10)

For others,

…the problem is, you rely on the technology too much and tend to do everything online (AD: P2)

Some participants also questioned the impact of using the Flipped Classroom Model on them and their role. As one participant explained,

The question then, what is your role as a teacher””? (AD: P2)

Another participant commented on the importance of their presence,

You have choices about how you want to teach your students and you see your objective or purpose for it. I don’t believe in flipping and I would not even think about using it in my class. It’s not just about moving lectures outside and use some innovative strategy but it’s about learning. You need to be there to guide that learning, and not just shift your roles (NA: P4)

**Institutional challenges**

As well as their beliefs about teaching and learning, and the Flipped Classroom Model, some participants identified institutional beliefs as a factor in determining whether or not they adopted a Flipped Classroom Model. Participant 9, who had adopted and continued to use this model, felt that management should acknowledge teachers’ effort and use of learning technologies in teaching. She believed this would encourage others to uptake or at least try the flipped model. A common reason given for not adopting the model was the impact doing so could have on the teachers’ careers. A number of participants commented that research was valued over teaching, so spending time on teaching could impact negatively on their career.
The problem here in New Zealand is that lecturers are judged on their research, they get a job because they are research active, and they keep their job and get promoted because they are doing well in research. Teaching only matters if you are doing a very, very bad job...[in teaching] anyone who spends their time focusing on innovations in teaching, if that’s going to take time away from your research, you might be doing yourself out of a job or a promotion (NA: P3)

In my view teaching is devalued. If you ask any academic on campus how much effort they put into their teaching, many are passionate about what they are doing.... You ask them do you research new innovation in teaching. Most would not have the time because they focus on their research because of the PBRF policy. The first problem is the incentive is not there to focus on any innovations in teaching (NA: P3)

In addition, participants were concerned about the possible impact of adopting a new approach to teaching and learning on students’ evaluation of their teaching. In many tertiary institutions, academic staff progression and promotion depends on a satisfactory record of teaching, research and service. Their progression often directly translates into salary increases and opportunities for career advancement. If there were issues, or if students did not like the approach, they were concerned it would result in negative evaluations. On the other hand, one participant was concerned that not using technology in instruction could be detrimental to their teaching evaluations.

It’s a pressure for those who prefer the traditional way of teaching. I personally think technology is merely an additional tool in your teaching. My courses are lecture-based, I have my own strategies to make my class lively and engaging. I use technology to interact with my students..., like [the Learning Management System], I use it to upload assignments, article and all other stuff but I still prefer lecturing and face-to-face interaction... you know, sometimes you are judged whether you are innovative or old-school (P5: AD)

Another aspect of management attitude concerns the approach taken to encourage teachers to adopt the Flipped Classroom Model. One adopting participant felt that management should convince others of the benefits of learning using this approach, so as to reduce
feelings of isolation due to being the only one who adopted the model in the department. Another participant struggled to adopt the Flipped Classroom Model, having had a request for tutor support turned down.

We have a colleague in Sydney who has been doing it [Flipped Classrooms] with large groups, but what he does is, he has 150 people, he has four or five tutors circulating around the group. So he divides them into groups of, say five. You know, and so he might have 10 groups of five or something and then he’ll have tutors circulating. So, basically it’s as if he’s dividing that big group into a series of small groups. So basically they do use more resources. They have a lot more people in the classroom at the same time who are able to circulate around the groups. I think it’s impossible for us with 300 students with no tutors to help (A)

Another way in which levels of institutional support impacted on the decision to adopt a Flipped Classroom Model was through the availability of teaching space. Finding a proper or suitable teaching space was highlighted as one of the challenges in implementing the flipped teaching.

The issue is having large classes (NA: P4)

There is not enough space and the teaching venues are always fully booked (AD: P5)

Lecture theatres pose too many compromises. It is very uncomfortable for students to sit turned around, nearly impossible for them to redistribute into completely new clustering, no space to write and draw. I can’t spend my time doing all this if my only source of space is the lecture hall (AD: P7)

Teaching space therefore has a potentially negative effect on implementing the Flipped Model, reducing participants’ motivation to use the flipped approach.

Practical issues

Further practical issues, on a more personal level, also impacted on the decision to adopt the Flipped Classroom Model. Participants identified the technical challenges in developing the
resource materials as an issue, particularly given its unpopularity with students. For instance, one participant remarked,

You need to practice how to make the video and it is not easy. Every single step in making the videos are challenging and time consuming. Is it worth your time doing the videos when you have students who don’t watch and come to class unprepared?  
(AD: P6)

In particular, the use of video clips was consistently found as an issue in various views of participants, who saw their use as an added burden to their existing teaching workload.

I can’t spend hours recording my lecture because I’ve got other things to do like marking papers, assignments, monitoring and mentoring undergraduates and postgraduate students. This will be an added burden on top of what I’m currently doing (NA: P1)

The time spent in creating the video-clips would not be replaced for me. It would be an additional burden on top of existing duties (NA: P3)

The time involved in implementing the Flipped Classroom Model in general, was identified as a factor in the decision to use it. Technical difficulties and having to rework material to suit a new format all took additional time.

I invested a lot of time in preparing the materials like uploading the video and get them work. Sometimes it is so frustrating that it doesn’t work and it is hard to get help or find people to provide some assistance at the time I needed it (A: P9)

I still find face to face lectures easier and quicker to prepare for. You can do it a little bit more on the fly kind of thing (NA: P4)

Preparing for lectures is less work than preparing online materials. There’s a sense of permanence. When you create digital materials, you think they are going to last but they are not. I might be recording and then like a drill would start outside and it would muck up my sound or my phone would ring or something would happen. So
I would once or twice realize I made a mistake. Now in a face to face lecture, if you make a mistake, you just say, oh sorry (NA: P1).

Despite the numerous factors participants identified as working against a decision to implement a Flipped Classroom Model, a number (3) of the interview participants had done so. Some of these (2) continued to use it, while the others (5) had gone back to other models of teaching and learning. The next section will explore the technology comfort levels with technology and use of technology.

**Technology comfort levels with technology and use of technology.**

In an attempt to understand teachers’ perceptions of using technology into their teaching, researcher asked them to describe their experiences and types of changes they experienced. Perceived benefits from using technology were stated in a variety of ways. Almost all the interviewed participants agreed technology use as a means for efficiency, communication, and flexibility. “It is useful in so many ways” (AD: P7) and “you rely on it because its’ easy to channel information while you are away” (NA: P1) are comments illustrating the need to see usefulness in using technology for teaching purpose.

One participant indicates that use of technology in her practice is due to its affordances and positive benefits. “It helps for communication and information delivery purposes” (NA: P4). Others indicated that they had to learn new programs in professional development courses. “you like it or not, you need to use it” (AD: P2) are quotations representing perceptions of the technology use. The following quotation summarizes participants comfort levels. “I am comfortable using it” (NA: P3); “I am using it every day in my teaching practice” (NA: P4); “I’m teaching online courses” (A: P9).

Two participants explained that they felt the use of technology means they have to ready to make a change and willing to try new teaching methods and new technology. “New technologies keep coming and it’s always changing. I don’t know if one internal workshop will make me to adopt the new ones into my practice” (NA: P1); “you need to take the risk if you willing to change your style and it’s not going to happen overnight” (AD: P8).

Reasons for not using the technology were prevalent during the interviews, as well. The participants mentioned upon the reasons of choice, support, and difficulty. One participant said, “I use course modules and discussion in tutorials. Students refer to the notes” and “there
is no restriction in attending classes or tutorials, they work independently” (NA: P1); “It’s all about your choice. I need more time to practise new technologies and until that happens, I’m more comfortable practising what I have been doing for years” (NA: P3). Others have mentioned physical space for learning. “Teaching spaces are limited, it’s even harder to book when you need it” (AD: P5).

Other reasons mentioned by the participants are about their decision making using technology into practice. Participants provided several explanations as to why it is important for them to adopt and/or integrate the tool in their teaching and how they adapt to the changes.

I have lectured for years now, and over the years teaching methods have changed. The use of textbooks and lecture notes are slowly fading away…and it is important for me to keep track with the new technology and it’s more of skill oriented…many use the new technology and others don’t because they made the decisions for them…(A: P9)

Other participants mentioned. “I have to accept that there are advantages using technology into your practice. It’s is so much faster to access materials online than going to the textbooks” (AD: P5). One participant mentioned about the changes she made in her teaching practice. “I chose to adopt the Flipped Model because I think it is easier to deal with, but on the other hand, it creates flexibility and students get benefits out of it” (A: P9).

In discussing change and change to the new technology tools, participants felt that decision making is a hard process, which stresses teachers’ attitude and beliefs that leads to an evaluation in decision making.

I adopted the Flipped Model because my students like it. I try using different ways of teaching. My students learn different modes and they never complain infact excited about watching lectures using a digital tool. It’s all about taking risk and test your ability to make it successful, if it doesn’t, you need to keep trying what can work best for your students” (A: P10).

Others mentioned,

My experience with technology is very well established as I use it more often for all the courses that I teach. I see it as being a communication and information system. I don’t pressure myself trying new technologies that does not benefit my teaching like
the Flipped Model. I found that the amount of work involved is not worth my time” (NA: P1).

The impact of work needed to prepare the video-clips was frequently seen in teachers’ reference to technology use. “I found that the amount of work involved is too much. I would rather lecture” (AD: P2).

One participant talked about his frustration. ”I don’t resist change, I simply don’t adopt to new technologies because I feel I don’t have to. I realise it’s cost affecting and I don’t like it” (AD: P7)

Each participant in this study experienced a range of emotions, including frustration and pressure while engaged in the adoption of technology and its use in teaching practise. Despite this, all the participants valued the potential of technology to support the teaching and learning in their practice. In an attempt to understand what could be the reasons for adopting and/or not adopting the Flipped Classroom Model, each teacher provided an explanation of his or her experiences. The next section will explore the challenges faced by those who adopted this model.

**Challenges in Implementing the Flipped Classroom Model**

The majority of participants in this study believed that to adopt any instructional teaching model, required a sufficient amount of time, personal interest and clear purpose. Those who had adopted the model also mentioned the challenges in implementing the Flipped Classroom Model are important factors to consider. The ensuing discussion considers challenges in adopting the model. In general, the challenges mirrored these concerns, such as a lack of student autonomy and a lack of time as commonly cited reasons. A third category of issues that had not previously been highlighted was that of copyright.

*Issues related to students*

Research participants perceived that the Flipped Classroom Model activities involved learner autonomy, as is expected when using this model. However, they were uncertain about students’ ability or willingness to embrace autonomy within this new context. A few participants in the study described undergraduate students as being highly reliant on their
teacher. Teachers felt they were expected to provide reading materials, reference books, assignments, and links to some education websites, ways to write essays and so forth. Shifting the role to be autonomous learners may possibly pose anxiety and less confidence for the first-year students in higher education, as Participant 6 explained,

We have lectures, and some lab work, and flipped. The biggest change that occurred when you shift your role from being the sole deliverer of information to a facilitator. In Flipped Classroom, students watched the lecture at home and come to class for content discussion. Your role supposedly changes being the lecturer who stands in front and teach, to a person who walks around and facilitates the problems they are working on. In reality, you end up doing everything and take control over the class again because they need you to dispense the knowledge and want you to help them solve the problem… so yeah. It’s about giving them autonomy, but in actual classroom situation, they just don’t know how to be autonomous learners because all these are new for them and it takes time for them to work on it (P6: AD)

Another participant had a similar experience, noting that most students were not taking responsibility towards their own learning.

Flipped approach was intended as a way of providing some more flexibility and other options of learning. They kind of go away, look at the video and come to class having looked at the video and we have a conversation about concepts in there. But that normally doesn’t happen, because most of them either come unprepared or have no idea what is happening in the class (A: P9)

Lack of time

One common theme found in the survey as well as the individual interviews was the limited time the teachers had to implement the Flipped Classroom Model. Various issues with regards to the time factor were reported by the participants, including concerns with recording the video clips. As noted previously, the demand in participants’ existing teaching practice was already seen as enough and they were not keen to add more pressure on what they were currently practicing. This was illustrated by the following comment,
I flipped my course and it takes time when I do the recording. The first time I started talking to my computer, I felt like a complete whacko. Sometimes editing can be longer than you expected (A: P9)

Other participants were also concerned with the quality of the recordings, since they felt that it is important to record a perfect and flawless video recording so that students could access and watch it without any issues.

It takes a lot of time recording your video. You must make sure that the sound system is good, the camera is clear. It is intimidating. After recording, you might find something wrong and you have to re-record the whole thing (AD: P2)

I think I can’t record my own voice at one go. I tried doing it and it sounded awful. I had to do it four times just to make it perfect. It was so frustrating and time consuming (A: P9)

In addition to the time taken to make recordings, some participants found it very time-consuming finding appropriate material online.

Sometimes it is time consuming in terms of searching for the right videos online. It is quite hard to find one that matches what you intend to show your students (A: P10)

It is quite intimidating creating or finding videos online. It takes time to find a good one that relates to your subject (AD: P7)

Copyright and licensing issues

An issue that arose for those adopting the Flipped Classroom Model that was not mentioned in the questions about challenges they expected prior to their decision to adopt was access to copyrighted content, especially videos that are a central component of the flipped approach.

The sources that I’m using are hard to find and umm… I have had to rip them from something else to get them because the web is some ephemeral that stuffs doesn’t
stay around. The library is really annoying as an institution, to interact with. The institution of the library is really inflexible and you have to deal with the copyright issue, license, it’s quite an effort (A: P9)

Another issue getting online resources is requesting for a copyright. Not all videos can be downloaded free, there are copyright issues. Staff at the institution library do help to get them, but not immediately you know. You know what I mean? I send them emails and had to wait for the response that might take a couple of weeks and then the paperwork. Sometimes I do it on my own. It’s a hassle (AD: P8)

In contrast, some participants found they were supported by the library staff at their institution.

We have no concern with the copyright. The library staffs help us to get the access (AD: P7)

Some videos are not available online and we can get the access through our library staff” (AD: P5)

Chapter Summary

This chapter addressed participants’ tensions and challenges in implementing the Flipped Classroom Model All the interviewees, to different degrees, talked about the challenges in implementing the Flipped Classroom Model with regards to the three major themes. Teachers’ understanding of what the model is, factors that impacted teachers’ decision making to adopt/not adopt the model, and the challenges faced by those who adopted the model. However, there was a considerable overlap between them. The majority of the participants had prior knowledge of the Flipped approach. Most of them had heard about the model, and seven participants had adopted the approach. Of these seven, only two continued using the model in teaching practice, where as five others discontinued due to the challenges mentioned earlier in this chapter. These participants spoke from their experience and pedagogical expertise. All of the interviewees seemed to share the opinion that flipping a course would, or did, take too much time. All ten participants embodied, to some degree, a belief that to adopt a flipped approach, there are some challenges that need to be addressed.
For example, issues relate to students’ acceptance and reluctance to adopt new teaching strategy, teachers’ uncertainty of students’ autonomous learning, lack of time, and management issues. Five participants rejected the model as unsatisfactory based on their experiences, but two participants enjoyed teaching and continued using it into their teaching practice. Three participants rejected the model fully because they were comfortable with their current teaching with lectures as the primary mode of delivery.

The results also suggest that participants rejected the use of video-clips or recorded lectures which they assumed it is the main element when designing a Flipped Classroom. Participants felt that they had to do more work with regards to recording and finding video-clips that suits their teaching course. Some concerned in producing a high-quality recording where issues of technical skills are mentioned. While few others talked about downloading softwares, licensing and copyrights. Participants seemed to be less positive towards the use of video-clips and belief that preparing a video-clips or recorded lecture means more work and added burden to their existing workload. The findings also support research suggesting that more demand on face-to-face lecture followed by in-class activities (Strayer, 2012). For example, participants felt not all students watch what was given online and they may come unprepared. Hence, they found that lectures in the classroom with follow-up activities were easier. Many studies reported that students can easily get distracted with face-to-face and online instructions in blended classes (Buerck, Malmstrom, & Peppers, 2003; Elen & Clarebout, 2001). Strayer (2012) pointed out that students who are active and hard-working, often find it difficult to blend online assignments onto in-class activities.

The results also suggest that many do not clear understanding of the Flipped Classroom Model concept. One of the Flipped Classroom Model benefits is that students come to class prepared for the learning experiences. Flipped Classroom Model focussed more on the active learning experiences (Bergmann & Sams, 2014) where application and analysis plays an important role. Students are encouraged to have the knowledge and well prepared with their comprehension levels prior to class time. During class time, students create learning experiences that replicate what they have learned before they come to class. Hence the use of video-clips or the recorded lectures helps students to gain that experiences prior to class time. As such, the class time is no longer reserved for acquiring knowledge, but more towards using that learning experience to grow their understanding of deeper concepts or problem-solving (Roehl & Shannon, 2013; Sherrow, Lang & Corgett, 2016). In addition,
instructor, role changes and he or she is no longer confined to the role of imparting knowledge, but more of a coach, facilitator or mentor to the learning (Siegle, 2014). Therefore, the use of video-clips or any other digital tools is exposing students with a variety of strategies and techniques to learn and at the same time allows both teacher and students prioritize class time for application and analysis (Bergmann & Sams, 2012).

The results also suggest that participants identified a desire to use technology in teaching and reduce lectures in the classroom. They do not, however, want to eliminate lectures completely through their adoption of the model, but rather use technology to support teaching and learning as part of other approaches, such as case studies, tutorials, peer learning, and so forth. There are various reasons why lecturing in the higher education context is still in demand with little integration of technology in teaching and learning (Pellas & Kazanidis, 2014). For example, lack of resources (Thomas, 2006), institutional constraints (Beggs, 2000), teachers’ attitudes toward technology in terms of lack of time and support (Gilakjani, Sabouri, & Zabihniaemran, 2015). These factors warrant further study into the integration of technologies, and especially adopting a new instructional model such as the Flipped Classroom Model. In this study,

The findings also confirmed the specific needs, challenges, and understanding of the Flipped Classroom Model that need further research if academic staffs intend to implement the model in the institution or department, or anticipates adopting the model for personal experience.
CHAPTER SEVEN: DISCUSSION

In this chapter, the findings from the survey and interview data are drawn together into a consolidated discussion on university teachers’ decision making and reasoning regarding the adoption of and/or resistance to the Flipped Classroom Model within the context of higher education in New Zealand. The structure of the chapter will follow the four research questions.

The overall findings suggest that the relationship between technology, pedagogy and educational philosophy of teaching and learning as well as challenges in adopting the Flipped Classroom Model could influence teachers’ decision making adopting and/or resisting the Flipped Classroom Model.

Is there a relationship between technology use in general and the adoption of Flipped Classroom Model?

The findings indicate that teachers are generally positive about technology rather than a comfort with it. Even though understanding of the Flipped Classroom Model concept varied widely among the participants of this study, the majority of respondents had at least some understanding of the model. Most recognised at least one of the key elements, that is, student-centred, active learning, students watching videos prior to class, with classes more tutorial-like in nature. Some defined it in the context of the concept of blended learning with a particular focus on materials that are posted online and that students are expected to have developed knowledge about prior to coming to class. Others considered the term to relate to a role change of university teachers and assumed that teachers’ presence would be diminished as technology would play a bigger role. Other focused on students and pointed out that the model seemed to focus on the students’ ownership and would enhance their empowerment in the learning process.

Taken together, the findings of this study suggest that it is not comfort levels with technology, but general positive ideas about the use of technology and valuing students’ active learning that seemed to have led some respondents in the study sample to have chosen to adopt the use of video clips. Overall, the respondents in this study seemed to feel
comfortable using technology as part of their pedagogical toolbox. However, this did not translate necessarily in an overwhelming use of video clips instead of lectures. Not many respondents in the survey (which included the interview participants) had replaced lectures with video clips, but a number did seem to use video clips in addition to lectures. This could be interpreted that not many had fully adopted the flipped model, if this is interpreted to mean replacing lectures with video clips. Reasons for this could be many. The requirement to record lectures, monitor students’ activity online, preparing materials, change of teaching approaches may be perceived to impact too much on workload and time, as shown by the participants’ responses. Furthermore, perceived ideas about the value of lectures, and views about students’ motivation and willingness to put effort in their studies, may provide some other possible explanations for a limited uptake of the fully Flipped Classroom Model.

These findings reflect to some extent Abrahams’ (2010) and Drent and Meelissen’s (2008) findings, which showed that a positive approach towards technology use directly influences teachers’ decision-making adopting pedagogy that integrates technology. So, although participants were overall comfortable with technology, did they integrate technology in their teaching practice? The findings show that participants did integrate technology into their teaching practice to some extent. For instance, almost all the teachers reported their teaching practice is a mixture of some lectures, tutorials, and technology-enhanced activities such as the use of video-clips and social media. Almost all of them highlighted that lecturing for hours is not helpful. Teachers reported that dry and boring lectures often lead to a quiet, dull and passive learning environment, especially when it is held in a lecture theatre.

Participants’ perception of the use of technology in this study, then, seemed to vary. While these perspectives differed on how knowledge is formed about integrating technology in teaching and learning, underlying this study was research on the pedagogical reasoning underpinning the adoption and non-adoption of an instructional strategy that incorporates technology. The findings suggest a series of associations linking teachers’ perceptions and approaches with technology and student learning outcomes. An explanation of these associations is important to understand the significance of investigating teachers’ perceptions of the instructional strategy and why some adopted the strategy whilst others did not.
The fundamental idea behind the development of the Flipped Classroom Model was that classroom time would be dedicated to engaging students in active learning where the primary focus is on students’ application of conceptual knowledge rather than remembering and understanding, in other words, factual recall (Bergmann & Sams, 2014). If technology was seen capable to leverage students’ learning, participants appeared to be comfortable combining traditional in-class teaching with digital applications, for example, a combination of video-clips and face-to-face instruction.

Questions about the use of an instructional strategy such as the Flipped Classroom Model that integrates technology often implicitly assumes a medical analogy. For instance, in the medical context, drugs are used to either reduce the pain of the patient or to improve the health of the patient. When a drug is used, it causes biochemical changes in a body to help mitigate diseases. In the context of the Flipped Classroom Model, a similar analogy could apply, can the model improve students’ learning? In contrast to drugs, however, an instructional strategy such as the Flipped Classroom Model cannot revamp the brain to change a student’s way of thinking or learning. An important theme reflecting the medical analogy that emerged during the data analysis was that according to some participants, the model was not something new and it does not guarantee students’ learning outcomes. This analogy was summarised in one of the interviewees’ remarks that the model is “an emperor’s new clothes”. The findings indicate that for some participants, the model does not contribute to any new teaching strategy. Others felt that if they adopted the model and it failed, the outcome of taking the risk may put them in a situation that will jeopardise their career, for example, through students’ teacher assessments. This reflects Shepard’s (2007) argument about barriers to innovation in teaching faced by instructors in higher institution.

**To what extent does teachers’ understanding of the concept Flipped Classroom Model and pedagogy determine their adoption and/or resistance of the Flipped Classroom Model?**

Participants who adopted the Flipped Classroom Model reported that active learning was the main focus of the model and emphasised that students’ engagement and knowledge application prior coming to class was valuable for both teacher and student. For instance, the use of in-class activities such as problem-solving and collaborative learning offers an opportunity for the teacher to act as a facilitator and monitor students’ involvement and
engagement in the classroom setting. This helps the teacher to walk around the class and focus on students who need help in understanding the task. For the students, the knowledge that they acquire before class is applied in the in-class activities through group or peer discussion.

The literature about the Flipped Classroom Model too suggest that most of those who adopted the model in higher education by using video-clips do so because of their interest in students’ active learning in the classroom and because they are positive about technology (Bergmann & Sams, 2014). Ferreri and O’Connor (2013) suggested that teaching approaches that go beyond the traditional method seem to be more effective and in a Flipped Classroom Model it is more visible when students are actively participating in the learning process (Siegle, 2014; Wilson, 2013; Zappe et al., 2009). Even though traditional methods have some flexibility in promoting students’ engagement based on the types of activities that teachers conducted in the classroom, a flipped approach allows for a wide range of variation (Burke & Fedorek, 2007). It is important to understand that not all strategies are applicable to all levels of students and that they do not all guarantee that student learning will increase (Cunningham, 2016). One reason is that different instructional approaches are suited to different types of lessons and students. In short, instructional strategies such as the Flipped Classroom Model may not suit all students (Bergmann & Sams, 2012; 2014). Perhaps that may be a reason that some teachers may avoid taking the risk (Betihavas et al, 2014).

**What is the educational philosophy of teaching and learning that could be the reason behind teachers’ decision to adopt and/or resist the Flipped Classroom Model?**

For some participants in this study, there seemed to be a clear link between their views of student learning and motivation and the way they conceptualised their chosen teaching approach and practice. For example, participants who adopted traditional type (lecture) approaches seemed to hold a more negative and deficit view of students and believed that a Flipped Classroom Model would not enhance students’ learning because they would not do the required work before coming to class. Others who chose non-traditional approaches, such as involving students’ participation through activities such as quizzes, seminar, case studies, or project-based learning, tended to avoid the traditional lecture. They highlighted that students did not pay much attention and lost their concentration if they sit and listen to a long lecture. Hence, to address what they perceived as negative attributes to students’
learning, they chose different approaches, such as the Flipped Classroom Model. The Flipped Classroom Model adopters emphasised a student-centred approach. These participants reported that they freed up the lecture time for a more active learning session. They encouraged students to listen to a lecture using podcasting and focused on active learning such as engaging students with discussion or problem-solving. Some participants in this group also reported that they found it tolerable if students’ attendance declined. They typically monitored students’ activity and participation online.

There was also a group of participants who could not neatly be categorised within the category of actively choosing a more traditional or non-traditional approach. Although some participants indicated that they prefer to have more student-centred approach rather than lecturing for hours, some still adopted a more traditional approach. For example, some participants reported that first-year students need more guidance from teachers as they are not familiar yet with the independent learning approach expected of them at university. They tended to rely on teachers more of the time, from providing reading materials to writing assignments. A few others argued that, once students are enrolled in tertiary education, their past learning experience (secondary level) needs to change over time, from guided learning experience of independent learning (see, for example Kift, Nelson & Clarke, 2010; van der Meer, Jansen & Torenbeek, 2010).

For some participants, reinforcing independent learning seemed to be a challenging task. They reported issues such as a decline in attendance, lack of cooperation with other students involving the assigned project, and not completing assignments or reading posted material. Some recognised that students had their reasons, such as working while studying, that caused them to skip classes, as well as social-emotional issues dealing with other students, or a lack of time to view, complete or read materials before class due to other personal or academic workload.

Another rationale for adoption or not of the Flipped Classroom Model could be considered in the context of different views of knowledge. Generally speaking, teachers who perceive learning as the accumulation of information seem to be more likely to view teaching as the transfer of information. This group of teachers is more likely to use the teacher-centred approach. In contrast, teachers who view learning as conceptual change are more likely to view teaching as facilitating conceptual change. This group of teachers is more likely to use
the student-centred teaching approach where autonomous learning is encouraged through cooperative and collaborative learning (Cope & Ward, 2002). Findings from this study reported that many participants could be placed in one of these two groups. The findings show that participants in this study either worked as agents of transferring information to students, or as facilitators using a constructivist approach to enhance learning outcomes by encouraging active participation of students through various activities that focus on students’ active learning. Quite a number of participants in this study pointed out that a teacher-centred mode of instruction is a common practice in higher institution. However, this did not always mean lectures, but could also consist of activities that teachers conducted in the classroom focussed in the context of a more constructivist-oriented pedagogy.

Another conclusion that could be drawn is that instructional preferences may also have played a role in decision-making about adoption or not. A majority of participants in this study seemed to prefer face-to-face instruction. Some reported that when lecture material is moved into a digital resource, that this may lead to a reduction of face-to-face contact. This could be considered as one of the many misunderstandings or confusions of what the Flipped Classroom Model entails.

In summary, although it is reported that participants in this study seemed comfortable using technology in their teaching practice, the overall interest in adopting the Flipped Classroom Model was not overwhelming. Participants’ educational philosophy of teaching and learning, as well as their view of knowledge, seemed to be the most important reasons of the participants’ decision-making about adopting and/or resisting the Flipped Classroom Model. This study also showed that participants’ understanding of the Flipped Classroom Model also influenced their decision to either adopt or reject the model. Some considered the model as a student-centred approach, others as a blended approach that integrated technology in teaching and learning, and some saw it as just another fad that would eventually run its course. Some also mentioned that the approach is not new and that it is an old methodology wrapped up in a new terminology.

Findings show there are three groups identified in the study: 1) Adopters; 2) Non-adopters, and; 3) Discontinued Adopters. For the Flipped Classroom Model adopters, the model seemed to incorporate a number of generic students-centred or constructivist principles that let them choose to adopt the model. As for the non-adopters, they criticized the Flipped
Classroom Model for being a tool for shifting lectures, but not considering its value as instructional practice and unlikely with a simple inversion of lecture, one may not necessarily see a change in student learning outcome. They argued that it was 'just another form of blended learning that has not yet been measured empirically. The last group- Discontinued adopters described Flipped Classroom Model as a paradigm shift that offered an opportunity to use class time for hands-on and experiential learning, but discontinued due to multiple barriers-lack of student participation, classroom management, student not familiar with the new shift, time, etc.

What are the challenges in adopting the Flipped Classroom Model?

The findings for this research question included the results that influenced participants’ decision to adopt the Flipped Classroom Model in their teaching. Not surprisingly, time factor, students' attitudes towards their own learning, an availability of teaching and institutional support and ongoing professional development related to adopting new teaching strategies such as the Flipped Classroom Model was seen as important factors. Challenges to the implementation of the Flipped Classroom Model were not always identified as the most important factor which influenced their decision to adopt the Flipped Classroom Model. However, several factors that influenced the adoption of the model were highlighted in the study. The main challenges that could be considered to impact on the decision to adopt the Flipped Classroom Model could be depicted as follows (see Figure 5).

Figure 5. The main challenges in implementation of the Flipped Classroom Model
Within this framework, which provides a description of the context of Flipped Classroom Model and participants’ pedagogical beliefs were shown to describe how they conceptualised, perceived, and understood the Flipped Classroom Model.

The student deficit perception

Participants in this study felt that there were various reasons why one should not think about adopting the Flipped Classroom Model and one of them could be termed ‘student deficit perception’. This referred to a concern about students’ potential lack of motivation to prepare (i.e., watch the video clips) prior to class. This then was considered to be a waste of time because teachers invested time and effort in preparing the instructional materials, and had to repeat the information in class as well. Although the model promotes student ownership of learning (Bergmann & Sams, 2012; Lage, Platt, & Tregalia, 2000; O’Flaherty & Phillips, 2015), some participants in this study felt that students lacked responsibility and confidence about the course format. They believed that students preferred or demanded live lecture, tutorials and lecture notes; in other words, they perceived that generally students had a preference for a more traditional classroom style of teaching and learning.

The views of survey respondents that were characterised as ‘deficit’ views of students may indicate that they have had limited positive experiences of students’ positive response to the use of technology in the classroom. If the technology tools used in a course are experienced by students as beneficial, they are more willing to put more time into their study (Chen et al., 2014).

Empowering autonomous learning

As explained by Bergmann and Sams (2012), the premise of teaching using the Flipped Classroom Model is to remove the lecture from the class and replace it with active learning activities. Students may not be motivated to do the out of class work (Findlay-Thompson & Mombourquette, 2014; Herreid & Schiller, 2013) if they feel that it takes their time or is an additional burden on top of other course work that they are required to do (Betihavas et al, 2016; Milman, 2014; Khanova, Roth, Rodgers, & McLaughlin, 2015; O’Flaherty & Phillips, 2015). In addition, if students are not familiar with a new learning strategy and have not been taught how to think critically and independently, it could lead to resistance (Henderson
Lockwood and Esselstein (2013) suggested that teachers must explain the use of videos in the Flipped Classroom Model at the initial stage of the course so that students will have the basic understanding of the Flipped concept and its intention. This might motivate them to participate in the learning.

In general, it could be said that it is likely that when students are not provided with a clear rationale for why they are asked to do something or are asked to engage in a particular pedagogical approach, they may be less motivated to fully engage in it (van der Meer, 2012). Hung’s (2014) study respondents reported that they appreciated the videos as a replacement of the lecture because they were able to view the content as often as needed and the classroom time was used for discussions and brainstorming. Although creating a video for the Flipped Classroom Model seemed to be daunting and challenging for some teachers (Unruh et al., 2016), teachers who adopted the Flipped Classroom Model in this study focused on the active participation in the classroom and students’ engagement rather than worrying about the technology use per se. Jamaludin and Osman (2014) and Tucker (2012) reported the same.

However, students’ engagement in the Flipped Classroom Model is not just about the use of videos. It is also about replacing a passive learning approach with a more active learning and collaborative approach in the classroom (Bergmann & Sams, 2014). Those adopting the Flipped Classroom Model are likely to see the classroom atmosphere begin to change because of the greater focus on interactive learning, for example, with more time allocated for classroom activities such as brainstorming, peer discussion, group discussion and other more interactive learning activities (Moravec et al., 2010).

For those participants who did adopt the Flipped Classroom Model, they did not face ongoing issues with the students’ learning. They concluded that students were engaged and responsible towards their own learning. Although those who adopted the model had other challenges, the students not preparing prior to coming to class seemed not to be an issue for them. Additionally, participants who adopted the model suggested that the Flipped Classroom Model offered flexibility for the students to learn at their own pace and that this motivated them to take responsibility towards their own learning.
Pedagogical beliefs

Over the last ten to twelve years or so, huge shifts have been occurring in education that are continuing to impact on teaching and learning today. Some changes could be considered positive, for example, the use of technology (Prensky, 2012). The introduction of tablets and other digital media make it possible to adapt more to the students’ individual needs, besides facilitating the access to information. With technology moving so rapidly, the role of the teacher may be affected by the introduction of digital media into the classroom.

Change requires that educators confront the status quo. It demands new ways of approaching the teaching job, and it takes resolve to see new beginnings through to their end. However, not all participants were enthusiastic in adopting new ways of teaching, especially if it influenced the authority of the teacher and involved the use of new technologies. Almost all the participants in this study held the belief that the face-to-face interaction should be a focal point of instruction and the primary instructional approach. Some of those assumed that this was serving students’ needs in the sense that they assumed students prefer to learn through lectures and being provided with printed handouts, rather than resources being put up online for them to view, read, and respond.

With a focus on access to technology-integrated teaching and a more diverse 21st-century technology-savvy population, it could be argued that a teacher-centred approach to teaching may no longer be defendable as the best way forward (Mishra & Koehler, 2006). The Flipped Classroom Model provides just one possible structure and strategy that enables teachers to transform their classes to learner-centred environments. However, not all participants in this study shared the view that students may expect more technology in the teaching context. Some perceived that students, especially first-year students who start university, had particular expectations of how teaching would take place in that context, and may not necessarily understand the rationale for a ‘non-traditional’, ‘non-lecture model’ of teaching, instead expecting that teachers would provide them with the necessary information. Taking into account the number of courses students are enrolled in and the amount of assignments students need to complete, those participants held the belief that making the students watch video-clips would be a challenge.
Two factors were identified that affected participants’ use of the Flipped Classroom Model. The first had to do with the individual teacher and collective philosophies of teaching and learning. Participants tended to adopt the Flipped Model, which was in line with their beliefs about how their students learn and what methods worked best. Participants, therefore, who believed the model could create some opportunity for improved learning, were most likely to use it on a daily basis. Those who felt less skilled in designing or developing teaching materials such as the video-clips, perceived they needed more time and adequate knowledge to use the Flipped Model in their practice. Some felt that having basic knowledge or computer skill is insufficient to adopt the Flipped Classroom Model. They also mentioned uncomfortable and under-prepared to teach with the new approach unless they have become skilled using certain softwares. For example, one participant mentioned earlier in the study “you need to practice how to make the video and it is not easy. Every single step in making the videos are challenging and time consuming…” (AD: P6).

A second important factor was the individual teachers’ attitudes to change in general and resistance to technology use, in particular the Flipped Classroom Model. (NA: P4), for example, expressed his concern when he said, “we can’t simply use the technology because it is available. You can’t direct your student to watch a video and assume that he would understand the content…” Rogers (1983) explains, there are many factors that influence the rate at which educators adopt innovation. Rogers listed relative advantage, compatibility with current practice, complexity, trialability and observability of results as the characteristics that likely to predict an innovation is being adopted by individuals in a context. Extrapolating from Roger’s work, it is anticipated that technology and its frequent use results a positive attitudes among the participants in this study. The findings of this study show that all the participants are using technology into their teaching. This shows that the participants have developed a positive attitudes towards technology usage. A study by Drent and Meelissen (2008) also shows that a positive approach towards technology and computers directly influences an appreciation of the advantages they offer. To support this, Fullan (2015) also pointed out that, the success of an educational technology program at any institution, strongly depends on the teachers’ support and the attitudes and belief that the system would be of advantage to either the students or the teachers. However, if a teacher holds a negative attitude towards technology, then providing them with technological tools will not influence their use in their practice.
Davis’s (1989) TAM model defining the usefulness of technology as the degree to which a person believes that using a particular system would enhance his or her work performance. The findings of this study show that participants used technology to approach different aspects of teaching. Some used it as a medium for communication (e.g., emails, twitter, forums, online discussion). Others to increase productivity of lessons (e.g., online assigned tasks, watch video-clips, YouTube), others to facilitate students’ learning (blended approach-face-to-face and online). Laurillard (2008) expressed, educators are likely to resist using technology as a teaching tool if they believe it does not benefit their teaching practice or there is no positive impact on their teaching and learning. However, in this study, findings show that all the participants used technology in their daily teaching practice, but only two participants adopted the Flipped Classroom Model that integrates technology (e.g., use of video-clips) and three others who adopted the model, discontinued for some reasons.

Bhattarcherjee’s (2001) framework modelled user’s experience as one of the factors that determined the continuation of technology adoption and usage. The researcher found that an individual who intends to adopt a system (e.g., technology) his or her behaviour and experiences influence the decision making either to continue or reject the system completely. The more positive experiences gained in the process of adaptation (e.g., adopting a new technology), the intention to try or use the system will get stronger. However, the researcher cautioned that if the system adopted is less useful and skewed to negative impression, the intention to discontinue the system likely to occur. Similarly, in this study, those who adopted the Flipped Classroom Model initially, discontinue after post adoption because of their less satisfying experiences using the model in their courses. For example, (AD: P7) explained, “it is quite intimidating creating or finding videos online. It takes time to find a good one...” . Another participant, stated, “I flipped once, my students didn’t like the recorded lecture and demanded for a face-to-face lecture (AD: P6). The impact of dissatisfaction on continuance intention to use a particular instructional model likely to decline or rejected if it gives impact on teachers’ experiences (Bhattarcherjee, 2001).

One of the most influential factors in the successful integration and adoption of the Flipped Classroom Model is the personal motivation of teachers and their belief in good teaching (Bergmann & Sams, 2014; Fulton, 2012). While acknowledging not all participants has such a strong personal motivation towards adopting the Flipped Classroom Model in this study, it appeared that some were very random and fluid in terms of how they teach and how they
perceived the Flipped Classroom Model and others were strict and regimented in their attitudes to remain with their present practise. This diversity in attitude and conception of teaching gave an impact on the change process and decision making adopting the Flipped Classroom Model.

Fishbein’s and Ajzen’s (1975), TRA model defines user’s attitudes towards adoption of innovation. The researchers defined, social factor that influence a person’s beliefs. In this study, those who have adopted the model argued that management should acknowledge their effort trying innovative teaching, and to some degree, they believed it would encourage others to adopt or at least try the Flipped Classroom Model. “…many are passionate about what they are doing…most would not have the time because of the PBRF policy” (NA: P3); “It’s a pressure for those who prefer the traditional way of teaching…sometimes you are judged whether you are innovative or old school” (AD: P5). The TRA model argues that social behaviour is motivated by an individual’s attitude. Hence, the individual beliefs are influenced by the attitudes that creates intentions that generate behaviour. Similarly, in this study, the first group, those who adopted the Flipped Model, reported their frustration because their effort creating innovative teaching were somehow not being recognised or rewarded. The second group of teachers, those who resisted the Flipped Classroom Model, were not influenced or intimidated by the successful implementation of the model. These could be either through their social context (e.g., colleagues who have adopted the model and other departments who successfully implemented the model) or through extensive reporting in the popular media as well as the literature on Flipped Classroom Model. These groups of teachers prefer to remain with their current teaching styles and methods because they do not see any issues or reasons to change their practice. The final group of teachers, adopted the Flipped Classroom Model initially, but later discontinued using the model. Simultaneously, this group who developed opinions about the benefits of the Flipped approach discontinued after experiencing some dissatisfaction results, in particular, their students’ attitudes and behaviours towards accepting a new way of learning.

Generally, the teacher’s teaching philosophy and beliefs play a large part in their decision to use technology or any technology based instructional tool (Laurillard, 2008). Participants in this study valued the technology from both an educational and practical perspective. However, not all expressed interest to adopt the Flipped Classroom Model. Fullan (2015) suggested teachers who teach based on traditional practises would be more resistant to new
technology, perhaps most teachers employ a teacher-centred approach in the classroom as opposed to conducting constructivist, student-centred approach (Biggs & Tang, 2011) or feeling discomfort with the system (Abrahams, 2010) or they are not interested to use technology (Selwyn, 2010). It would stand to reason, therefore, that participants in this study, whose practice is based on traditional styles, would be less resistant to adopt the Flipped Classroom Model. This was indeed the case for the second group who resist to adopt the model in this study. Participants actively attempted to link the Flipped Classroom Model to three main factors: a) students’ attitudes- assuming students do not watch the recorded lecture prior coming to class; b) time constraint- recording lecture, overloaded work, effort invested, etc c) Pedagogical beliefs- integrating new technology can be very stressful and undoubtedly impacts upon the teachers. Taking teachers from their most comfortable traditional methods of teaching and expecting them to change the way they were currently teaching increases pressures on an already pressured profession (Fullan, 2015).

Ideally, those who adopted the Flipped Classroom Model, felt the model was a very useful approach for supplementing their current teaching practices. They believed teachers should adapt his or her practice environment for their students needs, set their learning goal and provide feedback on their learning progress. These groups of teachers held the belief that there will be more time for the face-to-face instruction in the classroom and the flexibility viewing video-captured lectures indeed seen as an advantage to both teachers and students. For example, if teachers are unavailable, students get to watch the recorded lecture at their own pace. It could have been very easy for participants to become discouraged when something did not go right with adopting the Flipped Classroom Model and they return to old traditional methods of teaching. For example, technical support was essential for continued progress if the teacher is less skilled in using certain softwares. When trying to use a new technology, there are difficulties encountered along the way, teachers needed immediate help and support and if the problems they encountered cannot be solved quickly and efficiently, teachers will return to their past practice (Fulton, 2012). Teachers also become comfortable using an instructional model that can support student learning and made sure students adept at using the new approach and become more responsible for their own learning (Bergmann & Sams, 2014). However, if students resist to the change, then, teachers are likely to discontinue the new approach.
Together, these different ways of characterising learning and teaching and varied adoption decision making can combine to give a complete description of what it takes for a teacher to either adopt a new approach or not, in this case, the Flipped Classroom Model.

**Institutional support**

Support by administration of teachers’ initiatives to use the Flipped Classroom Model was cited as having a negative effect particularly, acknowledging efforts and time investment. One participant felt that it was less effort to keep on doing what he was doing, rather than attempting new approaches that were not being acknowledged by the institution or faculty (refer chapter six). He expressed disappointment at the unwillingness or inability of the faculty/institution to support his innovative teaching development. He also expressed concern over the influence of the demands of PBRF in prioritising his time. He mentioned that there was little recognition or reward for teachers who focused on innovative teaching as opposed to those who worked on their research. Another participant expressed concern about a lack of teaching support when implementing the Flipped Classroom Model. It is important to note, however, that not all participants interviewed in this study felt less supported by their institution and management. By providing technical support, as well as an opportunity to experiment the use of the Flipped Classroom Model into teaching, the management demonstrated some commitment to support the idea and the concept of the Flipped Classroom Model (see Chapter 6).

Shea, Pickett, and Li (2005) indicated that peer collaboration provides an opportunity to interact and share ideas to bring about a successful adoption of innovation in instruction. Their studies sought to understand how teachers felt about academic support needed to adopt the Flipped Classroom Model and revealed that support from other teachers who had adopted the model was considered an effective type of support. Additionally, academic support sends a message from the institution to recognise and promote teachers who invest significant time and effort to integrate technology into their teaching. The outcomes of their effort may not be regarded as a ‘big deal’ due to the assumption that the nature of a teacher’s job is to teach and teaching has never been easy (Ramsden, 1993). However, it could be argued that any attempt to enhance teaching and learning is worthwhile, even if it does not lead straight away to major improvements. If teachers are given recognition for their effort, it would motivate and encourage them to continue to reflect on and enhance their teaching approaches in the future (Biggs & Tang, 2011).
Chapter Summary

Participants in this study reported on the tensions and challenges in implementing the Flipped Classroom Model. Interestingly, in spite of the widespread recognition of the Flipped Classroom Model and affordances that it offers for flexible learning especially in higher education, there has been relatively little research on how and why New Zealand educators used and/or resist the Flipped Classroom Model in their teaching practice.

The few studies conducted on teachers perceptions and experiences have typically focused on a special subset, those who successfully implemented the Flipped Classroom Model in various disciplines (Galway, Corbett, Takaro, Tairyan, & Frank, 2014; Seery, 2015; Tucker, 2012; Wang, 2017) rather than the majority, those who do not use the Flipped Classroom Model. The lack of empirical studies notwithstanding, a set of assumptions about why educators do not use the Flipped Classroom Model does exist and is currently functioning as the theoretical base underlying many efforts to help them use the Flipped Classroom Model in their teaching (Gerstein, 2012).

Other issues related to the decision to or not to adopt the Flipped Classroom Model are a lack of technical and administrative support, traditional beliefs, and resistance to change, incentives (reward and promotion), and time (Abrahams; 2010; Sadaf, Newby, & Ertmer, 2012). By casting a net to capture as many contributing factors adopting the Flipped Classroom Model, this study presented a number of puzzles and potential problems. Most notable perhaps are assumptions about and confusion related to the Flipped Classroom Model concept. Examples of these were the assumption of some participants that most students prefer the traditional way of teaching, an assumption that there will be a reduction of face-to-face instruction when lectures are transferred online, and the assumption that students would not watch the video clips prior coming to class. Confusion primarily related to how teachers perceived and understood the actual concept of the Flipped Classroom Model. While at first consideration, this may seem quite reasonable, upon closer examination these assumptions and confusion become problematic. The assumed direction of the face-to-face reduction between live lecture and video-captured lecture could actually be the reverse. Those who see no need to use the video-captured lecture when they are available to deliver the knowledge themselves, may not understand that they could use the freed-up time for other student-focused teaching. Or if they do understand the concept, it
may be that these teachers may not want to take the opportunity to develop the needed skills to implement the Flipped Classroom Model in their teaching. These required skills are not just related to the use of technology; using technology is not compulsory for Flipped learning. The primary focus is active learning when transmission-focused lectures are moved out of class. Other teachers, who have been teaching in a more didactic way, may consider there to be no issues with their current approach and therefore resist a change of pedagogy (Betihavas et al, 2016; O’Flaherty & Phillips, 2015).

Teachers, then, who have taught for decades, using the same method of teaching, and who find no issues in delivering knowledge or those who are not convinced of the efficacy of the Flipped Classroom Model, even if the concept sounds attractive on paper (Ash, 2012; Fawley, 2014) may continue to resist a change of pedagogy (Shephard, 2004). They may prefer to stay within their comfort zone and not be willing to take a risk.

There may be many more factors related to the adoption or not of the Flipped Classroom Model. However, the formulation of a clearly shared understanding of what the Flipped Classroom Model means in the higher education sector may be a necessary first step for further research into this.
CHAPTER 8: CONCLUSIONS AND IMPLICATIONS

“Banking education treats students as objects of assistance; problem posing education makes them critical thinkers”
(Freire, 2000)

Introduction

In the above quote, Freire (2000) argues for the need of pedagogical change, especially pedagogical approaches that empower students’ learning rather than devalue them. Freire argues, allowing students time and autonomy help to develop and share passions with others. Students should be able to identify problems and create solutions to those problems. The author pointed out that, constructing knowledge with students may reinforce the value of their experience. Similarly, this research investigation has demonstrated that participants’ understanding of teaching and learning at tertiary level can be understood in terms of their existing teaching experiences in the classroom with their students. While Flipped Classroom Model is thought to be an effective pedagogical approach for students in tertiary levels, identified challenges, and teachers’ recognising the advantages and/or disadvantages of adopting the model was just as important.

In the research conclusions that follow, the pedagogical reasoning underlying and influencing the adoption and non-adoption of the Flipped Classroom Model are highlighted. Then, the contributions of this study from the perspective of theory are considered. This is followed by a discussion of the limitations of this investigation, implications for practice and suggestion for future research.

Pedagogical reasoning underpinning the adoption and non-adoption of the Flipped Classroom Model in Higher Education

Decision-making about what possible pedagogical innovations need to consider and adopted in higher education has become a considerable challenge, both for individual lecturers and institutions. Although it could be argued that this may always have been the case as lecturers always had a choice of different possible pedagogical approaches, I argue that societal and technological changes over the last thirty or so years have made these challenges
considerably more complicated and demanding. And as existentialist philosophers argue, not making a choice is still a choice, a choice for the status quo. In other words, lecturers who argue that they are not interested in making changes to their teaching approaches can be challenged to explain their rationale and evidence base for continuation of what they are doing. After all, academics typically pride themselves on their critical and evidence-based, research-informed decision-making in their professional life.

The development of what is variously referred to as the Flipped Classroom Model is one of the more recent developments that challenges lecturers to reconsider their current pedagogical approaches: to flip or not to flip. As this pedagogical approach involves both a challenge to continuation of the traditional lecture, the use of computer/internet-based video technology and a privileging of active collaborative learning approaches over more direct instructional approaches, it could be argued that this is the ‘perfect pedagogical storm’: an interacting of various contested and problematic areas in education in general, and higher education in particular. Discussions about adopting the Flipped Classroom Model, therefore, could be seen as a window through which we are able to get some insights into the issues in higher education teaching and learning in the second decade of the 21st century. For example, it may provide some insights into whose or what interests take precedence and why. It also may shed light on both the evidence base and perceptions related to the goals of teaching and learning in higher education, and pedagogical effectiveness in this context.

Concerns about the use of video-clips, lack of time, teaching support, technical issues and devalued teaching (e.g., less recognition, awards, and acknowledgement) were identified as barriers for the adoption of the Flipped Classroom Model. Participants seemed to understand the need of technology use and flexibility for their students, but were, nevertheless, concerned about adopting the Flipped Classroom Model. Some of the qualitative responses recognised that time factor is the primary concern in adopting the Flipped model. Others were more concerned over the concept of the Flipped Classroom Model. They felt that the transformative potential of the Flipped Classroom Model has long been noted and what the model offers is not new. Others saw Flipped Classroom Model as a backup approach for teachers and students who were going to miss classes. Many participants were concerned about students missing the group experience of being in a lecture when they can get to know and engaged with other students. Some commented on non-verbal communication and the ability to ask questions, relating to the recorded lectures. The opportunity for students to ask
questions during the live lectures was seen to be missed if students do not attend face-to-face lectures. However, it was not clear whether participants saw students asking questions in the lecture theatre as being a significantly better learning experience than if they ask them online, but participants' responses included remarks about students missing the opportunity to ask questions. What was clear from the findings is that, while many participants recognised the challenges and limitations of the Flipped Classroom model and are concerned about the impact this model have on learning, they have been addressing the challenges and their concerns (see chapter 6) by attempting to maintain the status quo by re-emphasising the importance of lectures and the need for students to attend them, rather than restructuring their existing curriculum and teaching strategies to best achieve desired learning outcomes for the learners. Participants believed that lectures still remain the most common form of communication in higher education. Due to the architecture of the teaching spaces with fixed-point podiums and tiered seating for large numbers of students, participants in this study professed that lecturing was convenient, easy, and less work compared to recording video clips, and monitoring the students’ preparation. A fixed stadium seating does make activities such as active learning more challenging, especially with large classes (Henderson & Dancy, 2007). Likewise, some participants also argued that to implement a Flipped approach for a large number of students was too much of a challenge.

Although participants overall reported feeling comfortable using technology as part of their pedagogical toolbox, not many had replaced lectures with video clips, although they did use video clips in addition to lectures. The reasons given included time pressures and technical issues. Above all, participants were questioning the difference between lecturers presenting face to face with lecturers presenting lectures through video-clips. Participants reported that, they and students preferred face to face delivery, operating from the faulty assumption that using video clips would automatically lead to a reduction in face to face time. This concern reflected some of the participants’ (mis) conceptions of what the Flipped Classroom Model entailed.

On the other hand, some perceived the Flipped Classroom Model concept not to be new, and that a focus on more active learning approaches had been around for a quite some time in the education setting. Other reasons advanced when it came to decision making about adopting the Flipped Classroom Model were concerns over students’ attitude to having to prepare before coming to class, time pressures and workload, and available teaching space
for small group teaching. Participants’ assumption as well as personal experiences with regards to students’ attitudes seemed to influence their decision making whether to adopt or not to adopt the Flipped Classroom Model. Due to the academic workload and time constraints, participants were questioning whether it would be worth spending too much time on preparing the materials (e.g., recording video clips) when the outcome of the implementation may not be so rewarding.

Lastly, those participants who did adopt the Flipped Classroom Model believed that using this approach enabled them to create flexible learning not only for students but also for them. For example, students could watch the video at their own pace as well as have the option to choose whether they wanted to attend the class or vice versa, and for the teachers, they could still run part of their course even if they were not available on the campus. Participants who opted for the use of video clips as intricately associated with the Flipped Classroom Model appeared to understand that the purpose of the use of video clips was to communicate course content, and consequently to support a range of additional opportunities and possibilities within their teaching practices. These opportunities and possibilities were concerned with potentially enhancing their students’ learning. Using the Flipped Classroom Model enabled them to see the changes in students’ attitudes towards their own learning. For instance, they observed their students to be more active and engaged whilst they as teachers acted as facilitators of learning.

**Contributions of the Study**

Firstly, this study included participants from three universities in New Zealand. To date, there are limited studies about the Flipped Classroom Model from New Zealand. The findings did not suggest particular New Zealand issues, with the possible exception of the pressure to perform in research for the sake of PBRF that may have influenced their time investment in teaching innovation. However, although research assessment exercises may differ, academics in other countries are likely to have similar pressures.

Secondly, the study has evidenced that participants’ understandings regarding the meaning of and use of Flipped Classroom Model in teaching influence their decision about adoption or non-adoption of it. These findings could help the education community better understand
teachers’ perceptions of the Flipped Classroom Model and the challenges they face when using the model.

Thirdly, the study shows that encouraging teachers’ own reflection about their understandings of the Flipped Classroom Model and the barriers adopting the model can help them become more aware of their own teaching beliefs and practice. This may lead to a change in thinking. For example, one of the interviewees realised that using video-captured lectures created flexibility in learning for learners. The interviewee then assessed the value of using Flipped Classroom Model more positively as the lecture recordings could eliminate the time for topic explanation and give more time to content discussion.

Fourthly, the study shows the need for institutional and technological support in order to encourage teachers to adopt the Flipped Classroom Model. For instance, the findings show that the impact of contextual factors on adoption and non-adoption of the flipped model should not be ignored. Barriers such as the pedagogy, technology, and institutional challenges, influence the decisions a teacher makes. This information can help universities in their efforts to encourage teachers to use the Flipped Classroom Model.

Finally, the study may be useful to institutions considering professional development aimed at encouraging the adoption of the Flipped Classroom Model in their institutions, and overcoming challenges in adopting the model. The findings suggest that professional development workshops should take into account the role of teachers’ beliefs and understanding of the role of learning technologies. The focus should not be so much about seeking to change teachers’ practice or undermine their current practice, but to help them to reflect on what they want to achieve in their teaching, and how students’ learning can best be enhanced within the opportunities and limitations of any institution.

The findings from this study illustrate pedagogical reasoning underpinning the adoption and non-adoption of the Flipped Classroom Model in the relationships between beliefs and behaviour that the study participants had towards the adoption of a new approach to teaching. Furthermore, this study demonstrated that a view of teachers’ pedagogical belief is mainly determined by their previous training and teaching experiences is too simplistic. These prior experiences may have some influence at the very beginning stage of a teacher’s working life. However, once they have been in the classroom for a while, it is actually their
lived classroom experience that is likely to influence the extent to which their prior experiences impacts on pedagogical decisions. Therefore, this study represents a valuable theoretical contribution of the pedagogical reasoning underpinning the adoption and non-adoption of the Flipped Classroom Model. Three theoretical domains were drawn throughout this study that provide a lens for analysis- a) teacher-centred and student-centred approaches, b) adoption or resistance to change, c) technology uptake. This study aimed to understand what participants’ teaching conception meant for them individually and how they viewed the impact of their experiences on the adoption of a new practice as opposed to their existing practice through the lens of these three theoretical domains and supported by four theoretical models.

**Theoretical Contribution 1**

A number of theoretical notions have developed out of research conducted within the implementation of Flipped Classroom Model (Bishop & Verleger, 2015). Student-centered or sometimes referred to as autonomy (Milman, 2012), active learning (Jamaluddin & Osman, 2014), problem-solving (Gerstein 2012) and the inquiry-based learning (Cunningham, 2016) have provided the foundation for a richer understanding of the Flipped Classroom Model that continues to this day (Bergmann & Sams, 2012).

Teacher-centred and Student-centered approaches provided a theoretical framework for this study in regard to learning environments. The need for presentation of knowledge in authentic context and that learning requires social interactions and collaboration are the two basic principles undergirding participants’ beliefs with regards to the adoption of the Flipped Classroom Model. Flipped Classroom Model proponents (e.g., Bergmann & Sams, 2012; Cunningham, 2016; Davis, Dean & Ball, 2013) described students become more active and engaged in a Flipped classroom. The researchers further the discussion with their idea of active learning based on the premise that learning is a process of participation and engagement in a classroom. Their key proposal stated that constructivist approaches to learning is prevalent in a Flipped classroom where students are more self-directed, and able to approach learning as a problem-solving (Bishop & Verleger, 2013; Cunningham, 2016). However, findings in this study found that student-centred approaches should be accounted for individual differences, for example, students’ style of learning, attitudes, and self-discipline that require consideration. A majority of the participants in this study held the
beliefs that students’ attitudes toward their own learning, students’ expectation and rejection to a new style of learning addresses the barriers for the adoption of the Flipped Classroom Model.

As for the teacher-centered approach, participants across disciplines see teaching differently. They agreed that instruction for students should be more problem-centred rather than content-centered, however, they also posit that their role as an instructor in the classroom is acknowledged. They emphasized that student especially the first-year depend on the instructor to disseminate knowledge in the classroom. Participants also believed that face-to-face instruction followed by classroom activities provide a basis for their learning experiences because they are first generation university students. Another issue that this research underlined as influential in adopting the Flipped Classroom Model is the importance of architectural spaces. Lave and Wenger (1991) situated learning theory and Lippman (2010) place-based education have underlined the importance of learning spaces to the learning process. Nevertheless, the notion of place is given condition for teacher-centred approach in this study. Participants have mentioned that lecturing in a theatre with hundreds of students was regarded easier because of the space problems. This study did not attempt to give conclusive findings about the space; however, the study has created the conditions to observe in detail the influence of spaces on learning processes that may link to teacher-centred approach.

According to Fishbein and Ajzen (1975) TRA model, individual beliefs generally influence their attitudes. It is found in this study that almost all the participants held the belief that they have control over student and their learning. It is found in this study that participants were not likely embracing the Flipped Classroom Model concept and less positive on recorded lectures or video-clips compared to the face-to-face instruction. TRA model was used in this study to predict and explain teachers’ views that directly affects the adoption of the Flipped Classroom Model. TRA model helps researcher to understand the factors that may facilitate or constrain the adoption of the model as well as analyse participants ‘reasons to reject the model.
Theoretical Contribution 2

In this study, given the part technology plays in Flipped Classroom Model, not all participants were comfortable adopting the model into teaching or were convinced it enhanced student learning. Their prior experiences, teaching methods and the way they perceived student learning were important factors in determining whether they willing to adopt a new instructional model or even try using the model and see if it works for them. The theory of Diffusion of Innovation (Rogers, 1995) provides a foundation to understand the results of technology uptake as an integral part of Flipped Classroom Model adoption. Roger described levels of innovation adopter categories are-1) innovators, 2) early adopters, 3) early majority, 4) late majority, and 5) laggards. The first two adopters represent a group that work within their own initiative. The second and third adopters require an introduction to the innovation that relates to their immediate needs and this group of adopters generally wait until they see the proof of results. The last group, ‘the laggards’ are typically non-adopters. All the participants in this study were comfortable using technology in their teaching. As Rogers’ (1983) Diffusion of Innovation Theory and Davis’s (1989) TAM model note, adopting technology poses challenges. As a number of researchers (e.g., Fullan (2015); Shephard (2004) and Strayer (2007)) pointed out that, the challenge of change means that teachers have to see a reason to change and that leads to decision making.

Using Roger (1983) and Davis (1989) technology adoption model confirmed that the perception of ease of use and usefulness of technology had the strongest influence on participants’ intention to adopt the Flipped Classroom Model. This means that if participants are to adopt the model they must see the use of it as being easy and believe that it offers major benefits over existing teaching methods. The results indicate that participants who are technically skilled are more likely to adopt the Flipped Classroom Model. In particular participants who have a strong desire to try new innovative method that is different from his or her existing. These participants can be grouped as the innovators and early adopters\(^3\). While the innovators and early adopters successfully implemented the Flipped Classroom Model, others who sees the benefits of it, adopted the model\(^4\) however, this group found the model was unsuccessful and discontinued the model. The laggards are those who rejected

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\(^3\) Called Adopters; two participants  
\(^4\) Called Adopted but discontinued: five participants
the model and showed no interest in adopting the model\(^5\). In this study participants were grouped accordingly and Roger’s model aided the analysis process. To understand further why some adopted the model, some discontinued and some rejected the model, Bhattacherjee (2001) model was referred. A number of factors were found to be influential in the adoption of the Flipped Classroom Model. Factors such as lack of time, technical anxiety, overloaded work, teaching space, students’ attitudes, management and organization support, and retaining status quo were shown to play a major role in the overall perception of usefulness of adopting the Flipped Classroom Model in this study. The perception of usefulness by Davis (1989) and Bhattacherjee (2001) was determined by whether the individual found the Flipped Classroom Model an effective instructional model for their teaching. For the participants technology is seen as a tool that provides substantial advantage to student learning or their own learning however, the qualitative results made it clear that there are positive perceptions of technology use, however, the perceive usefulness of the Flipped Classroom Model appeared to be less positive. The concern represents possible barriers to the adoption process if they are not addressed. Educators need to feel comfortable using an approach or method that can offer benefits without detracting from existing methods or requiring unreasonable effort. Bergmann and Sams (2014) found substance of these feelings of caution in the implementation of the Flipped Classroom Model. The failure of the model is not due to weakness in the technology or the model itself, but to implementation errors made by the people and institutions (Bergmann & Sams, 2012). Once the benefits of the model were demonstrated the model are likely to become better accepted and mainstream (O’Flaherty & Phillips, 2015).

**Theoretical Contribution 3**

Other concerns expressed related to the adoption of the Flipped Classroom Model are resistance to change. A number of participants expressed doubt about the use of recorded lectures and video-clips as opposed to face-to-face instruction. The ease of use of Flipped Classroom Model relates to the amount of effort a teacher must invest when using the model to support their pedagogy. Davis (1989) model implies this notion. This includes how much effort is needed to learn the technology, and how easy it is to make video-clips or recorded lectures perform the way the user wants. This study found that for some participants the

\(^5\) Called Non Adopters: three participants
Flipped Classroom Model was seen as useful, and showed a positive influence on participants’ intention to adopt. However, qualitative results in this study identified issues such as content difficult to access, search, or excessive time needed to design Flipped materials and status quo. If educators need to spend hours trying to develop audio or video presentations, it is less likely that they will consider in adopting those applications. On the other hand, if the applications do not offer benefit to educators existing pedagogy, then there are also chances for resistance and rejection (Abrahams, 2010). This may explain why participants in this study expressed little interest in adopting the Flipped Classroom Model as these issues were highlighted both in quantitative and qualitative results. Generally, findings show that if the performance benefits of a technology or any instructional models are outweighed by the effort it takes to use, it is less likely that the technology will be adopted (Abrahams, 2010).

**Limitations of the Study**

This study has a number of limitations, which affect its potential impact. Firstly, it uses only survey and interviews as data collection tools. An additional tool such as classroom observation would provide for a more in-depth investigation. Another issue is the potential differences between what teachers say they do and what they actually do. This could be addressed by observing teachers’ behaviour and track their decisions on adopting or resisting the flipped model. In addition, interviewing students directly would allow comparison with their teachers’ perceptions of their preferences and behaviour.

The current convenience sample size of 10 interview participants and 83 survey respondents within three universities in New Zealand forms is relatively small. As such, the generalisability and transferability of the findings are limited. As such, the findings have to be considered within the confines of this sample size and sampling approach.

**Suggestions for Future Research**

Research into the Flipped Classroom Model is still emerging, and there are many areas which would benefit from additional investigation. For example, it would be interesting to do a comparison study between a Flipped Classroom Model and traditional model in the same subject, exploring issues like how much time teachers spend in class, the use of
technology and what types of classroom activities they use in both classes, as well as students’ learning outcomes and experiences. While many studies looked at the learning outcomes of the students there is limited research on how the actual learning takes place in both classes (flipped and traditional), what the nature of the challenges are in both classes, and how both teachers and students respond to these challenges.

Another area for future research is on the cultural dimension. As this study was conducted in New Zealand, it would be interesting to get perceptions about adoption and non-adoption of the Flipped Classroom Model from teachers in other countries (e.g. Asia, United States, United Kingdom, Australia, etc.). This might reveal what cultural perceptions teachers in higher education hold regarding teaching and regarding their learners, and the role that cultural perceptions play in adopting the Flipped Classroom Model. A related question on cultural perceptions could be about the learner autonomy and teachers’ beliefs of holding the power of delivering knowledge.

A final area for future research could be to investigate what heads of schools and departments could do to actively encourage teachers’ pedagogical change through introduction of learning technologies into the curricula, and what changes in beliefs and teaching strategies they would expect of teachers. In other words, exploring how teachers can be encouraged to move away from more traditional approaches to teaching to more innovative and flexible teaching approaches that could potentially benefit both teachers and students.
References


Nielsen, L. (2012). Five reasons I'm not flipping over the flipped classroom. *Technology & Learning, 32*(10), 1-46


van der Meer, J. (2012). ‘I don’t really see where they’re going with it’: Communicating purpose and rationale to first-year students. *Journal of Further and Higher education, 36*(1), 81-94.


Appendix A: Online Questionnaire

Teaching, Learning, and Technology Survey

This survey is part of a research project towards a Doctor of Education degree. Its aim is to find out more about the reason university educators consider making changes to their teaching approaches.

Many changes have taken place in approaches to teaching and learning in universities, in particular as a consequence of new technologies. This research project hopes to contribute to an understanding of some of these changes.

The particular aim of this study is to explore university teachers’ thinking and experiences about the use of technology in teaching and learning in particular in relation to the use of video-clips, and the concept of “Flipped Classrooms”. However, it is not imperative, or necessary for you to have heard of this term before. This survey is about reasons that may contribute to university teaching staff to consider (or not consider) making changes to their approaches to teaching. Therefore, we would appreciate you participating in this survey.

Your anonymity in completing this survey is guaranteed. If you kindly accept this invitation to participate, your consent for me to use this data is implied.

We are also seeking volunteers for a follow-up interview (30-60 minutes), to gain more in-depth understanding of issues regarding the use of technology in teaching (especially in the context of discussions about adoption of the “flipped classrooms” model). If you might be interested, we would appreciate if you could fill in the box at the end of the survey.

Your thoughts about technology in learning and teaching

Instructions: Please mark the level of agreement to the following statements that best reflect your experiences/thoughts.

1. I think that using technology improves my overall teaching performance
   1 2 3 4 5
   Strongly disagree ⬜ ⬜ ⬜ ⬜ ⬜  Strongly agree

2. I am comfortable using a range of technologies in my teaching
   1 2 3 4 5
   Strongly disagree ⬜ ⬜ ⬜ ⬜ ⬜  Strongly agree

3. Interacting with technology does not require a lot of mental effort for me
   1 2 3 4 5
   Strongly disagree ⬜ ⬜ ⬜ ⬜ ⬜  Strongly agree

4. I believe that I can effectively use technology tools to deliver an engaging course
   1 2 3 4 5
   Strongly disagree ⬜ ⬜ ⬜ ⬜ ⬜  Strongly agree
5. I am able to use learning technology tools with minimum support and assistance
   1 2 3 4 5
   Strongly disagree ☐ ☐ ☐ ☐ ☐ Strongly agree

6. The availability of technology tools helped me to change my course delivery to a more interactive approach
   1 2 3 4 5
   Strongly disagree ☐ ☐ ☐ ☐ ☐ Strongly agree

7. Technology-enhanced pedagogies allow for a more interactive learning environment
   1 2 3 4 5
   Strongly disagree ☐ ☐ ☐ ☐ ☐ Strongly agree

Your thoughts about approaches to teaching

8. I prefer the lecture mode as my primary teaching approach
   1 2 3 4 5
   Strongly disagree ☐ ☐ ☐ ☐ ☐ Strongly agree

9. Lectures are currently an essential part of my course
   1 2 3 4 5
   Strongly disagree ☐ ☐ ☐ ☐ ☐ Strongly agree

10. Lectures have been proven to be the best method to teach students because they enhance students’ understanding of the course material
    1 2 3 4 5
    Strongly disagree ☐ ☐ ☐ ☐ ☐ Strongly agree

11. I am comfortable with continuing with my lectures; they have served me well for a long time
    1 2 3 4 5
    Strongly disagree ☐ ☐ ☐ ☐ ☐ Strongly agree

12. I find it easier to deliver my course content in a lecture-based teaching method.
    1 2 3 4 5
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<td>13. Lecturing is the only way for me to get through the content of the courses I teach</td>
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<td>14. The tutorials provide enough interaction in my course - none is needed in my lectures.</td>
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<td>15. Teaching formats other than lectures would take too much time in preparing course materials</td>
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<td>16. Providing students with video clips of lecture content is just spoon feeding them</td>
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<td>17. Lectures are not the best way to teach students</td>
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<td>18. Most lectures should be abolished and replaced by interactive tutorials or workshops</td>
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<td>19. Lectures could be more effective if they would be more interactive</td>
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<td>20. Short video clips would be a better way to deliver course material rather than just through lectures</td>
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21. In my institution/department, I don’t have enough opportunities and support to develop new teaching approaches.

1 2 3 4 5

Strongly disagree ◯ ◯ ◯ ◯ ◯ Strongly agree

22. The only reason I lecture is because my institution requires this of me.

1 2 3 4 5

Strongly disagree ◯ ◯ ◯ ◯ ◯ Strongly agree

23. The only reason I lecture is because other teaching formats take up too much staffing.

1 2 3 4 5

Strongly disagree ◯ ◯ ◯ ◯ ◯ Strongly agree

24. Limitations on available smaller classroom spaces limits my opportunities to make many changes in my approach to teaching.

1 2 3 4 5

Strongly disagree ◯ ◯ ◯ ◯ ◯ Strongly agree

25. Short video clips in addition to one or more lectures would be a better way to deliver course material rather than just through lectures alone.

1 2 3 4 5

Strongly disagree ◯ ◯ ◯ ◯ ◯ Strongly agree

Your thoughts about students and their learning

26. Most students do not prepare before coming to lectures.

1 2 3 4 5

Strongly disagree ◯ ◯ ◯ ◯ ◯ Strongly agree

27. Students prefer to get a copy of the lecture PowerPoint slides rather than attempt to make their own notes.

1 2 3 4 5

Strongly disagree ◯ ◯ ◯ ◯ ◯ Strongly agree
28. Even though students often take notes, I believe that many students do not look at them after class.

1 2 3 4 5

Strongly disagree ○ ○ ○ ○ ○ Strongly agree

29. Most students find it difficult to maintain their attention during lectures if there are no activities.

1 2 3 4 5

Strongly disagree ○ ○ ○ ○ ○ Strongly agree

30. My experience is that, students in lecture-based classes are often disengaged (e.g. texting, sleeping, not bothered to attend to lecture)

1 2 3 4 5

Strongly disagree ○ ○ ○ ○ ○ Strongly agree

31. Students depend on teachers to provide them with appropriate learning materials (e.g. lecture notes/slides, websites with resources, reading materials)

1 2 3 4 5

Strongly disagree ○ ○ ○ ○ ○ Strongly agree

32. My students prefer to learn through lectures, rather than through active engagement (e.g. brainstorming, discussion...)

1 2 3 4 5

Strongly disagree ○ ○ ○ ○ ○ Strongly agree

33. Most students prefer to be told what they have to know, rather than develop their own understanding of the course materials

1 2 3 4 5

Strongly disagree ○ ○ ○ ○ ○ Strongly agree

34. Many students find it difficult to make good notes in lectures

1 2 3 4 5

Strongly disagree ○ ○ ○ ○ ○ Strongly agree

35. Students learn best by me explaining the material in lectures

1 2 3 4 5

Strongly disagree ○ ○ ○ ○ ○ Strongly agree
36. A change in pedagogy is necessary as many students in the 21st century do not feel engaged by just listening and taking notes.

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Strongly disagree |   |   |   |   |   |
Strongly agree    |   |   |   |   |   |

37. The introduction of technologies in higher education has enhanced students’ engagement

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Strongly disagree |   |   |   |   |   |
Strongly agree    |   |   |   |   |   |

38. I believe that a technology enhanced pedagogies develop a more positive attitude towards learning in students

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Strongly disagree |   |   |   |   |   |
Strongly agree    |   |   |   |   |   |

39. Technology enhanced pedagogies can contribute to students’ academic engagement

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Strongly disagree |   |   |   |   |   |
Strongly agree    |   |   |   |   |   |

40. Using technology in teaching and learning is likely to enhance students’ motivation

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Strongly disagree |   |   |   |   |   |
Strongly agree    |   |   |   |   |   |

41. Technology use in teaching and learning is likely to satisfy students’ learning needs

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Strongly disagree |   |   |   |   |   |
Strongly agree    |   |   |   |   |   |

42. Technology can provide for a self-paced instructional setting that could support mastery learning for students

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Strongly disagree |   |   |   |   |   |
Strongly agree    |   |   |   |   |   |

43. Pre-recorded lectures enable students to pause and replay video segments to help their understanding

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Strongly disagree |   |   |   |   |   |
Strongly agree    |   |   |   |   |   |
44. The use of video clips/podcasts for homework allows the class time to be used for activities such as problem solving, discussion and developing students' understanding

1 2 3 4 5

- Strongly disagree [ ] [ ] [ ] [ ] [ ] Strongly agree

45. Activities in the classroom such as solving problems, and peer-led discussions can help students to develop a deeper understanding of the course material

1 2 3 4 5

- Strongly disagree [ ] [ ] [ ] [ ] [ ] Strongly agree

46. Students are responsible themselves for learning from the lecture material

1 2 3 4 5

- Strongly disagree [ ] [ ] [ ] [ ] [ ] Strongly agree

47. Students learn best by active engagement with the material

1 2 3 4 5

- Strongly disagree [ ] [ ] [ ] [ ] [ ] Strongly agree

48. Using pre-recorded/video clips lectures does not guarantee students' understanding

1 2 3 4 5

- Strongly disagree [ ] [ ] [ ] [ ] [ ] Strongly agree

49. Using pre-recorded/video clips lectures does not necessarily guarantee that students will pace their own learning effectively

1 2 3 4 5

- Strongly disagree [ ] [ ] [ ] [ ] [ ] Strongly agree

50. A problem with providing video clips might be that many students will be easily distracted while watching the videos

1 2 3 4 5

- Strongly disagree [ ] [ ] [ ] [ ] [ ] Strongly agree

51. Having to watch video clips or podcasts independently may be overwhelming for some students

1 2 3 4 5
52. I don't believe most students have the self-motivation to watch video-clips by themselves

| 1 | 2 | 3 | 4 | 5 |

Strongly disagree   Strongly agree

53. Most first-year students need to receive guidance from teachers into how to become independent learners

| 1 | 2 | 3 | 4 | 5 |

Strongly disagree   Strongly agree

54. The use of video-clips with course content may be especially helpful for first-year students as they may find it difficult to make good notes in lectures

| 1 | 2 | 3 | 4 | 5 |

Strongly disagree   Strongly agree

55. The use of video-clips with course content may be especially helpful for international students as they may find it difficult to make good notes in lectures

| 1 | 2 | 3 | 4 | 5 |

Strongly disagree   Strongly agree

Some last questions
The following are some brief open-ended questions

1. What are your main approaches to course delivery at the moment (e.g. lecture, workshops, labs, etc.)

2. If you are, or have considered changing your current course delivery method, what changes have you, or are you considering?
3. Are you currently using short video-clips rather than lectures in your course?
   - Yes
   - No

4. Are you currently using short video clips in addition to lectures in your course?
   - Yes
   - No

5. Do you use lectures in your course?
   - Yes
   - No

6. Have you heard of the term "Flipped Classroom"?
   - Yes
   - No

Continue »
Appendix B: Consent Given Through Completion of Survey

Survey Invitation:
University Teaching, Learning and Technology Survey

SURVEY LINK: https://docs.google.com/forms/d/1HPa4O4akkBoYxl8kN2cf04qRLvN4jz-LUO2xt51Pjk/viewform?c=0&w=1&usp=mail_form_link

Dear University Educator,

I invite you to respond to this survey, which is part of a research project towards a Doctor of Education degree. Its aim is to find out more about the reason university educators consider making changes to their teaching approaches.

Many changes have taken place in approaches to teaching and learning in universities, in particular as a consequence of new technologies. This research project hopes to contribute to an understanding of some of these changes.

The particular aim of this study is to explore university teachers’ thinking and experiences about the use of technology in teaching and learning in particular in relation to the use of video-clips, and the concept of “Flipped Classrooms”. However, it is not imperative, or necessary for you to have heard of this term before. This survey is about reasons that may contribute to university teaching staff to consider (or not consider) making changes to their approaches to teaching. Therefore, we would appreciate you participating in this survey.

Your responses will be completely anonymous. This research has received ethical approval through the University of Otago ethics processes. If you would like further information about this study, please contact me or one of my supervisors (links below). If you kindly accept this invitation to participate, your consent for me to use this data is implied.

We are also seeking volunteers for a follow-up interview (30-60 minutes), to gain more in-depth understanding of issues regarding the use of technology in teaching (especially in the context of discussions about adoption of the “flipped classrooms” model). If you might
be interested, we would appreciate if you could fill in the box at the end of the survey. The attached information sheet provides more information.

**Please click here** to complete the survey:

https://docs.google.com/forms/d/1HPa4O4akkBoYxI8kIN2cf04qRlvN4jz-LUO2Xt51Pjk/viewform?c=0&w=1&usp=mail_form_link

Many thanks for your help! **Your participation will make a valuable contribution to this study.**

Kind regards,

Lakshmi Chellapan

Doctoral Candidate, University of Otago lakshmi.chellapan@postgrad.otago.ac.nz

**Supervisors:**

Dr Jacques van der Meer jacques.vandermeer@otago.ac.nz

Dr Keryn Pratt keryn.pratt@otago.ac.nz

Dr Rob Wass rob.wass@otago.ac.nz

**ETHICS:**

If you have any concerns about the ethical conduct of the research you may contact the University of Otago Human Ethics Committee through the Human Ethics Committee Administrator (ph 03 479-8256). Any issues you raise will be treated in confidence and investigated and you will be informed of the outcome.
Appendix C: Email to Excluded Interview Participants

Dear [Name],

Thank you very much for your interest in my research project, and for the time and effort you have contributed. This message is to let you know that the interview date has to be within the stipulated time frame (April to October, 2016). Due to your unavailability, I was not able to include you in this study. I was interested to learn more about your teaching practice and your experience in adopting the Flipped Classroom Model as described in the questionnaire, and I regret that we will not be able to work together further. Thank you again for participating in the survey and showing your willingness to be interviewed.

Sincerely,

Lakshmi Chellapan
Appendix D: Semi-structured Interview Questions

Get the interviewee to focus on a teaching/learning event they have experienced. Where does it fit in with the way they use technology? What’s their role in the transition, and how much control do they have over the teaching/learning methods used?

To start off with:

In survey that you completed and returned to me, you said that you used…method and then you said why you considered it to be more effective and reliable.

1. Can you tell me a bit about your decision to select your current teaching approach? What informed that choice of method?
2. How did you go about using this particular approach to teaching?
3. What was it that you had in mind that you wanted your students to get out of this approach?

Probing questions:
- Can you explain further?
- What do you mean by that?
- Is the anything else you would like to say about…?
4. Why do you want prefer to use this method rather….?
5. How do you know that they have learned better using this approach to the other?
6. How do you know if they have achieved what you have set out to achieve?
7. What do you think about lecture based teaching and Flipped Classroom teaching?
8. We have now come to the last section of the interview. From what you have said so far, can you now tell me what Flipped Classroom teaching means to you?
Appendix E: Transcriber Confidentiality Agreement

Confidentiality Agreement for use with Transcription Services

Research Study Title:

*An Investigation into The Adoption of Flipped Classroom by Teachers in New Zealand Higher Education Institutions*

1. I, transcriptionist, agree to maintain full confidentiality of all research data received from the research team related to this study.
2. I will hold in strictest confidence the identity of any individual that may be revealed during the transcription of interviews or in any associated documents.
3. I will not make copies of any audio-recordings, video-recordings, or other research data, unless specifically requested to do so by the researcher.
4. I will not provide the research data to any third parties without the client’s consent.
5. I will store all study-related data in a safe, secure location as long as they are in my possession. All audio recordings will be stored in an encrypted format.
6. All data provided or created for purposes of this agreement, including any back-up records, will be returned to the research team or permanently deleted. When I have received confirmation that the transcription work I performed has been satisfactorily completed, any of the research data that remains with me will be returned to the research team or destroyed, pursuant to the instructions of the research team.
7. I understand that University of Otago has the right to take legal action against any breach of confidentiality that occurs in my handling of the research data.

Transcriber’s name (printed) 

Transcriber’s signature 

Date: **02.04.2016**
Appendix F: Email, Information Sheet and Consent Form Sent to Potential Interview Participants

Lakshmi Chellapan
Fri 1/04/2016 3:28 p.m.

Sent Items

Thank you for completing the survey for the pilot study regarding teaching, learning and technology (with a particular focus on ‘flipped classrooms’). Thank you also for your willingness to be interviewed for this study. If you are still waiting to participate in this, I would like to schedule an interview at your convenience. A confidential interview would last approximately 30 minutes and be recorded for transcription purposes only. Your response will remain anonymous. The interview will be held through Skype recording, Zoom or by telephone. I would appreciate if you could indicate what date/time would suit you possibly from April to end October 2016.

With many thanks
Kind regards

Lakshmi Chellapan
PhD student
Higher Education Department Center
University of Otago
Dunedin
New Zealand
Thank you for showing an interest in this project. Please read this information sheet carefully before deciding whether or not to participate. If you decide to participate, we thank you. If you decide not to take part there will be no disadvantage to you and we thank you for considering our request.

What is the Aim of the Project?
This research aims to explore current teaching and learning practices in Higher Education that may or may not inform decisions by lecturers in higher education to ‘Flip the Classroom’. Even if you have not heard of the term “flipped classrooms”, your participation is strongly encouraged as the interview seeks to understand the broader context of aspects in teaching and learning that inform decision-making in higher education in regards to pedagogical practices.

This research is being done by Lakshmi Chellapan in partial fulfillment of the requirements for the degree of Doctor of Philosophy in the Department of Higher Education at the University of Otago. Dr. Jacques Van De Meer is the primary supervisor.

What Types of Participants are being sought?
You are receiving this information sheet because you previously completed a survey on this topic, and agreed to be contacted regarding a further interview.

What will Participants Be Asked to Do?
You will be asked to participate in a 30-minute interview. The purpose of this in-depth interview is to learn about your experience as an instructor in a flipped classroom. Accordingly, interview questions will be open-ended and seek to enable the participants to reflect on and describe their perceptions about the research field. You will also be asked to discuss the responses you made in the survey. The interviews will take place in an agreed location, or via telephone or Skype type tool. This interview will be carried out between April and October 2016.
Your involvement in this research is voluntary and all data collected anonymously (to all but the researchers). You will indicate your consent to participate in the study by typing your name in the consent form and returning it to Lakshmi Chellapan via email. You can withdraw from the study at any time.

**What Data or Information will be collected and what use will be made of it?**

This project involves an open-questioning technique. The general line of questioning includes questions based on your survey responses/feedback and will cover the general area of teaching pedagogy and the adoption of a Flipped Classroom. The precise nature of the questions which will be asked have not been determined in advance, but will depend on the way in which the interview develops. Consequently, although the College of Education is aware of the general areas to be explored in the interview, the Committee has not been able to review the precise questions to be used. In the event that the line of questioning does develop in such a way that you feel hesitant or uncomfortable you are reminded of your right to decline to answer any particular question(s).

The interview will be audio recorded and then transcribed. You will have the opportunity to review the transcript of your interview and give feedback or make changes to it. You will also receive a summary of the study before presentation or publication.

Data collected will be securely stored in such a way that only the research student and her supervisors can have access to it. Data will be analysed to describe your perception on your pedagogy teaching and the institutional challenges you face.

At the end of the research, any personal information will be destroyed immediately, except that required by the University’s research policy. Any raw data on which the results of the project depend will be retained in a secure storage for five years, after which it will be destroyed.

The results of the research study may be published and will be available in the University of Otago Library (Dunedin, New Zealand).

**Can Participants change their mind and withdraw from the project?**

You may withdraw from participation in the project at any time and without any disadvantage to yourself of any kind. You can do this by emailing Lakshmi Chellapan informing her of your decision to withdraw.
**What if Participants have any Questions?**

If you have any questions about our project, either now or in the future, please feel free to contact either:-

Lakshmi Chellapan (PhD candidate) or Assoc. Prof. Jacques van der Meer

Department of Higher Education Centre

University Tel Number: - 03 479 8415

Email: chela119@student.otago.ac.nz

Lakshmi Chellapan (PhD candidate) or Assoc. Prof. Jacques van der Meer

Department of Higher Education Centre

University Tel Number: - 03 479 4288

Email: Jacques.vandermeer@otago.ac.nz

This study has been approved by the Department stated above. However, if you have any concerns about the ethical conduct of the research you may contact the University of Otago Human Ethics Committee through the Human Ethics Committee Administrator (ph 03 479-8256). Any issues you raise will be treated in confidence and investigated and you will be informed of the outcome.
AN INVESTIGATION INTO THE ADOPTION OF FLIPPED CLASSROOM BY TEACHERS IN NEW ZEALAND HIGHER EDUCATION INSTITUTIONS

CONSENT FORM
FOR PARTICIPANTS

I have read the Information Sheet concerning this project and understand what it is about. All my questions have been answered to my satisfaction. I understand that I am free to request further information at any stage.

I know that:

1. My participation in the project is entirely voluntary;

2. I am free to withdraw from the project at any time without any disadvantage.

3. Personal identifying information (audio recordings etc.) will be destroyed at the conclusion of the project but any raw data on which the results of the project depend will be retained in secure storage for at least five years.

4. This project involves an open-questioning technique. The general line of questioning includes; questions based on your survey responses/feedback and will cover the general area of teaching pedagogy and adoption of a Flipped Classroom approach. The precise nature of the questions which will be asked have not been determined in advance, but will depend on the way in which the interview develops and that in the event that the line of questioning develops in such a way that I feel hesitant or uncomfortable, I may decline to answer any particular question(s) and /or may withdraw from the project without any disadvantage of any kind.
5. I can refuse to answer any particular question, and ask for the recording to be turned off at any stage

6. At the conclusion of the project any raw data (including audio recordings, transcripts, and notes) on which the results of the project depend will be retained in secure storage for five years after which it will be destroyed.

7. The results of the project may be published and will be available in the University of Otago Library (Dunedin, New Zealand).

................................................................. .............................................
(Typed name of participant in lieu of signature) (Date)

I would like to receive a summary of the results of this research Yes No
Appendix G: Participants’ Current Approaches to the Delivery of their Courses

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