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Vocational Teachers' Experiences of Using an Online Learning Platform

by

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ABSTRACT

It is often argued that the Internet provides a technology that fosters improvement of an educational system in various subjects. Much research has been carried out to demonstrate how the online platforms can be used to improve teaching and learning processes. However, they have been less explored in relation to vocational education, where the situation is often more complex and the possible solution options more constrained than in the contexts where these online technologies have been created.

The aim of this research is to investigate the experience of teachers' current use of the online platform in vocational teaching. To obtain more robust measures and research findings, a multi-method phenomenographic approach is adopted. A quantitative survey was conducted, and in-depth interviews were undertaken to collect qualitative detail and produce a more complete picture of the phenomenon being investigated. The perspectives taken in my research mainly included literature review, statistical analysis for the questionnaire responses, and thematical analysis of interview data.

The findings from the survey and interviews were used to identify different approaches that teachers can adopt in using Moodle for their vocational subjects in Hong Kong Institute of Vocational Education. Through an iterative process of analysis, numerous issues related to vocational teaching with Moodle were revealed; they are explored as a number of themes in this thesis. Dimensions of

variety among the categories of themes are recognised and presented in the research process to extend previous knowledge. The study also shows a range of approaches in vocational teaching with Moodle and covers aspects including: shift in the vocational teachers' role, adjustment of communication with students, necessity of face-to-face coaching, blended learning, control of the learning progress, preparation of the online content, teaching and learning effectiveness, change of student quality and expectations, and amplified support by the media richness. In addition to analyzing the complexity of the phenomenon, the findings of this research highlight the value of sharing teachers' experience; this provides guidance and insights for other vocational teachers to explore the possibilities and opportunities of using the online platforms in their areas of vocational teaching.

Above all, the results of this study substantiate previous research in showing the importance of teaching with technology rather than teaching about technology or technology for teaching. Vocational teachers' experience with Moodle in this research supports this view. Complexity and opportunities have been created, not only for both vocational teachers and students, but also for the stakeholders such as course administrators, curriculum developers, faculty members, educational specialists, and organization leaders considering or using online learning platforms for vocational teaching. Recommendations are given in the conclusion for development of staff capacity and capability in vocational teaching with online platforms, particularly with Moodle.

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DEDICATION

To my parents, friends, and colleagues who encouraged me throughout my research work and helped me understand that through patience and hard work I can achieve my goals.

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ABBREVIATIONS

CLT: Centre for Learning and Teaching

EMB: Education and Manpower Bureau

HKSAR: Hong Kong Special Administrative Region

ICT: Information and Communication Technology

IT: Information Technology

ITSD: Information Technology and Services Division

IVE: Institute of Vocational Education

LMP: Learning Management Platform

LTSC: Learning and Teaching Steering Committee

TC: Technical College

TI: Technical Institute

TLP: Teaching and Learning Package

TPCK: Technological pedagogical content knowledge

TVET: Technical and Vocational Education and Training

VET: Vocational Education and Training

VTC: Vocational Training Council

CHAPTER 1: INTRODUCTION

1.1 Introduction

The background of this study comes from my research interest in online technology for teaching and learning and my employment as the Education Development Officer in the Institute of Vocational Education (IVE) of the Vocational Training Council (VTC) in Hong Kong. I realised that there were significant changes in the delivery of teaching materials and pedagogical arrangement with the latest developments in Internet technology. In response to the rapid acceptance of using the Internet, IVE teachers were encouraged to develop their course materials for online delivery. Meanwhile, my experience in online education came from helping teachers set up their teaching materials in the web-based platform Moodle and facilitating training workshops on using that online learning platform. To investigate the impact of Internet technology on learning process and outcomes, educational researchers have conducted many studies. However, the great majority of these (Gillen & Barton, 2010;

Wheeler, 2010) seem to have focused on students' perspectives rather than discussing teachers' experience of using online learning platforms.

Over time, based on my observations and contact with IVE teachers, it was quite interesting to discover that they described their online teaching experiences as satisfying or frustrating, important or irrelevant, interesting or boring, and helpful or useless to various degrees. Yet, none was left untouched by their online teaching experiences. As I later discovered, these stances were not unique to one teacher or one campus. Rather, IVE teachers responsible for teaching different vocational subjects (Centre for Learning and Teaching, 2011) were found to encounter numerous problems and report special experiences (Vocational Training Council, 2002). It was there that I developed further interest in, and questions about, the importance as well as the effectiveness in vocational teaching with an online platform. If teachers are using such a web-based platform to teach vocational subjects, what does that actually mean in terms of changing pedagogical arrangements? What do IVE teachers experience when using the online platform? How do they differ from each other in using Moodle for teaching? What complexities and difficulties are encountered by

teachers of different vocational subjects? Teachers seem to adjust themselves to the teaching environment and to embrace changes with students. Yet, as they adjust, what do they gain and what do they give up? What do they expect in the long run? The findings of this research are intended to help us to provide implications and answers to these questions. To contextualise the deeper discussion of the research that follows, the flow chart in Figure 1.1 on the next page shows an overview of the framework and an outline of the different parts of this research thesis.

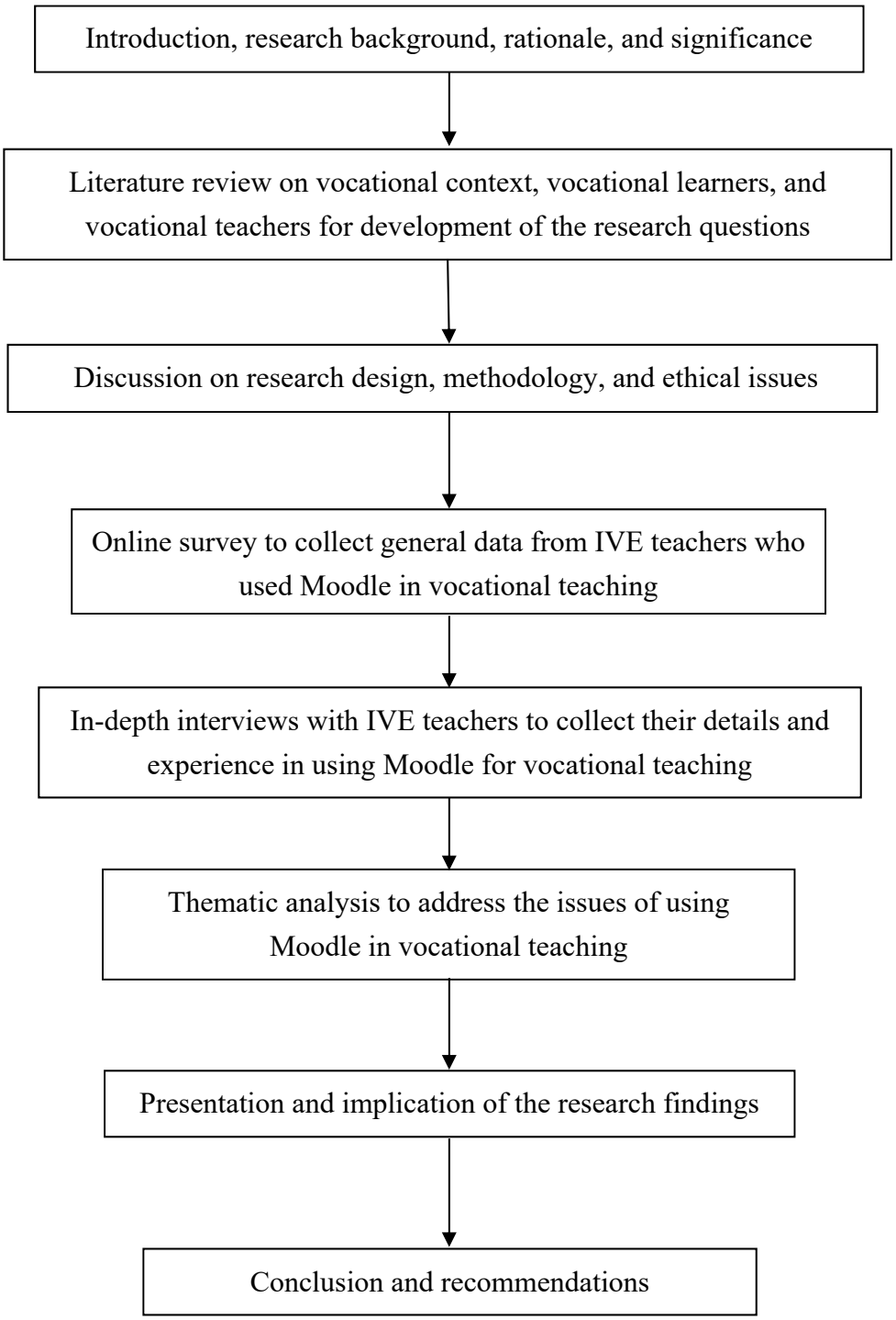


Figure 1.1: Framework and outline of the thesis

1.2 Significance of the Study

Teaching and training aim to motivate people to develop their potential. Intensified global competition, high numbers of low skilled workers in the workforce and an ageing population are some of the challenges facing the world. Through the development of teaching methods with technology, vocational training is becoming increasingly vital in our learning society. The idea of online learning is derived from applications of information and communication technology developed in the past decade to transform the traditional models of teaching and learning in different subject areas. This evolution has resulted from the emergence of the information society and has greatly impacted on global economic and socio-cultural development. Current research presents various aspects of learning through online platforms, yet a complete picture of their impact on teachers cannot be drawn easily. Many researchers in the field still argue that the development of virtual learning has not been tested by time (Attwell & Lübcke, 2010; Beetham, McGill & Littlejohn, 2009; Drent & Meelissen, 2008; LLUK, 2009). As such, many research studies have been performed in the field to explore the issues and strategies that require more

identifying and understanding. While the Internet presents numerous opportunities to support teaching and learning, I note that effective teaching in a virtual learning environment involves a serious commitment to understand different features of web-based learning platforms and the ways it can be used most advantageously to impart learning.

As researchers have noted, whilst there is a wealth of studies and debates on the use of online learning platforms in university and higher education, there has been a paucity of literature (Al-Bataineh, 2005; Becta, 2006) discussing their use in vocational education and training. Does this mean that they are not popular or even inappropriate to the context of vocational teaching and learning? Although the migration of the online platform from WebCT to Moodle at the VTC took place more than three years ago. I still do not know much about its effectiveness and efficiency in teaching vocational subjects. In order to find some answers to these questions, it was necessary to study the online teaching experience at VTC.

1.3 Background of VET and the VTC

In this section, I will start by reviewing the definitions of vocational education, in order to understand its role in the educational system, and then look at its development in Hong Kong.

Vocational education, also known as vocational education and training (VET), is a form of education in which students acquire job skills or knowledge, that is, they are engaged in career-related learning which usually involves manual or practical abilities. To have initial understanding, the definition provided by the European Centre for the Development of Vocational Training is useful:

> …all structured activities that aim to provide people with knowledge, skills and competencies necessary to perform a job or set of jobs, whether or not they lead to a formal qualification. (Cedefop, 2009, p.8)

In contrast to academic education, vocational education has a specific focus in practical contexts and it is designed to provide students with the

essential skills to start or develop during a career. Sometimes it is called technical education as students are directly trained to have expertise in particular groups of job skills. VET can also sometimes be identified in aspects of general education or even outside the general education system, and in various kinds of informal learning (Educational International, 2009; Hoffman, 2011).

Before the Industrial Revolution, the apprenticeship system and the home provided vocational education (Brockmann, Clarke & Winch, 2010). Since then, there were economical shifts in the society by decline of handwork and specialization of job skill to develop schools for vocational education. In a historical perspective, vocational schools emerged originally as a supplement to apprenticeship training. However, in some countries where apprenticeship training was still unregulated, they developed as the most important form of vocational education (Greinert, 2005). After World War II, school-based VET became more popular and the dominant form of vocational education in many countries. Many governments contributed to VET to ensure that people with technical skills could be readily available to the labour market, and to provide career options for people who are not interested in colleges or who may not be

able to afford higher education on their own (Frimodt, Marsh & Volmari, 2006).

However, vocational education is rarely considered in its own form to fall under the traditional definition of higher education as it is classified for mainly teaching technical subjects, employment-related knowledge, and job-specific skills (Marsh & Volmari, 2009). This can be differentiated from the declarative knowledge emphasized by traditional education in academic and scientific fields, which typically focus on academic theory or conceptual knowledge. Although seemingly abstract, the discussion above on what VET constitutes is just a preliminary step in this research process. Such classification of VET leads to further questions of the place where VET is provided, who VET students are and who VET teachers are.

In Hong Kong, the terms “technical education” and “industrial training” were used in VTC Annual Reports during 1982-1996. Since 1997, they have been replaced by “vocational education” and “vocational training” to describe the kind of educational programmes offered by VTC (VTC Annual Report 1997/1998). The updated names reflected a new movement in order to keep

pace with the needs of a more service and knowledge-based economy. The change of job requirement by companies, the demand of professional skill in the industries, and the impact of financial crisis in 1997 necessitate the provision of high quality vocational education (Unwin, 2004; Wolf, 2011).

Over the twentieth century, vocational programmes diversified. They can be provided as a subject at the secondary level, a certificate or diploma course at the post-secondary level, a degree programme at further education level, or even some short courses during job training for a professional licence. In Hong Kong, vocational education is mainly provided by tertiary institutions and VTC. The earliest formal vocational education can be traced back to 1933 when the Government began to fund full-time technical education courses. It was not until VTC was formally established in 1982 that Hong Kong finally had an organization in place to plan, coordinate, and develop vocational education and training. Taken together, the VTC and its predecessors have been training manpower in Hong Kong for more than 70 years.

The 1970s saw the rapid development of the Hong Kong economy and an accelerating need for manpower at different levels. With global financial and

economic development, policymakers increasingly focused on the importance of vocational training. The inception of the Hong Kong Training Council in 1973 was a move by the government to seek a comprehensive technical manpower training system to develop technicians for the industrial and business sectors. In 1982, the VTC was formally established to take the place of the Hong Kong Training Council as a permanent statutory body vested with administrative powers.

The VTC has since taken over the Technical Institutes (TI), previously under the Education Department of the Hong Kong Government, and has continued to set up new TIs and Technical Colleges (TC) for different industries to advance the development of VET in Hong Kong. The brain drain in the 1990s prompted the government to rapidly expand local higher education to meet the resulting manpower shortfall. The opening up of Mainland China led to the massive relocation of Hong Kong industries northwards. Finance and services rose as pillars of the economy of Hong Kong, which greatly changed manpower requirements. In response to such changes, the VTC realigned its training focus

to pay attention to training for the financial and services industries as the latest development of the local economy.

Facing the knowledge-based economy and rapid development of technology in the new millennium, a big leap forward of vocational education took place in 1993 when two TCs were set up by the VTC to take over the Higher Diploma and Higher Certificate courses of the two Polytechnics in their expansion of degree places. In 1999, VTC merged the seven TIs and the two TCs to establish the Hong Kong Institute of Vocational Education (IVE), heralding a new era of vocational education locally (VTC, 2012b). Each IVE campus is well-equipped with computing facilities and multimedia laboratories to support vocational teaching with online platforms such as WebCT or Moodle. My working experience at IVE campuses made me aware that these facilities help allow IVE teachers to apply different pedagogies in the ever-changing web environment, and keep students updated with the new vocational knowledge and skills through learning online.

The question now arises: what is the definition of online teaching and learning? There is no wide agreement about their meaning. Depending on a

person's background and experiences, different definitions are used. Then, you may come across the next question: how is the use of online technology applied in vocational education in VTC? To set out the boundaries for this research and conduct analysis within the same dimensions, the next section will provide a definition for this research study.

1.4 Teaching and Learning in VTC Context and Use of Online Methods

In this section, I will firstly introduce how teaching and learning happens in VTC context. Then, I will have discussion on what is meant by online technology for teaching and learning, and look at its evolution in the VTC.

1.4.1 Teaching and Learning in VTC Context

To align with the Government's education blueprint to foster lifelong learning, VTC provides diversified and continuing education pathways for students. Being the largest government funded VET provider in Hong Kong, it offers a broad spectrum of programmes at different levels and in various disciplines for 250,000 students every year, administering internationally recognized qualifications (Vocational Training Council, 2017). Currently, VTC provides vocational education services mainly through 13 Member Institutions over 40 campuses and training centres to meet the needs of industry for well-trained manpower at higher diploma, diploma and craft levels (Vocational Training Council, 2017). Moreover, to comply with the requirements of major

sectors of commerce and industry, starting from 2012, VTC offers vocationally-oriented bachelor's degree programmes with self-financing courses to satisfy the aspirations of both students and people in employment for professional study in Advertising, Fashion Design, Product Design, Sports & Recreation Management, Civil Engineering, and Environmental Engineering & Management (Vocational Training Council, 2012a).

Since I am now working in one of the IVE campuses and my research findings come from the IVE teachers, I will briefly describe how teaching and learning happens in IVE of VTC. As one of the Member Institutions under VTC, the IVE offers vocational courses to the secondary school leavers through its nine campuses, namely IVE (Chai Wan), IVE (Haking Wong), IVE (Lee Wai Lee), IVE (Sha Tin), IVE (Kwai Chung), IVE (Kwun Tong), IVE (Tsing Yi), IVE (Morrison Hill) and IVE (Tuen Mun), located in different areas of Hong Kong. Full-time and part-time courses are being provided in seven vocational disciplines including Applied Science, Business Administration, Engineering, Information Technology, Design, Childcare, Elderly & Community Services, and Hotel, Services & Tourism Studies, ranging from the diploma to sub-degree

levels with curricula designed by academic and industry representatives to equip students with transferrable knowledge and practical skills in different vocational fields. Guided by IVE teachers and underpinned by the real-life experience of industry placements, vocational students can learn the required skills and pick up capabilities to get started in their careers or to move on to further studies after completing their courses.

Currently, most of the vocational courses provided by IVE campuses have their curriculum and timetables based on the academic year which begins in September and ends in the summer semester. For students of those typical courses such as business, engineering or childcare, their learning process is often arranged through taking four or five mandatory subjects for each semester in around 15 teaching weeks, with a few elective subjects in their final year. Depending on the subject requirements, IVE students are required to attend 15 to 20 hours of face-to-face lessons in classrooms and/or workshops per week. Meanwhile, each subject would have assessment in form of the written tests, quizzes, individual assignments, group projects, and/or examination. So, students are required to fulfil the assessment standard to complete their courses.

Furthermore, all vocational courses have an integrated curriculum designed by the course planning team and accredited by professional bodies. To follow the curriculum, students would need to spend a minimum total of 20 hours in each semester to perform their placement work for certain vocational subjects, attend the company visits for part of their learning, and participate in some extra-curricular activities or campus events to stimulate their motivation for wider learning. Basically, use of Moodle for teaching and learning occurs in campuses and students' home, rather than those workplaces because many of them do not use computers in their working locations practically.

On the other hand, it is apparent that student diversity in VTC has been increasing in recent years. Nevertheless, with most IVE students coming from the post-1990s generation, they share characteristics of the 'Net Generation' who are particularly interested in the new forms of sociality for online communication, mobile technology and media learning. Then, how can the IVE teachers make use of the online technology to facilitate their teaching? That will be our focus in the next section.

1.4.2 Use of Online Methods

The Internet has revolutionized the ways people communicate and created new paradigms for innovation in education, leading to development of more online teaching and learning. For better understanding of this in the following discussion, let us firstly consider the meaning of online teaching and learning.

Significant research on online teaching and learning includes comparison studies, pedagogical aspects, perception studies, and outcome-based assessments. This has not surprisingly resulted in numerous definitions.

Network technology has been used for teaching and learning. It has been involved in the whole range of educational practice which includes online instruction, Internet classrooms, distributed learning, networked classes, virtual school, e-learning platforms, web-based lectures, social media learning, and mobile teaching. All reflect the fact that teachers and learners can use some form of online technology for teaching and learning, and that learners can interact with their teachers or other learners (Aceto, Dondi, & Marzotto, 2010), and that learning activities have been performed through the use of Internet which

establishes connectivity between information and human beings, causing development for social learning and self-directed learning (Loyens, Magda & Rikers, 2008; Meredith & Newton, 2003). To keep the focus and facilitate our discussion in this research, the meaning of "online teaching and learning" is aligned with the definition used in VTC: the wholesale adoption of web-based platforms to support the teaching and learning process (Vocational Training Council, 1999, p.5). This takes into consideration a multitude of online practices and development. More details will be provided in the following paragraphs.

Like the governments of many advanced economies which have formulated strategies to promote the use of information technology (IT) in education, the Government of the Hong Kong Special Administrative Region (HKSAR) in 1997 showed serious commitment in announcing a series of initiatives to apply IT in teaching and learning, amounting to HK$2,880 million in capital cost and HK$260 million in annual recurrent costs. The consultation document *Right Technology at the Right Time for the Right Task* (Education Bureau, 2007) and the strategic document *Information Technology for Learning in a New Era: Five-Year Strategy 1998/99 to 2002/03* (Education Bureau, 2010)

highlighted the beginning of the first phase of structured development of online learning in Hong Kong. To support the government policy (Education Commission, 1998), the VTC began integrating the use of IT and Internet technology for delivery of vocational courses. In keeping with these developments, the VTC embarked on an IT strategic plan in 1997. With this plan, the VTC targeted to increase its provision of vocational training via the use of Internet from 25% to 75% in five years (Vocational Training Council, 1999). To support this initiative, infrastructural changes were introduced in the VTC among which was the purchase and implementation of web-based teaching systems such as WebCT and Moodle. However, how would the online platforms be used in vocational education? To supplement classroom and workshop teaching? To replace all or parts of the teaching interaction? Or, just an add-on component for vocational learning?

From 1999 to 2013, WebCT was adopted as the online platform in the VTC through which different vocational subjects were delivered to students (Vocational Training Council, 2011). Most teachers used it as an additional media to simply let vocational students access the learning materials in which

most information was already presented or explained in classroom and workshop teaching. In that sense, WebCT was only used as an add-on or extra channel for their interaction with students. The 2011-2012 Policy Address of the HKSAR Government stated that "the use of web resources has become a major trend in education" (The Chief Executive of Hong Kong, 2011). To support this policy of developing web-based resources and exploring ways to better utilize the advantages of them for teaching and learning, the VTC committed itself to enhancing its programme quality by using the new platform Moodle as the online methods to improve or supplement the classroom and workshop teaching, with the formal statement as below:

> It is proposed that the new learning management platform [Moodle] adopted for VTC programmes be used for sharing module information online and supporting independent learning … enables the collection and tracking of learning evidence in specific context for further analysis. This may help teachers/researchers understand better the learning needs of students online and adjust the teaching and learning strategies to

enhance students' performance accordingly. (Vocational Training Council, 2011, p.2-4)

As the WebCT platform came to the end of its service contract with VTC in 2013, many online learning platform options were studied by the VTC's Learning and Teaching Steering Committee (LTSC) (Vocational Training Council, 2011), but two options were preferred: Moodle or Blackboard (the extension of WebCT). The study and consultation by LTSC identified that while both platforms could support vocational teaching, Moodle should be better in the long run because it was an open source system. Since Moodle is a non-commercial system with free software applications, it can be further customized by internal programmers to provide appropriate functions which can help to facilitate "designing for learning" (Laurillard, 2012; Beetham & Sharpe, 2013) to supplement classroom teaching and learning as proposed in the statement of VTC (Vocational Training Council, 2011, p.2-4). Consequently, with the senior management approved, there was formal announcement to all VTC staff and students confirming the following policy:

> The centralized Moodle platform in operation, supported at the corporate level by the Information Technology Services Division (ITSD) and Centre for Learning and Teaching (CLT), should be used as the Learning Management Platform (LMP) for teaching and learning in the VTC. (Vocational Training Council, 2012c, p.1)

There are many academic organizations and universities around the world using Moodle as their learning platform, possibly because it is open source in its technical nature which provides some flexibility, as well as a modularity for its features (Nozawa, 2011). According to Bonk and Pan (2007), the term 'open source' derives its meaning from the 'gift' culture where people can access the source codes of the software freely, and become engaged in a give-and-take process by modifying and improving the platforms. Bonk and Pan (2007) further note that similar to this practice of gift culture and distributed development in open source, participants in an online platform can post their ideas about a topic freely in the Wiki or discussion forum to construct and

accumulate knowledge (Rourke & Anderson, 2002). The occurrence of such a learning process seems to be no different between Moodle and other platforms like Blackboard or WebCT. However, one can probably note that the underlying philosophy of Moodle comes from the social constructivism, which supports role sharing and enables each participant to be a teacher as well as a learner (Dennen & Bonk, 2007). Social constructivists believe that learning is a social and collaborative activity in which an individual learns through his or her interactions with other people (Vygotsky, 1978). From the social constructivists' perspective, learning builds on itself resulting from a collection of prior knowledge or experiences, and thus students should have a better experience of learning by sharing (Collis & Moonen, 2005). Vygotsky (1986) stated that a social constructivist approach to learning provides students with various ways of communicating and collaborating such that they can learn from each other by sharing their thoughts and allowing other students to develop new insights. These new insights allow students to construct new knowledge in a scaffold of learning. This scaffold is the construction of knowledge built upon the knowledge that others share. Learners take their own knowledge, plus

knowledge that is shared, and construct new knowledge through collaboration. Jonassen, Davidson, Collins, Campbell, and Haag (1995) added that social constructivists believe online learning happens best when there is collaboration and communication such that students learn mainly from their peers rather than teachers. This tends to distinguish Moodle from WebCT, Blackboard and other learning platforms even though they can provide similar functions. As we will see some examples in the following sections 1.4 and 1.5, Moodle can provide various synchronous and asynchronous tools for social constructivist learning to take place.

However, what are the characteristics of Moodle being offered in VTC? How can it be used in blended mode to supplement classroom and workshop teaching? In addition to providing basic information such as course syllabuses, class schedules, assessment requirements, and lecture notes to students, Moodle has the potential use of directing the learning and teaching experience towards a constructivist approach (Franco, 2010; Mark, 2009). This encourages the involvement of students in the learning process, rather than just letting them receive knowledge passively. Moodle has many ingenious applications, giving

an interactive environment with student-centred activities, but they are pedagogically meaningful and useful only if they can be applied effectively to supplement classroom and workshop teaching in course design. Since we have all been to schools, we often assume that everyone knows how to teach and to prepare learning environments. Unfortunately, this is not the case in the reality. The development of effective learning environments cannot happen without the contribution of well instructional design and input of teachers' experiences.

Although the adoption of Moodle in VTC was the management decision and disciplinary policy, there are different uses of Moodle in teachers' practice. So, through this research study, I am going to share examples of IVE teachers' experiences to inspire other vocational educators to explore the use of Moodle. I will firstly review the literatures and develop the research questions. Then, after explaining the methodology, I will consider the findings from my online survey and in-depth interviews with IVE teachers from different vocational disciplines to discuss about how they make use of different features in Moodle for their teaching. In the following sections, I will provide details to respond to the questions: What is the current state of play of teaching and learning with

Moodle in Hong Kong now? What functions of Moodle are now being provided for vocational teaching and learning in VTC?

1.5 Use of Moodle in Hong Kong

Moodle has a huge user community with over half a million users and over 60,000 Moodle online courses registered from over 100 countries. It is now used not only in universities, but in vocational training institutes, colleges, secondary schools, academic organisations, banks, companies, and by independent teachers in various countries (Brandl, 2005; Dougiamas, 2011; Yuuichi et al., 2006,). More than 30,000 educational organizations recently provide their online programmes or face-to-face teaching courses with the use of Moodle. Among the over 100 countries using Moodle, Hong Kong was ranked 44th in terms of the total number of online learning sites delivered by Moodle (Dougiamas, 2011).

According to the Moodle site at https://moodle.net/local/hub/top/sites/, there are 1740 organisations and institutes using Moodle in Hong Kong in April 2018. They include universities, colleges, secondary schools, primary schools, international schools, institutes for teacher training, business schools, hotels, companies and even kindergartens.

Moodle was first released in 2002 and it was basically designed to facilitate learning through a set of tools incorporating a social constructivist learning approach (Dougiamas, 2004). These social constructivist tools were all contained within Moodle for potential use in online communication, learning activities, and modules. Teachers can choose to include these tools such as email, chat room, wikis, forums, or web conferencing in their online courses. Moodle can also provide a controlled environment for these social constructivist tools for the potential use of collaboration among students, while also meeting the needs of administrators to keep information private. Such collaboration among students is an important aspect of social constructivist learning. (Allen, et al., 2011; Cole, 2005; Graf, et al., 2005). While students are participants in the online platform, knowledge can be constructed, shared and revised by themselves through discussions and social activities (Hon, 2014). Besides, teachers can choose different modes of operation from weekly or topic-based formats to social formats for arrangement of delivering the learning contents to students. That should help to support self-directed learning, extend learning, and transform learning in different subject areas (Aceto, et al., 2010).

Moodle was adopted by many organizations in Hong Kong mainly based on the ambition of the Education and Manpower Bureau (EMB) of the Hong Kong Government to introduce the constructivist approach for teaching and learning in the education system. Education in Hong Kong is said to strive to:

- turn our schools into dynamic and innovative learning institutions where students can become more motivated, inquisitive and creative learners;
- link up our students with the vast network of knowledge and information to enable them to acquire a broad knowledge base and a global outlook;
- develop in our students' capabilities to process information effectively and efficiently; and
- develop in our students the attitude and capability for independent life-long learning.

(Education and Manpower Bureau, 2004, Executive Summary)

Here, let us look at some examples of how Moodle is used for teaching and learning in Hong Kong to see whether it has helped to achieve the goals specified by EMB. The first example is the experience of the Education University of Hong Kong (Kennedy, 2005). He found that Moodle was used to support teaching and learning in different ways (Kennedy, 2005). The basic use was the substitute of the old learning system, Blackboard (previously known as

WebCT). The decision to use Moodle was made for two reasons. One of the difficulties found in teaching and learning with Blackboard was the use of forum. It required users' login every time before they could view messages or postings in the forum. Students and teachers think this procedure was a major limitation to effective communication as all messages or postings in Moodle could be forwarded to the students' email boxes such that they could follow any update at the online discussion by reading their emails without actual login to the learning platform. The second use followed the conventional way of lesson design adopted by most Hong Kong teachers, by which teaching materials and related activities were arranged into lessons. That is different from Blackboard in which learning activities and materials were provided by official ways with all discussion forums, content, and activities arranged in fixed user interface that was designated Forums, Content, etc. In this regard, Moodle provides two options. Firstly, the learning materials and activities related to a topic or lesson could be arranged together, thus providing a format more familiar to Hong Kong teachers and students. Secondly, it is more important to have effective and efficient communication in the teaching and learning process. In Moodle, every

user can specify the email address in his or her personal profile for easier and direct contact. In that sense, Moodle can automatically forward all discussion postings to the user's email address, unlike Blackboard or WebCT. The outcome is that students and teachers can receive messages for all forums that they have enrolled in, respond to the questions instantly and share their ideas efficiently; this facilitates active communication to support the teaching process in the Education University of Hong Kong and cultivate a learning community even outside the classrooms.

Another example of teaching with Moodle comes from the Chinese University of Hong Kong. To facilitate language teaching, Moodle has been extensively used there for supporting the programmes of the Yale-China Chinese Language Centre. It helps course management for teachers, and provides students with the multi-dimensional activities for learning Chinese language (Hon, 2014). Moodle fulfils different levels of students' learning needs by providing a good foundation for class discussion and helping students with poor listening skills to improve their abilities after class. Teachers can also start discussions with students immediately instead of drilling basic language

points. Furthermore, teachers use Moodle to manage and supervise the learning processes of each student, adjusting to the student's ability to improve his or her pronunciation skill. With individual differences existing in students' pronunciation, teachers can assist them to correct those defects that are not yet fossilized. In addition, when teachers find grammatical mistakes, they can immediately adjust or fine-tune their lessons. This approach also permits a focus on slang expressions and idioms, extending students' oral skills for different situations in daily life. Finally, students' language skill has been improved, particularly in using conjunctions and expressions for different situations or complicated context (Hon, 2014).

In that sense, Moodle provides practical supports to language teachers to achieve their teaching objectives, to perform learning tasks, and to motivate their students in learning the Chinese language. Students can apply their language skills to solve practical questions to extend their understanding. In particular, Moodle provides various learning options to students, depending on their needs. For instance, students can deal with their weaknesses by choosing vocabulary, comprehension, listening, or other learning content, assisting them

to prepare before classroom lessons. Meanwhile, teachers can design some listening quizzes to check students' mastery of the text for each topic in Moodle. These online quizzes test students' listening skills, and require them to answer questions according to the content they can hear. The listening quizzes are usually conducted in the language laboratory. The results are calculated and recorded by Moodle. With reference to Tungyue Hon (2014), the advantages are found by the improvement in students' marks after using Moodle. Students also give positive feedback about using Moodle in learning the Chinese language while most language teachers agree that Moodle helps improve teaching quality and extend learning of the Chinese language (Hon, 2014).

In contrast to the above examples from the Education University and the Chinese University, I find a different use of Moodle to transform learning in the University of Hong Kong. Having taught in the Department of Law for many years, Professor Rick Glofcheski still found himself wondering how many students actually learn in his lectures. He stated:

> …Research shows that after listening to something like a lecture, you only retain three or four per cent of what you heard. … What they (students) probably do recall is what they learned from an assignment or project that they did. (The University of Hong Kong, 2016, p.40)

So, he rearranged the way he taught his second-year tort law class at the beginning of the academic year 2015/16. Rather than sitting in a lecture room and taking notes, his students were expected to do some work beforehand. On Moodle, students watched videos of the lectures prepared by Professor Glofcheski to present the legal points for the focus of the coming class; they had readings (as they would with regular lectures); and they did preparatory work such as finding real-life examples which could illustrate the point of law to be discussed. As such, even before they came to class, they were already thinking deeply about the topic (The University of Hong Kong, 2016).

On the day of the class, students would be divided into groups and then the entire class presented with a case from a short newspaper report that

reflected the legal area being concerned. The students discussed and performed their legal analysis of the case in class, while Professor Glofcheski answered questions and provided guidance. He further explained,

> This is called flipped learning. It's not really new, it's just new in higher education. When you were in primary school, you didn't take notes, you did activities. Here, students are coming to class and applying what they learned (from videos) in problem-solving. (The University of Hong Kong, 2016, p.41)

In contrast to the above example of teaching with online videos and Moodle, many vocational teachers have different teaching approaches to the above. Two IVE teachers' working in my campus, Ms Chan and Ms Yuen, have posted video clips in Moodle for teaching their subjects in a different way.

As a teacher in the Department of Applied Science, Ms Chan would prepare some video links in Moodle for her subjects. She would make video recordings of experiments performed in the laboratory and then they would be uploaded to Moodle for her students to review after lessons. Ms Chan said that,

many students have to login to Moodle to view the videos, particularly when they do not obtain experiment results successfully in the laboratory. Usually, she would arrange some exercises as homework or self-tests for students to do when they view the videos after school.

On the other side, as a teacher in the Department of Childcare, Elderly and Community Services, Ms Yuen would use videos to teach topics on child development. She preferred to let her students view the videos in class rather than watching them individually after school because she could observe their feedback directly and they could also have face-to-face discussions immediately after watching the videos together. Ms Yuen found that such offline interactions were hardly found at the online environment of Moodle for many reasons such as the atmosphere in classrooms, peer learning, and live coaching by teachers.

The above examples show that what kind of tools the teachers use in Moodle for teaching is not the point. How and why they use Moodle in that way or not the other way tends to be more important for further investigation. Undoubtedly, no matter whether it is an academic or a vocational subject,

teaching is a complicated process which involves identifying objectives, recognizing the learners' needs, selecting the most suitable approaches and activities, and then striking a balance between modes of delivery when working within a technology-rich environment (Laurillard, 2012; Petty, 2009; SFEFC/SHEFC, 2003). Effective approaches in use of learning platforms tend to be important to enable progression of teachers as well as students (Gannon, 2012). To deal with the diversity of vocational students' knowledge background and learning styles, teachers have tried and considered using online learning platforms by applying different teaching strategies and methods (Riener & Willingham, 2010; Schwerdt & Amelie, 2011). Online platforms including Moodle can be effective tools in many examples, but more importantly they are options that extends the range and power of delivery, and a technique that can enable more active learning for a wider variety of students (Beetham & Sharpe, 2013). This creates many challenges for vocational teachers. I will have further discussion on this in the following chapters.

1.6 Various Functions of Moodle in VTC

After viewing some examples of the current use of Moodle in various universities in Hong Kong, I will take a further look into how and what Moodle is provided for vocational teaching in the VTC.

Basically, being an open source learning management platform (LMP), Moodle is being used by many universities and colleges because its features can be customized to deliver materials and arrange learning activities appropriately (Nozawa, 2011). However, which of its features are being adopted in VTC? Comparing with WebCT, the previous learning platform, how can Moodle support vocational teaching and learning? According to my experience of helping IVE teachers in using WebCT and Moodle, both platforms have similar functions to help teachers for the enrolment of students, uploading of teaching materials, linking to external resources, discussion forum, synchronous chat, online quizzes, submission of assignments, and automatic marking. At this point, WebCT and Moodle seem to be no difference to users. However, from the perspective of supporting staff, I would also look at the flexibility of the

platforms for customized features and their usability. Being a commercial software package, WebCT provided most of its functions in a fixed manner or template formats for direct use of teachers and students, rather in the same way of using Microsoft Office tools. In contrast to WebCT, there are internal staff in VTC to perform software programming work for Moodle such that it can be adjusted to become an effective platform with customized functions for teaching. In other words, it can provide more opportunities and better support for teachers to adopt different learning designs or teaching approaches. However, such customization in Moodle may not always imply the appropriate use of those functions for the IVE teachers' work. So, why the potential use of Moodle cannot match to their actual needs? This would be one of the focusing areas in my research.

Drawing on my experience in providing support for IVE teachers and further review of VTC documents (Vocational Training Council, 2012d), I would summarize my findings on the possible arrangements and features in the following sub-sections to describe various functions of the Moodle that are currently provided to the IVE teachers and students in VTC.

In 2013, when the WebCT platform service contract with VTC ended, Moodle became the official online platform for learning and teaching. To provide user support in VTC, the technical features of Moodle were arranged by the Information Technology Services Division (ITSD) while pedagogical issues related to the use of Moodle for teaching vocational subjects were supported by the Centre for Learning and Teaching (CLT). As the platform administrator and course creator, ITSD staff create an empty course in Moodle for each course provided in VTC before each academic year starts. IVE teachers from different courses are assigned the role of course facilitators in Moodle to prepare or update materials of the corresponding online course. Therefore, IVE teachers must login to prepare their online courses using the various features in Moodle to arrange their materials.

Moodle 2.8 is the platform version currently used in VTC. With a valid login, an IVE teacher would first find the homepage of his or her online course. Some items are controlled by himself or herself. These include who can come into the course, how the online course is displayed in web browsers, and some other potential functions. Most course homepage formats can be broken into

several sections, usually by weeks or topics. Various resources or activities can be added into each section so that teachers have flexible ways of delivering their online materials (Vocational Training Council, 2012d).

As a member of supporting staff in VTC, I find that Moodle can provide different features and flexibility to IVE teachers, not simply the posting of course syllabuses, class schedules, lecture notes, and assessment requirements to students (as done in the old online platform), but also the arrangement of various pedagogical activities. So, the learning environment tends to be more interactive for students' participation. In view of this, CLT has introduced various tools of Moodle to inspire and motivate IVE teachers to use different kinds of activities or functions in their vocational teaching. Those basic tools encouraged and advanced features supported through CLT are set out in the following sub-sections (Vocational Training Council, 2015).

1.6.1 Real Time Communication

One main type of tool developed for real time communication in Moodle is chat. Students and teachers can use the chat activity to have a real-time synchronous discussion in their course. In contrast to asynchronous forums, this is a useful and instant way to obtain a different understanding of each other and the topic being discussed. Chat's main advantage over other learning activities in that it takes place in real time. It is especially beneficial when group discussion is not possible face to face. For example, students of the same vocational course can share experiences with classmates in different workshops or lab locations. The teacher can discuss with his or her students directly even though they are not on the IVE campus, for a student temporarily unable to attend in person, chatting with their teacher helps in catching up with course work. If the teacher can divide students into groups, each group will have its own chat room for specific topics. By using a chat room and setting the group mode for separate or visible groups in Moodle, each group can use its chat room for communication between group members (Vocational Training Council, 2015). Furthermore, an IVE teacher can create a special chat room a week or

even a night before an examination for his or her students to discuss study questions. Students working at the last minute will appreciate the opportunity to ask each other questions about the learning materials.

1.6.2 Pre-Learning Activity

To stimulate students' thinking, IVE teachers can use the choice activity in Moodle to ask a question and specify a choice of multiple responses. It can be useful as a quick poll to stimulate thinking about a topic; to allow the class to vote on a direction for the course; or to gather consent for research. Depending on the teacher's settings, students may be able to see the results and thus to do some pre-learning of the topics (Vocational Training Council, 2015). Thus, the choice activity can actually provide starting points to encourage students to think about and articulate their understandings of a certain topic. This can provide two benefits to users. Firstly, it helps students to consider the context and consequences of this choice before an assignment brief, an online discussion in the forum, or a group project work. Secondly, the choice activity lets students and teachers have better understanding of the difference among

their opinions or views in response to the same learning materials or concept. In addition, the choice activity can practically help students recognize themselves as different groups to facilitate various group projects.

1.6.3 Sharing of Learning Resources

For sharing of learning resources, IVE teachers can upload files or provide links in Moodle for access of resources. On the other hand, teachers and students can use the database activity to create, show or search a bank of records for any topic. With the use of database activity, records can be arranged in the form of text, images, files, or hyperlinks (Vocational Training Council, 2015). Teachers can make use of the database activity to let their students build up a collection of online materials or references for learning a vocational topic, peer assessment, voting on a list of project ideas, storage area of students' work, or a log of activities to be performed during the face-to-face lessons everyday such that absentees would not miss the learning opportunities.

1.6.4 Sharing of Ideas

Another commonly used feature is the forum activity in which students and teachers can exchange ideas by posting comments, allowing participants to have asynchronous discussions. Forum posts can be also graded by the teacher or other students. In that sense, forum posts can contribute to community building and effective communication in an online environment for vocational teaching. Since reflective learning is often viewed as an educational aim, provision of student-centred learning spaces and online forums are becoming important. So, what is the difference of forum in Moodle?

Forums can be created by teachers for their courses in Moodle. These learning spaces can let students meet with each other and discuss various topics, including learning activities, vocational materials and campus news (Vocational Training Council, 2015). They are developed as supportive spaces for students, most successfully with large classes where students would not have the opportunity to communicate altogether outside the classroom. It has been arguable that students can experience a feeling of community with the use of

forum, a sense of belonging in a learning place or educational environment, and the convenience of learning in their class. This may have implications for retention of vocational teachers and will be discussed further below.

1.6.5 Collaborative Glossary

In addition to the forum activity, IVE teachers and students can use the glossary activity for collaboration to create and develop a list of definitions, like a dictionary for a particular course in Moodle. With categories provided in the glossary activity, information can be shown easily or searched conveniently because related words can be highlighted in the learning materials by the auto-linking feature for that particular course. Also, the glossary activity can also be used as a collaborative activity for students' projects given by the vocational teacher. He or she can assign every student to contribute an idea, a definition, or an explanation on the provided terms. Definitions for these terms can be rated by the teacher and students such that the definitions with highest rating can be recognized or accepted for the final glossary in the class. If the teacher has a large class, he or she can assign groups of students to come up with definitions

and answers (Vocational Training Council, 2015). For large classes, a common practice is to make every group of students responsible for creating definitions in one week. Then, the other groups can comment and rate for them to achieve peer learning (Collis & Moonen, 2006). Teachers can also structure multiple glossaries over the course of a semester and break them up by topic, chapter, week, or any other curriculum structure. Students add pieces of information with definitions or descriptions to a glossary, and allow their classmates to comment and rate for their entries. In that sense, the basic framework for peer learning and assessment is developed through the teachers' use of the glossary activity. Furthermore, as students are engaged in creating, refining, debating and evaluating the definitions, they are much more likely to remember the new terms and recall the definitions (Wilson, 2012). While this can also be performed in the forum activity or even more thoroughly in the workshop activity in Moodle, the glossary activity should be a faster and effective solution.

1.6.6 Self-Directed Lessons

To deal with the diversity of the students' learning progress, IVE teachers can use the lesson activity in Moodle to prepare a series of web pages for students and they would be usually asked to make some sort of choice underneath the content area. The choice will send the students to different pages or screens arranged within the lesson activity. Because of its branching nature, the lesson activity can be used to design and perform a wide variety of learning activities: exploration of a new topic, differentiated revision guides for job training, interactive fiction in vocational context, role-play simulations in work places, or decision-making exercises for practice.

The lesson activity is usually effective if the student has met the criteria set by the IVE teacher. This can be implemented by answering some questions correctly, accessing some learning materials, or just following a certain navigational path. Students can apply their skills and receive fast feedback in a well-constructed lesson activity in which each screen or page can challenge students to apply the acquired knowledge or skills, and then it gives immediate

feedback or let them explore the results of their responses in the simulated environment. A final page would usually appear where students can check their scores and return to the homepage of that course in Moodle (Vocational Training Council, 2015).

As shown in the above, teachers can note that the lesson activity and other activities in Moodle are different by their adaptive feature. The lesson activity is designed to be adaptive such that a student's choices are used to create his or her self-directed lesson path (Loyens, Magda, & Rikers, 2008). With this adaptive feature, each of the student's choices will create a different response from the teacher to that student. Then he or she will be directed to different pages for performing some learning tasks of different levels through the lesson activity. Thus, to have good preparation and planning, the lesson activity could help to provide the customized presentation of materials to students according to their learning progress with minimum instructions and guidance from the IVE teacher.

1.6.7 Online Quizzes

Another activity found in most learning platforms is the quiz activity. In Moodle, IVE teachers can use the quiz activity to design and build online tests or exercises which can be automatically marked. Its format consists of multiple choice, true or false, matching, and short answer questions (Vocational Training Council, 2015). All these questions are stored in a database and an online quiz can be designed by choosing random or specific questions from the question database automatically. Questions can therefore be re-used in different tests to save time for the IVE teachers. On the other hand, the settings of the quiz activity allow different display methods in web browsers. Teachers can design how the questions and answers behave during the online quiz. The questions or answers can be randomized for each student. Like a traditional test in which student do not get feedback when they are answering the questions in the test. However, teachers can also design the online quiz such that it shows the grades or feedback to students, and probably provide them second chance to answer the same question with fewer marks after reading the initial feedback. There are different ways to use the quiz activity, such as self tests, self assessment, mini-

tests for reading assignments, or a data bank of examination questions used in the past years. Since immediate feedback on students' performance and assessment are important components in a learning environment, IVE teachers can use different types of reports available in Moodle. These reports do not just record the student's responses to the questions of the online quiz, but they can also perform some statistical analysis to let IVE teachers understand more about the learning outcomes of their students.

1.6.8 Learning Community

Similar to the online encyclopaedia Wikipedia, the wiki activity in Moodle is a collection of collaboratively authored web documents. Basically, a wiki page is a web page everyone in the class can create together and it starts with one front page. Each author can add other pages for the wiki activity by simply creating a link to a page that does not yet exist. I think that the wiki activity is indeed a fast method for creating content in a learning community. There is usually no central editor or key person having the editorial control. So, the whole community can create and improve its content (Collis & Moonen,

2006). So, consensus views has been developed from the students' work for collaboration in teaching and learning. The great advantage of the wiki activity is that all contents are editable, visible and reversible. The entire class can edit a document together and creating a class product. Such students' work is compatible with Salmon's (2013) concept of knowledge building, and in keeping with the concept of Collis and Moonen (2007) in relation to "the contributing student" (p.19), whereby students generate learning materials that are then used and updated by students in subsequent cycles of the course. So, why should an IVE teacher use the wiki activity in Moodle? I provide the following examples to show some ideas on using the wiki activity in vocational teaching (Vocational Training Council, 2015).

Firstly, it can be used to develop group lecture notes. A wiki developed for group lecture notes lets students have a chance to organize their notes for themselves after a lecture. Then, those students absent from the lecture can get the notes from their peers. The group can also decide what learning materials are important and give them proper emphasis. Group lecture notes can be easily

created by the whole class if it is small enough or with small working groups. Groups can also compare their notes for further discussion and refinement.

Secondly, the wiki activity can be used in group project management. Having enabled the group project mode in the wiki activity, an IVE teacher can give students an online space to work for a group assignment. This can provide each group their places to perform vocational research, develop outlines, and create the products in various subjects.

Thirdly, the feature of wiki can be used by a group for the brainstorming process in which group members are encouraged to contribute their ideas and comment for each other. In face-to-face meetings for brainstorming, a leader or facilitator will often stand in front of a white board, stimulate the participants to share their ideas. An IVE teacher can develop an online version of this brainstorming process by creating a wiki in Moodle for the whole class or for smaller groups, and then encouraging them to contribute by giving ideas around a brainstorming topic. Students can accumulate various ideas and link with each other for collaborative learning (Collis & Moonen, 2007).

1.6.9 Assignments and Peer Assessment

One of the activities commonly used with online platform is the assignment. To simplify the process of assignment submission, IVE teachers can use the assignment activity of Moodle to collect students' work, and provide their feedback, including grades. Their work can be individual or group assignments. Students can submit any digital content in computer file formats including Word documents, PowerPoint slides, images, spreadsheets, and audio and video clips. Alternatively, IVE teachers can ask students to type directly into the text field in Moodle. Or they can ask students to do both, uploading files and typing online text directly into Moodle. An assignment activity can also be set up not to accept any student submissions and serve as a reminder to students of offline assignments that they need to complete and to record grades in Moodle for activities that do not have an online component (Vocational Training Council, 2015).

We have seen the activities such as database, forum, glossary, and wiki for peer learning in the above paragraphs. How about peer assessment? Actually,

IVE teachers can use the workshop activity to perform peer assessment in Moodle. It is similar to the assignment activity but it also extends its functionality in many ways. As in the assignment activity, students can submit their work through the workshop activity in Moodle. Every student can submit his or her own work for the teacher's request and the submission may consist of a text and attachments. The workshop activity supports several types of assessment and allows multiple assessment. In this way, the workshop activity supports peer assessment as students can be asked to assess a selected set of their peers' submissions. Moodle can help teachers collect and distribute these assessments. As such, a student can get two grades in the workshop activity. One grade for his or her own submission, while the other grade for his or her assessment work that is how well he or she assessed their peers. Then, the workshop activity will result in two grades for students' performance and they can be aggregated in the online platform. Moreover, the IVE teacher can select some submissions and publish them in Moodle so that they can be shown to the other students at the end of workshop activity. This is different from the

assignment activity where the submitted work is available to the author and teacher only.

So far, I have already provided an overview of the functions in Moodle and their potential use by IVE teachers. Let us go further to look at the big picture. Moodle provides many functions for teaching and learning, but they are pedagogically meaningful and useful only if they can be applied effectively in course design. Setting up of an effective learning and teaching environment requires training, experience, and careful preparation.

Therefore, through this research study, I hope to provide some advice and information which can help teachers to improve the development of their vocational courses in using the online platform. I will spend some time on understanding IVE teachers' thoughts on using the online platform, reviewing the literature on the topic and development of the research questions. Then I will look into the actual experience of the IVE teachers in different vocational disciplines to discuss about how they make use of the functions provided in Moodle practically.

1.7 Impressions of IVE Teachers

Before I study the different uses of Moodle in vocational teaching, let us first get some idea on how IVE teachers see online technology, particularly the role of a platform such as WebCT or Moodle. This section is not based on my research findings as such, but on opinions expressed to me informally by IVE teachers, and informal observation, before this research began. It is therefore intended to give some idea of my starting point in the research.

The first impression was that the online platform met external expectations. For example, some teachers experienced both organizational pressure and departmental requirements to use the platform, being advised to do so by departmental heads. Some teachers' decisions to use the learning platform derived from their own interpretation of what was expected from them as "up-to-date" teachers. For example, some noted that the online technology was affecting all aspects of modern life and they did not want to lag behind in this "digital revolution". Moreover, some teachers were aware of students' interests in technology and their expectations that teachers would use an online platform

to teach them. Overall, about this impression, the main objective of using the online platforms, no matter whether it was WebCT or Moodle, is not directly related to the intrinsic teaching or learning goals, but to the external expectations and demands to adopt the online platforms for vocational teaching. On this basis, there was little difference between teaching without and with online platforms. An IVE teacher for the subjects of Childcare, Elderly and Community Services said that when she used it (WebCT), she just puts up some PowerPoint slides or something along those files, with no difference in the content materials between putting things online and writing things on the blackboard. This seems nothing new but just a different way of doing the same job.

However, many IVE teachers had another impression of the online platform as a delivery tool for their teaching. This feeling came from my observation of their distinct ways of using it. Firstly, the online learning platform was used to support their teaching. For example, many IVE teachers viewed WebCT as a tool for sharing notes or resources to their students who could conveniently submit their assignments to the teachers as well. In that sense, the tool could be used as an integrated course delivery platform. On the

other hand, the online learning platform could be viewed as a tool to improve classroom teaching. For example, some IVE teachers used the forum activity to communicate with students, while a few even tried showing demonstrations via video. One teacher of Business and Administration described his use of the online platform as a means to deliver his course materials. Before using the online platform, he printed out the financial reports of public companies and tried to explain them, but it was hard to follow. However, if his students looked at that on the computer screens, it was more convenient and became easier for his students to understand the materials in his teaching.

In addition to meeting external expectations and supporting the delivery of course materials, some IVE teachers had another impression about the use of online platforms. They considered such platforms to be an instrument for creating learning opportunities to students in a myriad of ways, such as group discussions, chat rooms, and community-based tasks. This impression not only emphasises online technology and teaching, but also active learning. Therefore, the focus of teaching shifted from the provision of information and delivery to encouraging students to get involved in their own learning and to facilitation of

the learning process. The main concern here was to create an environment where students are involved in more independent, self-paced and active learning. An IVE teacher in Applied Science told me that he liked to encourage students to explore and find information by themselves, so having computer and online technology available in the classroom, or available at home enabled them to find a great deal of information; his job was then to help them filter and assess that information, put it all together in WebCT or Moodle, bring it together in the online environment and share that information to teach each other through the learning platform.

So, having encountered different impressions among IVE teachers, would they view their use of the online platform in vocational teaching as pressure, opportunity, or challenge? How do they use the same platform, Moodle, in different vocational subjects? What impact does the online platform have on the teaching process and teaching effectiveness? They are the questions that underlie this research; they will be discussed in the following chapters.

1.8 Insights from My Work Environment

As shown in the previous sections, teachers use online platforms with different focuses or arrangements for their vocational subjects. When I looked back to my own work environment, I found that many IVE teachers were experienced in teaching with the same online platform (Moodle), but they had different feedback about it. As I would provide technical support to them in my work, I would have phone contact or face-to-face conversation with them. Then, certain issues about online teaching and learning were identified, and they became insights for my research. Particularly, they showed much concern about issues such as the competencies of online instructors, teaching effectiveness, communication technique, organisational skills, time control, technology skills, and ability for mentoring students. These issues would be described in the following paragraphs.

One IVE teacher described how online teaching was not aimed at making good teachers. He added that the ability to communicate in a textual environment, facilitate dialogues rather than lectures, and to be responsive to

give feedback were necessary in teaching with Moodle. Particularly, he felt it difficult to have good time management for coordinating all the deliverables, to reply all e-mails, online chats and online discussions, and to do much record keeping. He thought that one of the key things was maintaining the thread of discussion, working with and guiding his students to post responses to each other rather than everyone creating their own threads. He wondered if these were some of the competencies that an online instructor may need.

Another IVE teacher talked about his experience in using Moodle and online tools over the past few years. He expressed the view that it was neither the online technology nor the learning platform that ensured a teacher would teach his or her vocational courses successfully. He stated that it was the teacher's ability to use the available resources and tools in his or her teaching work because just the technology alone would not automatically transform a mediocre teacher into a good one. He thought that it should be a matter of the instructional design and how the teacher implemented that design with the online environment to develop an effective course for teaching with Moodle.

Also, an IVE teacher felt that although communication skill was very important, she had a caring personality, organisation skills, an open mind, and a genuine desire to help vocational students. She thought that teachers should be organized to use the online platform and they should be good communicators in expressing themselves through written words. So, apart from knowledge, passion, empathy and an inclination for the profession, teachers should have excellent interpersonal skills. She added that now teachers should be approachable and responsive to students because their students were interacting in Moodle at any time. This should reflect her ability to connect with students, with a manner more responsive than in the offline environment. She guessed that anything that made a good offline teacher also carried over into the online teaching environment.

Online teaching relies on a large amount of written communication. As it was more formal in nature, a vocational teacher who was more formal in style felt better online compared to one that was more informal (Carnevale, 2003; Skills Commission, 2010). Given the emphasis on written communication, it followed that good writing skill was desirable and most valuable to a vocational

teacher's work. As an IVE teacher described his experience, he did not need to instantly react to a certain message or question from his students in a discussion forum because he could read it, step back from it for a minute, go get a cup of coffee, then come back and respond, after having thought about it a little bit.

Moreover, some IVE teachers felt that good organisational skills were essential to teaching online. About this, one of them described his experience in terms of how clarity in communication and the way in which the course materials were organised, presented, and delivered made a significant difference to the teaching outcomes. He needed to be clear to show the requirements and subject material for his students. That was the way it worked for his teaching with Moodle.

On the other hand, the teaching effectiveness of a vocational teacher may depend on many factors. There were various dimensions to describe the effectiveness and we should note how these dimensions vary across modalities. Some IVE teachers felt that Moodle supported their teaching very well, making them more effective than if they just relied on classroom teaching. For instance,

an IVE teacher mentioned that Moodle made her become more effective in teaching and she was getting more satisfied with her students in terms of their better performance in examinations.

However, some IVE teachers felt that they were more effective in the traditional classroom or workshop teaching as there were more communication cues. They explained that they were easily seeing the responses in their students' faces, in their expressions, and finding smiles on their faces. It was just a rewarding thing that they could not see in Moodle.

Generalising, teachers' experiences of using the online platform Moodle seemed to involve complexity and one should cautiously reflect on teaching effectiveness as related to the educational modality — online or physical classrooms, or both? Some IVE teachers recognised the complexity in each environment. They would put their focus on the importance of their students' learning needs, ability and learning styles. At this point, one IVE teacher described that there were some students learning better in Moodle, but not all of

them. It could be the question of matching students' learning needs, ability and learning style rather than what technology was required in teaching.

As in another example, an IVE teacher shared her frustration that although she was aware of online education growing dramatically, she found much difficulty in using WebCT or Moodle in teaching her vocational courses. The instructional design was a particular challenge to many teachers including her. Eventually, she spent much time to develop her online modules and then refine them. That may be another disadvantage.

Many IVE teachers commented what they perceived to be a dramatic increase in the amount of time required to teach with an online platform. Vocational teachers tended to spend more time teaching by using online platforms than they do in classroom teaching and student contact hours increased more than before (Joyce, Calhoun, & Hopkins, 2008). Some IVE teachers found that it was quite time consuming to read all messages and reply to the questions posted in discussion forum. The Internet allowed students to be able to access information by just one click of a button. This quick response

time always let them have unrealistic expectations in terms of communicating with others. As such, teachers were expected to provide immediate responses to students, regardless of the timing and complexity of their request. The online time seemed to take them to a new level of intensity and the expanded working hours of teachers became much more than their classroom teaching.

However, some IVE teachers though that there was not enough student participation in Moodle. To improve the engagement of students with Moodle, they should make certain adjustments in how they packaged and presented the learning materials to their students. One of them mentioned that they constantly tried to look for different ways to impart knowledge, but just showing information and telling students what they needed to know was not the way to go. They knew what not to do, but they did not know what they should do. This involved changes to both content and delivery format of the course materials, and in turn the increased workload to teachers.

Furthermore, in some vocational subjects, teachers were required to demonstrate concepts and techniques to students. However, this could not be

always possible online and so they considered that Moodle was not always working. One of them described her experience that her students actually required more coaching, personal guidance, and hands-on practice. She explained that due to the technological constraints and lack of skills in using Moodle, it was still easier to demonstrate quite a lot of subject materials in the physical classrooms rather than the virtual learning environment.

Meanwhile, for student assessment, some IVE teachers reflected that they found Moodle helpful to assess their students' progress. Moodle assisted them to grade student assignments automatically and made the grading process much easier than before. Also, the Moodle servers could keep track of what their students had viewed and what they had not viewed in their online modules.

But some IVE teachers had different points of view on the assessment issue. To a certain extent, the online teaching and learning environment could allow their students to hide from the classroom or workshop lessons because they had less opportunity to have face-to-face contact with their students and to correctly assess their learning progress. Thus, the issues associated with student

assessment were amplified."

Also, in response to the change of the teaching process, some IVE teachers found it difficult to use the online platform to teach their students while others did not. For example, one IVE teacher commented that to teach with Moodle, he tended to be a 24 by 7 teacher, leading to a somewhat mechanistic way of teaching. But, when he taught in classrooms, it was like going on stage and he would perform as well as enjoy that because the arrangement was quite different in the online environment. In addition, he found that students' expectations increased dramatically as everything seemed to be automatic in Moodle.

On the contrary, other IVE teachers found the features of Moodle useful in teaching their vocational courses. I could remember the experience of an IVE teacher sharing his experience in setting online exercises for his students. He described that the features of Moodle were quite useful in setting up online exercises with various types of questions and automatic marking function. So, he just needed to perform marking short answer, paragraph and essay type

questions. He felt that it was very rewarding to view his students' submissions and find them making use of the resource.

Another IVE teacher supported the use of Moodle in his subjects and shared his experience that use of Moodle allowed him to do several things. Firstly, he would set up a community for students to have a means of communicating with him and with each other. Secondly, he could post notes and events so that those absentees could keep up with what happened in their missing classes. Thirdly, he could set up online quizzes in Moodle easily so that he did not need to physically mark students' answers and they could get immediate feedback. Lastly, Moodle allowed him to create a web-page to show the available links of multimedia resources for his students. All these features made his teaching work easier than before.

As seen above, there were lot of positive and negative comments from the IVE teachers. They had different views and experiences on their use with Moodle. Despite the diversity of their experiences and views, it is important to note that Moodle was used more frequently by IVE teachers to meet their

disciplinary demands in addition to the teaching and learning needs. Such diversity of comments gave me the insights to perform this research in order to study how, why, when, and where Moodle could be effectively used in vocational teaching.

1.9 Statement of the Problem – Significance of the Research

The quality of the online education experience has been the subject of ongoing debate among researchers. Many questions have been raised and issues are discussed in previous research studies on online learning (Elango, Gudep & Selvam, 2008). There are many conflicting views related to the use of online teaching. However, the literature stops short of giving educational leaders a perspective on how vocational teachers experience and adjust to the online environment (Mayes & Fowler, 2006). It seems that there are still many issues of concern but not well explained in relation to the use of web-based learning platforms in the vocational context. For instance, teachers' attitudes, whether positive or negative, seem to depend on many factors. Some IVE teachers, when faced with using the online platform Moodle, react not only in attitudinal terms but also in behavioural and other terms. For some, the change results in favourable reactions and attitudes, while for others, it is quite the opposite. Some teachers are successful while others are not. Some experience dissatisfaction or even frustration when using Moodle. Therefore, the objective of this research is to address IVE teachers' experiences using the online

platform and study how extensively use it for teaching vocational subjects in VTC.

Teachers are an important part of the learning process in the classroom and online, and teaching experience can actually affect the way they teach (Beetham & Sharpe, 2013; Ottesen, 2006). As teaching online continues to develop in the VTC, it directly affects the delivery of vocational courses as a whole. Changes that involve deep understanding cannot transform the whole system in a single step; rather, they have to begin with the individual and spread through the system (Ahtaridou, 2010; OECD, 2006). In that sense, a good understanding of IVE teachers' experience can inform other vocational teachers how they can work effectively with the online platform. This is important to help teachers prepare for the online environment, not only by providing technical training and curriculum development support, but also allowing them to learn from other teachers' experiences. To specify the above aims, the problem this research addresses is how IVE teachers experience the use of the online learning platform in their teaching of different vocational subjects in the VTC.

Therefore, the research will report why, how, and when the online platform is appropriate to teaching and learning in the vocational context. Based on IVE teachers' experiences, the findings of this research will be significant not only in describing the circumstances and exploring the experiences of online teaching in VTC, but also in achieving the following goals:

(1) Providing a basis for educational administrators to consider the use and implementation of online learning platforms in vocational education.

(2) Assisting curriculum planners to develop effective teaching and learning strategies for vocational courses.

(3) Identifying satisfactory arrangements for teachers to teach different vocational subjects with the use of online learning platforms.

(4) Providing a useful reference for interested stakeholders, end-users, or policy-makers to understand more about the use of online learning platforms for vocational teaching.

CHAPTER 2: LITERATURE REVIEW

As the main objective of this research is to study the use of online learning platforms in teaching vocational subjects, the development and background information of online teaching and learning will be firstly presented in this chapter as the starting point for the literature review. Then, I will discuss the importance of vocational context and characteristics of vocational learners to argue how teachers can use online platforms to teach vocational subjects with support of some learning theories and illustrative examples.

2.1 Development of Online Teaching and Learning

> Teachers have experimented with a variety of technological changes since the mid-nineteenth century, with the goal of improving the educational process. (Gudea, 2008, p.3)

Before the emergence of the Internet, people had already used various tools and technology to support their teaching work. The blackboard, textbooks, pictures, correspondence courses, film, radio, and instructional television are in this respect some of the precursors of online education. The advent of personal computers, Internet, and mobile devices brings a different set of challenges and promises (Laird, 2003; Mendenhall, 2007; Pachler, Bachmair & Cook, 2010; Wheeler, 2010). It is a process still in transition yet the versatility and potential of the Internet to bridge information, geography, culture, and language surpasses previous development (Blair, 2002; Dougiamas, 2011; Ershler, 2003; Gillen & Barton, 2010).

The initial idea of using the Internet for teaching and learning began with the Defense Advanced Research Projects Agency (DARPA) in the USA, which

sponsored a project which offered the universities a convenient medium for sharing computing resources. Following this, the US National Science Foundation (NSF) funded a research network (NSFNet) that allowed an increasing number of academics to access the shared computing resources through hypertext and URLs (Dean, 2000). The NSFNet eventually grew to become the World Wide Web – the backbone of the Internet. With its ability to provide more users' access to the distributed information, the web-based environment offered an appealing alternative infrastructure to classroom education. Unlike its predecessors such as radio and television, the Internet supports two-way communication. The global economy and the globalization of education rely on the online communication and dissemination of information. For the first time, educational institutions were able to reach geographically remote students in cost-effective ways (Ben-Jacob et al., 2000; Cahn, 2003; Carnevale & Olsen, 2003). From a temporal perspective, the use of the online environment can involve either synchronous or asynchronous participation. The synchronous approach such as online chat or video conferencing requires users to communicate in real time. The asynchronous

form allows students and teachers to enter the virtual classrooms at their own convenience with no preset schedule. Such an online learning platform is open for 24 hours a day, and the time constraints may be only those related to the submission deadlines of assignments and the arrangement of examinations (LLUK, 2009; Mark, 2009).

In the literature, the advantages of online learning platforms such as convenient access of information, and independence of location and time are generally compared with the drawbacks; these include additional time required for course design and training. Vodanovich and Piotrowski (2001) found that, for many teachers, the use of an online learning platform is still limited to basic communication with students or dissemination of course materials. Brown (2002) found that, in contrast to teachers, most students are well immersed in the cyber world because the ICTs are the current way of life for them. As the availability of information and the way it is accessed have been reconfigured, teaching and learning environments have changed dramatically (Downes, 2005; OECD, 2006). In this way, there has been an increase in the use of the online technology to support education. Students find that they can learn more

independently while their teacher takes on more of a facilitator role (Hardin, 2004; Knowlton, 2000; Lee, 2008; Picciano, 2006).

> The role of the educator…has traditionally been the owner and deliverer of the knowledge, now his role is shifting to a guide and facilitator…to give the students ownership in their own learning process. (Hardin, 2004, p.10)

With the Internet offering cost-effective solutions for disseminating knowledge to an increasing number of learners, the use of web-based learning allows working people to continue their studies or stay abreast of developments in their profession. To overcome the physical and time separation, the virtual learning environment actually gives students and teachers a certain flexibility in participation, provides diversity of learning contents, and allows higher efficiency in learning or teaching schedules. Furthermore, an online environment affords access to certain courses that may not be available in a traditional format (Ben-Jacob, Levin, & Ben-Jacob, 2000; Franco, 2010; Schell,

2004; Stefania, Dondi & Marzotto, 2010) as the online learning tools help to re-organise and transform the activities that make up teaching (Lee, 2008).

Undoubtedly, technological development has brought practical changes in education by incorporating new ways into teaching and learning practices. The Internet has become an indispensable channel or information source for many people. It can disseminate, update, and connect information in instantaneous ways not overlooked by learning institutions. There has been much investment in Hong Kong specifically in providing modern tools for accessing this information network. The ever-dwindling size and cost of powerful computing systems has given educators new tools to help students learn (Leel, 2008). Web-based technology has become an essential tool for any modern academic or vocational institution.

With Internet technology, Learning Management Systems (LMS) were developed to provide teachers with an individualised online space for their classes. LMS such as WebCT and Moodle provide features for teaching and learning (Powel & Gill, 2003) no matter whether they are teaching arts, pure science, humanities, social science, or vocational subjects. The popularity of

LMS is shown by the fact that there are currently more than 50,000 government organizations, corporations, and educational institutions maintaining active installations of Moodle all over the world while Hong Kong itself has over 80 known installations (Moodle, 2016). Thus, concerns have been raised about how an online platform can be incorporated into teaching (Clegg, Konrad & Tan, 2000; Drent & Meelissen, 2008; Giles & Yelland, 2010; Hadyn, 2008; Haydn & Barton, 2007; Littlejohn, 2002). Teachers consider the relationship of the online environment with regard to the teaching and learning context as well as to the characteristics of their students (Baker, Schihl & Aggarwal, 2003; Farrell, 2003). Therefore, in the next section, I will look into the importance of vocational context to understand why and how online learning platforms are used in vocational teaching.

2.2 The Importance of the Vocational Context

It is well recognized that in different disciplines or subjects, online platforms have been used differently to enhance teaching and learning (Gannon, 2012). For example, in many academic subjects particularly in the humanities and social sciences, learning is accomplished through spontaneous or guided discussion forums on different topics, as a result of reading, discussions, and reflection on the various opinions formed, leading on to further discussions. Thus, there is a need for the provision of collaborative communities to facilitate such communications or interactions. On the other hand, for task-based or vocational subjects, it should be possible to provide a programmed learning environment, for example to perform an experiment or a task with guided procedures, and then to facilitate the discussion of the observation, and the results obtained. This raises the question of why they are used differently in teaching.

In many examples of teaching with online platforms, it has been commonly found that teachers' lecture notes presented during traditional face-to-face teaching were made available on online platforms for students' download

immediately after their scheduled lectures. This is exactly the situation when I studied my Master Degree in Education in the University of Hong Kong. Questions for problem-solving sessions were also uploaded into the discussion forums while announcements were posted so that their students were kept informed of changes in lecture time, work to be handed in, and necessary readings. Relevant resources were also shared by teachers at the online platforms for students to view or download. These could consist of journal articles, relevant web addresses, past exam papers and feedback. Exercises were designed and uploaded to test students' level of understanding about the concepts they were taught. Some of these exercises could be scored automatically and students could check their learning progress by themselves. As such, online platforms would be particularly effective in case of limited time in classroom teaching and bulky lecture materials. From the above uses of online platforms, it seems to be the same situation for teachers in most subjects. So where is the point of their difference?

To explain this in practical terms, let us firstly look into the basic element in the teaching process – the subject context. Many subjects are taught in our

education system and they can be divided into two main categories based on content: academic subjects and vocational subjects.

Many academic subjects such as mathematics, biology, economics, geography, chemistry, history, law or sociology have their frameworks of content in the form of transferable knowledge established by concepts, theories, facts, notions, formulas, rules, research findings, or experiment results. Students construct their knowledge by reading, understanding, analysing, and applying what they learned. In that sense, their critical thinking is much emphasised and necessarily developed during the learning process (Young, 2004). Teachers often start online discussion by posting some questions in the forum to let students interact with each other for collaborative learning (Harkin, 2012). As an illustrative example here, in studying my Master Degree course, most lecturers would usually post some questions for discussion in the online learning platform after face-to-face lectures. These questions were delivered to extend the classroom discussion and enhance our critical thinking on controversial issues for the related topics. Through the interaction with peers during online

discussion, many of us could obtain a better understanding of the academic content to strengthen what we have learned for the subjects.

Then, what about vocational subjects? In vocational subjects, students acquire job-related skills and knowledge, and they are engaged in task-based, career-related learning which usually involves manual or practical abilities. The distinctive features of vocational courses usually include particular context where special setting or resources are required for teaching and learning in those vocational areas. There is little evidence in the literature that vocational learning is fundamentally different from any other type of learning except in its context (Lucas, Claxton & Webster, 2010). Offices, hospitals or construction sites are different vocational environments where required learning can be facilitated in simulated or actual work settings. The learning environment with particular facilities or resources often creates influence on teachers' decisions about how the course to be delivered (Stevenson, 2005). This in turn affects their choice of what teaching strategies and methods to be used. Lave & Wenger (1991) pointed out that the context in vocational learning is made up of two elements: arenas and settings. Arenas are those job-related venues like laboratories, workshops,

factories, theatres, farms, and hospitals. Each brings its particular culture and each exists separately from any students who might choose to learn in them. A setting is what happens in the learning environment when a learner interacts with a specific arena and a context is created by that interaction. In vocational education, context tends to be specifically important as most teaching takes place for particular workplace settings rather than for a classroom. A skill may be taught in one setting with a view to being largely applied in another, with learning transferred from classroom to workplace (Stevenson, 2003). Different vocational subjects are taught in different contexts and call on different pedagogical approaches (Leach & Moon, 2008,). In the prospectus of the VTC (Vocational Training Council, 2012c), vocational subjects are distinguished by the media through which the vocational activities are performed (Lucas et al., 2012). As shown in the following Figure 2.1, they can be categorized into three main groups with their focus in physical materials, people, and symbols:

Physical materials – for example, plumbing, hairdressing, and engineering

People – for example, business, counselling, sport science, retail, and childcare

Symbols (words/numbers/images) – for example, journalism, publishing, accountancy, software development, and graphic design

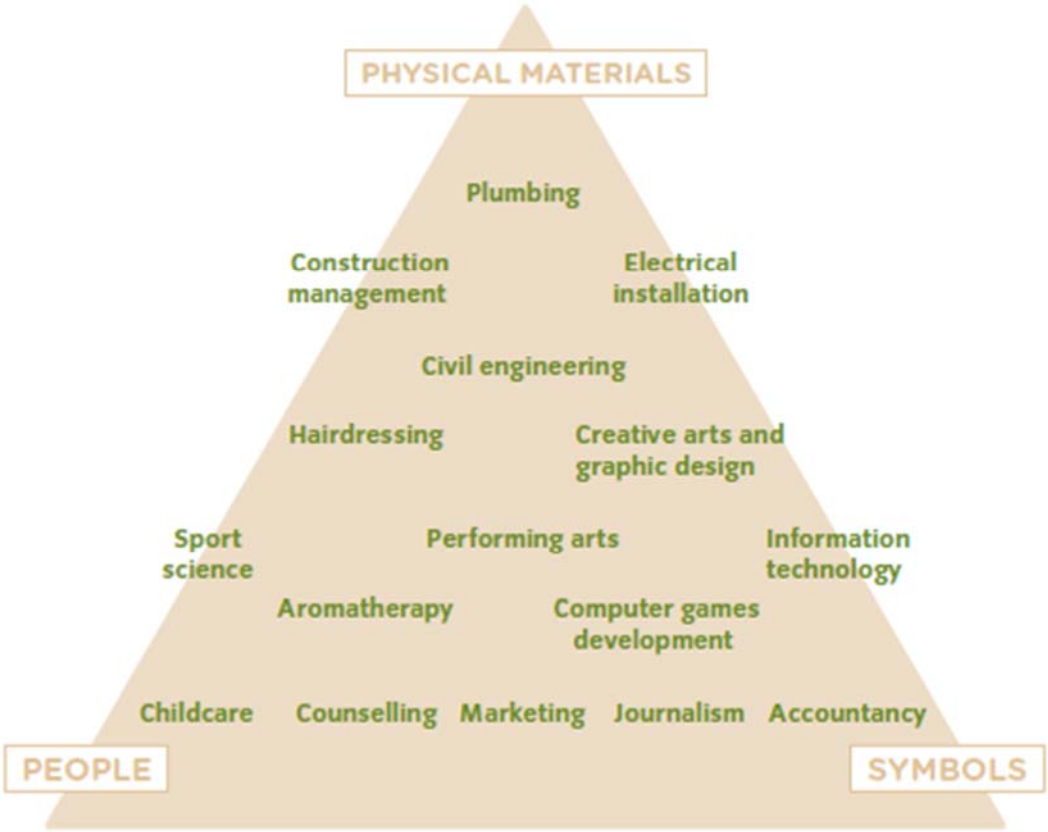


Figure 2.1: Vocational subjects in VTC can be categorized into three main groups with their focus on physical materials, people, and symbols (Lucas et al., 2012)

They can actually help IVE teachers to prepare the settings in terms of making good choices of pedagogic decision and making use of related teaching

methods which work best with the media: *physical materials***,** for example by demonstration, imitating, practice, and trial and error as part of real-world problem-solving; *people*, for example by feedback, conversation, simulation and role play; and *symbols***, f**or example by learning through observation, and critical thinking. Online methods have the potential to support learning activities related to all three categories of vocational learning types: physical materials, people, and symbol.

While these groupings may be overly clear-cut, they begin to help IVE teachers to make sense of the kinds of pedagogies that can be appropriate in different vocational context and actually many vocational areas shown in the Figure 2.1 may involve much more of a mix of the three media in different proportions.

Further reviewing the literature, it is not difficult to find out references to teaching in different context which is viewed as an important component in vocational teaching and learning. Kerka (1997) commented on the importance of context on the effectiveness of learning,

> Key features of knowledge construction are functional context, social context and usefulness. The process works most effectively when it is embedded in a context in which knowledge and skills will be used. (Kerka, 1997, p.1)

On the other hand, the Institute for Learning stated that effective teaching and training comes from a deep understanding of learning as well as application of "learning to learn" strategies within the workplace setting or the context for a vocational subject (IfL, 2010a). Other research findings also support the importance of contextualized learning which allows knowledge construction, reinforcement, and practice in vocational settings (Hayward, 2006). The concept of situated learning stresses that knowledge is constructed and made meaningful by the context in which it is acquired (Lave & Wenger, 1991). It is emphasized by the work-based learning and teaching models for the situated learning theory with two underlying principles. Firstly, knowledge needs to be presented in an authentic context where it would be applied after learning. Secondly, the learning process usually takes place by the interaction between learners and learning environment (Brown & Ciuffetelli, 2009). In addition,

learning objectives, expected outcomes, subject requirement, class composition and size, and resources and facilities available for the vocational subjects should be considered in relation to the teaching context when it is related to online delivery (Darwin, 2007; Field, Hoeckel, Kis & Małgorzata, 2009). In contrast to academic subjects, vocational subjects such as engineering, business accounting, nursing, computer programming, or environmental science have a specific focus on practical contexts. They are designed to provide students with essential job-related skills to develop careers. Students often need to follow standard procedures to achieve some task goals while discussion or critique is seldom found in their learning process. In academic subjects, teachers can be facilitators of students' discussion as well as information providers to answer students' questions or give guiding materials. The complexity depends on how the teachers use the platform rather than what functions they use in delivering different subject content. This exerts pressure on the provision of technology for teaching and learning to satisfy the differing demand of functionalities as well as the diversity of subject content.

2.3 Characteristics of Vocational Learners

In addition to the vocational context, the characteristics of vocational learners play an important role in vocational teaching. VTC provides various study pathways from diploma to degree levels, equipping students with vocational skills and knowledge for different professions.

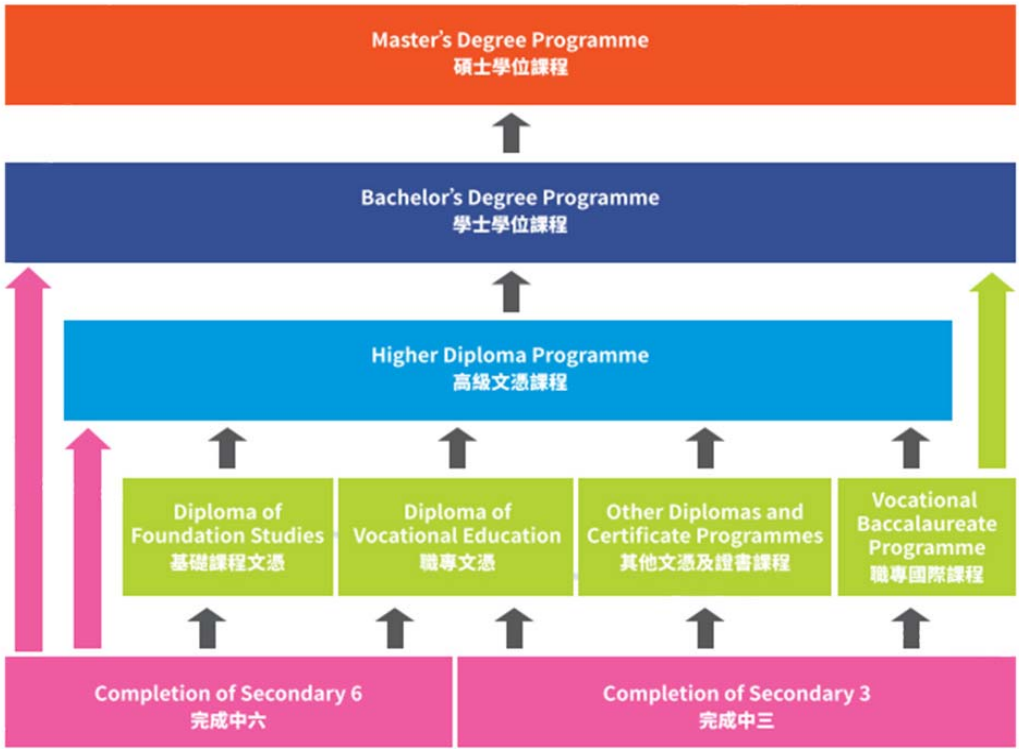


Figure 2.2: Pathways of vocational education in Hong Kong (Vocational Training Council, 2017)

As seen above in Figure 2.2, students can have choices to join or step off the routes at different levels in which IVE campuses provide vocational courses in Diploma of Foundation Studies and Higher Diploma Programme.

They can even choose full-time or part-time learning at various stages of their educational and working lives. Continuing education and on-the-job training options are also available at all levels, providing opportunities to learners of different ages or background to have their skills and qualification upgrade for career advancement.

In view of the diversity found in vocational learners' ability, prior experience and knowledge, it tends to be quite difficult to provide online learning platforms for their use. Nevertheless, I will try to understand their common characteristics from the literatures, and then actually look into the traits of vocational students in Hong Kong.

Learners choose and enrol onto vocational courses for a variety of reasons. Professor William Richardson, interviewed for *Mind The Gap* (Lucas *et al.*, 2010), suggested that many students sign up for vocational education because they are keen to leave the school environment at the earliest opportunity. Commenting on the type of persons in this category, he said that:

> The vocationally-inclined young person … is aware of the world out there, beyond school, and wants to join it, and school feels like it is holding him or her back. So it's not just a matter of their interests or their mentality; the vocational route is the one that seems to respond to that urgency. (Lucas et al., 2010, p.28)

Furthermore, Lucas and Claxton (2009) argued that the older adolescent's interest in work is more than the result of mere socialization pressures. Some form of self-fulfilment is required for satisfactory transition to adulthood from adolescence. Although many young people are keen to be treated like adults and move into the real world, those for whom the academic route to work seems less promising may be additionally motivated to enter some form of work-related learning. Some enter particular fields of work motivated purely by financial reasons. They may not be associated with low academic achievements, but many are found to have a low sense of self-esteem. Lucas (2010) also suggests that the implications of low self-esteem for pedagogy have not been fully explored and he noted that:

> Virtually all young people are allocated to a pathway based on their suitability or unsuitability to the academic route, rather than their suitability or unsuitability to the vocational route. Young people are often allocated or counselled into a vocational pathway not on the grounds of talent or interest in those domains, but because they are thought unlikely to succeed at the next level of academic education. Conversely, those young people expected to succeed in academic education are tacitly or openly discouraged from considering vocational pathways. (Lucas et al., 2010, p.15)

This view is supported by researchers (Arum & Shavit, 1995) who consider vocational education a safety net to reduce the risk of falling into the bottom of the labour queue in society. Similarly, Lloyd and Payne (2012) suggest that in England and Wales, colleges work on a deficit model of provision offering a second chance to those who have struggled in mainstream schooling. Having presented an overview of work-related learning pedagogy, Lucas (2010) addresses the characteristics of 17-19 years old vocational learners.

He identifies these typical learners as relatively volatile, naturally risk-taking and boundary-pushing. This period of learning is also one of growth in general, particularly as the young learners continue to develop their own personality. Ofsted's views (2010) on vocational learners can be gleaned from his report that:

> They are motivated by practical and active learning, the opportunities to apply their learning to work-related contexts or at work, and by the use of industry-quality resources. (Ofsted, 2010, p.160)

Where vocational learners are perceived to have little experience of success, Hyland (2006) proposes that vocational courses should be designed to build up their confidence and he concludes that:

> For learners, young or old, who achieved little at school and associate learning with anxiety, grief and failure, a 'therapeutic' concern with foundational skills, attitudes and motivations may be exactly what is required… without task-specific interventions to overcome problems of confidence, even well-qualified

students with extensive work experience can fall by the wayside.

(Hyland, 2006, p.303)

So, how about vocational students in Hong Kong? Do they have the similar characteristics?

It has been recognized that many Hong Kong students rely heavily on repetitive rote-learning and memorisation (Ballard & Clanchy, 1991). The literature identifies the two different learning approaches. The deep learning approach signifies our real understanding of the meaning of learning materials, while a surface learning approach puts focus on the learning material itself that is its superficial meaning (Marton, et al., 1996). Watkins and Biggs (1996) state that repetition or reproduction characterized by rote-learning is actually a surface learning approach. If we compare the learning process of students, it would not be difficult to note that the surface-learning approach occurs with vocational students much more than with the non-vocational students. This describes one of the typical traits of IVE students' learning approach. Researchers argue that surface learning can only let students repeat information

without interpreting the new information, or understanding how it relates to previous knowledge (Kennedy, 2002). According to the research, the most effective learning in academic or vocational subjects should be linked to students' use of deep approaches to learning. In view of this situation, some IVE teachers considered using Moodle to help their students develop from surface learning to deep learning and this would be shown later in the analysis part.

Another characteristic of vocational students in Hong Kong is their inactive learning style. Ballard and Clanchy (1991) has shown that they are not active in the learning process. They are considered as inactive learners who hardly question the knowledge or skills they attain. Cortazzi and Jin (2001) explain this with conception of teaching and learning as a hierarchical line where students regard teachers as all-knowing and accept the knowledge as provided by teachers. This also creates the situation that most teacher-student interaction is limited in classroom teaching by the authoritarian atmosphere. Many students wait to ask questions after class rather than question directly in class because the teacher-student relationship seems to be more casual outside class (Chen, 2007; Zeng, 2006). This characteristic is more noticeable among

vocational students as many IVE teachers reflect that they are usually busy in answering their students' questions after their lectures rather than during the lectures. In view of this, IVE teachers find Moodle quite helpful to facilitate or extend their discussion with students in the virtual learning environment. Therefore, to deal with the characteristics of vocational students' learning styles, teachers have been stimulated to consider the use of online learning platforms by applying different teaching strategies and methods (Pachler, Bachmair, & Cook, 2010). This creates challenges for vocational teachers and this will be discussed in the next section.

2.4 Challenges to Vocational Teachers

After obtaining more understanding about the characteristics of vocational learners in the previous section, I will discuss about the challenges that vocational teachers come across with their increasing use of the online platform. For instance, they may need to consider the improvement of their students' responsibility over how and what they choose to learn, and be more concerned about the pedagogical setting to improve the effectiveness of teaching. Web technology can help students prepare for social, academic, and personal learning, and offer a useful supplement to classroom instruction (Becker & Jokivirta, 2007; Shafer, Davis, Lahner, Petrie & Calderone, 2002; Smith et al., 2002), but isolation and lack of contact with teachers can be one of the challenges for developing effective learning communities (Dodge & Kendall, 2004; Grubb & Hines, 2000; Rovai, 2002; Weiss, 2000). Particularly, the online environment makes it difficult for vocational teachers to help students who have problems with practical exercises or job training (Pachler, Bachmair & Cook, 2010).

In addition, the decrease in face-to-face teaching is a concern to both of teachers and students. This causes another challenge to teachers, avoiding students to feel as though they missed out educationally due to the materials being delivered in online mode, as reported by 74% of students in Hirschheim's (2005) research study. Having such a change or decrease in the 'personal touch', some students would feel that they are missing out some parts of their learning experience (Ury, 2004).

Also, ineffective online teaching materials are usually caused by text-based correspondence and self learning, just resulting in a high-tech and more responsive form of correspondence study (Natale, 2002). In this regard, some students cannot be sure about their teachers' expectations such that they cannot find the direction in their learning, causing negative views of online teaching, and the preference for on-ground classes (Funk, 2005; Green, van Gyn, Moehr, Lau, & Coward, 2004). This issue may lead to students' dissatisfaction with online delivery, and to unclear expectations (Crawford, 2006). In order to maintain clarity, students need to have further contact or interaction with their teachers via supplementary face-to-face discussion, email, WhatsApp, or other

forms of communication, causing the pressures that sometimes feel overwhelming to teachers (Hirschi, 2005).

In addition to the feelings of confusion and isolation, students may have negative comments on assignments, textbooks, technical arrangement, and other components of online learning platforms (Hentea, Shea & Pennington, 2003). Such criticisms seem directly related to a lack of communication among students and teachers in the virtual environment; even those who have the means of communicating with others via online chats or email cannot make use of them for effective communication (Beetham & Sharpe, 2013).

Moreover, online teaching has often been criticized for being of lower quality than face-to-face teaching, despite its advantages of flexibility and convenience (Grandon, Alshare & Kwun, 2005). This is related to teachers' choosing huge amount of learning materials that please most individual students rather than quality resources that may not please all students who have different learning abilities and expectations (Natale, 2002). In view of the time-saving benefit and consideration of quality, teaching materials tend to be updated or

renewed from time to time, and teachers must be motivated to do so (Beetham & Sharpe, 2013; Schell, 2004).

On the other hand, the online learning environment can make students more dependent on the computer for problem solving if it replaces classroom lessons completely (Hardin, 2004). Without classroom discussions and other facets of conventional face-to-face teaching methods, students are reliant more on the computer to acquire knowledge or skill (Hirschheim, 2005). As such, teaching with online platforms may become a mass-marketed product that minimizes the diversity of knowledge and encourages students to expect top grades with minimal effort and ability (Gillen & Barton, 2010). On the pedagogical side, Picciano (2006) considered that the most controversial issue associated with the online environment is the nature of the class interaction. Social interaction among students is an important part of learning which is not always found or encouraged in online learning platforms (Shea, 2006). Without such interaction, the spontaneity element of lecture situation is lost (Hirschheim, 2005). Lecture situations can lead students to think in wider and deeper perspectives while the immediate availability of a teacher's response may

encourage students to ask more questions in class (Hage & Hodkinson, 2009). Furthermore, the flow of questions in class helps a teacher adjust content and pace to the rate at which students can understand the learning materials effectively (Picciano, 2006). Such interaction in face-to-face teaching is important to ensure that valuable feedback can be given and indicate whether students can understand the learning materials appropriately. (Hadyn, 2008). Although students may not have their teacher's immediate feedback in an online environment, the expectation of such availability is still found in most students' minds so that they often expect a teacher to be on standby 24 hours a day (Pachler, Bachmair & Cook, 2010).

Regarding the delivery of knowledge or skills to students, some people believe that classroom lessons still have better quality than teaching with online platforms (Wong, Greenhalgh, Russell, Boynton, & Toon, 2003). Possibly, the virtual learning environment provides many options for the learning design rather than just replacing classroom teaching. Teachers can make their own choices which may not always be the best ones in practice. This can be reflected in the findings of my interviews with IVE teachers in the following chapters.

Also, people may not sense the happening of the change that students are provided with more learning opportunities for connecting to the external resources, and sharing of knowledge or idea in an online learning community by their interactions with classmates and teachers in different ways (Grandon, Alshare & Kwun, 2005).

The Internet continues to play a key role in the rapid development of online teaching. Reports show that there is an increase in the number of institutes using online platforms for delivery of different types and levels of courses (Stefania Aceto, Dondi, & Marzotto, 2010). Much effort has been made to apply the emerging Internet technologies into the teaching and learning activities for different subject areas (Lamb, 2004; Martindale & Wiley, 2005; Pachler, Bachmair & Cook, 2010; Sloan, 2005), Although it is not difficult to find discussion in the literature about the teaching strategies with the use of online platforms or the evidence on its effectiveness, there is little sharing of teachers' experience, especially for the use of online platforms in vocational teaching.

In view of the above challenges, the development of teaching online brings about a potential for enhancing the role of teachers. Yet, it is not solely the technology but rather the changes in teaching style that are important (Beetham, & Sharpe, 2013; Parikh, 2003; Van Klaveren, 2011). What kind of technology or tools the teachers use in their vocational teaching is not the point. How and why they use it in one way and not another is more important. As a profession, teaching involves various dimensions of work such as administrative tasks, preparation of teaching materials according to the syllabus, instructing and mentoring students, and evaluating and assessing their work. Vocational teachers also take on these roles. They are responsible for arousing their students' appreciation for the subject matter and guiding them to attain the required knowledge or skills. More importantly, as the delivery of courses moves from classrooms into different formats and environments like online platforms, teachers should offer students a framework for inquiry in the quest for knowledge (Conole, 2008). This is what using web-based technology could mean for vocational teachers. Reconsidering the role of teachers as change agents in the teaching and learning process tends to be essential.

Today, with Web 2.0 technology, teachers can create interactive and multidimensional experiences that combine text, audio and video in a media-rich environment to engage learners (Anderson, 2007; Becta, 2008; Downes, 2005; Franklin & van Harmelen, 2007). Students value the flexibility offered by the asynchronous dimension of the class because this allows them to interact online without distraction (Lauzon, Gallant & Rimkus, 2000; Sullivan, 2002). With the web-based platform for two-way communication, Oliver (2004) argues that the online environment engages the participants in an intense exchange of ideas mediated through the computers. Teachers sometimes need to slow down the interaction (such as in a chat room) in order to be able to control it (Hameroff, 2003). In the case of a large class, the number of postings can be overwhelming, while in a very small class, the discussions may not go well (Brower, 2003). Collaboration is more than simply exchanging information (Hodgkinson & Holland, 2002). At times, the students' online dialogue is mostly related to personal experiences and does not reflect well-supported reasoning (Angeli, Valanides & Bonk, 2003). Therefore, the effectiveness of teaching relies on communication skills and enthusiasm (Marold, Larsen & Moreno, 2002; Klobas

& Renzi, 2003). As society and technology change, more students expect to be entertained and their learning processes must, according to Sensiper, (2000) always be fun. Teachers who use a friendly, honest, humorous style can make students believe that they will be successful in learning. Teaching online requires commitment and appropriate interactivity (King & McSporran, 2002).

While web-based learning can simulate or transform the face-to-face teaching models, adjustments are actually needed in terms of student assessment, training of teachers, student expectations and motivation (Aggarwal & Bento, 2002). These adjustments affect teachers and students equally because the decrease of contact time in the classroom may mislead students to feel less pressure to contribute to online discussions. Furthermore, the social contexts of online and on-ground classrooms differ, and therefore teaching styles should be different (Marold, Larsen & Moreno, 2002; Van Klaveren, 2011). Teachers should acknowledge the potential of uneven or inactive online participation. As online discussion is more open and interactive, there is less teacher control over the social context of learning. In the online environment, with the emerging new communication modes, monitoring and encouraging participation can be more

difficult (Mendenhall, 2007). Teachers often say that online interaction is more difficult to control but also feel that imposing too much structure is detrimental to a free learning environment, as should be the case online (Minasian-Batmanian, 2002). While some students dominate the online discussions, they often answer questions and post new messages on their own terms (Blair, 2002). Yet, the online platform allows for more in-depth discussions as there is more time to formulate answers and the discussion threads are available for easier reference. Thus, the online forum and emails enhance the communication among students with teachers, leading to a better understanding of the subject materials. As a result, teachers' roles always change with different strategies and pedagogical arrangements for using an online platform (Thomas, 2011).

For vocational subjects, many of them are instruction-based and the role of teachers evolves from instructivist to a constructivist stance, requiring teachers to become facilitators. As Internet technology becomes an integral part of teaching and learning, the teacher is no longer the knowledge source and instead becomes a knowledge facilitator (Gunawardena & McIsaac, 2004). Rather than just filtering the access to information, as is the case in traditional

classroom lessons, teachers can recommend additional resources and guide students toward their own discoveries in the online environment. Conceptually, the teacher moves from being in the centre of the physical classroom to the periphery of the online classroom. While the environment changes from teacher-centred to student-centred, knowledge is structured through a cooperative effort involving students and teacher. The teacher is responsible for framing the course and providing resources to supplement the students' interactions. Noble (2001) argues that the online learning platform changes what is required of teachers as the students form a direct relationship with the cyber environment for new knowledge, but not with their teachers. In that sense, the student-centered approach has been implemented and is appropriate to the non-linear nature of teaching many subjects (OECD, 2006; Williams & Sheridan, 2010). But there is a question whether it is applicable in vocational subjects. Instructional roles and teaching strategies require to be re-defined for web-based delivery.

Many controversial issues remain around the use of online platforms in vocational education. Teaching with online platforms should not be the same as

a canned lecture: pre-packaged, structured, developed, and prepared in advance. It is not equal to provision of the standard templates for vocational teachers to follow. As teachers have their teaching conceptions, they can always make different choices in the teaching process, and decide what to teach, when to teach, and how to teach. The online modality allows teachers to modify the subject content and learning activities throughout the teaching progress, as appropriate (Chou & Tsai, 2002). Either on-the-ground or online, teachers can communicate with their students by e-mails, discussion forums or chat rooms (Anderson, Rourke, Garrison & Archer, 2001; Franco, 2010). Some teachers find that when they teach using an online platform, it does not necessarily enhance their reaching out to students. What may be working for some students does not necessarily work for the entire class because they may have communication needs different from their teachers; this applies especially to those younger students who prefer speed to face-to-face contact (Thomas 2011).

In many ways, web technology reorganizes and transforms the activities that make up teaching (King & Dunham, 2005). The role of the teacher has changed with the use of online learning. The web-based application allows

vocational courses to be taught online, reaching a larger number of students and enhancing communication among users (Carnevale, 2004). However, the studies and literature reviewed here still have left many unanswered questions and hidden issues on vocational teaching. Research is needed to examine how the online environment alters teachers' work. The significance of the present research is, by studying their teaching experience, to identify effective strategies or models for instructional design, pedagogical arrangement and content delivery in vocational teaching with online platforms.

2.5 Learning Theories on Vocational Teaching

In previous sections, I have already reviewed how the vocational context and learners' characteristics make online learning platforms important to vocational education. Now, I will look into various learning theories, and discuss why and how they can inform approaches to vocational teaching using online platforms.

Historically, learning theories have focussed little on vocational education. The learning models or concepts applied in the vocational field are often drawn from other academic areas without clear examination of their appropriateness. For instance, vocational learning has been seen as something like studying but without work experience, or learning to drive but actually not having a car, or practising for a job but without any salary. There seems to be a lack of a widely accepted theory for vocational teaching and learning mainly because the vocational sector is constantly changing, so the ground rules for vocational education change with time as well. On the other hand, there is some misunderstanding about who vocational education is for. Is it for students or

employers? Is the content of a vocational course trying to cover too many things? Is the vocational course designed to inform students what skill levels need to be improved, and to move on to the next level, or is it designed for access to higher education? This is coupled with a recognition that any vocational learning or teaching has to deal with other contemporary challenges such as changing demands from employers, new qualifications, and different course provision by the institutions. Moreover, there are an increasing number of attempts to understand the role of technology in learning and teaching (Shank & Sitze, 2004). For example, *Issues in Web-Based Pedagogy* (Cole, 2000) explores the use of the World Wide Web for teaching and research on the related issues in distance learning and virtual education. Moreover, Thomas (2011) considers the importance of developing a better understanding of young people's technology use and experiences if people want to respond to their actual needs, before justifying how digital natives require different ways of teaching and learning with technology.

> It may be helpful to think not of vocational pedagogy but of a series of overlapping pedagogies for learning, depending on subject area,

> level, the location of the learning, and the ages of the learners. There is no one-size-fits-all approach. There is a strong consensus that effective teaching methods for vocational learning are based on realistic work problems and scenarios, led by teachers and trainers who have recent and relevant vocational experience. (Harkin, 2012, p.28)

Rapid changes are found in industry, job requirement, labour market, and companies. At the same time, the concept of skill that has underpinned much of vocational education has broadened considerably. Today a much greater emphasis is placed on work attitudes, adaptability, or even behavioural skills than on purely technical knowledge or experience. The focus on learning theories has shifted with a growing interest in organizational culture, situated learning, and productive work. Contemporary notions concerning knowledge have also changed as a result of increased attention to the development of a knowledge economy with knowledge workers. Even though all of these changes have many implications to vocational education, there has been few research studies that investigate the effect of these changes have on the pedagogy of

vocational learning and teaching. Educators around the world today have views on different theories of learning and some IVE teachers may believe that these theories have little to contribute to understanding how they teach or the way students learn. Efforts in studying how vocational students learn was mainly associated with the mainstream theoretical frameworks and pedagogies, such as experiential learning, constructivism, and value of practical knowledge (Dalton 2004; Harrison 2006; Victorian Curriculum and Assessment Authority 2009). This kind of learning is claimed to be effective because it needs problem-solving, and hands-on application (Dalton 2004). It can also provide meaningful experience, group interactions, and guided learner reflection (Harrison 2006). Students' participation and reflection are viewed as important elements of this type of learning. Still, more investigation and justification of this kind of learning are required.

These accounts of whether the learning theories work for vocational learning call for more research studies and literatures on vocational education. As Billett (2004) and Hodkinson et al. (2008) argue, the theories or models of

vocational learning can be broadly explained by two competing concepts, either predominantly individually or socially dependent.

At the individual level, vocational learning is usually seen in terms of the intellectual processes, either by behaviourist instruction-based learning, where the learning process is understood mainly as the personal acquisition of propositional knowledge, skills and dispositions (Anderson, 2007). On the other hand, at the social level, the process of vocational learning takes place with contextual influences and interactions in which participation in guided learning activity leads to individual and group procedural learning and tacit knowledge (Greeno, 2009; Hinn, Leander & Bruce, 2001). From both cognitive and constructivist perspectives, vocational learning can be viewed as constructing resources such as conceptual models, schemas, strategies, and frameworks by interacting with materials and symbolic tools used in particular vocations (Blumer, 1969; Bruner 2004; Gergen, 1995, Hatterius, 2004). With the social constructivist approach, students could participate in authentic activities with vocational tools and resources to learn effectively (Athanasou, 2007; Cole & Wertsch, 1996; Vygotsky, 1978). These perspectives and approaches allow

understandings from each other, and recognize vital trade-offs between active learners and supportive environments, including the role of vocational teachers in providing guided activity for the educational processes.

Today, many IVE teachers think they should not be bounded by different theories of learning in how they teach their students or influence how their students learn. Internet technology is creating a paradigm shift, which has had an impact on vocational teaching and learning. However, whether it has created a better approach to learning is debatable. As such, the following discussion looks into how theories of vocational learning and teaching are related, focussing on their attributes and deepening understanding of their development and their applications in educational practice in the use of online platforms.

2.5.1 Behaviourist Approach: Instruction-based Teaching

To understand the idea of instruction-based teaching, let us start from the learning theory supported by behaviourism. In behaviourists' historical development, they are always connected with the use of teaching machines, programmed instruction, and a system approach to instruction. The concept of teaching machines may be the most interesting one if it can be compared with the online learning platforms of today, as it was the very basic version of what educational software and computers can accomplish now. In Skinner's study (1958), he prepared the teaching machine as a box provided on student desks where each student could use it to record answers for the prompted questions. Skinner called them as teaching machines due to the "devices which arrange optimal conditions for self-instruction" (p. 971). He stated that "Sidney L. Pressey designed several machines for the automatic testing of intelligence and information, which will encourage the student to take an active role in the instructional process" (p. 973). An example use of that teaching machine in classrooms is as below. "In using the device, the student refers to a numbered item in a multiple-choice test. He presses the button corresponding to his first

choice of answer. If he is right, the device moves on to the next item; if he is wrong, the error is tallied, and he must continue to make choices until he is right" (Skinner, 1958, p.971). Some common features tend to be found between the teaching machine and today's educational software or learning platforms. Nowadays, online learning platforms are, in essence, much more complex versions of the teaching machine, which leads us to consider that many basic ideas from behaviourism have come along with us into the educational scenarios nowadays. I think that those concepts behind the teaching machine and adoption of instructivism in today's vocational education are fundamentally equal as there are so many linkages to teachers' use of instructions in teaching.

Based on the behaviourist approach, instructivism incorporates a teacher-directed, carefully planned curriculum, with purposeful teaching at its core. It follows the basic assumption that learners are directed by teachers who make the decisions about the content and sequence of the learning according to their professional experience (Goral, 2001; Illeris, 2007; Keeton, 2004; Scardamalia & Bereiter, 2008).

> According to instructivist principles, learning flows in a mostly unidirectional path, proceeding from the knowledgeable authority (teacher), or from instructional content, to the passive learner. (Diaz & Bontenbal, 2000, p.51).

It is not difficult to find that the instructivist approach has been applied in vocational learning. Many IVE teachers provide an offline or online environment for students' needs and set a task goal while the students adapt their actions to the goal, based on their current conception (Clark & Lyons, 1999; Horton, 2000). "Learning goals are predefined by an instructor, learning pathways structured by environment and learners have limited interactions with other learners" (Littlejohn et al., 2013, p.3). In that sense, teachers reflect on the students' learning and assess their performance. The focus is on what students know from the learning materials through their senses, while teachers are viewed as directive or authority, and learning is hierarchical and sequential:

> The instructivist approach … is to pre-plan a curriculum by breaking down a subject area (usually seen as a finite body of

> knowledge) into assumed component parts, and then sequencing these parts into a hierarchy ranging from simple to more complex. (Malibar & Pountney, 2002, p.2)

Following teachers' instructions, vocational students are aware of expected learning outcomes and the effectiveness of teaching is easily assessable (Trigwell, Prosser & Waterhouse, 1999). IVE students are also rewarded for success (as in behaviourism), and failure is not tolerated. While the subject is the vocational teacher, the object is to focus on the content, not the students, or the learning experience. Emphasis is on the preset instructions or programmed pedagogy for vocational teaching (Bain, 2003; Goral, 2001).

So, is the behaviourist approach a better choice for vocational teaching? Of course, the word "better" can mean different things according to one's perspective. As far as I can understand, the better choice is always associated with the context of an educational arrangement or teaching approach under which the teaching and learning objectives can be realized efficiently with minimal percentage of failures, when the teacher is the central person passing

the knowledge or skills to students; it contrasts with other learning theories that do not place authority entirely in anyone.

In many vocational areas, technical skills can produce tangible outcomes even though students are unfamiliar with the concepts. The behaviourist approach tends to be more effective for students undertaking vocational courses that require technical components or professional instructions as a precondition to producing tangible changes and results. For example, in a pipeline welding course, provided as a foundation programme by the Engineering Discipline in the VTC, students are required to be familiar with the use of particular materials and machines. The IVE teacher acts as the authority, demonstrating "'how to do it" in classroom-based lessons or through web pages. Another example found in a laboratory-based course offered by the Applied Science Discipline in the VTC, where techniques are taught for using specific equipment and chemicals. That is not creative work that can be done without initial guidance or instructions on how to begin from the teacher. Therefore, where technical skills acquisition becomes the major focus of the course objectives and the learning outcomes, the behaviourist approach can be an effective choice for vocational

teaching. Then, what is its relation to the use of online learning platform? Let us take a look at the following case of vocational teaching with an online platform.

Being the first in England to receive Centre of Vocational Excellence status in Gas Services Installation and Maintenance, North Trafford College provided many different courses in specialist and vocational areas (JISC, 2004c). In their advanced Modern Apprenticeship course, those final year students were required to study on a day-release basis, working for their employers four days per week. To get full employment, students must take examinations for testing their theoretical knowledge and practical skills to achieve the accredited Gas Engineer status. Since students can attend the class only one day per week, they need well management for balance of studying and working time.

Being the course leader for Gas Services Installation and Maintenance at the College, Brian Keating found that most students were "visual learners" preferring the traditional learning with practical instructions and demonstrations by teachers (Hattie, 2009). Although all students were expected to progress at

the same pace to complete the training course within the available time, some actually needed additional time to grasp difficult concepts.

In view of this learning context, Brian began by setting up a course area on their online learning platform Blackboard and enrolled his students into studying groups. He used combined technology and resources for teaching and learning support including instructional text, images, and videos. Then, they were integrated and presented in the National Learning Network materials, practical assessments, and discussion forums.

In addition, Brian explored blended learning with taught sessions to instruct his vocational students in managing their own learning progresses. In each week, they work through online learning materials based on the concepts discussed in the textbook. Sometimes, additional links are provided to online resources for extending the learning content. Then, activities and instructions are provided for the focus of the following week's teaching. Tests and mock examinations are also delivered by Blackboard. Students took these in their own time but with time limitation to simulate the real examinations. Students'

submissions were marked automatically. If a student performed poorly or answer incorrectly, immediate feedback would be provided by Blackboard, giving teachers' instructions and hyperlinks to review the learning materials. Further discussion could take place in face-to-face sessions and it eventually functioned as a blended learning solution for that vocational training course. Can this approach be applied to teaching of other vocational subjects?

As shown in the above example, the behaviourist learning theory has significant influence in vocational teaching by instructional approaches through which students are guided to follow the highly-sequenced and structured curricula. It has been proved effective in developing students' vocational skills, especially for those skills that can be learned by rote training with repetitive practice and reinforcement. However, some employers also suggest that many jobs requiring higher order thinking or more complex mental processes cannot be well learned by the behaviourist approach. It is necessary for teachers to put more focus on how their vocational students perceive, construct, and apply what they are experiencing in the teaching and learning process.

2.5.2 Constructivist Approach: Cognitive Apprenticeship

Constructivism departs from instructivism in that the learner's ability is viewed as ignited in knowledge construction based on his or her experiences or prior knowledge. As such, students are not inactive learners and their learning process is an adaptive change (Ko & Rosen, 2001). Regarding this approach, many researchers argue that the constructivist learning theory, in which a learner's knowledge construction is based on his or her experience, provides a good framework to analyse online learning (Harman & Koohang, 2005; Hung, 2001; Hung & Nichani, 2001; Koohang & Harman, 2005). But, how can it be applied in vocational education? Would vocational education, which focuses on apprentice learning, task-based context, and workplace application be supported by the constructivist approach? In this section, I will look into constructivism and explore its relationship to vocational learning and teaching.

As a learning theory, constructivism has received support from recent cognitive research in various areas. It is often recognized as an approach to develop the learning environment that can make transfer of knowledge or skills

more effective (Wonacott, 2000). By using a constructivist approach, IVE teachers can encourage active inquiry to facilitate vocational learning, enabling students to think more about their tacit assumptions as well as coaching them in the knowledge construction process. In this way, the approach contrasts with the behaviourist approach. A constructivist teacher should be more interested in helping students to explore meanings than presenting prescribed materials. Under constructivism, a vocational teacher acts as a facilitator while students are cooperative or active learners because knowledge is not received from the outside or from someone else; rather, it is the individual interpretation and processing of what is received through the senses that creates knowledge. The student is the centre of learning, with the teacher playing an advising and facilitating role (Pallof & Pratt, 2001). In that sense, the role of teaching is to help students operate within their personal world of learning. The student enjoys a certain amount of freedom in all that pertains to teaching and learning thereby giving him or her an individual a sense of responsibility and developing self-managing competences, which are important attributes for vocational training in today's competitive world. With individualized pedagogy, students are

allowed to construct knowledge rather than being given knowledge through instructions in the online learning environment (Beetham, 2007; Hung, 2001). Learning is moving away from merely instructions to construction and discovery of knowledge (Tapscott, 1998). A constructivist teacher does not "teach" students but guides them on what to learn. Learning becomes a dynamic process where vocational students interact with resources in their environment to develop skills and acquire knowledge or skills (Bjørke, 2003). So, if IVE teachers adopt this approach, in what way does the constructivist theory of learning affect their teaching with Moodle?

In a constructivist online environment, students can experience raw information rather than receiving filtered information, giving them the opportunity to internalize the information, contextualize the knowledge, and personalize the understanding themselves. In this regard, the major emphasis of constructivists on vocational teaching with online platforms is situated learning, which sees learning as contextual such that "knowledge is created and made meaningful by the context in which it is acquired" (Farmer, Buckmaster & LeGrand, 1992, p. 46). Learning in situations is widely adopted in vocational

teaching and learning when students undertake authentic activities situated in a culture of practice (Billett, 1994a). Research on the different learning outcomes of novices and experts (Al-Bataineh, 2005; Anderson, 2001; Billett, 1994b) shows that expert students are better at organizing their constructed knowledge so as to identify different patterns and solve various problems in real situations (Kerka, 1997). Teachers can help students acquire expertise through the constructivist method of cognitive apprenticeship which highlights that "learning and doing are inseparable and that learning is a process of enculturation" (Ding, 2008, p.5).

Vocational teachers can also teach their students with the concepts of modelling, scaffolding, and coaching. The objective of cognitive apprenticeship principles is "to empower students to accomplish the tasks independently" (Ding, 2008, p.6). In other words, the teacher's role is to organise experiences for students to develop their own knowledge and understandings rather than just setting tasks for them (Grollmann, 2008). Using the concept of cognitive apprenticeship, a teacher should be more like a coach who guides students' acquisition, diagnoses their construction, and mediates the outcomes; the

constructivist approach supports the idea that there is an inborn human drive to understand the real world (Greinert, 2005). Instead of receiving knowledge or following instructions inactively, vocational students can actively construct their knowledge by assimilating new experiences or updated information into what they have already understood, and revise their old knowledge to integrate it into their new understanding (Billett, 1996). In vocational teaching and learning, students usually build cognitive structures including procedural knowledge (specific skills and techniques) and propositional knowledge (facts and concepts) for particular job areas. Meanwhile, the notion of situated learning that "knowledge is created and made meaningful by the context in which it is acquired" (Farmer, Buckmaster & LeGrand 1992, p.46) is embedded in constructivism. Studies of differences in the performance of novices and experts (Billett 1993, 1994b) in various vocational areas demonstrate that experts can organise their database of constructed knowledge in order to recognise patterns and solve problems in new situations. Experts can also accumulate their cognitive structures such that they can be easily retrieved and applied for the concerned issues or context.

With the constructivist approach, novices would become experts through a cognitive apprenticeship (Brown, Collins & Duguid, 1989) in which vocational teachers can suggest various activities or strategies to solve problems, and students can perform the learning activities to construct their knowledge and skills. Therefore, students are coached with appropriate scaffolding, physical aids, and supporting materials. Through continued practice with gradually decreasing assistance, students would attain their understanding by internalising the learning process and building their own knowledge base (Farmer, Buckmaster & LeGrand, 1992).

Furthermore, research on how students learn demonstrates that what is happening is constructivist situated learning through cognitive apprenticeship (Brown, Collins & Duguid, 1989). Studies of professionals and practitioners (Farmer, Buckmaster, & LeGrand, 1992) show that what the most helpful way in learning to handle complex situations or ill-defined problems is the help of vocational teachers for learners to analyze problems or interpret situations, and then guide their attempts to complete the tasks. With emphasis on cognitive apprenticeship and problem solving in vocational context, a constructivist

approach to learning theory tends to be appropriate for vocational teaching with online learning platforms. To justify this, I will further look into the following example.

As far as I know, many academic and vocational institutions purchased online learning platforms for delivery of their programmes. However, in response to students' needs for a flexible curriculum which maximized their learning potential through the use of problem-based and situated learning, the management of University of Central England (UCE) decided to seek a platform with more flexibility in terms of pedagogical approaches. This led to Moodle being considered as their learning platform in order to develop learning programmes that focused on constructivists' situated thinking and problem solving (JISC, 2004d).

To implement the constructivist approach for learning and teaching, the postgraduate certificate course in legal studies at UCE emphasised case studies, collaborative work, and problem-based scenarios. Pilot studies at UCE found that flexible and advanced ways of content delivery such as video lectures or

multimedia resources can be provided in Moodle to perform case studies and situated learning via communication tools. The multimedia content can make the legal matters alive and simulate the situations that students cannot easily experience for the real cases. In solving the law-related problems, students become more constructive and independent (Allen, Donham & Bernhardt, 2011). Research suggests that this approach can lead to a deeper understanding than the instruction based approach in many subject areas (Brockmann, Clarke & Winch, 2006). With the use of Moodle, multimedia case studies have been developed for staff development in UCE using two virtual universities Crumpton and Mullock where real life scenarios are simulated to make situated learning in legal studies become interactive (Rush, Acton, Tolley, Marks-Maran & Burke, 2010). Students also adopt online communication to discuss problems raised in the scenarios, construct legal solutions, and search theories for their vocational practice. Together with face-to-face lessons and other online learning activities, the communication tools were used both on and off campus to provide a blended learning solution. Teachers have benefits to better use the class contact hours. Lectures can be recorded into video clips for delivery through the

online platform. Then, students can discuss key points in tutorials both online and face-to-face sessions so that this has freed up class time for other learning activities. With such a constructivist approach, a rich learning environment has been developed in UCE such that online resources, multimedia, and communication facilities are fully integrated for the courses in legal studies. To achieve constructivist learning, multimedia cases provided in an online platform create a real-world context for cognitive development. Indeed, apart from legal studies, many occupations are becoming more reliant on cognitive capacities. The changing work environment requires flexibility and adaptability to the changing conditions. “One of the ways to prepare future employees is to teach students how to think instead of what to think” (Chalupa 1992, p.21).

2.5.3 Social Constructivist Approach: Interactions for Learning

As far as we know, learning is not merely describing our personal understanding and interpretation, but is also happening in a social context. Research on learning in various subject areas reinforces the concept that people actually learn through interaction with others (Billett, 1996; Merriam, Caffarella & Baumgartner, 2007). In this regard, another learning theory related to vocational teaching is social constructivism or socio-constructivism, a theory of learning inspired by the work of Lev Vygotsky. Social constructivism has different meanings to different researchers and it is open to a variety of interpretations (Roya & Hanieh, 2015; Beck & Kosnik, 2006). Its main idea argues that the interactions between teachers and students can provide the optimal learning environment for students to formulate their unique path of truth (Vygotsky, 2003). As such, construction of knowledge or even problem solving is achieved among the learners' interactions rather than formation from a single source. In other words, every vocational student can present his or her ideas to one or more other students and comment on other students' ideas (Grant 2004; Speck, 2000). The learning process does not just happen for a learner, nor is it

an adjustment of that learner's cognitive behaviours (Hall, 2002; Varvel, Lindeman & Stovall, 2003). Vygotsky preferred a view of learning that conceived of it as a social construct which is mediated by language via social communication (Boudry & Buekens, 2011; Lindblom & Ziemke, 2002).

Social constructivism emphasizes the importance of language, culture and context in understanding what is happening in society and the world and constructing knowledge based on this understanding. (Derry, 1999; Roya & Hanieh, 2015). Under the social constructivist approach, a student can learn better in a social environment where their interaction increases cognition with other students and teachers. Students collaborate in joint learning activities in order to achieve educational objectives while interacting in a social learning environment (Yang & Tang, 2003). Thus, the learning theory of social constructivism emphasizes the importance of social participation and awareness in knowledge construction (Duffy & Cunningham, 1996; Ko & Rosen, 2001), resulting in knowledge that is bound to a specific time, place and context. It introduces the social component of learning in online teaching. An environment of multi-directional interaction among teachers, students, and information in the

learning platform allows students to continuously construct their knowledge, testing it against others' knowledge and the online world to check its correctness, and reconstruct again if necessary. In the same way, a student develops through interactions that exchange knowledge or skills between members of his or her group. Eventually, these knowledge or skills are accepted and owned personally by that student. Individuals exchange constructed knowledge with others in the social context.

As social constructivism stresses that learning is a social activity and learners acquire knowledge to be internalised from various sources in their environment (Tway, 2003), what is the teaching role? With the social constructivist approach, a teacher becomes "more interested in uncovering meanings than in covering prescribed material" (Kerka, 1997, p.1). He or she would not be the knowledge provider only, but also taking the role for guiding, facilitating and coaching (Collett, 2012). Teachers can assist learning in a social constructivist environment by promoting active inquiry, motivating students' questions on the learning beliefs, and assisting students to construct their knowledge. The teacher's task is not to deliver the knowledge but to help his or

her students to discover the directions of meaningful knowledge and skills. Knowing the change of teaching role in social constructivist learning, how can IVE teachers apply the theory to use Moodle in their vocational teaching?

Although the theory of social constructivism does not deny the reality being outside the vocational learners, it denies the fact that there is a single way to reach the reality or world (Kukla, 2000). Students reach meanings or whatever they may reach by using different ways to the same content or concept in a vocational subject. To consider and handle this situation in the online teaching environment, constructivist teachers can make use of active learning and collaborative learning methods. The constructivist teacher can help to facilitate the sharing of experiences and to create an online environment that encourages an exchange of knowledge amongst students (Calderwood, 2000). This is explained by Tway (2003) that collaborative sharing and learning are essential elements for conceptual development as they are important in transforming the internal representations of vocational learners.

Lave and Wenger's (1991) work has much influence on supporting the idea of vocational learning, not as acquisition but as participation. They recognize a complex of interpretation on how the learning process for specific skill happens in the workplace and conceptualize it as legitimate peripheral participation in the communities of practice. They consider it as social interaction and construction, rather than merely cognitive acquisition, which enables students to learn from more experienced practitioners, and it is intimately align with the social context in which it is situated (Lave & Wenger, 1991). With Lave and Wenger's concept, teachers can perform problem-solving or inquiry-based learning activities through which students can generate ideas, summarize findings, develop inferences, and formulate their knowledge in a collaborative learning environment (Shea, 2006). Thus, the social constructivist theory is significant in vocational teaching with online platforms (Beetham & Sharpe, 2013) to illustrate the main aspects of communities of practice including authentic activities and tasks in complex arrangement, diversity of experiences, and instances of knowledge application, access to experts' guides, and a social context for vocational students' knowledge construction to build up their

database of experience or skills that they can easily recall or use in different workplaces (Rauner & Maclean, 2008). The following is an example of applying the social constructivist approach in vocational learning and teaching.

Being a member institute of the University of Highlands and Islands, Perth College offers a wide range of learning programmes. One of them is the degree programme in Child and Youth Studies. There is a strong influence on individuals' progress at Perth College for its emphasis on collaborative learning through online discussion. Students expressed that the pace of discussion rises with increase of their learning. As the course leader for Child and Youth Studies, Jon Clarke thinks that the online component of the programme is not just as a way for engaging students, but also improves the learning outcomes (JISC, 2004b). Teaching materials, referencing papers, journals, and learning objects offered at the online platform WebCT, are used as the tools for collaborative discussion. Live chat sessions can be provided during tutorial teaching to let students have real-time discussion with tutors and classmates. Social interaction becomes an essential component for successful learning and this is encouraged through the use of online common room and student cyber cafe.

Another focusing point of this vocational course was to connect the collaborative activities with assessment. In each topic, students are required to contribute to the online discussion each week. With 25% of their course marks given for their contributions, students are willing to participate in the discussions actively and seriously. Evaluation indicates that this arrangement can encourage their collaborative learning. One of the tutors, Colin Docherty describes that he needs to monitor the online discussion, sometimes with certain interventions as in face-to-face classrooms, by posting some related materials or problems for extending discussion and breaking the salient points among students (Kirschner, Sweller & Clark, 2006). Also, Colin mentions the need to prepare rules for how students should use discussion in the online environment and enforce them. Simple guidelines may have positive impact to support successful learning by collaborative discussion (Choi, Land & Turgeon, 2005).

To recognize various dimensions of the social constructivist theory in vocational teaching with online platforms, further examples will be provided by studying the experience of IVE teachers in the following chapters.

2.5.4 Limitations of Learning Theories

As we have seen in the previous sections, the basic idea of all learning theories is that learning occurs with cognitive changes found 'inside' the learners. Even social constructivist views, which hold that learning is a socially enacted process, emphasise the importance of individual understanding and physical presence in learning. However, they do not discuss much about the learning process without face-to-face teaching, particularly for teaching with online platforms when learning is facilitated by technology. Meanwhile, most learning theories are concentrated on the process of learning rather than the value of learning. The need to evaluate the worthiness of acquiring some knowledge tends to be a meta-skill that should be applied before the learning process begins (Goldin & Katz; 2008). When knowledge or skill is scarce, the process of assessing worthiness is supposed to be intrinsic to learning. When knowledge or skill is abundant, the rapid evaluation of knowledge or skill is important. Facing the rapid development of information sharing in the online environment, the ability to recognize relations and organize them for application becomes more important than before (Dunlap & Grabinger, 2003; Lao, 2005).

Which learning theory then is best for vocational teaching? The subject nature and requirements always provides the insight. Studies find that behaviourists thrive mostly where a vocational teacher delivers learning materials to students in form of instructions with little, general, or vague previous experience of the subjects and where assessment and evaluation is a major responsibility (Hall, 2002). The behaviourist approach is often found more effective to support learners of the vocational courses that have technical instructions or components in the course requirement as a precondition to producing tangible changes and results (Department for Education and Skills, 2004). On the other hand, constructivist and social constructivist approaches are preferred in some theory-based subjects such as law, social work or management where technical and tangible results are not priority and learning contents are mostly conceptual. The vocational student is left to find meanings of the real world and fits them into his or her framework of understandings and the concepts of things around him or her. In that sense, learners can explore the world of knowledge or skills without being constantly guided (Duton & Perry, 2002; Morinaka, 2003).

It comes to the next question: how can IVE teachers apply these learning theories to their teaching with Moodle? Educators have conducted research studies and tried to figure out the effective strategies for vocational teaching in an online environment. For instance, from a study of constructivism and instructional technology, Partlow and Gibbs (2003) found that online course materials delivered by the constructivist principles should be project-based, innovative, interactive, and collaborative so as to give students some control over their learning paths (Partlow & Gibbs, 2003). Keeton (2004) also studied how to implement online instructional practices effectively for a series of teaching practices originally performed by face-to-face lectures in higher education. So, can IVE teachers apply these findings and results of the studies to their vocational teaching? This will be one of the aspects of online teaching experiences to be reviewed in my research.

Undoubtedly, what makes Internet technology interesting is the access and distribution capability it offers to both students and teachers. For instance, the blog turns the personal journal into a broadcast production. That has its own kind of motivational and logistical value, but in terms of supporting the

development of conceptual understanding or a high-level skill, can it offer anything more than paper journals? The web-based learning platform becomes much more interesting if it can be used to give students a tool for understanding, not just a fancier form of book, and to provide a personalised and rewarding learning experience (Bonk, 2001). In this regard, the virtual learning environment always leads teachers to modify their approaches to teaching students (Campbell, McGee, & Yates, 1997). As Blair (2002) noted, use of online platforms for teaching is not for every educator but it is a different method of teaching, albeit an exciting one. The repertoire of teaching methods has developed historically from what is required of education and from the means available: from small-group oral methods with transient visuals to large group whole-class teaching with separate practice, discussion, and private study methods. Technologies have changed greatly over the centuries, from sand to cave wall to slate to paper to television; from apprenticeships to small groups to classrooms. However, the pedagogical arrangement or teaching method was still "tell–practice–test". Therefore, do IVE teachers just need an online platform for delivery of their instructions to students?

A radical shift in thinking began with Dewey (1916) at the end of the nineteenth century, continuing through the whole of the twentieth century. Instead of viewing teaching as the transmission of a common culture, as it is often recognised by policymakers, educational theorists began to develop a careful analysis of what it takes to learn. The transmission model of teaching by tell-practice-test was clearly inadequate if we want to encourage independent creative thinking. At that time, educationalist theory focused on learning as experiential learning (Illeris, 2007). Throughout the twentieth century, educators have developed a variety of descriptors which included inquiry-based education, behaviourist instructions, constructivism, discovery learning, problem-based learning, reflection, social constructivism, meta-cognition, awareness, situated learning, and collaborative learning – all of them sharing the common view of learning as an essentially active process: learning as a "doing" word (Edwards, 2005; Lindblom & Ziemke, 2002; Perkins, 2009; Vygotsky, 2003; Weiss, 2000). What it takes to learn, as we know now, is more than just being told.

Interestingly, the format of teaching was almost the same at the end of the century as it was at the beginning: one-to-many physical gatherings with mainly presentational tools including books, blackboards, and slides (Curtis, 2001; Gillen, 2010; Goldin & Katz, 2008; Noble, 2001). Since the Internet appeared, it has spawned an immense variety of web technologies including search engines, asynchronous and synchronous communication tools, social networks and online platforms which have characteristics to work with different teaching and learning strategies such as inquiry, sharing, construction, discovery, problem-solving, and collaborative learning (Collis & Moonen, 2005; Crawford, 2006; Hadyn, 2008; Yapp & de Freitas, 2006). However, to blend these learning strategies and for any shifts to take place, significant rethinking may be in order for how we determine, structure, and deliver the content of education (Camp & Doolittle, 1999). An online learning platform can be an important tool in some vocational contexts while it can also be an option to improve the delivery power and scope, or even an approach to introduce more active learning for a wider range of students (Beetham & Sharpe, 2013).

Undoubtedly, the search for an effective approach is of key importance since the need of motivating students, engaging them and making progression is necessary to teachers and educators (Gannon, 2012). Vocational teachers and students both need to acquire and be able to deploy a set of skills as the situation demands (Rainbird, Fuller & Munro, 2006). The use of online platforms can be an important tool in some contexts, but more frequently it is an option that extends the range and power of delivery, and a technique that can enable more active learning for a wider variety of students (Beetham & Sharpe, 2013).

A further challenge is that most teachers are well-prepared for the changes of using new online platforms or different versions of the platforms, and that appropriate resources are not frequently available (Keengwe, 2009). Although many learning theories and current examples of educational practices are provided, there are still many factors that are unclear. Therefore, I cannot conclude how these theories are fit to vocational learning. Nevertheless, it is clear that different factors are required to be considered when deciding what learning theories and how to apply them in vocational teaching using an online platform. The learning theories I just discussed above cannot fit to all contexts,

but they demonstrate what strategies and how they can be applied effectively in vocational teaching with online platforms. Also, they do not represent that teaching with online platforms will always have advantages over traditional teaching. Instead, they encourage us to consider how they can be used appropriately in vocational teaching, by giving an insight into what has proved beneficial for others. I will converge into the formation of research questions in the next part, before looking into the research design and methodology to perform this research study.

2.6 Research Questions

Discussions of vocational pedagogy are not common in the literature. Pedagogy is necessarily concerned with the particular practices and processes by which knowledge is produced, skills are developed and habits of mind are cultivated. Bernstein's (2000) definition of pedagogy is a good starting point:

> Pedagogy is a sustained process whereby somebody(s) acquires new forms or develops existing forms of conduct, knowledge, practice and criteria, from somebody(s) or something deemed to be an appropriate provider and evaluator. Appropriate from the point of view of the enquirer or by some other body(s) or both. (Bernstein, p.78, 2000).

It is considered as an approach to teaching and learning that can be articulated and related to both specific knowledge and behaviour. Lucas et al's (2012) more instrumental report also has a wide view of pedagogy:

> … is the science, art, and craft of teaching. Pedagogy also fundamentally includes the decisions which are taken in the creation of the broader learning culture in which the teaching takes place, and the values which inform all interactions (Lucas et al, 2012, p.14).

Over the years, researches on non-academic education and informal learning have developed some theories to provide understanding on what the vocational pedagogy is. Such thinking is transferred to vocational education and it tends to be bolted on rather than fully integrated (Lucas et al., 2010). Moody and Wheelahan (2012, p.324) differentiate academic and vocational teaching because vocational teachers "have a greater role in mediating the social context of vocational education than they have in school and higher education." Moody and Wheelahan (2012, p.326) argue that vocational teachers are distinctive because they "reformulate vocational knowledge from work where it has mainly a productive function to a teaching-learning function, and they make this re-contextualised vocational knowledge comprehensible to others – to students and novice practitioners or workers." Such re-contextualisation of knowledge is

significant and demanding because this reflects particular situatedness of the pedagogy. Lucas et al (2012, p.9) suggest "that there is, as yet, insufficient understanding about the relative effectiveness of teaching and learning methods used in vocational education" but they "offer a proof of concept that it is indeed possible to develop a vocational pedagogy." Their extensive study is based on a categorization that is divided into three parts: physical materials; people; and symbols (words, numbers and images). The approach of Lucas et al (2012) is prescriptive that vocational education should be taught in the practical context for problem-solving and focused on processes. Their summary is that:

> The best vocational education is broadly hands-on, practical, experiential, real world as well as, and often at the same time as, something which involves feedback, questioning, application and reflection and, when required, theoretical models and explanations. (Lucas et al, 2012, p.9)

In other words, vocational teaching and learning combines theoretical knowledge from the underpinning disciplines (for example, mathematics,

science, economics) with the occupational knowledge of practice (for example, how to cut hair, build circuit boards, run a business).

As recommended in many research publications, a distinct pedagogy for practical learning and vocational teaching is recommended to be developed. Similarly, City & Guilds' report on effective teaching and learning (Faraday et al., 2011) addressed that insufficient studies on teaching methods in vocational education and training reflected an important issue in vocational pedagogy. This consideration can be recognized by, "the most important gaps relate to the naive, incomplete and sometimes doctrinaire models of learning that underpin practical and vocational education." (Lucas, Claxton & Webster, 2009, quoted in Faraday et al., 2011, p.5).

In this connection, the purpose of my research study is to investigate and understand how IVE teachers use the online platform Moodle for vocational teaching in VTC, in order to suggest effective models and develop theories to improve the instructional design as well as the pedagogical arrangement for vocational teaching with the online platform.

An effective teaching model or learning theory will help explain the way that students and teachers interact in the learning process. To teach with an online platform, it can similarly help to predict and guide teachers' reactions by providing an improved understanding of how teachers might use different online tools to handle some learning issues or enhance their teaching. Furthermore, the findings of this research will present and explain the ways on how IVE teachers' use of Moodle affects their vocational teaching. As such, I will analyse my research data to respond to the following three main research questions:

RQ1: What are the reported factors that shape IVE teachers' attitudes and use of the online platform Moodle in vocational teaching?

RQ2: In terms of the pedagogical strategies and teaching methods, how and what are IVE teachers currently using in Moodle to support their vocational teaching?

RQ3: In what way do IVE teachers change in vocational teaching as they describe their current use of Moodle? What impact do these changes create to the teaching and learning process in vocational areas?

CHAPTER 3: RESEARCH DESIGN AND METHODOLOGY

3.1 Research Design

With the research questions RQ1, RQ2, and RQ3 developed from the literature review in the previous chapter, I will discuss the research design and design methodology in this chapter.

The purpose of any research design, whether qualitative or quantitative, is to investigate a phenomenon, to develop a new model or to test an already existing theory. According to Hartley (2004), research design is "the argument for the logical steps which will be taken to link the research questions and issues to data collection, analysis and interpretation in a coherent way" (p. 326). Qualitative research is defined as an inquiry process of understanding a social or human problem, based on building a complex, holistic picture, formed with words, reporting detailed views of informants, and conducted in a natural setting (Creswell, 2005), while quantitative research is more often associated with causal determination, statistical prediction, and generalization of findings.

Researchers have long debated the relative value of qualitative and quantitative inquiry (Patton, 2002) because phenomenological inquiry or qualitative research uses a naturalistic approach that seeks to understand phenomena in context-specific settings while quantitative research tends to use experimental and mathematical methods to test hypothetical generalizations. Each represents a different inquiry paradigm and researcher actions are based on the underlying assumptions of each paradigm. In many research projects, both development and testing of theory can be done in a single research endeavour (Yin, 2003). However, the most important element in a qualitative research project is not the final product, but the way the researcher generated it (Johnson & Christensen, 2004). This puts a great burden on the choice of a sound research design.

Since the 1990s, qualitative research design has become more common in disciplines such as education, social work, health services, and evaluation research, with an increase in qualitative research studies in professional journals (Blaxter 1996; Boulton & Fitzpatrick 1994; Mays & Pope 2000; Schofield 1993). Strauss and Corbin (1998) define qualitative research as any type of research whose outcomes cannot be expressed by any statistical results or some

mathematical relationships. Qualitative research focuses on how the research findings were obtained, mainly based on interpretation of data or information, but not on the statistical results. Hunter (2003) considers qualitative research as "an interpretive approach", while Olivier (2004) stresses that it can also be positivist or critical research. Qualitative research is concerned with creating an understanding of phenomena studied in their natural settings (Patton, 2002) and it can be conducted in different approaches such as naturalistic inquiry, phenomenology, and ethnography. It seeks to create meanings from reality so that it is the appropriate approach for interpreting educational phenomena which are complex and not well-known (Denzin & Lincoln, 2000; Marshall & Rossman, 1989). In that sense, qualitative research focuses on how the findings can be arrived at and it is usually performed if the researcher wants to understand an issue in reality or study a phenomenon in its natural setting (Strauss & Corbin, 1998). This type of research enables us to uncover new knowledge in a field where very little is known. Some qualitative research at the same time can reveal complicated details that are otherwise difficult to portray and explain by quantitative research (Strass & Corbin, 1998). The

usefulness of qualitative data to illustrate a phenomenon is often considered, not just from the researcher's view, but also from the reader's perspective.

> If you want people to understand better than they otherwise might, provide them information in the form in which they usually experience it (Lincoln & Guba, 1985, p.120).

In this regard, it suggests that the research design for this study requires the qualitative approach to develop a substantive framework or model which can provide understanding of the effectiveness of IVE teachers in vocational teaching working with an online platform, and issues associated with their work.

Qualitative research can be conducted in a variety of approaches by different disciplinary tools and methods. As Strass and Corbin (1998) put it, if theory generation is the research objective, the research processes should be planned, performed, and documented comprehensively. Theory is often derived from study and observation of phenomena (Lincoln & Guba, 1985; Robson, 2002). To the end, the qualitative approach often results in the acceptance and application of the generated theory. For this research project, to have good

understanding and analysis of IVE teachers' experiences in using Moodle, I need to have an appropriate research method for assessment of the positive as well as negative aspects. The first step is an online survey to let us have basic information on the current practice of teaching with Moodle in my campus. Based on the survey data, in-depth interviews will be conducted with IVE teachers to collect their experiences and comments; the transcripts of these provide the data for thematic analysis of issues arising from using Moodle for vocational teaching. With the exploratory research design, the attitudes, and experience of the selected IVE teachers will be analysed through face-to-face discussion to identify the relationship between the effectiveness of their teaching with Moodle and the factors that affect it, as viewed from the perspectives of vocational teachers.

3.2 Research Methodology

This section presents the research methodology adopted for the research. As discussed in the previous section, the main approach was qualitative, allowing the development of a substantive framework to understand the effectiveness and various issues of IVE teachers in vocational teaching with the online platform. However, it was necessary to have an initial understanding of teachers' experiences before conducting qualitative interviews with them. As such, the quantitative approach was adopted to collect statistical information and general comments from IVE teachers as the foundation for my in-depth discussion during the interviews. Therefore, the methodological approach was both quantitative and qualitative.

According to Scheurich (2007), primary data was any data which the author had obtained first-hand from its original source as part of the applied aspect of the research. It therefore, did not include any data previously gathered by anyone else. In this study, questionnaires in the form of an online survey were used for collecting primary data which included the IVE teachers'

demographical information and general comments about using Moodle in their vocational teaching work.

Although the online survey provided quantitative data to describe what and how the IVE teachers used Moodle for their teaching, it could not explain the phenomenon alone. It was necessary to have an effective way to further collect what did they think or how they felt about their teaching experience with Moodle. To explore the real situation, in-depth interviews with IVE teachers were adopted to generate richness in contextual information and depth in understanding (Harris, 2010). In-depth interviews were helpful where researchers were exploring individual interpretations and responses. Through detailed comparison of the transcripts and other information collected from the IVE teachers, subsequent analysis would develop the themes.

To identify various possible themes, repetitive and comparative methods were adopted. For implementation, the main step included comparing data items in repetitive ways in order to search for emerging patterns as themes. As explained by Spiggle:

> Comparison explores differences and similarities across incidents within the data currently collected and provides guidelines for collecting additional data .... Analysis explicitly compares each incident in the data with other incidents appearing to belong to the same category, exploring their similarities and differences. (Spiggle, 1994, p.493-4)

The process facilitates exploration of concepts or identification of themes. There was a progression from merely describing what is happening in the data, which was a feature of open coding, to addressing the relationship between and across incidents (Denzin & Lincoln, 2017). Denzin and Lincoln (2017) argued that the sequential, spiral, serendipitous, and simultaneous nature of data comparison was a satisfactory approach for research which required flexibility and continuous sharpening of emerging details via deep familiarisation with data, validation and progressive expansion of knowledge. This nature was represented in Bernard's (2000) research paper as illustrated by Figure 3.1 which described the analysis process as repetitive steps, starting by gathering the raw data which were then codified and categorized in a continuous

process that moves further toward saturation, resulting in the refinement of theoretical concepts or themes represented by a framework.

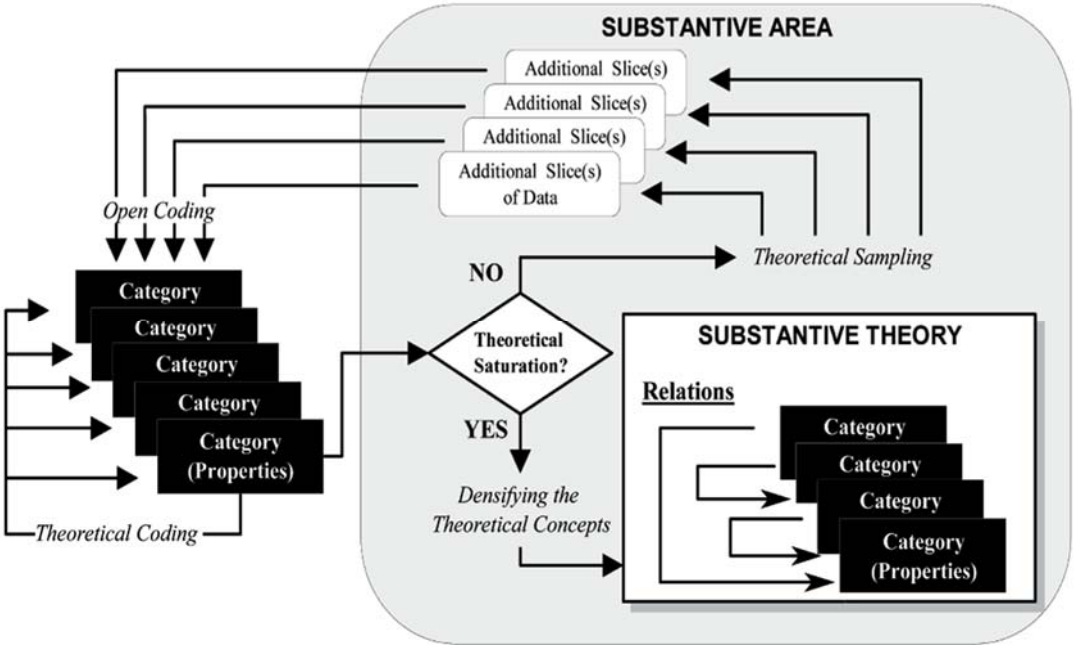


Figure 3.1: Repetitive analysis by data comparison (Bernard, 2000, p.443-4)

Although the process of repetitive analysis seemed complex, the basic idea was to allow free discovery of theory and to limit any preconceptions. As more data were collected in the interviews, they were analyzed simultaneously by looking at all possible interpretations. This involved the use of a particular coding method which usually began with open coding (Denzin & Lincoln, 2017). Open coding was the step of breaking down the collected data into distinct pieces of meaningful information. As a common practice, this began

with a full transcription of an interview, after which every line of text data was examined to extract some key words or phrases which associated the interviewee's belief with the phenomenon under investigation. This process was related to the early concept development which consists of identifying a piece of data as belonging to, representing or being an instance of certain issues, phenomenon, or themes (Spiggle, 1994). Eventually, the data could be collected as a core category and the researcher would justify it as the basis for the emergent themes. So, a core category gathered all the components in order to explain the phenomena being investigated (Denzin & Lincoln, 2017). It had theoretical significance and its development should be traceable back through the data which was collected from the interviews of IVE teachers' experience on using Moodle in this research. Regarding the research process, two methods would be used, including an online survey and in-depth interviews. I would discuss the actual procedures used in performing the online survey to collect quantitative data and empirical findings in Chapter 4. In Chapter 5 more details would be provided to understand the purpose of interviews with IVE teachers,

the collection of qualitative information, transcription and interpretation of interview data, and analysis of themes in my research.

3.3 Consideration of the Ethical Issues

3.3.1 Ethical issues before data collection

Being the Education Development Officer in VTC for more than fifteen years, the daily work of the researcher mainly has included multimedia production and user support to IVE teachers. When they found difficulty, or encountered problems in using the online resources and systems such as Moodle, they would contact the researcher for technical assistance. However, the researcher should be careful not to take such advantages in return by coercing teachers to participate in any survey or interviews as they could feel inconvenient or uncomfortable to provide their data for the research. In that sense, the first ethical issue was access and acceptance: "at an early stage of the research project – that of access to the institution or organization where the research is to be conducted and acceptance by those whose permission is needed before embarking on the task" (Cohen, et.al., 2011, p.53). In this research, the researcher investigated IVE teachers' experience of using Moodle through online survey and personal interviews. Moreover, the researcher would analyze some official documents such as meeting notes, circulars, and annual reports of

VTC. So, before data collection, the researcher had to communicate with the management staff, and let them know the aims, nature and procedures of this research to get their permission. That would help the researcher to get formal access and acceptance to the research. With this approval, the researcher could invite IVE teachers to perform an online survey and then interviews. Therefore, the researcher had to get access and acceptance before any data collection as he or she realized that "achieving goodwill and co-operation is especially important where the proposed research extends over a period time" (Cohen, et.al., 2011, p.54).

3.3.2 Ethical issues during data collection

Regarding the research process, an online survey would be conducted to collect statistical data as a foundation for preparing the interview questions. Then, semi-structured interviews would be performed to gather participants' opinions and experiences. Some information may be related with their personal stories, such as their misunderstanding or subjectivity on the use of Moodle. So, another ethical issue was the privacy and confidentiality during data collection. The researcher had to respect their individual privacy. "It is the duty of

researcher to protect the identity of individuals, there is a distinction between one's public role and private life" (Anderson & Arsenault, 1998, p.21). Also, the participants might be more willing to provide their data as they knew about the researcher who had worked as the Officer in the same IVE campus for more than fifteen years. Practically, this would help to bring confidence to the participants with such working relationship and good rapport with them. On the other hand, the researcher had to be aware of the privacy of the Disciplines and VTC because he or she possibly described the management policy during discussion. "Having empathy can be beneficial in research…if [the confidential information is] not handle correctly, can cause discomfort and even a job loss" (Kakabadse, Kakabadse, & Kouzmin, 2002, p.122). Therefore, the researcher should be careful to describe the policy properly if required. Furthermore, the researcher had to protect his or her privacy as some sensitive information that related to his or her job may be mentioned to facilitate the discussion in interviews. In addition, no matter for online survey or face-to-face interviews, the researcher should be aware to collect the necessary data only to avoid the

risk of the participants'' information being disclosed or used for any other purposes from this research.

3.3.3 Ethical issues after data collection

After collecting the required data from the survey and interviews, the researcher should be aware of any fabricated answers to the questions given by the participants rather than their actual responses to the concerned issues. There might be different reasons, including privacy protection, pressure from their Disciplines, or researcher's role as their co-workers in daily work. This could be sometimes difficult to detect or identify them but the researcher should avoid using them for further analysis or interpretation as they would possibly affect the results of the research.

Having their actual data gathered and analyzed, adequate interpretation and representation should be performed. The researcher's subjectivity could directly influence the possibility of interpretation and representation of research data (Kakabadse, Kakabadse, & Kouzmin, 2002). So, the main ethical issue at this stage was the potential of inappropriate handling of the research data

Although the researcher would be free to analyze and interpret his or her research data, he or she should not intentionally fit the data to favor a preferred outcome or omit relevant part of the research findings. That kind of freedom was restricted as there should be justifiable rationale or logic for every interpretation. As a co-worker with the IVE teachers, the researcher should avoid using other information source to analyze or interpret the research findings. Particularly, the researcher should be very careful about the exact meaning of the data collected from interviews as the same words or phrases given by different teachers could have different understandings in discussion or sharing of their experiences. Dockrell (1990) suggested that the researcher should consider the data unbiasedly and present the interpretations of all research findings to have conclusion in accordance with the nature of results.

The findings of my research were rarely prescriptive. They never told the readers what to do rather points out the options. Hence, the researcher was responsible to make it clear "what the data from a specific study can and can't contribute to the thinking a particular issue or set an issues" (Dockrell, 1990). This could be connected to the limitations of the research and they should be

clearly mentioned to the readers. The researcher should be more familiar with the concerned area and related topics. This was not always the case with readers. The researcher and readers often had quite different expectations of the importance of findings, and of the potential benefits of the research.

3.4 Actions for the Ethical Issues

This research investigated the experience of teachers' current use of the online platform Moodle in vocational teaching in IVE campus of the VTC. The research methods used were a quantitative online survey of fifty-two IVE teachers followed with ten in-depth semi-structured interviews. The interviews were conducted in Cantonese, audio-recorded and transcribed into Chinese text with English-language summaries prepared afterwards.

In my research planning, I recognized the Code of Research Conduct and Research Ethics, the University's Policy for Ethical Review and the University Ethics and Integrity website. Also, I had read various texts relating to research ethics in education, for example, *Research Methods in Education* by Louis Cohen, Lawrence Manion, Keith Morrison (2011), and took account of the Ethical Guidelines for Educational Research from British Educational Research Association (BERA). The description below were my consideration and actions performed for the ethical issues being involved in my research. The Statement for the Ethical Issues was also shown in the Appendix G.

(a) Informed consent

Participants were provided with details of the aims and methods to be used in the project. They were informed that they could withdraw at any time. For the survey, information was provided on the questionnaire itself (accessible at the URL: http://goo.gl/forms/1CWDa6q2qV). For the interviewees, a participant information sheet was used. Interviewees completed and signed the participant consent form (Appendix H) before any interview. Data was only be used for the purposes outlined within the participant information sheet and consent form.

(b) Confidentiality

Survey responses were anonymous, and the researcher was unable to identify the respondent. Although the identity of interviewees was known to the researcher, and recordings were stored by the researcher, participants were assured that they would be treated confidentially and not transferred to any other person. The researcher had processed the transcripts and summaries of the recordings, but only anonymised transcripts and summaries could be included in the researcher's thesis and any other publications.

(c) Security and destruction of data

All original data (surveys and recordings) had been kept securely in a password-protected computer and would be destroyed on successful completion of the thesis; only anonymised transcripts and data would be retained. All hard copies of data collection tools and data which enabled the identification of individual participants would be destroyed after completion of the research.

(d) Gatekeeper issues

The IVE management had been informed about the research project before data collection by the online survey and interviews. Approval had been given for the researcher to undertake them.

(e) Insider-researcher issues

The researcher is a member of staff at the IVE campus of VTC, and is therefore a colleague of the participants in the research. However, the research is not in any relationship of authority with respect to the participants: he is the Education Development Officer and they are members of the teaching staff. Nevertheless, the researcher is aware that the use of Moodle is a management

policy in the IVE, and has ensured participants that they will not be personally identifiable in any reporting, and that their identities will not be disclosed to the IVE campus management.

Being the researcher, I have considered the above ethical issues and taken corresponding actions to collect the required data from the online survey and interviews for my research accordingly.

3.5 About the Online Survey

Originally, a case study involving observation and interviews was considered as the research methods to investigate teaching experience in using Moodle. In that spirit, I had planned to invite some IVE teachers to participate in my research and allow my online capture of the teaching or learning activities in their subjects when the semester started in January 2015. To make this request, I sent emails of invitation to my colleagues in December 2014. I was surprised to find that although most of them were fine to have a discussion or interview on their use of Moodle, only a few (about 3 or 4) would allow me to observe their activities in Moodle. They gave various 'reasons' such as: they were not using Moodle much in their subjects; they were afraid of violating departmental policy; they were worried about issues of privacy; or they were just not interested in my request. In view of this situation, I adjusted my research strategy to a mix of quantitative and qualitative approaches to explore how IVE teachers used the online platform Moodle in vocational teaching.

As to the quantitative part, to substitute for my online observation, a questionnaire was prepared for carrying out an online survey to collect data from IVE teachers on their current use of Moodle. The findings of this survey were then used to support my subsequent work. Then, as the qualitative part, I would further explore the teaching experience of the survey participants by inviting samples from the vocational Disciplines in my IVE campus for in-depth interviews. The Disciplines included Applied Science, Business Administration, Engineering, Information Technology, and Childcare, Elderly & Community Services. With the support of data collected in the survey, the analysis of further information obtained from interviews would become more representative and persuasive in my thesis.

3.6 Questionnaire Design and Pilot Test

To optimise the design of the questionnaire, I reviewed papers by Professor Dan Pratt (1992) of the University of British Columbia to know more about teachers' perceptions on teaching. This helped me to recognise the complexity and address the IVE teachers' conception which in turn affected their teaching with Moodle. Adopting the same assessment structure as Pratt, my questionnaire has been prepared in four parts to collect IVE teachers' beliefs, intentions, and actions in using Moodle for vocational teaching as well as their demographic data. Since there is a total of around 200 IVE teachers in my campus, I would expect to have a 20-25% response rate, which works out to be about 40-50 questionnaires that would be returned for analysis in meaningful ways. Understanding that most people do not like filling in lengthy or complex questionnaires, the questions in my survey have been edited to be user-friendly to collect data from the IVE teachers. For example, introductory paragraphs were added to explain the purpose of my online survey in detail and how the survey data would be processed. The first version of the online survey was created in February 2015 at the following link:

https://docs.google.com/forms/d/e/1FAIpQLSeYKL_GGxMOswgY4EWhzo9UD_IdUcZ6aUw5xx-u_cqc66ZyRA/viewform .

As there was a total of 50 questions in the online survey, it took quite a long time to complete the whole questionnaire and this could consequently cause the low return rate. So, I re-considered the purpose of each question for my research and to shorten the length of the whole survey I removed those that I deemed unnecessary. The questions have been re-arranged from the simplest to the complicated, to let participants feel confident in answering them. The unnecessary wordings as the titles began at different parts of the survey were intentionally removed because they could affect the participants' response and mislead them to give theoretical answers rather than their real responses to the questions. As such, some instructions were added to remind participants to answer according to their actual teaching experience with Moodle. After obtaining my supervisors' comments, I revised the online survey for collecting current information of IVE teachers on using the online platform Moodle. To further improve the questionnaire and check for any problems that may affect

participants' answers, a pilot test of the online survey was carried out with five IVE teachers in my campus during May 2015 at the following link: https://docs.google.com/forms/d/17kqndWgtCT77Y3XyTj1MX9bNN4K7l_KNVneEwreaHVo/viewform .

To have representative and meaningful results, all participants had been contacted before the pilot test to make sure that they had taught some vocational subjects using Moodle during the academic year 2014/15. In addition, they were representatively selected from five vocational disciplines: Applied Science, Business Administration, Childcare, Elderly and Community Services, Information Technology, and Engineering. Participants were formally invited by email on 6 May 2015 for the pilot test. In that email, they were informed with more details including the objective of the pilot test, how, when, and where they could access it, proposed schedules for the follow-up discussion, and my contact information in case of any difficulty before they begin the pilot test. Since they could click the provided link to start the test individually at a time of their own convenience, they were allowed to complete the pilot test in two weeks from 11 to 25 May 2015. The follow-up discussions were carried out

from 26 May to 5 June 2015 to collect their feedback on the survey and see whether there was any problem in the survey, and if so, whether the survey could be further improved. I recorded the raw data of the pilot test and reviewed the participants' feedback.

Participant	Date	Starting Time	Ending Time	Time for Completion
A	13/5/2015	9:55:00	10:02:16	7 minutes 16 seconds
B	15/5/2015	8:42:15	8:51:45	9 minutes 30 seconds
C	15/5/2015	13:08:00	13:16:55	8 minutes 55 seconds
D	18/5/2015	9:26:30	9:34:12	7 minutes 42 seconds
E	20/5/2015	14:57:00	15:05:54	8 minutes 54 seconds

Table 4.1: Pilot test for the online survey

To consider whether a survey had the appropriate number of questions, the time required for completing it is one of the main indicators. Survey participants were told to record their starting and finishing times. The date and time of their pilot tests are shown in the table above (Table 4.1). The fastest time was 7 minutes 16 seconds while the slowest was 9 minutes 30 seconds. The average time required was 8 minutes 27.4 seconds to complete the online survey in the pilot test. According to the participants' records shown in the Table 4.1, they could all complete the questionnaire within 10 minutes which was a reasonable time for such an online survey.

After all participants completed the survey, a short discussion by phone had been arranged with each of them to collect their individual comments on the survey questions. Their feedback is summarized in the following paragraphs.

In general, participants did not find any serious difficulty in answering the survey questions of the survey and they felt comfortable to finish them at a time of their own convenience, as the online survey could be accessed by their desktop computers, notebook computers, tablets or even smartphones. Nevertheless, there were two major comments that I found useful for consideration or improvement before launching the survey.

The first comment was the similarity of items described in Question 10 and 15, as shown on the following page by the Figure 4.1: Comparison of the questions 10 and 15 for the pilot test of the online survey. Some participants misunderstood that the statements mentioning the actual effects of using Moodle on their teaching work in Question 15 were too similar or just repeated most of the reasons described for their use of Moodle in Question 10. After my further checking of these two questions (shown as below in Figure 4.1), I had phone

discussions with participants to clarify the purpose of these two questions and their differences.

During the phone discussions, I explained that although some description on the left did look quite similar in these two questions, they were mentioning totally different things: intentions and results of using Moodle in their teaching work. The participants then understood the difference, and I decided that I could better rephrase these two questions to clarify their meanings.

10. Why did you use Moodle in teaching your vocational subject?

Read the following reasons on the left and rate your degree of agreement.

	Strongly disagree	Disagree	Agree	Strongly agree
To follow the central policy or departmental guidelines	○	○	○	○
To get students more interested in my subject	○	○	○	○
To try different ways of teaching my subject	○	○	○	○
To better communicate with my students	○	○	○	○
To backup and organize my teaching materials	○	○	○	○

Figure 4.1: Comparison of the questions 10 and 15 for the pilot test of the online survey

15. How did the use of Moodle affect your teaching work?

Read the statements on the left and rate your degree of agreement based on your experience.

	Strongly disagree	Disagree	Agree	Strongly agree
It substituted the classroom sessions for vocational teaching.	○	○	○	○
It substituted the laboratory or practical sessions for vocational teaching.	○	○	○	○
It helped students to develop interest on my subject.	○	○	○	○
It improved the learning process of students.	○	○	○	○
It improved the learning outcomes of students.	○	○	○	○
It helped me to quickly assess students' performance.	○	○	○	○
It improved my communication with students.	○	○	○	○

Figure 4.1 (cont'd): Comparison of the questions 10 and 15 for the pilot test of the online survey

Another comment concerned Questions 12 and 13 described various functions and activities provided in Moodle for teaching. Some participants said that they forgot the names of certain functions or activities that they seldom used in Moodle. They suggested giving them certain hints about the functions or activities in Moodle when they were answering these two questions. So, a link to online information on the Moodle website was added into the questionnaire.

For example, Moodle webpages at: https://docs.moodle.org/26/en/Resources and https://docs.moodle.org/26/en/Activities were added to help participants to answer Questions 12 and 13 respectively.

Having consideration about the participants' feedback and further discussion with my research supervisors, I had spent some time updating the questions of the online survey. The final version of the online survey (Appendix F) was released by the following link: http://goo.gl/forms/1CWDa6q2qV and invitations were sent to the IVE teachers in my campus to complete the questionnaire of the online survey in July 2015 (Appendix I).

3.7 Design of Interview Schedule

To stimulate conversation and explore IVE teachers' experience as well as their practice in using Moodle for vocational teaching, I based on the empirical findings from the online survey to perform my follow-up interviews with them. In September 2015, I drafted an interview schedule in which the survey findings were realised visually in graphical formats, such as tables, graphs, and charts, in order to facilitate discussion with the interviewees. Then, the informants were asked to interpret these data or outcomes in relation to their personal experience and explain their understanding of other colleagues' responses in the online survey. This could lead to more meaningful and engaging interviews. The draft version of the interview schedule was prepared as shown in the Appendix A of this thesis.

The interview schedule was important as a framework for me to obtain useful information from IVE teachers for analysis work. However, with only the statistical figures from the survey, the draft version still contained too much undigested data for interviewees. I could not assume that the interviewees could play the role of co-researchers as they should be discussant concerning my own

understanding of the survey findings. What I needed to do was to look further into the raw data and choose the key points for discussion including the nature of vocational subjects as well as the opportunities and limitations of using Moodle for vocational teaching. Having further checked on the survey findings, I found some representative data to refine the interview schedule, by showing my own interpretation and thereby prepared focusing questions to provide better points of entry for deeper conversations about vocational teaching with Moodle.

Furthermore, regarding the survey findings, all numerical data charts had been converted into percentages sorted in descending order and presented on separate piece of papers for easier communication. Particularly, some useful data for discussion was teachers' responses to "try different ways of teaching" as this could help me to know what different kinds of things they were actually trying with Moodle in their vocational teaching. In that sense, I could further explore on what activities or resources the interviewees used in Moodle, how they used them in teaching, why they did not make fully use of Moodle in their teaching, and why they thought that Moodle could not be a substitute for their

classroom teaching or laboratory sessions in spite of the many advantages they agreed it had in the online survey.

In addition, those long questions were broken down into shorter ones, and complex description was simplified to help my conversation with IVE teachers. Above all, after discussion with my supervisors, the interviews were carried out in my mother tongue of Cantonese and so the interviewees would feel more comfortable to express opinions in their original language. As such, I had made further modification of the interview schedule and re-arranged the data charts of the survey findings to align with its topics. In December 2015, I had final checking on the revised interview schedule and survey findings in the data charts which were finalized in the Appendix B and C respectively.

3.8 Pilot Interviews

In early January 2016, I had invited two colleagues to participate in the pilot interviews for my research. Both were teachers on my IVE campus with one of them teaching accounting subjects for Interview A and the other teaching engineering subjects for Interview B. The collected information was presented separately in the Appendix D1 "Pilot Test – Interview A" and Appendix D2 "Pilot Test – Interview B".

During the pilot interviews, I got few chances to rehearse asking them more about the follow-up questions. In other words, the pilot interviews tended to be mechanical, with answers just for the pre-set questions. Therefore, I spent some time in reflection around the pilot interviews to observe their responses and probe some more questions or further issues for exploration. Particularly, if interviewees had different ways to use Moodle for teaching, I would explore their intentions or reasons for doing it that way rather than doing it another way in the online environment.

CHAPTER 4: SURVEY ON USE OF MOODLE

4.1 Collection of Survey Data

In early July 2015, all teaching staff in a total of 153 targets at my IVE campus had been invited to participate the online survey about IVE teachers' use of Moodle (Appendix F). Initially, the survey was held for two weeks from 8 July to 22 July 2015. However, only 17 colleagues had responded and only minimal data was recorded. After discussion with my supervisors on the sample size and its significance in my research, I considered that the response rate was too low at 17/153 (around 11%) and the collected data could be only used as a catalyst for deeper conversation or stimulus for discussion rather than laying down any firm conclusions. Undoubtedly, if I had achieved a higher response rate for the survey, its data could be used in a more convincing way for further analysis or investigation in my research. So, with the agreement of my supervisors, I re-opened the same online survey for more IVE teachers to give their responses and increase the sample size so as to provide supportive data for my research. Therefore, I extended the submission period of the online survey

to the end of summer break on 30 August 2015. Eventually, I received a total of 52 responses from 153 teaching staff and this was about one-third of the targeted sample (52/153). In that sense, the survey data became much more meaningful and representative in such a more convincing way to support deeper conversation with IVE teachers in the next phrase – the qualitative part of my research.

4.2 Empirical Findings from Survey Data

The quantitative data collected from the online survey was an important part my research, as the findings would be used for support of the qualitative part of my research work – the discussions with IVE teachers in my in-depth interviews. With some checking and further calculations performed on the survey data from the participants' responses, the empirical findings are summarised in this section.

Out of 153 teaching staff at my IVE campus, a total of 52 participants submitted responses (28 male and 24 female). Regarding their age, there were fifteen participants in the 20 – 30 range, twenty-two participants in 31 – 40 range, ten participants in 41 – 50 range, and only five participants in 51 or older. This tends to reflect the situation that those young teachers in the age group 20 – 40 are more interested in teaching with Moodle. However, I cannot assuming this because younger teachers may feel more interest in participating the online survey rather than old teachers, or the actual number of young teachers was much higher than old teachers in my IVE campus during the survey period. So,

I considered this in planning my interview schedule to see whether there is any relationship between the teacher's age and their use of Moodle in teaching.

About their academic background, over 65% have a Master degree or Doctorate degree as their highest educational qualification. Among the participants, eighteen of them have a Bachelor degree, twenty-nine have a Master degree and five have a Doctorate degree. They had all graduated in various academic and vocational areas with majors in Accountancy, Social Work, Environmental Science, Chemistry, Multimedia Technology, Computing Science, Information Engineering, Electrical Engineering, Education, Marketing, Building & Construction Engineering, Electronic Engineering, Multimedia Technology, or Business Management.

For the vocational areas that the participants are teaching at the IVE campus, over 50% are related to IT (28.3%) or Engineering (22.6%) Disciplines. So, is this higher percentage reflecting any causality happened with the subject nature and the appropriateness of their delivery in Moodle? In fact, I cannot make any conclusion from these figures, and more details will be found from my interviews with the participants in the next part.

Regarding the use of the online platform in vocational teaching, the participants have quite different experience in terms of the number of years; the average is 5.6 years. In other words, many IVE teachers should have prior experience of teaching with the online platform before the migration to Moodle happened in 2014, So, most of them are not new users of online platforms in teaching but probably just new users in Moodle. It seems to be difficult to state whether their prior experience and skills with online platforms is useful or not to help them change their teaching work with Moodle. However, the survey data let us know the fact that over 75% of participants have five or six vocational subjects to teach in the academic year 2015/16 while over 60% of participants currently teach with Moodle in four or five of their vocational subjects. With these percentages, I can know that many participants have already adopted the use of the new platform in their teaching work. So, which vocational subjects do the participants teach with Moodle more frequently?

There was a wide range of vocational subjects that the participants mentioned where they used Moodle the most. These subjects include Computer Aided Drawing, Clinical Immunology, IT Application, Network Fundamentals,

Web Animation, Emerging Technology in Mobile Computing, Electronic Instrumentation and Measurement, Accounting Principles in Banking, Introduction to Early Childhood Education, Marketing, Mobile Game Development, Supply Chain and Logistics Management, Basic Electronic Engineering Laboratory, Environmental Microbiological Techniques, and Client-side Web Development. It looks like the situation that Moodle is fit for teaching in many vocational areas and participants are fine to make use of the features of Moodle for vocational teaching. This issue can provide a good point for further discussion during my interviews with the participants in the next part.

Regarding the purpose of using Moodle in vocational teaching, the survey data shows that more than half (56%) of the participants could always keep their teaching materials organized; 63% of them always let their resources available to students; 48% of them evaluated students through the learning activities in Moodle; 67% of them communicated with their students by using the tools in Moodle; 46% of them marked their students' assignments by using Moodle; 35% of them provided tests/examinations for their students in Moodle;

and 60% of them could make use of Moodle to support teaching activities in their lectures. More details can be found in Chart (A) of the Appendix C.

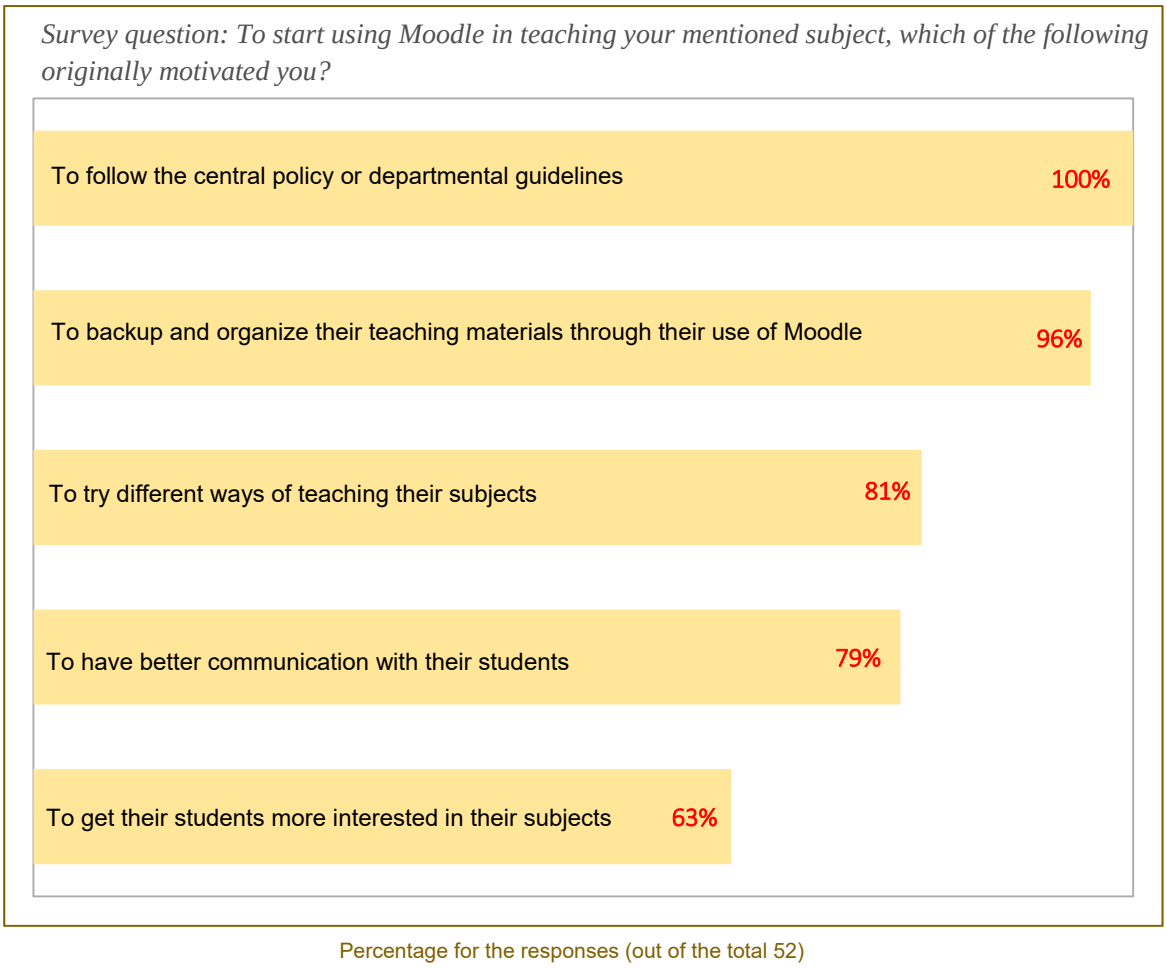


Figure 4.2: Data of survey question 11

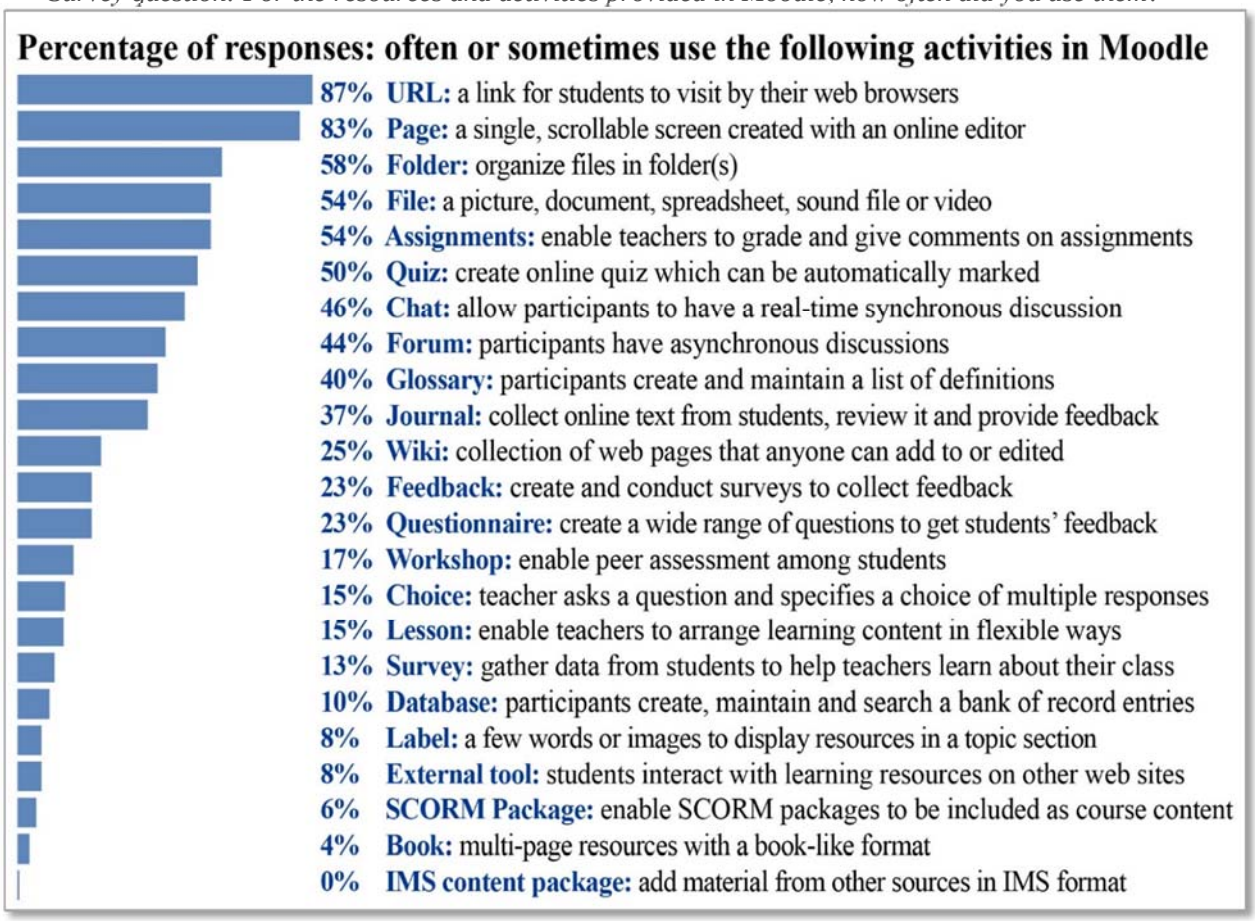
Concerning the original motivation in teaching with Moodle, the data of survey question 11 in the Figure 4.2 shows that all participants (100%) agreed or strongly agreed to follow the central policy or departmental guidelines. Also,

nearly all participants (96%) agree or strongly agree that they want to backup and organize their teaching materials through their use of Moodle. These two higher percentages are obvious that all IVE teachers are required or guided by their Departments to deliver their learning materials in Moodle.

Meanwhile, about the responses to question 11 in the Figure 4.2, many participants (81%) agreed or strongly agreed to try different ways of teaching in their vocational courses with Moodle. So, in what ways do they want actually to try? This was noted as an important issue for further discussion in my interviews with the participants. The analysis of interview data in next chapter would let us understand more how they use Moodle differently. Regarding the same question 11 in the Figure 4.2, another motivation of participants (79%) was to have better communication with their students because they want to understand more about their students to facilitate teaching work. In addition, more than half of the participants (63%) agreed or strongly agreed that they want to get their students more interested in their subjects by using Moodle. Subsequently, this leads to my further questions on what and how they use Moodle to teach in more interesting ways for their students.

As indicated in the following Figure 4.3 about participants' actual use of various functions provided in Moodle, the data shows that nearly none (4%) of them used "Book" and nobody (0%) used "IMS content package". In contrast, many of them often or sometimes used "Page" (83%) and "URL" (87%) while more than half of them often or sometimes used "File" (54%) and "Folder" (58%) in Moodle.

Survey question: For the resources and activities provided in Moodle, how often did you use them?



Percentage for the responses (out of the total 52)

Figure 4.3: Data of survey questions 12 and 13

With survey data shown in the above Figure 4.3 on the use of Moodle, certain activities (such as “URL” and “Page” activities) seemed to be more popular for teaching support to the participants, while others were hardly used by teachers (such as “Book” or “IMS content package”). Although teachers’ comments on this issue would be collected in the interviews later, I had my view that this situation could be explained in terms of the complexity of using a particular activity, the IVE teachers’ competency in using that activity, and the usefulness of that activity to their students’ learning.

Firstly, as far as I understand, people usually prefer to use simpler methods to solve problems and avoid complicated ways. Therefore, having various activities provided in Moodle, most IVE teachers would choose those activities that are more direct or easier to prepare their teaching materials. These activities may just include one or two simple clicks to achieve certain goals, like the “URL” or “Page” activity for linking or showing online resources respectively.

Secondly, Moodle was introduced as a quite new platform to most IVE teachers when this online survey was conducted. Without much experience,

teachers would more likely avoid using unfamiliar activities which were not found in the old platform (WebCT). This situation was reflected by the survey data that there was a tremendous discrepancy between the frequencies of using those common activities and uncommon activities in Moodle.

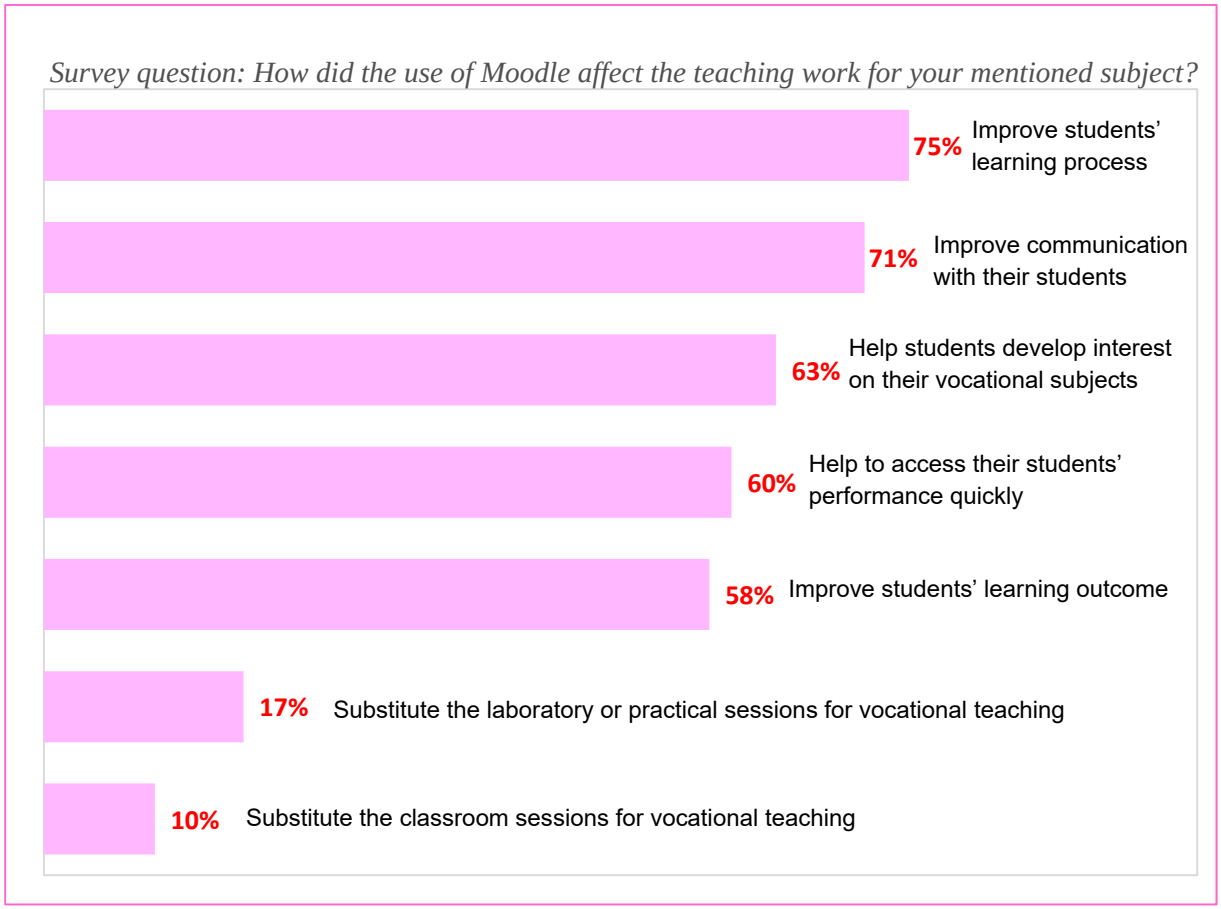
Thirdly, it is important to choose those activities in Moodle that are useful for teaching students. So, with an online learning platform, most IVE teachers would deliver their online materials in the form of webpages via the "Page" activity or by sharing the links of related resources through the use of "URL" activity in Moodle. Among the interactive activities provided in Moodle, the survey data in Figure 4.3 indicated that many participants seldom used "SCORM package" (6%), "External tool" (8%), "Database" (10%), "Survey" (13%), "Choice" (15%), "Lesson" (15%), "Workshop" (17%), "Feedback" (23%), "Questionnaire" (23%), and "Wiki" (25%). Moreover, they did not often use "Journal" (37%), "Glossary" (40%), "Forum" (44%), and "Chat" (46%), but sometimes used "Quiz" (50%) and "Assignments" (54%). In that sense, I can recognize that these activities were possibly not as useful as the "Page" (83%) and "URL" (87%) activities for vocational teaching. However, which of the

described reasons is more dominant than the others? Or, is there any other reason to explain the data? They would be the questions for discussion in my interviews with IVE teachers in the next part of my research.

Moreover, the survey data showed that among different types of media formats for teaching with Moodle, many participants frequently liked to use text (88%), and image (73%), but more than half of them (58%) never or seldom use audio. Nevertheless, nearly half of them (46%) sometimes used video although more than half of them (58%) seldom used other media formats. While they were using the same media, such as text, images, and videos, did they all make use of these media by the same arrangement in Moodle? If it was not the same, then why and how were these media being used differently for their vocational teaching? The answers would be provided by the in-depth interviews with the participants in the next part of this research.

Concerning the impact on participants' teaching work as shown by the survey data in Figure 4.4 below, more than half (63%) of participants agreed or strongly agreed that their teaching with Moodle could help students to develop more interest in their subjects. Many of them (75%) also agreed or strongly

agreed that students' learning process has been improved by their use of Moodle. Furthermore, over half (58%) of them agreed or strongly agreed that the learning outcome of their students was improved, and 60% of them agreed or strongly agreed that Moodle could help them to quickly assess their students' performance. Also, many of them (71%) agreed or strongly agreed that communication with their students had been improved. However, only a few



Percentage for the responses (out of the total 52)

Figure 4.4 Data of survey question 15

(10%) of them thought that Moodle could be a substitute in classroom sessions for vocational teaching. Similarly, not many (17%) believed that Moodle could be a substitute for laboratory or practical sessions for vocational teaching. So, in spite of the many benefits brought by the use of Moodle, many participants did not think that Moodle could be a substitute for face-to-face teaching in classrooms or laboratories. This contradictory situation can be further discussed in my interviews with the participants in the next part of my research.

In addition to the above, some participants expressed the view that they have experienced certain changes in their teaching work through the use of Moodle. These changes were described in their responses to the final question in the survey, including "students can download their notes at any times and places"; "save time in giving out TLP (Teaching and Learning Package) and collecting course works"; "increased workload as I needed to prepare, upload, and arrange different online materials for my subjects according to the subject requirements"; "it helps me to cater individual differences in learning ability among students. Embedded YouTube video could facilitate the self-learning of the students, both during the lesson and after class"; "work pressure for

preparation increased"; and "it's quite time consuming to keep the online materials updated".

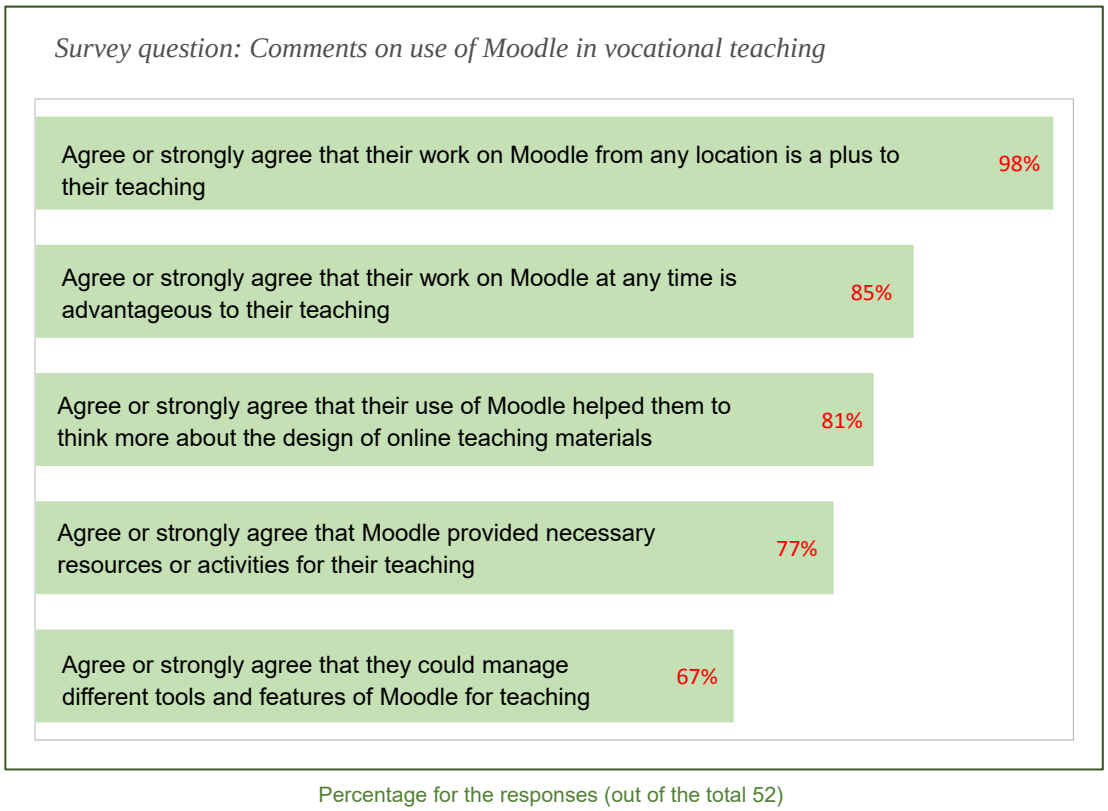


Figure 4.5 Data of survey question 17

Regarding participants' comments on their use of Moodle as shown in the Figure 4.5, nearly all (98%) agreed or strongly agreed that work on Moodle from any location is a plus for their teaching but not all of them (85%) agreed or strongly agreed that work on Moodle at any time is advantageous to their teaching. On the other hand, many (77%) agreed or strongly agreed that Moodle

provided necessary resources or activities for their teaching while more than half (67%) agreed or strongly agreed that they could manage different tools and features of Moodle for teaching. Many participants (81%) also agreed or strongly agreed that their use of Moodle had helped them to think more about the appropriate design of online teaching materials for their students.

About the teaching experience with Moodle, there are some additional comments made by the participants in the online survey. These comments include "it helps me to deliver revision exercises and any materials which cannot be delivered in normal teaching hours for the benefits of the students"; "it's not very user-friendly"; "it contains too many elements and students can easily get lost on the platform"; "I need to spend much time for the change from WebCT to Moodle in preparing my teaching/learning materials for students because they are quite different platforms in their nature (WebCT is instruction-based but Moodle is more student-oriented)"; "not difficult to use the basic features and functions for teaching my subject in Moodle"; "I need some time to get used to that new platform for teaching"; "since my teaching courses are about the web technology, Moodle is quite a good online platform for delivery

or sharing of the learning resources"; "I felt that the interface of Moodle is not user-friendly", "WebCT has been used in VTC for more than 10 years, so why not keeping the use of WebCT?"; and "versions of Moodle were changing too fast and I need to spend a lot of time in moving the online materials from the old one to the new one". These comments, having both positive and negative sides, tend to reflect the complexity in the reality.

In view of difference among the participants' comments on their teaching experience with Moodle and lots of uncertainty behind the survey data, I will base on the survey findings to perform in-depth interviews with IVE teachers to further discuss and analyze their own experiences in the next part of my research.

CHAPTER 5: INTERVIEWS WITH TEACHERS

5.1 Summary of Interview Data

After reflecting and learning from the pilot interviews, I have invited two interviewees from each of five different vocational disciplines as the sample to perform a total of 10 in-depth interviews to obtain the research data representing IVE teachers. The sampling criteria for the interviews required that the interviewees' had actual experience in vocational teaching with Moodle for at least one academic year, no matter if it was related to their basic or advanced use. Interviews were conducted between February and March 2016, with a total of 10 teachers from the IVE (Sha Tin) Campus of VTC in Hong Kong. Being staff from different vocational disciplines, they are currently teaching for the subject areas, including Applied Science, Business Administration, Childcare, Elderly & Community Services, Engineering, and Information Technology.

Based on my written notes and the audio recordings of my conversation with the interviewees, I have summarised all of the interview content which is

shown in the Appendix E "Summary of Interviews with IVE teachers" at the end of the thesis.

5.2 Analysis of Interview Transcripts

To help me extend understanding of the interviews and perform deeper analysis of the interview data, I had spent two months transcribing all Cantonese conversations in my interviews into Chinese text. I did not translate interview data to English unless I planned to quote sections as supporting evidence in writing this thesis. I needed to summarise, categorise, and interpret the interview data in order to perform a thematic analysis. This would be the basis of research findings and drawing implications from the transcripts.

To process the interview data, a qualitative approach of thematic analysis was adopted. With the transcripts prepared from all interview data, thematic analysis is a very widely used qualitative approach to analyze interviews. The conceptual framework of thematic analysis was mainly built upon the theoretical perspective of Braun and Clarke (2006). They noted that thematic analysis is a method used for "identifying, analyzing, and reporting patterns (themes) within the data" (2006, p.79). The important consideration was identifying themes in the interview data I had collected. According to Braun and Clarke (2006), what counts as a theme is being something which can define the

idea or issue related to my research questions and express some patterns of response or meaning within the collected data set. The main requirement is to be consistent throughout the process of determining themes. As Bazeley (2009) proposed, themes only have significance if they can be connected such as to show a coordinated picture or an effective model in which describing, comparing, and relating furnishes a simple formula to interpret the empirical material.

In April and May 2016, I wrote summaries and interview transcripts of the ten interviews, so that the familiarisation with data was internalised. The audio recordings were listened to a number of times for accurate transcription. According to the interview data, the respondents described how the online environment affects them and their vocational teaching, about the trade-offs or difficulties they found, the issues associated with Moodle and teaching online, and about the adjustments they had made for their vocational students. They also shared the benefits and losses they actually experienced by their vocational teaching work with Moodle.

Reflecting on the transcripts obtained from my interviews with IVE teachers, I observed and developed different themes through constant comparison. Then, these themes were carefully classified into various categories through axial coding. Axial coding is the analysis of themes in terms of their interrelationships, which would form the basis for the construction of theory (Denzin & Lincoln, 2017). In that sense, when I have identified a certain theme, its attributes were explored in greater depth and its characteristics were developed. Eventually, the themes would be incorporated into a framework which would be considered as the basis for the emerging theory to help explain the phenomenon of Moodle use in vocational teaching.

Moving between the interview data and the emergent categories, through the process of constant comparison, these categories were continuously refined in the light of the themes gathered from interview transcripts. New categories were identified, together with relationships among the existing categories. Eventually, when no more new categories emerged or were observed from the transcripts, a total of twelve categories were identified and used to generate a model to understand the IVE teachers' experience with Moodle.

Meanwhile, I considered the diversity of data during the comparison process. Such diversityty can be achieved by comparison between incidents and properties of a category, trying to observe as many underlying uniformities and diversities as possible (Denzin & Lincoln, 2017). By applying this rationale, the themes were allowed to emerge from my observation of interview transcripts as the analytic work progressed. With the interviewees' stories unfolded and the transcripts analysed, various themes were identified that evolved into twelve different categories, which are listed as below.

a) Adjustment to teaching

b) Administrative guidelines

c) Blended learning

d) Communication

e) Control of learning

f) Design of learning materials

g) Effectiveness

h) Expectations

i) Face-to-face coaching

j) Media richness

k) Student quality

l) Tensions with disciplinary content

All these categories were fascinating, and we need to look into each of them to find out what they mean and how they intersect with each other so as to help us obtain a better understanding of the vocational teachers' experiences in the online environment.

a) Adjustment to teaching

The differences between the online environment and the physical classroom pressure IVE teachers to make adjustments in order to continue to be effective in their teaching. Some of the adjustments pertain to how they design course materials, delivery, and communication. For example, some interviewees report that they modify the design of the PowerPoint presentations they use to be fit for online use and face-to-face teaching. In addition, they may change the format of the course to adapt the materials to the different modality. They structure their courses differently with

consideration of students' self learning in their vocational areas. They are more sensitive to the level of formality present in certain environments, and they prepare their course materials with more clarity with additional guides or links. Teachers spend more time and effort developing materials for their vocational subjects. They strive to improve their time-management skills to better cope with the fact that they are spending more time engaged in teaching activities online, where the class is open around the clock. For one teacher, teaching online takes a heavy toll from the time point of view:

> "… I've given up free time after using Moodle. I could be doing other things. I've given up pretty much all of my personal time for things that I love to do. I probably shouldn't give up so much" (Interview 1)

Most respondents reported that significant effort is often required to re-organise or adjust their teaching materials before releasing them to students for learning in Moodle. As one respondent, the Interviewee 8, said:

> "Working to develop the materials in Moodle and having to

> write things out… forced me to have to think through exactly what I was saying about a particular topic. It might be something in lecture I was just talking about, but when I had to write it down, in a number of cases I found that what I was saying in lecture might be somewhat vague, and the online materials forced me to be clear and more exact about whatever topic it was. So, I think it strengthened and made me clear about what I did in my lecture." (Interview 8)

In many vocational subjects, students acquire job skills or knowledge, and they are engaged in task-based, teacher-centred learning. They have been used to following the required steps to achieve goals as instructed by teachers in their learning process. Therefore, many respondents hope to help their students to be able to develop self-directed learning to align with their teaching in Moodle. On this point, one respondent, the Interviewee 4 commented that

> "An important issue in vocational teaching with online platform is the students' attitude and capability of learning

> by themselves. After they've received so many years of teacher-centred education in primary and secondary schools, there's not any effective way to help them change to have self-directed learning. So, most of my teaching is still one way from me to the students." (Interview 4)

In terms of student assessment, some teachers feel that the online platform helps them assess students' progress. As one teacher explained, this was "because it sort of keeps track of what you've viewed and what you haven't viewed after your login to Moodle" (Interview 8). Yet other teachers indicated that the online platform they use forces them to make adjustment in how they monitor their students because the environment is totally different from the on-ground classroom.

> "In a classroom, I can see whether a student is going through some distress or having some personal issues and not learning or doing things that he/she should be doing. In an online environment, because we don't have that physical presence, I have to read the postings that these students will make and make

> those connections, but not many students do posting actually." (Interview 5)

Some teachers also reported that the use of Moodle helped them to collect their student assignments effectively because their files were prepared in digital format which can be submitted conveniently in Moodle. However, most respondents said that student assignments were not marked in Moodle electronically. The Interviewee 6 explained that

> "… many questions and answers in business areas are essay type which cannot be marked electronically, no matter in Moodle or any learning platform. Students can respond to questions based on various concepts or theories and present their ideas by different rationale according to the business cases" (Interview 6)

In this regard, Moodle tended to have limitations and teachers needed to perform adjustment to their teaching work when they used it.

b) <u>Administrative guidelines</u>

Regarding teachers' motivation and reasons for their use of Moodle for

teaching, all respondents reported that they were following the administrative guidelines and policy of their Disciplines to upload their subject information and materials for student access in Moodle. The Interviewee 3 mentioned that,

> "… According to the policy of the Engineering Discipline, it is required to upload the teaching materials of my subjects for student access in Moodle. So, I have spent some time to organise the lecture materials, tutorial notes, assignments and laboratory worksheets for my subjects in Moodle to align with the teaching schedule." (Interview 3)

c) Blended learning

With regard to teaching modality, most respondents appear to prefer the blended mode over purely online or offline teaching. In their opinion, the physical classroom allows them to build better rapport with their students and to teach topics that are more suitable for face-to-face interaction. Further, the online portions would provide flexibility and convenience, and

would be used to deliver the topics for self-learning or further study. As one of the respondents, the Interviewee 9 explained that,

> "In general, there are theoretical and practical parts for vocational learning. I think most of the theoretical content can be properly delivered by Moodle but it is not the same situation for the practical parts… for example, my students need to receive training in various skills to teach children and to take care of them in kindergartens. They need to learn from the real environment, people and facilities to acquire the vocational skill. So, although the use of Moodle may help me to deliver the theories, it cannot substitute any practical session in my subjects." (Interview 9)

d) Communication

To communicate with students in Moodle, many respondents simply post official announcements, notices, and teaching and learning packages in their subjects for student access. They seldom use tools like Email, Chat,

Forum or Feedback in Moodle to perform two-way communication because most students like to have a quick response from their classmates or teachers when they communicate some ideas or questions in other social platforms by using mobile devices. One of the respondents, the Interviewee 2 reported:

> "With Moodle, they have to login to the platform and wait for responses from the others … they tend to choose other popular platforms such as Facebook or WhatsApp for instant communication to discuss assignments, projects, and teaching materials…. Probably they are IT students and always want to get the required information as fast as possible. Also, they are impatient for the time gap between messages such that they don't like to have any asynchronous communication or discussion in Moodle." (Interview 2)

Most respondents said that they seldom have any interaction with their students by using the Chat Room, Discussion Forum or Email messaging in Moodle. One of them, the Interviewee 5 explained:

> "I prefer students raising questions in classrooms or laboratories so that I can share the questions for group discussion without any time delay… They can get responses from classmates and me much faster than online chat room, discussion forum or email messaging in Moodle. They are more active when having face-to-face interaction in classrooms rather than online environment… Probably, they cannot share their ideas efficiently among themselves in Moodle because they have to login to the platform and wait for the others' interaction." (Interview 5)

Understanding the rapid development of online technology, respondents feel that the communication functions provided in Moodle are becoming less important. As one respondent, the Interviewee 6 described his current situation:

> "Due to the popularity of social networking tools, I also share the urgent announcements and important news to students in the message groups of WhatsApp and Facebook, for faster

> updates on my subjects… I find that my students prefer asking their questions by these online tools or face-to-face enquiry in classrooms rather than using Moodle." (Interview 6)

Respondents expressed that they are always trying to communicate with their students, yet the use of technology does not necessarily make it easier. In fact, they use technology all the time, not only for their subjects in Moodle but for daily communication. All respondents agreed that they have used technology to teach students inside and outside the classrooms. Technology is pervasive and almost ubiquitous. As an example, one respondents, the Interviewee 8 conceded that:

> "There are changes happened recently for the technology of communication with students. In previous years, I would upload all things such as announcements, teaching materials, and subject information to Moodle for student access. Now, I would simply share most updates on my subjects and news about the industry in the WhatsApp groups for instant access by students via their mobile devices." (Interview 8)

Having more choices of tools or devices, the communication functions provided in Moodle tend to be less important in practice.

e) Control of learning

Whether teachers teach in the classroom or through Moodle, they are much concerned with the learning that takes place. Respondents reflect on student involvement in the learning process. One respondent, the Interviewee 2, shared her view:

> "I think when students typically come to the class, they are there physically and then for the rest of the week they are pretty much gone … and they are busy in their work, they are busy in their personal lives. The amount of study they've performed and the amount of work they've done are minimal. Whereas in the online environment they're present with a purpose to download the lecture notes for revision, submit assignments or posting their questions in forum… you can almost see how they're progressing, how they're

> participating and learning. In an on-ground environment you don't have the control, so I like that part of the online platform, you've more control on people's learning. From a remote location you can control that, which I like. I can almost see who is putting in the work and learning and who is not and try to change that and encourage them. Regarding the on-ground environment, I've lost them for weeks." (Interview 2)

f) Design of learning materials

Many subjects taught in person seem to be exported to the online platform without much change or consideration as to what works or not in this different educational modality. Many respondents are of the opinion that different subject content should be taught differently because of the support technology provides. Not all subjects should be taught by using the same approach or the same learning materials. Hence, some teachers raise the following course design issue:

> "In the online environment, much of the instruction is hard coded in advance. So, students are able to navigate, and if the learning materials are well-designed, move through the instructive components at their own rate, and in the sequence that they find most effective for their learning style. But, actually it's not an easy job to most teachers to design the learning materials for effective use in Moodle." (Interview 7)

Nevertheless, one of the advantages of teaching with online platforms is that it provides a convenient way to reuse their teaching materials for different classes, different semesters, or even different subjects of the same topics. Some respondents admitted that once they had their materials online, it becomes much easier now to reuse them in classroom teaching. One respondent, the Interviewee 8 explained:

> "As all of the learning materials are stored as computer files now in Moodle, they can be modified easily and customised as appropriate. The online environment is particularly well

> suited to allow reusability of learning materials, as these are updated and saved in electronic format." (Interview 8)

However, regarding the use of resources and activities for design of teaching materials in Moodle, many respondents feel that there is insufficient technical support given to teachers. As one teacher, the Interviewee 7 suggested:

> "…a technical specialist or even a local team (in campus) for direct support to us would be much helpful so that I would not waste time for trial or testing of the advanced features in Moodle." (Interview 7)

To overcome the difficulty in using Moodle for vocational teaching, most respondents reflected that they would consider using features with easier manipulation or user-friendly functions, as the Interviewee 4 suggested:

> "Its functions are quite new to me … I would try more if some templates can be provided for direct application. This can help me to save much time to prepare similar teaching activities for different subjects in Moodle. So far, I just focus on using

> several activities in Moodle rather than fully use of its features. But I think they are still important for vocational teaching because different functions and activities can be useful to cater for the diversity of learning content in vocational areas… It is not just customized for teaching a few subjects." (Interview 4)

Consequently, many respondents just focused on using simple functions in Moodle for their subjects. Most like to use URL, File, Folder, Label, and Assignment more than other tools in Moodle. As one of the respondents, the Interviewee 7 suggested:

> "If some templates can be provided to me, I'd be much happier to try the advanced features or activities for teaching my students with Moodle. This may help me spending less time to prepare my subject content in Moodle." (Interview 7)

Most respondents found that they need to spend a significant amount of time to prepare their teaching materials in Moodle and so only a few of them have tried using advanced features for their teaching. One respondent, the Interviewee 8 reported that,

> "I prefer using simple activities to advanced ones in Moodle because I'm still afraid of consuming much time in setting the complicated features and worrying about the troubles encountered by students when they try doing the tasks out of the classroom." (Interview 8)

g) Effectiveness

To improve the effectiveness of teaching with Moodle, a few respondents would try to find some ways to compensate the limitation of the online activities. For instance, one respondent, the Interviewee 3 shared his experience that:

> "… As it is not possible to know how many students have actually viewed the videos in Moodle, I've prepared the worksheets with additional scores for my students to complete certain tasks or solve some problems after viewing the videos. In this way, I can collect the worksheets to check whether they can perform self-learning with the online videos." (Interview 3)

In choosing what kind of function and activities for effective teaching with Moodle, many respondents reflected that they would consider teaching needs or purpose, subject nature, and convenience for student use. At this point, the Interviewee 9 added that,

> "… Basically, I would choose activities (in Moodle) if they can perform the function to deliver my teaching materials effectively. I would make my choice only if the activity is convenient to students." (Interview 9)

In commenting on the effectiveness of vocational teaching with Moodle, most respondents agreed that it can improve the way their students learn, and provide better communication with them. However, they think that the using Moodle cannot be a substitute for any practical or laboratory session. As one respondent, the Interviewee 3 explained that:

> "…students need to acquire hands-on experience and they cannot ask any question directly if they just view the video demonstration in Moodle. Also, I can observe their learning process lively in laboratories. So, I can respond to

> their difficulties effectively without a time delay and avoid the unnecessary problems caused by the lack of supervision in the online environment." (Interview 3)

Particularly, it is perceived by some respondents that the use of Moodle takes away from, and limits, the instruction process. They feel that they have more options in classroom teaching than in Moodle. One respondent, the Interviewee 9, said that:

> "Technology can fail and it has limitations for vocational teaching. Your imagination, your creativity, your probing, your ability to be incisive, all of these are factors which I think perhaps are not possible to be delivered or presented in a computer-based learning platform." (Interview 9)

h) Expectations

Most of the interviewed teachers agree that teaching with Moodle is expected to have more clarity, more precise content delivery, and more communication for the subject's requirements. The expectations are higher

than on-the-ground teaching, because as the online environment relies heavily on technology, it allows less room for error. One respondent, the Interviewee 10 shared his experience as follows:

> "What I think it comes down to is I'm much more explicit… I find myself spending additional time developing materials to help them (students) more explicitly understand things such as subject requirements, assessment criteria and teaching schedules in Moodle." (Interview 10)

Furthermore, in teacher-centred education, teachers are expected to handle everything and take on a multitude of roles. Yet, in the online environment, most respondents find the same demands overwhelming. They must take on new roles such as content expert, multimedia developer, instructional designer, information facilitator, and learning mentor all at the same time. One respondent, the Interviewee 4, highlighted the issue that:

> "Now, there are multiple ways to look at my teaching role with Moodle: from providing information to interactive participation and facilitation. With the old definition of

> disseminating information, teaching has evolved into more facilitating nowadays… which is basically being a conductor, someone who directs the class, providing the resources, the materials, the information necessary for students to learn the specific content, arranging a series of experiences so that they can be successful at whatever tasks have been deemed important in terms of learning... I see a vocational teacher as kind of an arranger of activities that prompt students to learn." (Interview 4)

i) Face-to-face coaching

In many vocational subjects, students are required to learn special skills to meet their subject requirements or as part of their learning objectives. For example, one respondent, the Interviewee 4, described that,

> "My students often need face-to-face discussion for various topics in my subjects, especially in Childcare, Elderly and Community Services. Due to the subject nature, they are required to develop interpersonal skills to deal with different

> people in the real environment rather than sitting in front of the computers for communication in Moodle." (Interview 4)

Body language and visual cues are important in connecting with someone and communicating with them. Teaching is about communicating and the online environment without any visual cues is not meaningful in terms of communication feedback, as one respondent, the Interviewee 9 expressed:

> "I enjoy more in face-to-face teaching because I'm seeing that immediate feedback shown in their faces, in their expressions, that they really got it. It's such a rewarding thing, and I can never see that in Moodle." (Interview 9)

On the other hand, respondents appreciated the flexibility of teaching with Moodle because time expands in the online environment and teachers gain temporal flexibility. They found that this flexibility is a big bonus as it allows them to have more time in formulating their messages. One respondent, the Interviewee 1, said that:

> "You've time in a discussion setting, you've time to reflect

> on your response to the question. You've time to incorporate the kinds of things that have been discussed or that are being discussed or that have been presented. You've got time to incorporate them into your actual day-to-day practice that you often don't have in a typical face-to-face setting." (Interview 1)

j) Media richness

In online platforms such as Moodle or WebCT, some respondents are quite fond of using audio-visual materials or video technology to support their teaching. For example, one respondent, the Interviewee 7 mentioned that:

> "I would make video recordings for the significant results of some experiments performed in the laboratory. Then I would upload them to Moodle for my students to review after lessons… I find that they have login to view the videos, particularly when they could not obtain the experiment results successfully in the laboratory. This is quite helpful to their

learning." (Interview 7)

Furthermore, a few respondents have suggested using online video for delivery of the theoretical materials to replace classroom teaching. At this point, one of the respondents, the Interviewee 5 remarked that,

> "… With development from teacher-centred to student-driven learning in vocational education, classroom teaching can be recorded to become video clips for online access in Moodle and they can become virtual classrooms in the future for vocational teaching." (Interview 5)

k) Student quality

Respondents are concerned with the appropriateness of the online environment and how well Moodle supports their teaching. Many of them agree that vocational learning with online platforms may not be suitable for everyone. Rather, student quality reflected in personality, ability and cognitive trait explain why they are still not effective to many vocational students. For example, one respondent, the Interviewee 10, reported:

> "Firstly, I want to improve the engagement of my students in Moodle because generally they do not have the concept of self-directed learning and they are easily distracted by many other activities on the Internet." (Interview 10)

Also, the characteristic of inactive learning is more noticeable among vocational students as many respondents said that they are usually busy answering their students' questions after their lectures rather than during the lectures. At this point, the Interviewee 4 shared his feeling:

> "I think that the vocational students are not made of the same genes as the academic students. I'm almost convinced that everybody's not made for online learning. It's not just that the teacher has to be ready to teach online and the student has to be ready to be taught online, because academic students are more self-motivated and are self-starters, and are not afraid to open books themselves and read and ask questions, whereas many vocational students are kind of inactively waiting for guidance or instructions, maybe hoping that the teacher will point out the

important section, pages so they can read them. So, it's the inactive versus active students." (Interview 4)

To address the problem of inactive learning among vocational students, some respondents would try applying the concept of peer learning in teaching their subjects. As an example, one respondent, the Interviewee 7, mentioned that she divided students into groups to post their assignment work in the discussion forum for peer review. She suggested that

> "This can help them to establish critical thinking on the same issue and explore more possible solution from each other. Although they are not so active participating in the forum, it is meaningful to encourage their access or contribution as part of their learning… I guess that such inactive situation may be originated from the characteristic of many Chinese students in worrying too much about the comments by other people and this culture even happens in the virtual environment." (Interview 7)

In addition, most respondents admit that deep learning did not happen with vocational students while surface learning did. If I compare the learning process of students, it is not difficult to note that the surface learning approach occurs much more with vocational students than with non-vocational students. This describes one of the typical traits of IVE students' learning approach. As explained by a respondent, the Interviewee 6 that:

> "Students have already used to follow the steps described by textbooks and instructions by us (teachers) to complete the tasks. I think that most of them may not understand the rationale or even that they are not interested in the reasoning because they just focus on getting the marks by completing the required tasks or jobs. This may be common in the vocational context to just follow the orders from their supervisors or instructions from their bosses, but it's not good to their learning process because they become to have learning just for marks but not for the skill or knowledge." (Interview 6)

l) Tensions with disciplinary content

In contrast to other academic subjects, the content of vocational subjects often involves mathematical formulas, chemical symbols, and text in special formats. Many respondents reflect that they feel trouble to input or prepare some technical information in Moodle. For example, one respondent, the Interviewee 10, said that:

> "One of the problems in an online platform with engineering, is that you have to write formulas and symbols which aren't regularly available on computers, and if you're putting them in Moodle, you can't directly write them by hand for input ...Whereas if you need to do a formula and you're in a face-to-face class, you just go write it on the board... Also, if you want to have feedback from students, they cannot type in the related information easily in Moodle. You need them to be prepared by other software tools or simply hand in by hardcopies as before". (Interview 10)

Some respondents even feel frustrated in the preparation of their teaching

materials at Moodle. As another example, a respondent, Interviewee 2, described her experience in the interview:

> "… in teaching my IT subjects, those multimedia materials are much related to the visual items or graphic-related elements which are not easily presented in Moodle. So, I think that it may not be a proper channel for teaching vocational subjects with graphical content." (Interview 2)

Many respondents suggested that adequate training should be offered to help them cope with the increased demands stemming from the online environment. One respondent, the Interviewee 6, shared his opinion that:

> "Different resources and activities in Moodle are designed for teaching different vocational subjects. They are not customised features for just teaching business subjects… More teacher training should be provided to improve their technical skills on using advanced activities in Moodle so as to promote their applications in vocational teaching." (Interview 6)

5.3 Grouping and Relationships of Themes

With the thematic analysis of interview transcripts performed in the previous section, the twelve categories were checked and refined repetitively. Those categories describing the same subject matter or related to the common issues were grouped under high-level themes. Starting with the categories "Administrative guidelines", "Control of learning" and "Design of learning materials", these came from the disciplinary policy or requirements, and so they were grouped into the core theme "Disciplinary demands". Meanwhile, "Disciplinary demands" was being affected by another core theme of "Student characteristics", which included the changes of "Expectations" and "Student quality". So, I would have the following diagram to start showing their relationships.

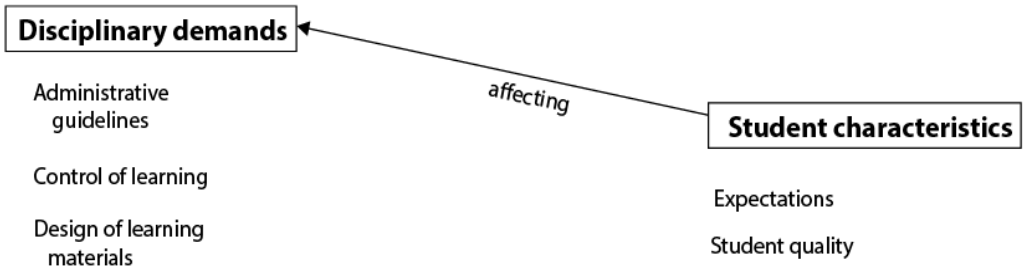


Figure 5.1a: Relationships of "Disciplinary demands" and "Student characteristics"

On the other hand, "Disciplinary demands" was supporting another core theme "Vocational teaching with Moodle", which concerned the issues described by the categories "Adjustment to teaching", Blended learning", "Communication" and "Effectiveness". So, I would consider them together to have the following diagram to present their relationships.

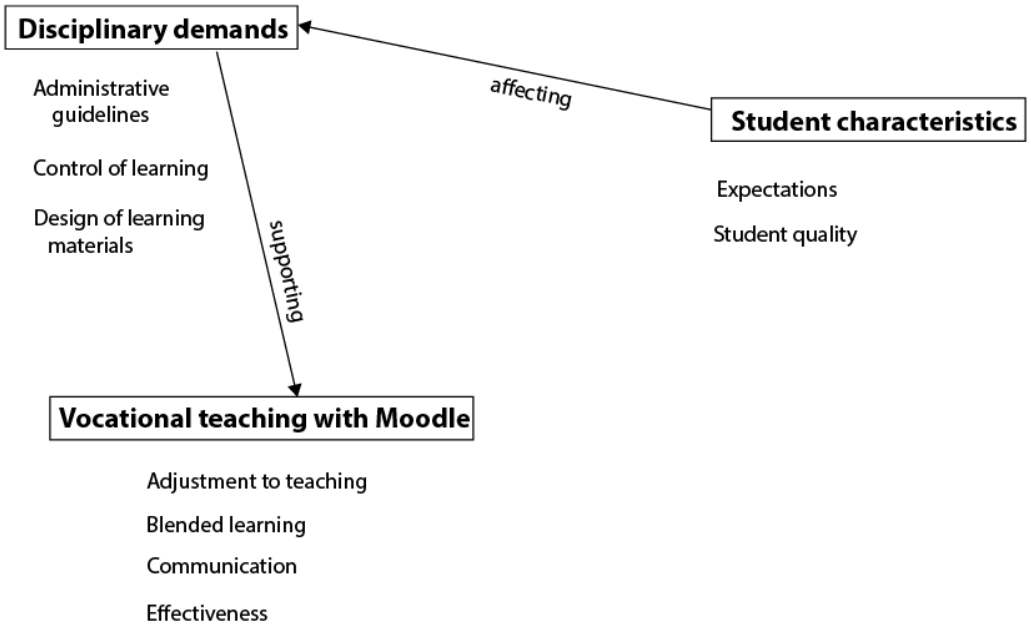


Figure 5.1b: Adding the core theme "Vocational teaching with Moodle"

Furthermore, as reflected in Section 2.3, the categories of "Student characteristics" were directly affecting teachers' strategies in "Vocational teaching with Moodle". Hence, the above diagram was updated to become the following one to illustrate their relationships.

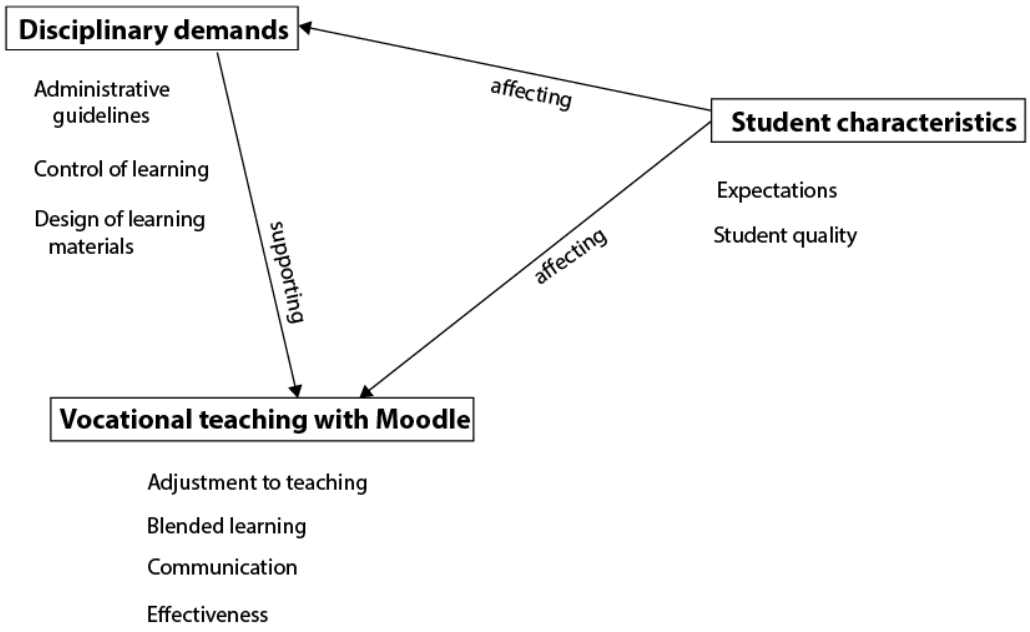


Figure 5.1c: Added relationship between "Vocational teaching with Moodle" and "Student characteristics"

Moreover, as mentioned by the literature review in Section 2.4, vocational teachers were facing various challenges in their teaching practices which corresponded to the data collected in the categories "Face-to-face coaching", "Media richness" and "Tensions with disciplinary content". So, they were grouped under a new core theme "Teaching practices".

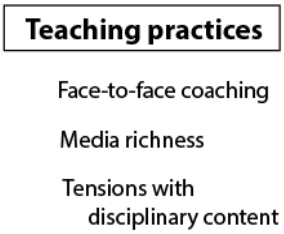


Figure 5.1d: Grouping categories under the theme "Teaching practices"

However, how was the theme "Teaching practices" connected to the other themes? As mentioned in the interviews with IVE teachers, "Student characteristics" were always responding to "Teaching practices" which became teachers' actions affecting their "Vocational teaching with Moodle". As such, the grouping of categories and relationships of themes could be further updated to have the following diagram.

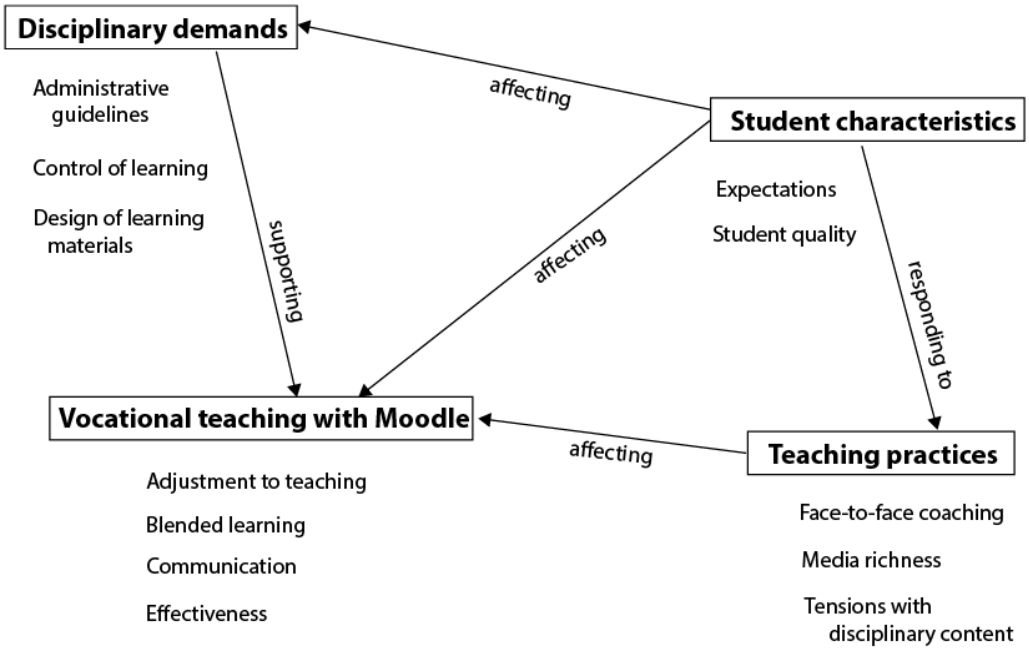


Figure 5.1e: Grouping of categories and relationships of themes

The categories grouped within the core themes provide details to address different problems or challenges that the IVE teachers had experienced in their teaching with Moodle.

5.4 Implications on the Interview Findings

As we have seen how various themes and relationships were developed in the previous section, the process of vocational teaching with Moodle brought the IVE teachers, students, and Disciplines all together. In this section, I will put my focus at the implications derived from experiences shared by IVE teachers. Based on their involvement in vocational teaching, I will summarize the findings in which the interviewed teachers reported the advantages and disadvantages of using Moodle.

Previously, there have been researchers studying the learners' views, expectations, and performance in an online learning environment (Collis & Moonen, 2010; Petty, 2009). What has made my research different was that it investigated the impact using Moodle in vocational teaching through the sharing of IVE teachers' experiences.

As reflected in my interview data, many IVE teachers had gained an increased awareness of how Moodle brought changes to them, and how these could help their teaching. There were benefits affecting the teaching work more

than the educational modality: face-to-face instruction could help the teachers become more sensitive to online learning, while online instructions could help teachers become more sensitive to mentoring students in a face-to-face situation (Salmon & Jaques, 2008). Another benefit concerned reusability, which was found to be ranked high by the interviewed IVE teachers. Once they had put their subject materials online, it was much easier to reuse them in classroom or workshop teaching. In other words, the teaching materials they used that worked online could be transferred for classroom teaching, and this was the same in the opposite direction. In that sense, Moodle functioned as an online archive in which their teaching materials were stored, categorized, and available to them as active users (Littlejohn & Cook, 2010). This repository of data and course materials therefore provided a convenient way to facilitate vocational teaching, particularly for repetition of programmed learning or instruction-based practice reflecting the more behaviourist learning approach (Smith & Kemmis, 2013). However, this online archive was also perceived as a potential threat in relation to the issue of privacy. Indeed, many interviewed teachers commented that quality learning materials should be archived online, but the arrangement

depended on its availability, disciplinary policy, copyright, teachers' careful use, and students' learning behaviour.

Furthermore, many IVE teachers were aware of the benefit from adopting a different teaching environment, because they gained additional skills as well as new insight. They found that interaction with students in an online environment is totally different from that within classrooms. Although subject materials could be the same in classrooms and Moodle, teachers needed to consider changes in learning design, and adjustment in their communication style (Salmon, 2011). Some IVE teachers felt that they could gain more control in teaching with Moodle and showed more satisfaction to be able to understand their students' learning progress in Moodle. As one teacher shared her view in the Interview 2:

> …I think when students typically come to the class, they are there physically and then for the rest of the week they are pretty much gone … and they are busy in their work, they are busy in their personal lives. The amount of study they've performed and the amount of work they've done are minimal. Whereas in the online

> environment they're present with a purpose to download the lecture notes for revision, submit assignments or posting their questions in forum… you can almost see how they're progressing, how they're participating and learning. In an on-ground environment you don't have the control, so I like that part of the online platform, you've more control on people's learning. From a remote location you can control that, which I like. I can almost see who is putting in the work and learning and who is not and try to change that and encourage them. Regarding the on-ground environment, I've lost them for weeks. (Interview 2)

Nevertheless, some interviewed teachers expressed the view that their actions or arrangement in response to students' learning progress was weak in Moodle. Practically, they would repeat the same concept or perform the same step for several times, and the most efficient way was to just be there in person, as in classrooms or workshops where the teacher would not move on until he or she knew that students had mastered or understood the materials. To be truly effective in Moodle, every teacher had to find a real substitute for being able to

draw something on the blackboard so that they could talk about it in the forum. He or she had to find a substitute for checking their learning progress in real time and being able to get students' reactions, their questions, and explain it. Many interviewees said that students were missing the visual experience in using Moodle and a truly effective virtual learning environment should provide this in order to help learners get involved more. However, the current technology was still creating something of a constraint. The development and application of technology in virtual reality or augmented reality could possibly provide solutions for this issue in future. Bridging the gap between the physical and the online teaching experience would help improve interaction significantly.

Furthermore, a main issue brought up by the interviews was that many of them spent more time and effort in the learning design for their subjects in Moodle. As one of the respondents, the Interviewee 9 explained that,

> In general, there are theoretical and practical parts for vocational learning. I think most of the theoretical content can be properly delivered by Moodle but it is not the same situation for the practical parts… for example, my students need to receive training in

> various skills to teach children and to take care of them in kindergartens. They need to learn from the real environment, people and facilities to acquire the vocational skill. So, although the use of Moodle may help me to deliver the theories, it cannot substitute any practical session in my subjects. (Interview 9)

This reflected the argument of Lucas et al (2012) on vocational pedagogy, particularly that vocational teachers needed to have both awareness and understanding of the variety of teaching approaches, and how they could support the achievement of differing learning outcomes. As such, there was a common sense in which all interviewed teachers used Moodle by shifting their pedagogy for vocational teaching. According to the interview data, most respondents would adopt the blended learning approach which combined the teaching process with the classroom lessons and online delivery.

To perform blended learning for their vocational subjects, some IVE teachers commented that time management became difficult with the use of Moodle, where online interactions could happen around the clock. This time expansion seemed to be an advantage, because it looked like having more time

to interact with students. However, the interview data showed that most teachers put a greater amount of effort into their teaching work which therefore became more time-consuming, such that this eventually affected their personal or family lives. In the online environment, it was as if there was no limitation in time? So, teachers should be standing by and responding to students' questions in Moodle because the online modality could allow more interactions than classroom teaching: teaching and learning could happen at any time.

Regarding the diversity of vocational areas for the theme of "Tensions with disciplinary content", the interviewed IVE teachers reflected that learning materials for those subjects such as IT-related or engineering were well delivered by using Moodle, while others such as childcare or business service were found to be difficult. This corresponded to the model of Lucas et al (2012) wherein there were three kinds of vocational education with focus on physical materials, people, and symbols. In that sense, different kinds of vocational education would call on different teaching and learning approaches. As Lucas et al (2012) further explained: when learning to work with physical materials, expert instruction with feedback, imitation and trial-and-error would be useful

methods; when working with elderly people in a care home, role play, simulation and close observation may be more useful; and when dealing with symbols, virtual environments and worked examples could unlock the learning.

For many cases, in reality, practitioners are working simultaneously across two or even all three areas. Engineering work was a good example of this. With such categorisation by Lucas's model to simplify the complexity involved in vocations, these could help IVE teachers to consider the use of Moodle in terms of taking the best kinds of pedagogic decisions for their vocational subjects particularly. Depending on the nature of the subject materials, for example, anything that required drawing, or working a problem on blackboards could be presented differently in Moodle.

Meanwhile, as discussed in interviews, IVE teachers reflected that they could have more flexibility to teach with Moodle. Compared with classroom teaching, they felt less pressure on their interaction with students in Moodle. Some of them even found themselves more forgiving and tolerant of errors in an online environment. However, others reported the opposite feeling, since they needed to be very careful of every sentence used in their online activities

for teaching as the lack of nonverbal communication cues would sometimes create misunderstanding online. When the interviewed teachers reflected on the things they missed in using Moodle, they most often referred to the emotional bond with students. The quality and quantity of interaction taking place online were important to teachers. Although there was more opportunity and time to have contact with students in Moodle, they felt that emotional involvement was reduced online, particularly leading to the lower quality of interactions for social constructivist learning (Beck & Kosnik, 2006). "The use of interactivity, when designed properly, leads to a very rewarding learning opportunity: human feedback is the element that makes or breaks a really successful online experience." (Gudea, 2008, p.276)

Apart from students' learning needs, teachers' own needs were important in the teaching process. Their personal needs drove their expectations and led to certain outcomes, such as satisfaction, personal growth, and development. With the use of Moodle, many interviewees described how they needed to have more interaction to build rapport with their students. Some interviewees said that now they had to work harder in Moodle to attain a

reasonable amount of feedback and mediate the students' learning outcomes. This caused difficulty in helping students develop their own knowledge and understandings to acquire expertise through the constructivist method of cognitive apprenticeship (Ding, 2008).

As implied from the interviews, IVE teachers underwent various changes: they made adjustments to their teaching approaches, course preparation, lesson plans, interaction style, and roles, all in order to find their best blend of methods in vocational pedagogy. Most of them reacted to the changes in their teaching with Moodle, and made the necessary changes to accommodate the constraints associated with the teaching modality. Teaching with technology can hardly be an easy job to do well. This has been addressed by the TPCK framework (Koehler, & Mishra, 2008) which emphasized technology, content, and pedagogical knowledge as the key roles to play individually and together. Teaching successfully with technology required continually creating and maintaining a dynamic balance among these three components. It was worth noting that the survey and interview data implied a range of factors influencing how this balance could be reached as well in vocational teaching.

CHAPTER 6: CONCLUSION

This chapter concludes the discussion of vocational teaching with Moodle by responding to the research questions and making some practical suggestions to educational administrators, vocational teachers, online curriculum and course developers, and technology professionals. In particular, I will discuss the ways of influencing vocational teachers based on the findings and analysis presented in this research. The intent of the chapter is to help all those involved in vocational education to use online platforms to the greatest effect.

6.1 From Complexity to Opportunities

As seen in the analysis of interview findings and implications shown in Figure 5.1e (on p.246) in previous chapter, it is suggested that the model of vocational teaching with Moodle depends on many internal and external components. Starting with the theme on external factor "Administrative guidelines" and the individual factors associated with the "Control of learning" and "Design of learning materials", IVE teachers reflected on the thematical category "Disciplinary demands". They needed to face the changes in "Expectations" and "Student quality" in the physical classroom as well as the online environment. In view of the "Media richness" of the digital world, IVE teachers also considered the "Tensions with disciplinary content" and how traditional ways of "Face-to-face coaching" could be better arranged in their vocational subjects. Consequently, they became sensitised and could identify various issues related to subsequent categories. In response to the perceived changes and issues, IVE teachers would perform the corresponding "Adjustment to teaching", adopt "Blended learning", and change their

"Communication" with students, resulting in increased "Effectiveness" of the overall teaching process.

To address the research questions RQ1, RQ2, and RQ3 (see Section 2.6), various themes of concept and issues derived from the survey and interviews provide the necessary data. The relationships which appear to exist between the themes can be illustrated by Figure 5.1a – 5.1e (see Section 5.3). With all these themes and their relationships found, I will further look into how they created the motivation complex, opportunities in practice and changes for the reality to answer the research questions in the following sections.

6.1.1 Motivation Complex

Regarding the RQ1, "What are the reported factors that shape IVE teachers' attitudes and use of the online platform Moodle in vocational teaching?", the themes "Administrative guidelines", "Control of learning", and "Design of learning materials" give us the corresponding answers. Firstly, in all subject areas, IVE teachers are motivated to use Moodle for teaching because

they need to follow the administrative guidelines and policy of their Disciplines to share module information and subject materials in Moodle to support students' independent learning. With wide enforcement, every IVE teacher should obey and follow the basic requirement of the VTC's e-learning policy:

> It is proposed that the new learning management platform [Moodle] adopted for VTC programmes be used for sharing module information online and supporting independent learning … enables the collection and tracking of learning evidence in specific context for further analysis. This may help teachers/researchers understand better the learning needs of students online and adjust the teaching and learning strategies to enhance students' performance accordingly. (Vocational Training Council, 2011, p.2-4).

Secondly, IVE teachers feel that they can have more control of their students' learning progress in Moodle because every click on the content is observable and measurable in contrast to their classroom teaching. They can better understand what and how their students learn about the subject materials.

Such tracking of the learning process and learning needs is quite difficult to do in the physical world, which is a strong reason to motivate IVE teachers to use Moodle in their subjects. In that sense, Moodle provides useful data to enable IVE teachers to adjust their teaching and learning strategies in order to enhance students' performance. This is also consistent with the objectives stated in the VTC's e-learning policy (Vocational Training Council, 2011, p.2-4).

Thirdly, many respondents mentioned one of the advantages of using Moodle that the platform provides a convenient way to reuse their teaching materials for different classes, different semesters, or even different subjects related to the same topics. With such convenience, some respondents expressed the view that once they have designed their teaching materials for the online learning environment, it becomes helpful to reapply the concepts from these materials in classroom lecture, laboratory demonstration and workshop practice. Therefore, all these are the positive factors that shape IVE teachers' attitudes and use of Moodle in vocational teaching. However, negative factors are also gleaned from the interviews with IVE teachers. They include the lack of technical support for teachers, inadequate training in using Moodle, additional

workload in preparing the online materials, and the difference of vocational students' participation in the virtual learning environment. All these unfavourable factors affect IVE teachers' attitudes and use of Moodle in vocational teaching. This actually matched with the survey findings that although all respondents were motivated to teach with Moodle for the benefits they got, only a few would make fully use of its functions in vocational teaching because of those unfavourable situations in practice. This leads to my response to the second research question in the next section.

6.1.2 Opportunities in Practice

Regarding the RQ2, "In terms of the pedagogical strategies and teaching methods, how and what are the IVE teachers currently using in Moodle to support their vocational teaching?", the analysis of survey findings has shown that certain functions such as "URL" and "Page" are more popular for teaching support while some activities such as "Book" and "IMS content package" are seldom used for teaching. As discussed in Chapter 4, these extremes have been

illustrated by the complexity of these activities, teachers' knowledge in Moodle, and the appropriateness of those activities for their students' learning need. Furthermore, the interview findings help to develop the themes of "Adjustment to teaching", "Blended learning", "Communication", "Face-to-face coaching", "Tensions with disciplinary content", and "Media richness" to provide details in answering this research question.

In many vocational subjects, students are required to learn special skills to meet the vocational requirements or as part of their learning objectives. For example, students often need to have face-to-face coaching in the subjects of child education and community services. Due to the subject nature, they are required to develop interpersonal skills to deal with different people in the real environment rather than sitting in front of their computers for online learning in Moodle. Many interviewed teachers say that body language and visual cues are important in connecting and communicating with someone. As the process of teaching is basically about communication between teachers and students, the online environment in Moodle seems to be inappropriate due to the lack of visual cues, human contact, and feedback. Therefore, many IVE teachers would

often make adjustments in their subject content accordingly for adoption of online teaching, blended learning, and face-to-face coaching, with consideration of the media richness and communication enhancement in Moodle. In that sense, even though the functions and activities in Moodle can provide opportunities to vocational teaching, the subject nature and students' need are still more important in considering the learning design. This can be explained by the model of Collis and Moonen (2010) who have produced a comprehensive account of technology in relation to learning flexibility. The model relates the aspects of flexibility to the basic pedagogical dimensions: modes of delivery, content and structure, learning pace, contact and interactions, type and mix of media used, extent of self-direction of students, and constraints of learning platforms. Aligning with Collis and Moonen's framework of flexible learning, IVE teachers reflected that they would consider the following aspects to select activities or functions in Moodle for their vocational teaching.

Modes of delivery of materials and interaction: In developing a curriculum for vocational subjects, the IVE teachers made selections in which

way(s) the subject materials would be delivered to students and how they might be delivered to their students in Moodle, classrooms or workshops.

Content and structure: the IVE teachers tried making choices about the content of their vocational subjects for the online environment and how that content would be structured in Moodle.

Learning pace: the IVE teachers considered and designed appropriate pace of learning that was not overwhelming to most of their students.

Contact and interactions between students and the IVE teacher, and among students themselves: the IVE teachers also considered various ways to moderate the interactions between students and students, as well as students and teachers to facilitate blended learning in their vocational subjects.

Type and mix of media used: the IVE teachers made choices from a selection of media options that suit the structure, content, interactions and student needs in their vocational teaching.

Extent of self-direction of students: the IVE teachers also made decision on the extent to which they allowed students to be autonomous and direct their learning by themselves in Moodle.

Constraints: There were always constraints on time, space, access to learning resources and experiences. These realities would moderate the choices and levels of flexibility that were reflected in interviews. They also give rise to a number of changes happened with IVE teachers, including the effectiveness in their teaching work, student quality and expectations. All these dimensions actually lead to the next research question RQ3 about the impacts of the online platform to the teaching and learning process.

6.1.3 Changes for the Reality

Regarding RQ3, "In what way do IVE teachers change in vocational teaching as they describe their current use of Moodle? What impact do these changes create to the teaching and learning process in vocational areas?", numerous changes are found as a result of teaching with Moodle, including the

identified themes that describe the improvement of "Effectiveness" in their teaching work, further understanding of their "Student quality" and requiring higher "Expectations" than face-to-face teaching. In view of these impacts, various strategies should be considered to manage the changes that are necessary when teaching with Moodle. In developing strategies for vocational teaching with such a particular online platform, it is necessary to stress the importance and inter-relatedness of the practical issues. Then, who could help to develop these strategies in accordance with the e-learning policy in VTC?

Apart from the vocational teachers, different kinds of people can facilitate the development of teaching and learning strategies (Darwin, 2007; Sahlberg & Oldroyd, 2010; Salmon, 2014). They include educational administrators, course developers, technology specialists, and last but not least, vocational students or anyone else interested this new area of development in the vocational field. With my research results, they could have better understanding of vocational teaching with Moodle. Vocational teachers who are considering using online platforms would benefit from my research findings because it is based on information shared by IVE teachers who have already experienced teaching with Moodle.

Similarly, curriculum and course developers could benefit from the insights provided by the interviewed teachers to design vocational courses that take into account the shortcomings of the online platform used for delivery. In addition, to identify new potential directions, educational technology specialists could learn from teachers' experiences to make better use of technology to prepare the online platform for vocational teaching in a more user-friendly approach, with rich media interfaces (Becta, 2008; Beetham, 2007). The following paragraphs will focus on these areas and provide possible implications that can be derived from the lived experiences shared by the IVE teachers.

The findings of this research study is of immediate interest to educational administrators and institutions that offer vocational courses with online platforms because the analysis can be used to explain, predict, and understand vocational teachers' reactions to prepare for the changing modality so that problems could be avoided. Educational administrators are interested in the outcomes of teaching with online platforms, although the main desirable outcome from their perspective may be financial as they need their Disciplines to provide delivery of vocational courses by online platforms (Grosse, 2004;

SchWeber, 2000). To respond to the changes of teaching with online platforms, administrators could further research how the presentation of online course materials could be customized to the course structure, content, and delivery in different vocational contexts. As discussed in my literature review in the Section 2.2, vocational subjects are taught in different contexts and call on different pedagogical approaches (Corson, 1985; Leach & Moon, 2008; Salmon, 2016; Young, 2004). This results in the situation of vocational teachers applying different methodology and interactions in the online environment, including discussion forums, chat rooms, multimedia content, videos, simulations, or even virtual reality. Educational institutions should invest in the appropriate technology because course design activities require a great deal of time, manpower, and effort. For this reason, vocational teachers need to be provided with adequate training, resources, support, and flexibility to make their own changes, and acquire the skills that allow them to optimize the course content and delivery (Esch, 2003). This would enable vocational teachers to be able to innovate in using the online platform in their teaching (Conole, 2008). Therefore, it is important to understand the concerns of administrators as well as their

decision to make all these resources available to their vocational teachers to handle the technical and pedagogical changes (Smith & Kemmis, 2013).

Meanwhile, administrators should compensate for teachers' additional work with the online learning platform. When teachers do not feel fairly compensated for their increased effort and amount of time for online activities in their teaching, they will not be keen to use the platform. As found in my interviews with IVE teachers, they expressed the views that any increase in time demand for a teacher should be correlated with an increase in compensation or with other incentives or rewards (Feden & Vogel, 2006). To put it in simple terms, more work should result in more pay. Also, according to the survey findings and interviewees' opinions, vocational teachers need to have extra training on using modern technology, especially in web-based and other digital technology the VTC brings in to support future development.

By addressing all these issues, educational administrators would be able to help teachers adopt to the new technology to vocational teaching, and offer them an online environment that is conducive for engaging in vocational teaching (Angelino, Williams & Natvig, 2007; Gillen, 2010).

Vocational teachers who teach with Moodle or some other online platforms can also prepare themselves to deal with problems that may occur in the online environment by learning from the IVE teachers' experiences reported in this thesis. Through description and reflection, the related issues can be identified to increase awareness of the advantages and disadvantages of a different teaching modality. Vocational teachers can gain an increased understanding of how the online platform affects the learning design in their teaching (Salmon, Jones, & Armellini, 2008; Wolf, 2011). As a result of their exposure to the online environment, they perform adjustment in their teaching approaches, course preparation, interaction style, and persona (IfL, 2010b; Koohang & Harman, 2005). In that sense, they would react to the teaching environment in attitudinal terms, eventually making pedagogical adjustments to accommodate the constraints associated with their teaching modality (Chang, 2001; Gredler, 2005; Salmon, 2016).

Offering greater support for course development through the inclusion of curriculum and course developers would answer IVE teachers' grievances that they are spending too much time and effort when they are preparing online

materials for their courses. Nearly all of the interviewees have indicated that they would like to receive greater support for developing course materials. These developers, who are not only subject matter experts but have also been trained in the use of technology for online education, are ideally positioned to assist the vocational teachers in the task. It is an added plus when these instructional developers or designers also have technical expertise, and are not just experts in vocational disciplines alone.

Regarding the issue of lack of the appropriate technology for supporting vocational teaching, a better fit between the subject matters and the online platform for teaching would be highly desirable and that issue may go a long way to be discussed (Ince, 2005). This can be accomplished through careful analysis and screening of the subject matters that are selected to be taught with the online platforms.

While there is more time required for teaching with online platforms, IVE teachers pointed out the difficulty in managing time in the online environment, where the class is open around the clock. They also find that they expend a greater amount of effort in teaching and that the online environment is rather

time-consuming, affecting their work-life balance. In many online platforms like Moodle, they tend to provide more degrees of learning freedom, which can help accommodate different types of learners. However, not all participants perceive this flexibility in the same way (Unwin, 2009). Consequently, the online environment makes for the added flexibility as well as complexity and increased difficulty (Littlejohn, 2007). Course developers could help to find solutions for these problems faced by vocational teachers, because better formatted courses would lead to easier, less time-consuming teaching, and hence improve the quality of learning for vocational students.

Furthermore, many interviewees have the same opinion that a vocational course taught in different modalities needs to have its own testing strategies and to be fine-tuned for the specific vocational environment in which it is being taught. Student assessment, for example, was still found to be quite difficult to be conducted online for technical reasons and flexibility of the online platform (JISC, 2004a). Therefore course developers should be in a position to improve its arrangement and features so that they can minimise these shortcomings of the online platform.

Among the changes that most vocational teachers would welcome are uploading of teaching notes, access to more online resources, and assignment collection. Until technology that makes it easier for teachers to grade students becomes available, it may be possible that course developers can continue to design functions that are easier to support automatic assignment grading and teachers' marking. Numerous respondents indicate that they would expect this as a major improvement in future.

On the other hand, some respondents think that teaching with the online platform is inefficient, and they view the technology as unhelpful. As much as technological advances found their way in the classrooms progressively over the years, they feel that technology cannot capture the essence of the physical presence in the classroom or laboratory (Hughes, Luo, Kwok & Loyd, 2008). The teaching and learning process will become difficult with complete use of the online platform because not every vocational subject can be delivered well online (Young, 2008). They shared the experience that those tasks involved interpersonal contact, physical job training, and hands-on demonstrations prove difficult to be performed online. In some respects, this puts an incredible burden

on vocational teachers. Access to technology that would allow students to draw things and work the problem step-by-step online or perhaps record them for on-demand video streaming would appeal to these teachers. Nevertheless, they still believe that the desired outcomes of vocational teaching with the online platform are different, and therefore harder to achieve than in face-to-face coaching. Technology specialists can help develop an optimal fit between course content and the technology used for delivery by the online platform. By working together with course developers, they can find feasible solutions to maximise the potential of course materials for online delivery, and support vocational teaching by means of a rich media environment (Joling & Kraan, 2008). Better technology for teaching would help vocational teachers cope with the increased demands placed on them by the online environment. As they spend more time and effort preparing materials for their online courses, they would welcome technology solutions that can help them spend less time on these tasks and give them more time to perform other teaching activities. These are suggestions that technology specialists may consider in their work for vocational teachers.

In fact, students and teachers use technology on a daily basis, irrespective of the teaching modality. They appreciate having access to technology that is easy to use, reliable, and that offers adequate support for the subject matter being taught (Leitch, 2006). With regard to this, the IVE teachers recognize the constraints of the online platform in use and adjust accordingly, by changing their teaching approach in terms of students' learning style, preparation of course materials, curriculum, and delivery approaches. Not all of the changes happen for the better. Too often the changes made are to compensate for the shortcomings of the online platform. Some IVE teachers indicate that these shortcomings are significant. The technology used in vocational teaching therefore poses specific concerns. Firstly, vocational teachers do not always have the necessary skills to use the online platform. Secondly, the degree of usefulness of a given platform for teaching in different vocational subjects varies widely, not all subjects being taught well online. Thirdly, the quality of the technical support available to vocational teachers is often inadequate.

After all, what matters is not what features of the online platforms the vocational teachers use, but how they use these technical features in their

teaching (Li, 2003). Vocational teachers use technology all the time. They use computers to prepare lectures and course slides, and to grade student assignments. They use email and access the Internet for searching information. Still, some vocational teachers find that the current technology that they are using is too basic and are of the opinion that more extensive use of multimedia technology would improve their ability to teach in the online environment. Also, those teachers who value real-time interaction or communication are "turned off" by the lack of synchronous real-time interaction in the online environment, and do not have much use for the online platform. Above all, most of them would prefer not to teach with the online platform, which they find not easy to use, unreliable, or not appropriate for supporting vocational teaching. It is not solely the online technology, but rather a combination of changes in the work of educational administrators, instructional developers, web specialists, and teachers, that shows the usefulness of the online platform in vocational education.

6.2 Recommendations

In this section, I will recommend some constructive steps needed to improve vocational teaching with online platforms so as to create a more effective teaching and learning environment. The interviews with the IVE teachers has helped to identify aspects that need improvement and to list a significant number of issues that need to be addressed By educational administrators, course and curriculum developers, technology specialists, and the teachers themselves. Based on findings from this research, we propose some actions that they should consider taking.

The impetus toward online education is now evident, thus the natural concern for improving its quality and the quality of the associated teaching experience (Statz, Hayward, Oh & Wright, 2004). With this research, the IVE teachers who were interviewed bring forth numerous issues relative to their experiences of teaching with Moodle. They describe the kind of improvements they see as valuable and the changes they believe would lead to improving their teaching with Moodle. However, one must keep in mind there is a difference

between the needs and wants expressed by the vocational teachers. Since vocational teachers spend more time in using online platforms for teaching, they should be better compensated in various ways. This may involve satisfaction, money, recognition, adjusted teaching workload, and compensatory free time (Murgatroyd, 2010). Another important contribution that administrators can make is to foster the sense of belonging by encouraging the formation of peer communities (Maxwell, 2001; Wells, 1999; Wenger, 2001). Such communities could provide resources to support less experienced teachers by allowing them access to other vocational teachers, to mentors, to archived course materials, and to other resources that may help them in their vocational teaching. In addition, educational administrators must understand and manage everyone's expectations because teachers' needs are a very important aspect of the process of teaching. Their personal needs drive their expectations and lead to certain outcomes, such as satisfaction, effort, and development. The technology only mediates the teaching experience. It is important to ensure expectations are reasonable, clearly communicated, and understood by the online educational participants (McShane, 2006). With regard to IVE teachers' needs, many want

to have more interaction with students and seek to build rapport with their students. They enjoy receiving and need the feedback they get in class and in Moodle (Wilson, 2012). This helps them monitor the class and manage the learning experience of vocational students.

Course and curriculum developers also play an important role. Given that teaching materials can be delivered through online platforms, it is very important that these subject-matter experts develop an appreciation of the issues associated with online teaching. They are instrumental in ensuring a proper fit between the subject matter and the online platform, supporting the delivery of the vocational course. A course and curriculum developer who is trained as a teacher will have a better understanding of the difficulties handled by the vocational teachers. As shown in this research study, there are numerous challenges that the vocational teacher has to contend with. Furthermore, training for developers gives them a better understanding of how the online platform can be used to optimally support a vocational course. The design of the online course materials must take into account the different type of interaction that takes place online. It is important for developers to structure the course materials

that will engage vocational students (Wison, 2012). Up to now, much of the learning taking place online centres on a student's individual work. For this reason, online materials should be appropriately designed for self-directed learning and knowledge discovery. In this connection, course developers should learn to be teachers first and course developers next. Whatever the case may be, they are an important group of stakeholders in vocational teaching with the online platform. Where they are successful in their efforts to tame technology and manipulate the format and content of the course materials in the online platform, the expectation is to create a better learning experience for vocational students, and a better teaching experience for vocational teachers (Navarro, 2000).

On the other hand, the technology specialists are the experts who know all about what the online platform can do and how it works. It is natural that they play the key role in improving the online teaching experience of vocational teachers. If these technologists are trained in teaching methods, they can gain an appreciation of what vocational teachers do. They have a better perspective on how online technology and vocational teaching intersect. In addition, they

also need training in course development so that they can see first-hand what and how the online platform can be used. Therefore, the importance of the technology specialists is to inform the course developers, educational administrators, and vocational teachers, of all possibilities and potentials, as well as the limitations, of the online platform in vocational teaching. They are the ones who can really fit technology to the teaching process, and make the most of the tools available for online course delivery. For example, some vocational teachers call for better access to both asynchronous as well as synchronous communication mechanisms. The technology specialists can help them set up online chat, video streaming, messaging, and other multimedia solutions that can increase the richness of the communication media in place.

As the online educational modality continues to evolve, the selected models used in various subjects have to be constantly updated. Regarding the IVE teachers who were interviewed for this research, they express that many things should be changed. When they were asked to identify aspects that need improvement, they listed a significant number of issues. Those who can help them are educational administrators, course and curriculum developers, and

technology specialists. This requires a collective effort to truly integrate the online platform into the teaching processes. Given the complexity of the involved people, a multidisciplinary approach is needed. This is predicated upon teamwork to ensure that the online platform, whether it is Moodle or whatever, properly meshes with vocational teaching and learning.

6.3 Final Remarks

Applying a theory to describe or explain a phenomenon often involves a deep understanding of how people work, what influences their intention, what their current practice is, how the environment interacts, and how the outcomes make a difference at all. For vocational teachers, learning theory provides some guidance in choosing pedagogy and teaching strategies. It also often supports and motivates a vocational teacher to ask questions about what learning activities should be performed to teach his or her students. Some indications from the research findings may be helpful in solving particular problems, but theory itself cannot give vocational teachers a simple, direct answer to every problem or a recipe for how to teach with an online platform. Theory only provides some insights to help a teacher determine what could be going on with the online platform and how he or she might plan for the next lesson in a vocational course. What the teacher does is to apply a set of intersecting theories, research findings, personal skill, professional knowledge, and decide how they can be put together for his or her vocational teaching. In other words, a teacher has to do his or her own research as well; and vocational teachers are no

exception. Teachers with effective teaching have practical knowledge to understand what can be going on with their students. Through observing students' responses, checking their learning progress, examining their work, and communicating more with them, teachers can also discover what makes their vocational students successful learners. This knowledge has to be merged with other knowledge about learning, understanding about learners and requirements in different vocational contexts. It can enable the teacher to make better use of the physical classroom and online environment for cognitive apprenticeship. or suggest specific strategies for teaching with the online platform. In that sense, a vocational teacher should extend his or her use of learning theories to develop a feasible approach for his or her teaching. Furthermore, he or she should be responsible for checking the adoptability and appropriateness of what the educators, researchers, and other professionals have promoted, to fit with real situations. Also, he or she should apply theories with observation, decision-making, and understanding of the context. In this way, a vocational teacher becomes a theorist for himself or herself. Roland Barth (1990) advises that teachers and principals can team up to form an "organising principle" or

"framework" because they are both "theory makers" and "theory consumers" (p. 107). The vocational teacher is theorising about what is going on in the social dynamics of the classroom, what is going on with students, and their learning process with particular online platform. He or she has to recognize the goal of understanding both the requirements of the vocational discipline and students' learning needs, and then perform teaching work to deliver the subject matter. Due to the differences in underlying views of the nature of vocational areas, debates still continue about the best teaching practices with an online platform. There is greater appreciation of the fact that different teaching strategies with technologies are useful for different types of vocational learning. It is productive to think of these issues in terms of what kind of learning environment is provided, for what kind of students, in what kind of vocational course, and then deliberate about what teaching strategies should be the most effective way to achieve those goals. Therefore, a creative use of the online activities and resources provided in the online environment is recommended for vocational teachers. Each of them can have a different take on what it works with the online platform, and on possible work-arounds to their problems. Thus, appropriate

training for better use of the online platform is very valuable to vocational teachers. Administrators should be encouraged to allocate more resources and training so that vocational teachers can make fully use of the online platform in their teaching. This might be the direction of another research studies, investigating administrators' arrangement of resources for various stakeholders. Vocational institutes are actually large organisations with their own organisational cultures. Other possible avenues for further research include studying the effect of organisational culture on vocational teachers, and academic freedom in the context of vocational teaching with online platforms. Yet another would be to expand the study to include a larger sample of teachers from a larger number of vocational disciplines. This might help provide a better understanding of how vocational teachers view online teaching, and of the adjustments they make in reaction to their experiences.

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APPENDIX A: Interview Schedule (draft version)

Interview Schedule

OPENING

Good morning/afternoon. My name is Simon. Thank you for your time and willingness to participate in this interview for my research study in the University of Nottingham. The research is about investigating IVE teachers' experience in using Moodle for vocational teaching. I am interested in hearing what you would say about this issue. The interview is expected to be completed in around half an hour. To begin with the interview, I would be grateful if you could let me have some basic information.

A) DEMOGRAPHIC INFORMATION

1) Which Department do you come from?
   Applied Science / Business Administration / Childcare, Elderly and Community Services / Engineering / Information Technology

2) What is your highest educational qualification and major subject in graduation?
   _____

3) How much teaching experience do you have, in term of years, subjects and levels?
   _____

4) How many year(s) have you used online platforms such as WebCT or Moodle for vocational teaching? How long did you already use Moodle?
   _____

5) Did you use Moodle to teach any vocational subject(s) in the last academic year?
   _____

6) What subject(s) and what levels of students do / did you teach with Moodle?
   Subject A: _____
   Subject B: _____
   Subject C: _____
   Subject D: _____
   Subject E: _____
   Subject F: _____

7) Which vocational subject did you use Moodle the most for teaching?
   _____

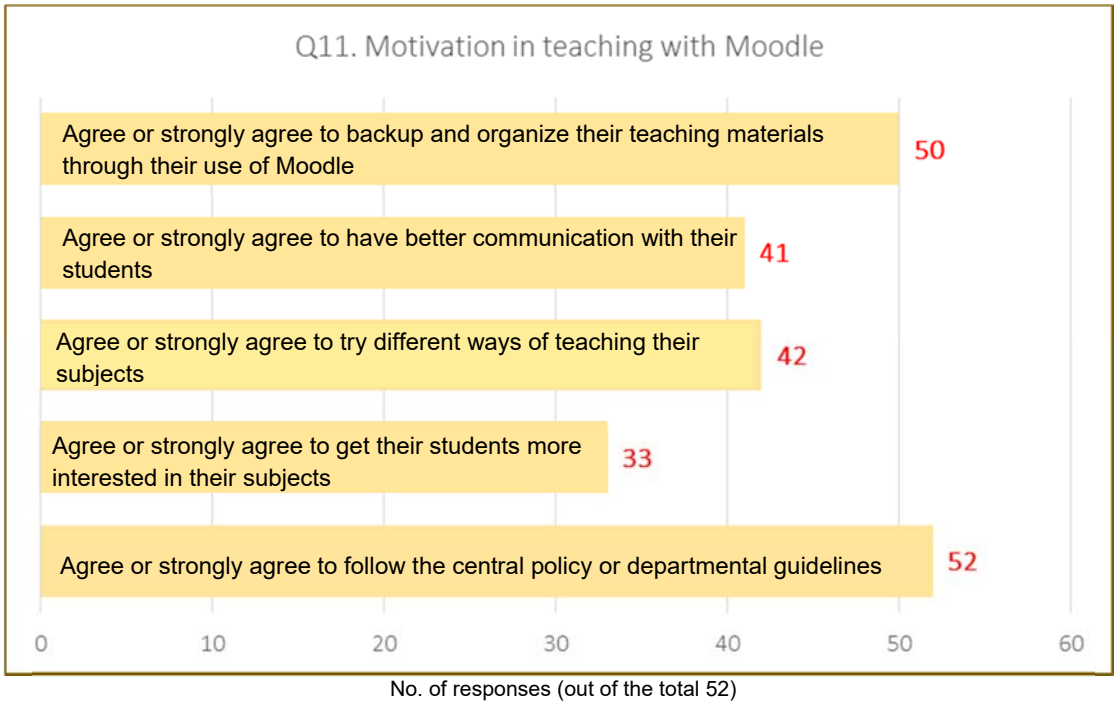
   Which vocational subject did you use Moodle the least for teaching?
   _____

B) TOPICS FOR DISCUSSION *(Questions are not in any specific order)*

1) <u>Motivation</u>

From the very beginning, what was the original motivation or intention to start using Moodle in your teaching?

With reference to the survey data (of Question 11) shown in the following bar chart, how would you comment on your colleagues' motivation in teaching with Moodle?



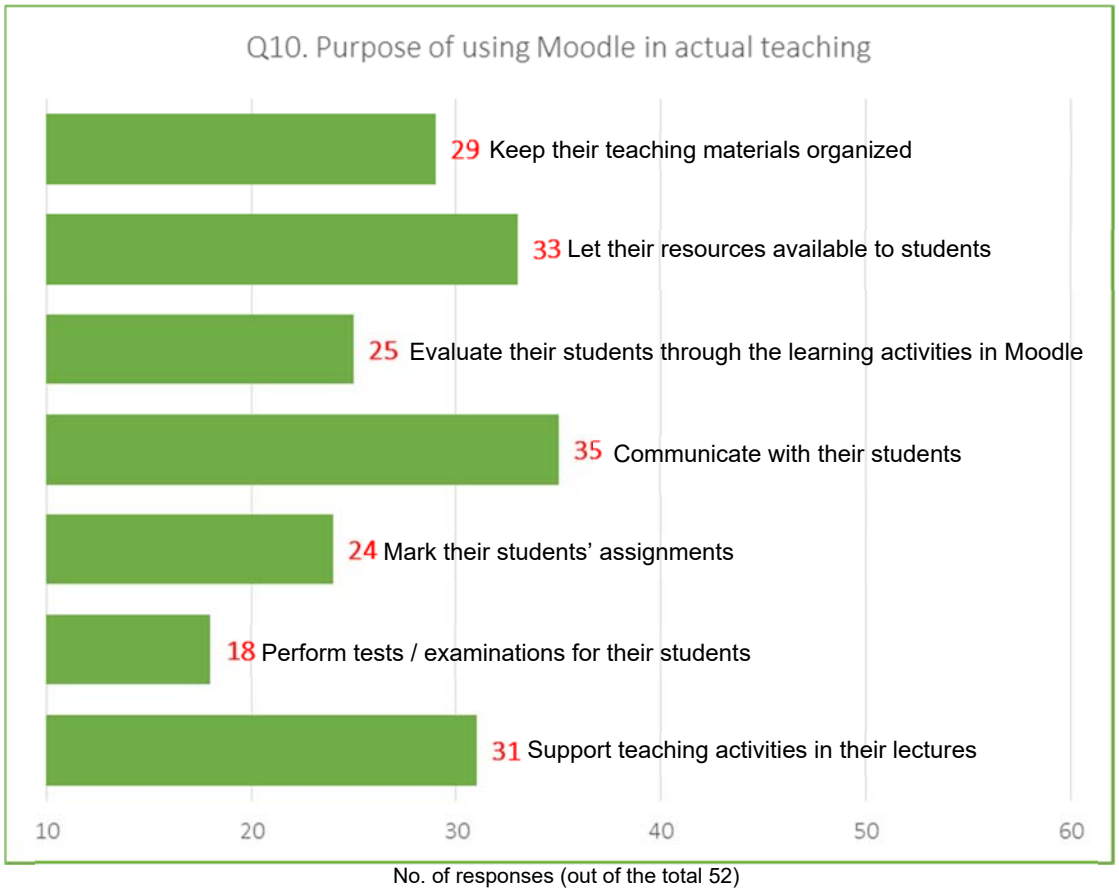
No. of responses (out of the total 52)

Has your motivation changed? Do you still perceive it (motivation) the same way? Why? How is it related to your conception of teaching?

2) <u>Current Situation</u>

In what way did you use Moodle in vocational teaching?

Considering the purposes mentioned in the bar chart below (Question 10), how would you compare your use of Moodle with your colleagues in vocational teaching?



No. of responses (out of the total 52)

What were the situational factors that affect your use of Moodle in teaching? (For example, subject nature, curriculum, students' learning style, and time constraints) How did you consider the above factors for finding effective ways to use Moodle in teaching vocational subjects?

3) Implementation

How was your typical use of Moodle for vocational teaching?

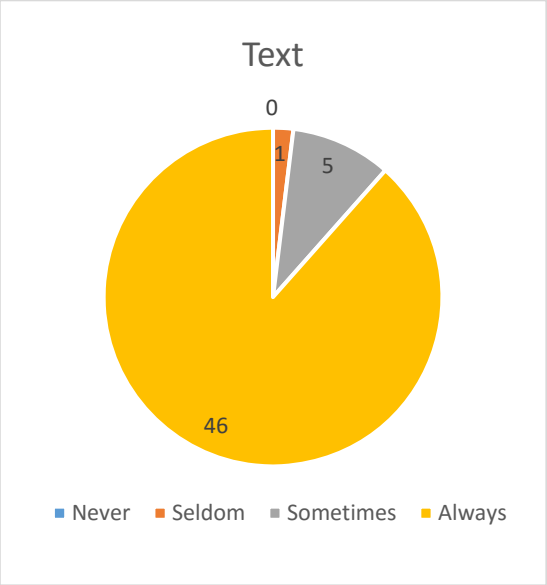
There were various resources and activities provided in Moodle. As we had teachers' responses to Questions 12-13 of the survey, their usages can be summarised in the following table.

Resource or activity in Moodle	Sometimes or always use it (out of total 52)
Book	2
IMS content package	0
Label	4
File	28
Folder	30
Page	43
URL	45
Assignment	28
Chat	24
Choice	8
Database	5
External tool	4
Feedback	12
Forum	23
Glossary	21
Journal	19
Lesson	8
Quiz	26
Questionnaire	12
SCORM package	3
Survey	7
Wiki	13
Workshop	9
Others	31

How would you interpret the above data (colleagues' preferences on using certain resources/activities rather than the others) with their actual teaching work?

Which resource or activity of Moodle did you feel helpful in teaching your vocational subjects? Explain with examples on how you used it to deliver your subject materials. How did you justify such an arrangement in your teaching? What positive or negative effect did it have on your vocational teaching?

Regarding the use of media in Moodle for teaching (Question 14), how would you explain colleagues' preference (52 responses) indicated in the following pie charts?



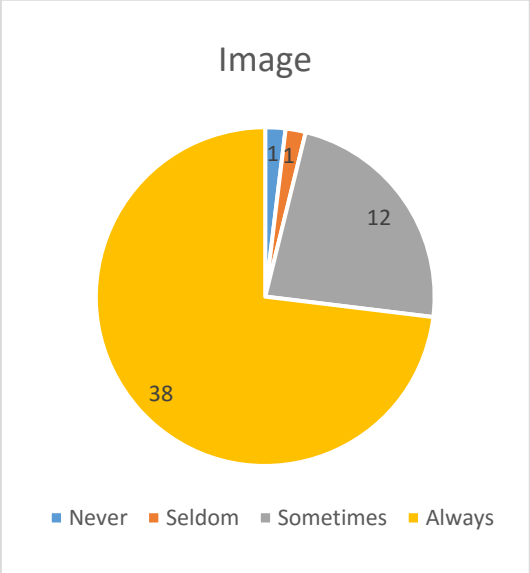
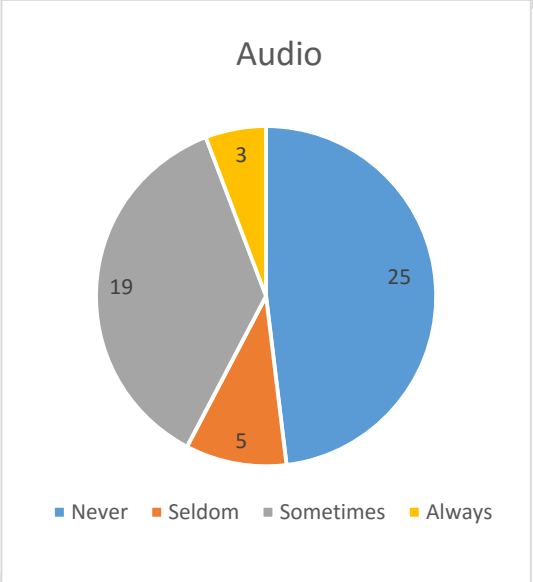
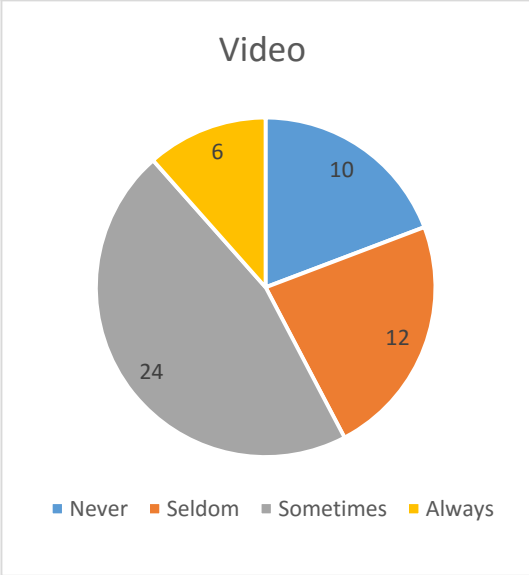


Image
1
1
12
38
Never
Seldom
Sometimes
Always

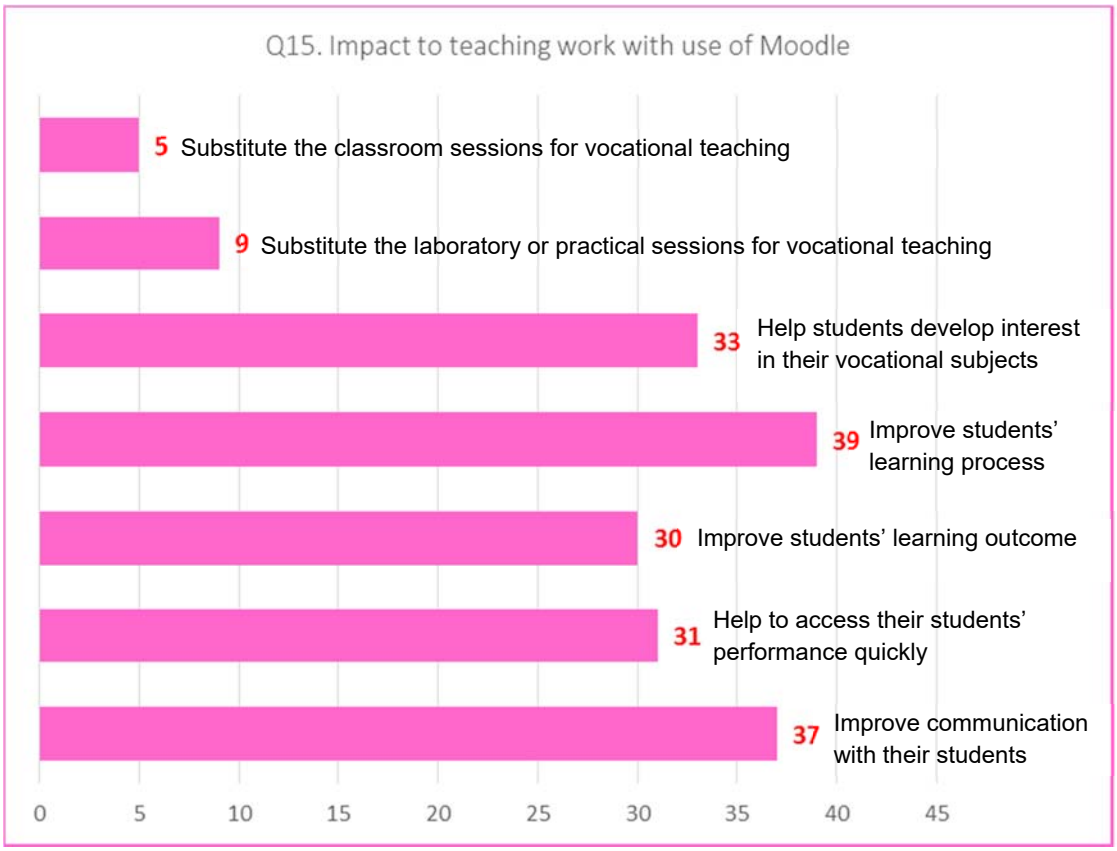

Audio
3
25
19
5
Never
Seldom
Sometimes
Always


Video
6
10
12
24
Never
Seldom
Sometimes
Always

4) Changes in Teaching

Describe the adjustments you had made to your teaching with use of Moodle in terms of the pedagogical strategies, teaching methods and learning outcomes. What did you gain? What did you give up?

According to the responses in the survey (Question 15), colleagues agreed or strongly agreed that their use of Moodle could:



No. of responses (out of the total 52)

How far do you agree or disagree with your colleagues' responses in the bar chart above?

5) <u>Sharing of Experience</u>

Regarding your use of Moodle, compare the advantages and disadvantages it has for your teaching. Illustrate with some examples in your vocational subjects.
What did you find most enjoyable in using Moodle? Why?
What did you find most frustrating in using Moodle? Why?

As reflected by some colleagues for the Question 16 of the survey, they experienced the following changes with their use of Moodle. How was your vocational teaching actually affected by these changes?

a) "Students can download their notes at any time and place."

b) "Save time in giving out TLP (Teaching & Learning Package) and collecting coursework."

c) "Increased workload as I need to prepare, upload, and arrange different online materials in my teaching subject according to the subject requirements."

d) "It helps me to cater to individual differences in learning ability among students. Embedded YouTube video could facilitate self-learning of students, both during the lesson and after class."

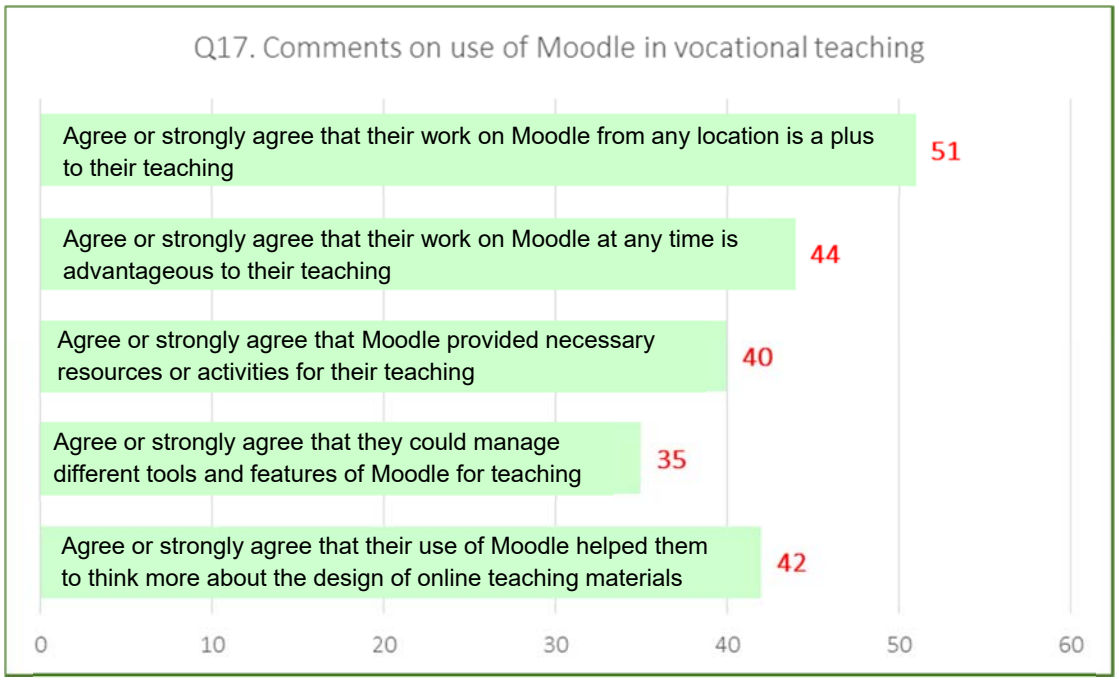
e) "Work pressure for preparation increased."

f) "Time consuming to keep the online materials updated"

6) Comments on Moodle

How would you comment your use of Moodle for teaching?
In what way could Moodle actually enhance or improve your teaching? How would you rank these factors, in their order of importance?

By comparing your colleagues' comments on the use of Moodle in Question 17 as below, what do you think about your own use? Anything similar or different from them? What is/are the reason(s)?



No. of responses (out of the total 52)

In addition to the above comments, there are some remarks given by colleagues on their teaching with Moodle. What do you think about them?

a) "It helps me to deliver revision exercises and any materials which cannot be delivered in normal teaching hours for the benefit of the students."

b) "It's not very user-friendly. It contains too many elements and students easily get lost on the platform."

c) "I need to spend a lot of time for the change from WebCT to Moodle in preparing my teaching/learning materials for students because they are quite different platforms in their nature (WebCT is instruction-based but Moodle is more student-oriented)."

d) "Not difficult to use the basic features and functions for teaching my subject in Moodle."

e) "Need time to get used to that new platform for teaching."

f) "Since I teach subjects about the web technology, Moodle is quite a good online platform for delivery or sharing of learning resources."

g) "I felt that the interface of Moodle is not user-friendly."

h) "WebCT has been used in VTC for more than 10 years, so why not keeping using it?"

Finally, do you have any advice to give to colleagues on using Moodle in vocational teaching?

~ End of the Interview Schedule ~

APPENDIX B: Interview Schedule (final version)

Interview Schedule

A) INTRODUCTION

Good morning/afternoon. My name is Simon. Thank you for your time and willingness to participate this interview for my research study in the University of Nottingham. The research is about investigating IVE teachers' experience in using Moodle for vocational teaching. I am interested in hearing what you say about this issue. The interview should take around half an hour. To begin the interview, I would be grateful if you could let me have some basic information please.

B) DEMOGRAPHIC INFORMATION

1) Which Department do you come from? Applied Science / Business Administration / Childcare, Elderly and Community Services / Engineering / Information Technology

2) What is your highest educational qualification and major subject at graduation?

   _____

3) How much teaching experience do you have, in term of years, subjects, and levels?

   _____

   _____

4) How many year(s) have you used online platforms such as WebCT or Moodle for vocational teaching? How long have you used Moodle?

   _____

5) What subject(s) and what levels of students do / did you teach with Moodle?

Subject A: _____
Subject B: _____
Subject C: _____
Subject D: _____
Subject E: _____
Subject F: _____

6) Which vocational subject did you use Moodle the most for teaching?

_____

Which vocational subject did you use Moodle the least for teaching?

_____

C) TOPICS FOR DISCUSSION

This summer, an online survey was conducted to collect the IVE teachers' comments on using Moodle for vocational teaching. The survey findings have been consolidated and presented by the APPENDIX C "Survey Findings in Data Charts for Interviews" for discussion of the following topics.

Topic 1: Use of Moodle in communication

Firstly, we are going to discuss the use of Moodle in communication for teaching. With reference to the first data bar in Chart (A), many teachers (67%) agreed that they would use Moodle to communicate with their students.

- Would you use Moodle for communication purpose?

- If YES,
  a. How did you use it?

  b. Did you use it as a new way of communication with students or just to replace another form of communication (such as email or online discussion)?

  c. How did you find Moodle helpful, distracting or unhelpful for communication?

- If NO,
    a. Why didn't you use Moodle for communication with students?

    b. In what way do you usually communicate with your students?

<u>Topic 2</u>: Use of Moodle to support teaching activities

2a) Now, we focus on the use of Moodle to support teaching activities. As we can see the third data bar in Chart (A), not many teachers (60%) agreed that use of Moodle could support teaching activities in their lectures.

- There were 40% of teachers not using Moodle to support teaching activities in their lectures. What do you think?

- How did the activities or features of Moodle support your teaching work? Are there any examples in your teaching work to illustrate your view? Are there any examples in your experience to explain this further?

2b) We know that there are five vocational disciplines: Applied Science, Business Administration, Engineering, Information Technology, and Childcare, Elderly and Community Services providing various courses to students at our IVE campus.

- Do you think the diversity of vocational content affects the use of Moodle to support teaching activities in lectures? If so, how?

- In your subject(s), how did you consider Moodle suitable for the subject nature, requirements, teaching method, and assessment scheme?

<u>Topic 3</u>: Use of Moodle to give tests/examinations

We also looked into the use of Moodle to provide tests and examinations in vocational teaching. According to the last data bar in Chart (A), just a few teachers (35%) agreed to use Moodle to gives tests/examinations to their students.

- In your subject(s), would you use Moodle for tests or examinations?

- Why do you think that many teachers did not use Moodle for tests or examinations in their vocational teaching?

- Does this imply any problem or issue on the design of such a learning platform for vocational teaching?

- Or, was this related to the subject requirement on particular assessment format such as practical work, hands-on tasks, experiments or studio projects rather than online test or examination conducted in Moodle?

Topic 4: Different ways of teaching by using Moodle

In this topic, we want to understand more about teachers' motivation in using Moodle. As reflected by the third data bar in Chart (B), many teachers (81%) would like to try different ways of teaching their subjects as their original motivation in using Moodle for vocational teaching.

- How would you interpret that intention?

- In what kind of different way did you try to teach your subjects such as using various activities or media (audio/video) in Moodle?

- Did your find it an effective way or not in teaching your subject(s)?

- Why do you think it as effective (or ineffective) way?

Topic 5: Teachers' use of Moodle and students' interest in vocational subjects

Another teacher's motivation in using Moodle was to get students more interested in their subjects. As indicated by the last data bar in Chart (B), some teachers (65%) were motivated to get their students more interested in their vocational subjects by using Moodle.

- Before using Moodle, in what way did you do to get students interested in your vocational subjects?

- After using Moodle in your teaching, did students feel more interested in your vocational subjects?

- Could Moodle help to develop students' interest or distract them in your vocational subjects? What are the reasons behind this?

<u>Topic 6</u>: Use of various activities in Moodle for vocational teaching

In this topic, we will discuss more about how teachers have actually used Moodle in their vocational subjects.

6a) There are various resources and activities provided in Moodle for vocational teaching. The data bars of Chart (C) tell us that the teachers' usage tends to be convergent to a few activities only rather than full use of all available activities.

- How would you comment on the situation where teachers preferred using Page (87%) or URL (84%) in Moodle more than other activities for vocational teaching?

- Would you think that most activities provided in Moodle are not appropriate for vocational teaching? Why or why not?

- What is your preference? What is your major concern in choosing a particular activity in Moodle for your vocational subject(s)?

6b) In contrast to the above part (6a) by the last two data bars in Chart (D), many teachers (77%) agreed that Moodle provided necessary resources or activities for their teaching, and also they (67%) could manage different tools and features of Moodle for teaching. This data seems to express that although Moodle provided necessary activities for vocational teaching and the teachers were able to manage them, actually most teachers did not use them for teaching.

- How would you explain that situation?

- Does it imply any dilemma in using Moodle for vocational teaching? Or any other implication?

Topic 7: Learning process of students and communication with them

Lastly, we will look into the impact of teachers' use of Moodle in vocational teaching.

7a) With reference to the first two data bars in Chart (E), many teachers agreed that their use of Moodle in vocational teaching could help to improve their students' learning process (75%) and develop better communication with them (71%).

- How did you find Moodle helpful or difficult to improve students' learning process?

- In your communication with students, how far could your use of Moodle actually help?

7b) On the other hand, by looking at the last two data bars in Chart (E), just a few teachers thought that the use of Moodle could substitute the classroom sessions (10%) or laboratory/practical sessions (17%) for vocational teaching in spite of the advantages mentioned above.

- Was this true in your subject(s)?

- How do you explain this real situation in contrast to the functions of Moodle agreed by teachers in part 7a?

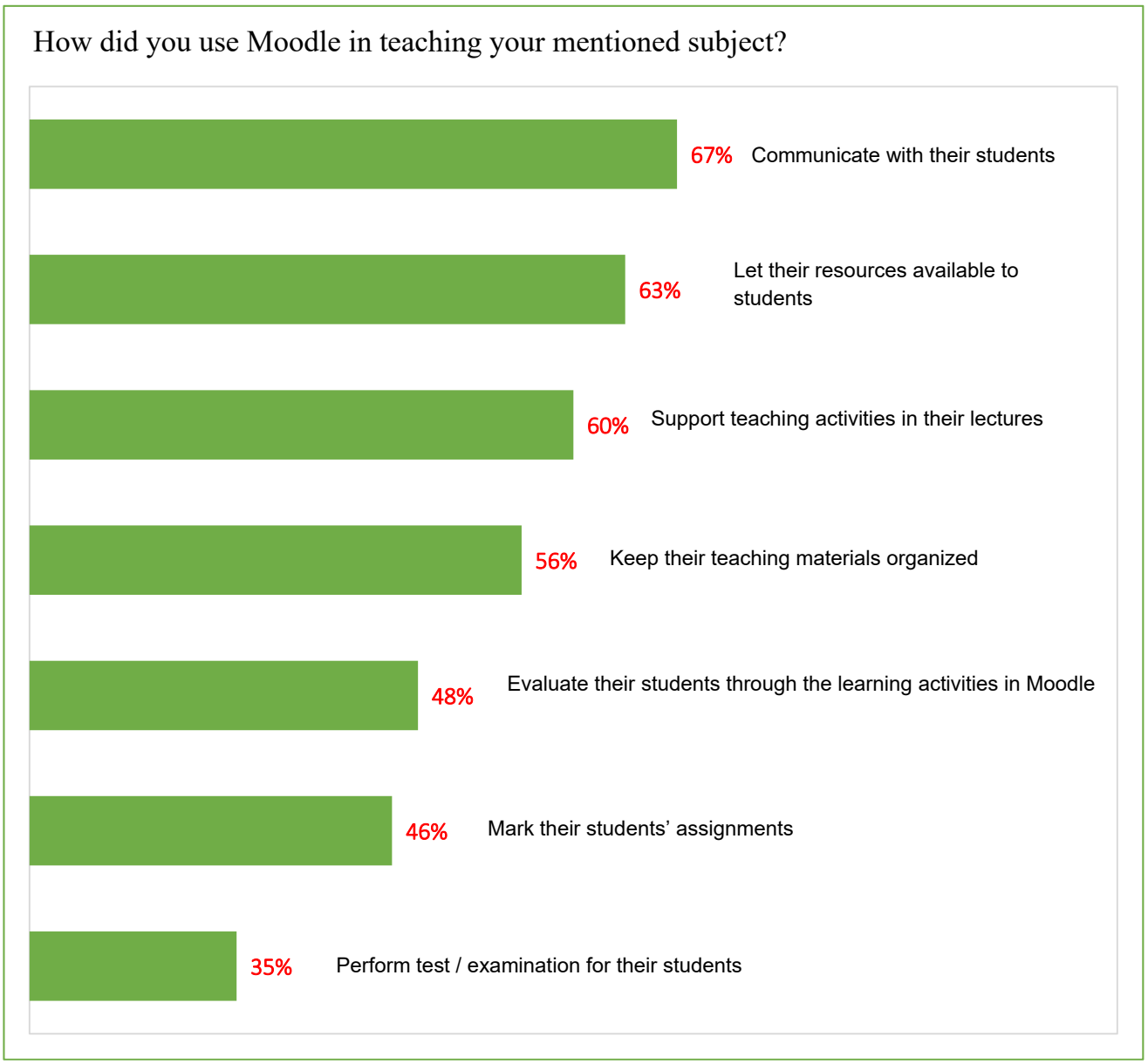
D) FINAL COMMENT

In addition to the Topics 1 to 7 we have just discussed, do you have any final comments or remarks on your experience with Moodle for vocational teaching?

We have now come to the end of the interview. Your responses and opinions have been very useful in my research. Again, thank you very much for your time and participation.

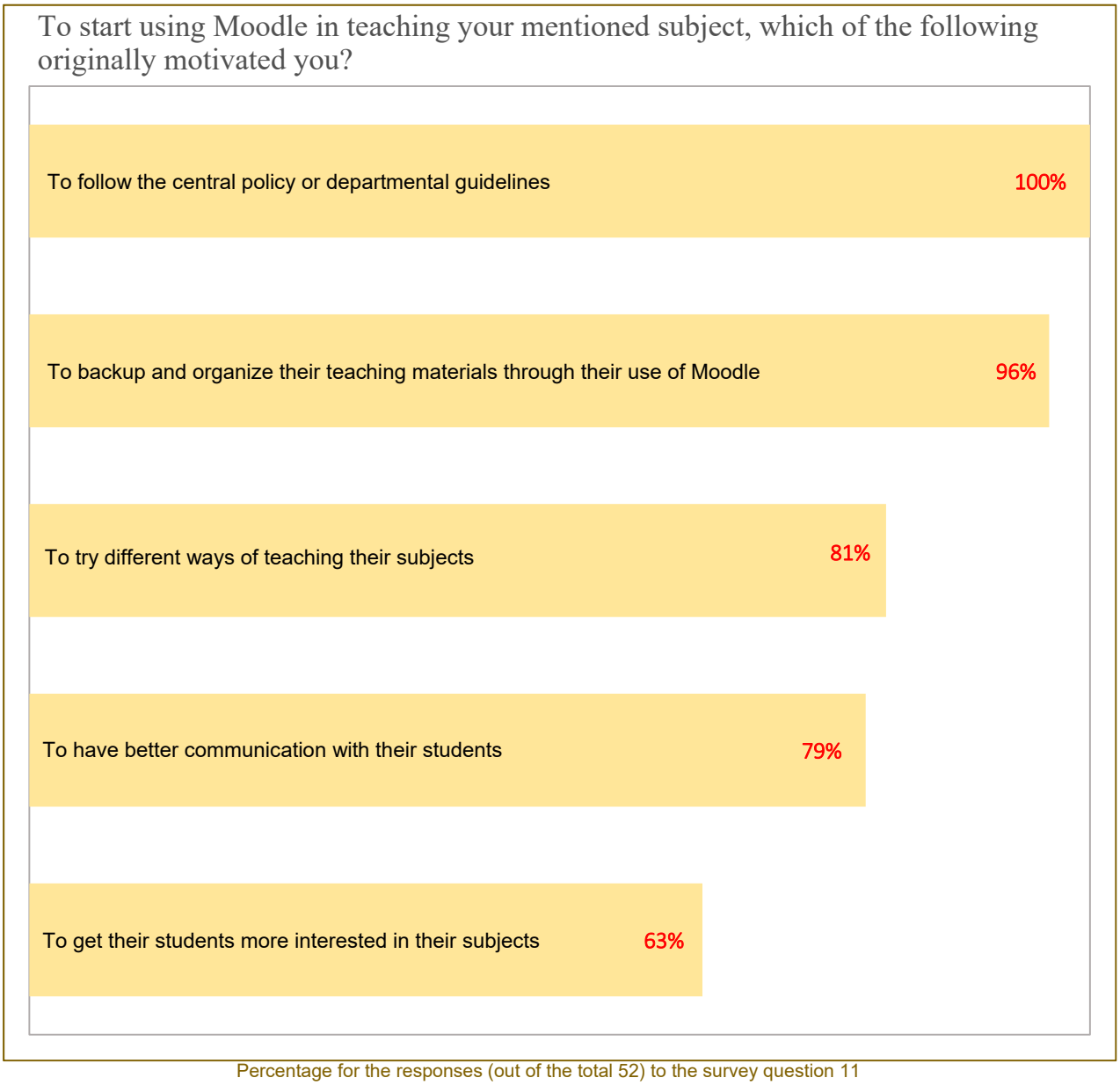
APPENDIX C: Survey Findings in Data Charts for Interviews

Chart (A)



Percentage for the responses (out of the total 52) to the survey question 10

Chart (B)



Percentage for the responses (out of the total 52) to the survey question 11

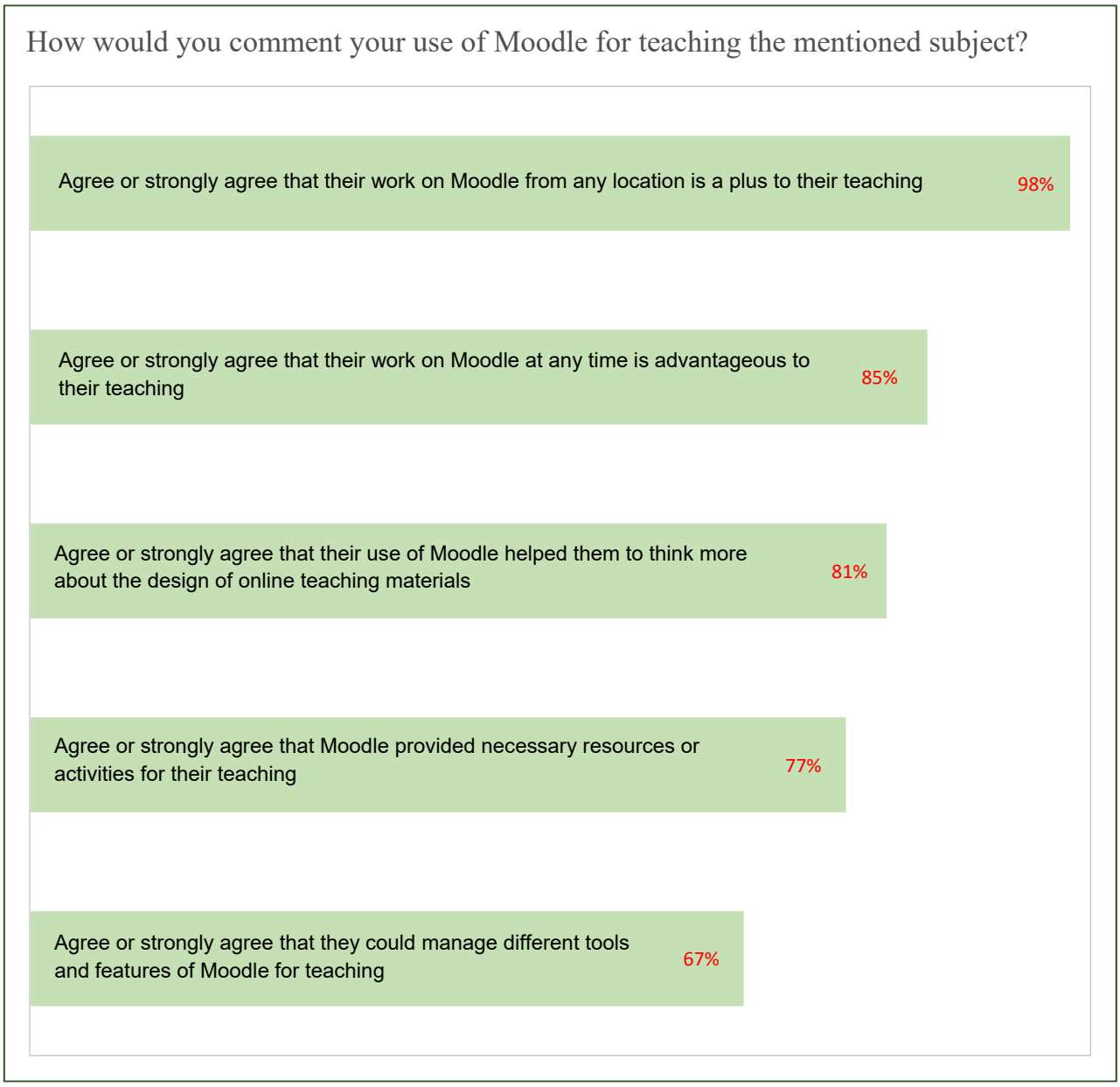
Chart (C)

For the resources and activities provided in Moodle, how often did you use them?

Activity provided in Moodle	Responses of teachers: often/sometimes use it
URL	87%
Page	83%
Others	60%
Folder	58%
File	54%
Assignment	54%
Quiz	50%
Chat	46%
Forum	44%
Glossary	40%
Journal	37%
Wiki	25%
Feedback	23%
Questionnaire	23%
Workshop	17%
Choice	15%
Lesson	15%
Survey	13%
Database	10%
Label	8%
External tool	8%
SCORM package	6%
Book	4%
IMS content package	0%

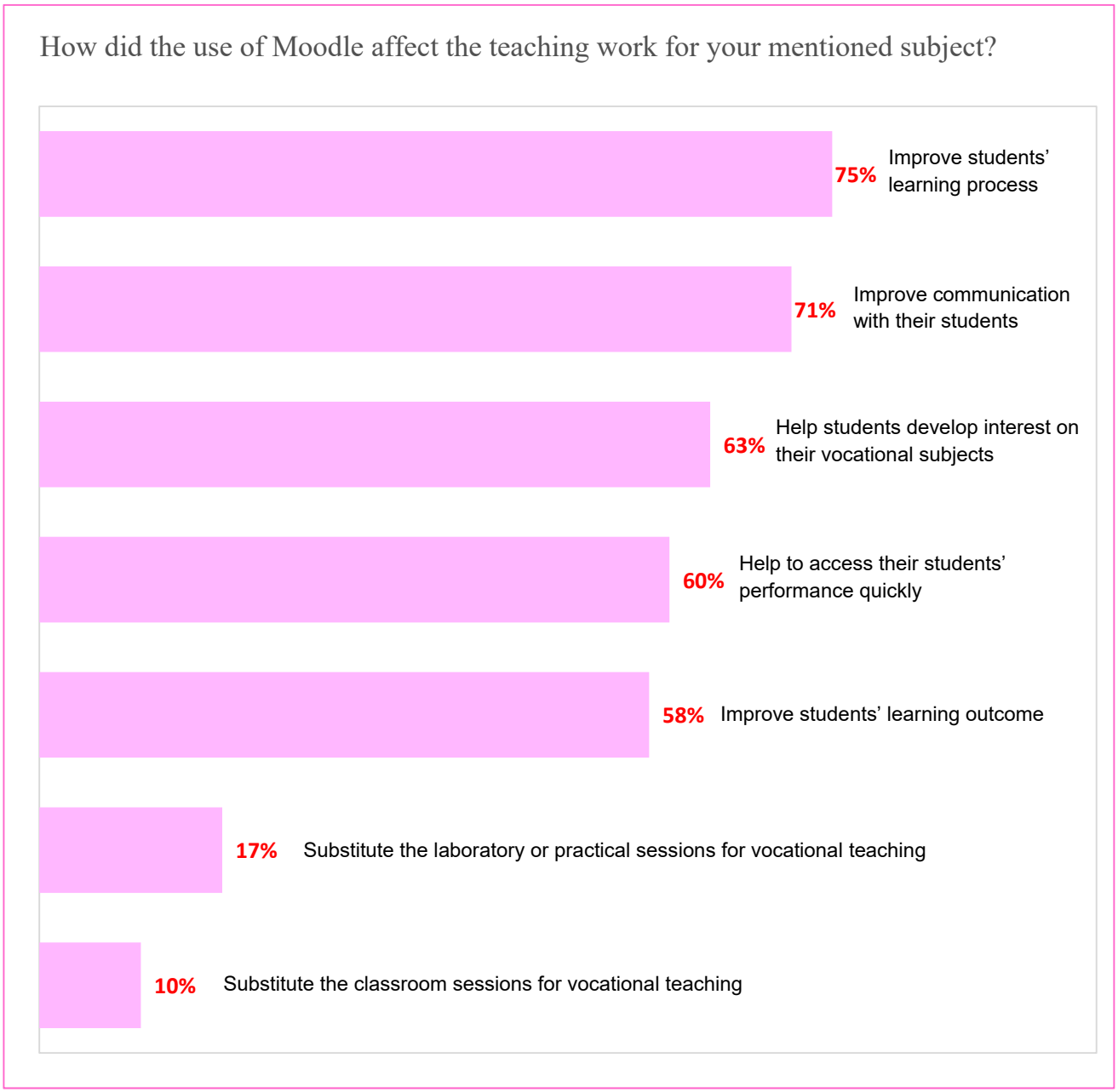
Percentage for the responses (out of the total 52) to the survey questions 12 and 13

Chart (D)



Percentage for the responses (out of the total 52) to the survey question 17

Chart (E)



Percentage for the responses (out of the total 52) to the survey question 15

APPENDIX D1

Pilot Test – Interview A

A) Basic Information of the Interview

1) Date: 7 January 2016 (Wed)
2) Time: 42 minutes during 11:04 am – 11:46 am
3) Venue: Meeting Room 254 in IVE (Sha Tin) Campus
4) Participants: Simon Wong (Interviewer) and Interviewee A

B) Demographic Data of the Interviewee

1) Department: Teaching staff from the Department of Business Administration

2) Highest educational qualification: Master Degree
   Major subject at graduation: Business Administration

3) Teaching experience: Twelve years mainly teaching business, management, accounting and financial subjects for the courses of Foundation Diploma and Higher Diploma

4) Experience of using WebCT in vocational teaching: 10 years
   Experience of using Moodle in vocational teaching: 2 years

5) The vocational subjects and levels taught with Moodle:
   Business Fundamentals in Diploma of Foundation Studies
   Accounting Fundamentals in Diploma of Foundation Studies
   Financial Accounting in Higher Diploma
   Practical Accounting in Higher Diploma
   Cost and Management Accounting in Higher Diploma
   Financial Management in Higher Diploma

6) The vocational subject the interviewee used Moodle the most for teaching:
   Accounting Fundamentals in Diploma of Foundation Studies

   The vocational subject the interviewee used Moodle the least for teaching:
   Practical Accounting in Higher Diploma

TOPICS FOR DISCUSSION

Topic 1: Use of Moodle in communication

Firstly, we are going to discuss the use of Moodle in communication for teaching. With reference to the first data bar in **Chart (A)**, many teachers (67%) agreed that they would use Moodle to communicate with their students.

- Would you use Moodle for communication purposes? YES

- If YES,
  a. How did you use it?
     Posting of subject requirements, lecture notes and class schedules for download by students

  b. Did you use it as a new way for communication with students or just used it to replace another form of communication (such as email or online discussion)?
     Using the softcopy to facilitate presentation and replace printing of papers.

  c. How did you find Moodle helpful, distracting, or unhelpful for communication?
     Helpful to me in preparing or updating lecture notes

- If NO,
  a. Why didn't you use Moodle for communication with students?

  b. In what way did you usually communicate with your students?

Topic 2: Use of Moodle to support teaching activities

2a) Now, we focus on the use of Moodle to support teaching activities. As we can see the third data bar in **Chart (A)**, there were not so many teachers (60%) who agreed that the use of Moodle could support teaching activities in their lectures.

- There were 40% of teachers not using Moodle to support teaching activities in their lectures. What do you think?

Colleagues probably did not familiar with the features or resources provided in Moodle. In that way, many (40%) still did not find the appropriate way to use Moodle to support the teaching activities in their lectures.

- How did the activities or features of Moodle support your teaching work? Any example in your teaching work to illustrate your view? Any example in your experience to explain this further?
  As I said before, I just converted the course requirements, lecture notes, class schedule into digital files, and then uploaded them to my Moodle subject.

2b) Meanwhile, we know that there are five vocational disciplines: Applied Science, Business Administration, Engineering, Information Technology, and Childcare, Elderly and Community Services providing various courses to students at our IVE campus.

- Would you think the diversity of vocational content affect the use of Moodle to support teaching activities in lectures? How?
  Yes, the diversity of vocational content affects the use of Moodle for teaching. For certain subjects such as Accounting or Information Technology, students' learning process can be defined in a more predictable way than other subjects which require more experimental work (Applied Science and Engineering) or experiential learning (Childcare, Elderly, and Community Services). So, I think that colleagues would use Moodle more or less to support teaching activities in their lectures if they are teaching accounting or IT-related subjects.

- In your subject(s), how did you consider Moodle suitable for the subject nature, requirements, teaching method, and assessment scheme?
  In teaching the accounting subjects, I found that my use of Moodle fit in well with the subject nature and requirements. It can provide accurate and updated information to students. Regarding the teaching method, I need to adjust it to work for my students because most of them are still used to classroom teaching and they may need time to change to online learning in Moodle. For the assessment scheme, Moodle can be helpful in analyzing and showing their results but not useful in marking assignments, tests, or examinations.

Topic 3: Use of Moodle to give tests/examinations

Furthermore, we looked into the use of Moodle to provide tests and examinations in vocational teaching. According to the last data bar in **Chart (A)**, just a few teachers (35%) agreed to use Moodle to give tests/examinations for their students.

- In your subject(s), would you use Moodle to give tests or examinations?
  NO

- What do you think about the situation that many teachers did not use Moodle to provide tests or examinations in their vocational teaching?
  Well, it is normal in vocational teaching because many subjects need practical or studio work for assessment rather than written tests or online examinations.

- Does this imply any problem or issue on the design of such a learning platform for vocational teaching?
  No, but I can understand that a platform cannot deal with all subjects.

- Or, was this related to the subject requirement on particular assessment format such as practical work, hands-on tasks, experiments or studio projects rather than online test or examination conducted in Moodle?
  YES. In certain subjects such as engineering, students need to do some group projects to solve various electrical or mechanical problems for the assessment. In other words, they may not need to have a written test or examination.

Topic 4: Different ways of teaching by using Moodle

In this topic, we want to understand more about teachers' motivation for using Moodle. As reflected by the third data bar in **Chart (B)**, many teachers (81%) would like to try different ways of teaching their subjects as their original motivation in using Moodle for vocational teaching.

- How would you interpret that intention?
  This is common to teachers for trying if they can find something new or different from the traditional ways.

- In what kind of different way did you try to teach your subjects such as using various activities or media (audio/video) in Moodle?
  For the accounting subjects, I have inserted some hyperlinks of online materials in Moodle for my students to have self-directed learning to explore those advance theories and further application as additional resources.

- Did your find it an effective way or not in teaching your subject(s)?
  Not effective so far.

- Why do you think it as effective (or ineffective) way?
  Most students are not used to self-directed learning. Many of them could not learn the advance theories and applications by themselves in Moodle.

Topic 5: Teachers' use of Moodle and students' interest in vocational subjects

Another motivation in using Moodle was to get students more interested in their subjects. As indicated by the last data bar in **Chart (B)**, some teachers (65%) were motivated to get their students more interested in their vocational subjects by using Moodle.

- Before using Moodle, in what way did you do to get students interested in your vocational subjects?
  Since most students are result-oriented, I always used something related to their scores to get them more interested. For example, saying certain topics were important in the examination to get students interested in studying those topics.

- After using Moodle in your teaching, did students feel more interested in your vocational subjects?
  The situation was unchanged in my subjects after using Moodle.

- Could Moodle help to develop students' interest or distract them in your vocational subjects? What are the reasons behind this reality?
  I think that Moodle cannot help to develop students' interest in my accounting subjects because it just provides an additional channel to deliver or arrange my teaching materials for convenient access by students instead of making them more interested in the subject matters.

<u>Topic 6</u>: Use of various activities in Moodle for vocational teaching

In this topic, we discuss more about how teachers actually used Moodle in their vocational subjects.

6a) There are various resources and activities provided in Moodle for vocational teaching. The data bars of **Chart (C)** tell us that the teachers' usage tends to be convergent to a few of activities only rather than fully use of them.

- How would you comment the situation that teachers preferred using Page (87%) or URL (84%) in Moodle more than other activities for vocational teaching?
  This is reasonable because they (Page and URL) may be the easiest functions or the most useful features provided in Moodle for vocational teaching. These two activities can also be used with simple, direct steps rather than those technical utilities in Moodle.

- Would you think that most activities provided in Moodle are not appropriate for vocational teaching? Why or why not?
  I am not sure to answer this question because certain activities in Moodle may be useful in teaching some other vocational subjects which are not provided in this IVE campus.

- How is your preference? What is your major concern in choosing a particular activity in Moodle for your vocational subject(s)?
  I prefer using Page and URL in Moodle as well. To choose a particular activity in Moodle for teaching, I usually focus on whether it is user-friendly to students (because many of them do not have much IT knowledge). Otherwise, it would make it more difficult for students to learn the subject materials in Moodle.

6b) In contrast to the above part (6a) by the last two data bars in **Chart (D)**, many teachers (77%) agreed that Moodle provided necessary resources or activities for their teaching, and also they (67%) could manage different tools and features of Moodle for teaching. This data seems to express that although Moodle provided necessary activities for vocational teaching and the teachers were able to manage them, actually most teachers did not use them for teaching.

- How would you explain that situation?
  I think that colleagues may need some time to explore the suitability of using various activities in teaching their subjects. So they just used the direct ones such as Page or URL in Moodle for teaching at this stage.

- Does it imply any dilemma in using Moodle for vocational teaching? Or any other implication?
  It may suggest that some more training or workshops should be provided to colleagues to get used to other features or activities to more fully use Moodle in their teaching.

Topic 7: Learning process of students and communication with them

Lastly, we look into the impact of teachers' use of Moodle in vocational teaching.

7a) With reference to the first two data bars in **Chart (E)**, many teachers agreed that their use of Moodle in vocational teaching could help to improve their students' learning process (75%) and develop better communication with them (71%).

- How did you find Moodle helpful or difficult to improve students' learning process?
  From my experience of teaching accounting subjects, the use of Moodle can help to improve students' learning process, but only to a small degree.

- In your communication with students, how far could your use of Moodle actually help?
  Students just used Moodle for download of my lecture notes and submit their assignments.

7b) On the other hand, by looking at the last two data bars in **Chart (E)**, just a few teachers thought that the use of Moodle could act as a substitute for classroom sessions (10%) or laboratory/practical sessions (17%) for vocational teaching in spite of the advantages mentioned above.

- Was this true in your subject(s)?

Basically, this situation was true in my subjects and Moodle cannot replace the classroom sessions.

- How do you explain this real situation in contrast to the functions of Moodle agreed by teachers in part 7a?
  The learning process of students mainly relied on teacher-based delivery rather than self-directed learning in accounting and business subjects.

C) FINAL COMMENT

No further comment was made by the interviewee. The interview finished.

APPENDIX D2

Pilot Test – Interview B

A) Basic Information of the Interview

1) Date: 12 January 2016 (Tue)
2) Time: 38 minutes during 2:38pm – 3:16pm
3) Venue: Meeting Room 254 in IVE (Sha Tin) Campus
4) Participants: Simon Wong (Interviewer) and Interviewee B

B) Demographic Data of the Interviewee

1) Department: Teaching staff from the Department of Engineering

2) Highest educational qualification: Master Degree
   Major subject at graduation: Electronic Engineering

3) Teaching experience: Three years mainly teaching the subjects of Higher Diploma in Electronic and Communications Engineering, and Higher Diploma in Computer Engineering

4) Experience of using WebCT in vocational teaching: 1 year
   Experience of using Moodle in vocational teaching: 2 years

5) The vocational subjects and levels taught with Moodle:
   Electronic Circuit Fundamentals in Higher Diploma
   Electronic Engineering Principles in Higher Diploma
   Mobile Communications Engineering in Higher Diploma
   Computer Engineering Project in Higher Diploma
   Internet-of-Things Engineering in Higher Diploma
   Industry-Based Student Project in Higher Diploma

6) The vocational subject the interviewee used Moodle the most for teaching:
   Mobile Communications Engineering

   The vocational subject the interviewee used Moodle the least for teaching:
   Industry-Based Student Project

C) TOPICS FOR DISCUSSION

Topic 1: Use of Moodle in communication

Firstly, we are going to discuss the use of Moodle in communication for teaching. With reference to the first data bar in **Chart (A)**, a lot of teachers (67%) agreed that they would use Moodle to communicate with their students.

- Would you use Moodle for communication purposes? YES

- If YES,
  a. How did you use it?
     Announcements on subject requirements, class/test/examination schedules, lecture notes and assignments for students to download. Sometimes, I used the Forum in Moodle for posting of online resources and discussion of students' work.

  b. Did you use it as a new way for communication with students or just to replace another form of communication (such as email or online discussion)?
     Not a new way, but an additional way to communicate with my students.

  c. How did you find Moodle helpful, distractive, or unhelpful for communication?
     I find it quite helpful to deliver teaching materials to my students and collect their assignments.

- If NO,
  a. Why didn't you use Moodle for communication with students?

  b. In what way did you usually communicate with your students?

Topic 2: Use of Moodle to support teaching activities

2a) Now, we will focus on the use of Moodle to support teaching activities. As we can see the third data bar in **Chart (A)**, there were not so many teachers (60%) agreed that use of Moodle could support teaching activities in their lectures.

- There were 40% of teachers not using Moodle to support teaching activities in their lectures. What do you think?
  There may be different reasons for this situation. One of the important reasons I think was that colleagues felt that it was difficult to revise or modify the format of their learning materials from the instructional approach in WebCT to the student-oriented approach in Moodle. So, there were about 40% still not using Moodle to support the teaching activities in their lectures.

- How did the activities or features of Moodle support your teaching work? Any example in your teaching work to illustrate your view? Any example in your experience to explain further about this?
  In my subjects, I often put the lecture notes, class/test/exam schedule, and assignment briefs as well as some related online resources in Moodle for my students. Students could also submit their assignment works to me in Moodle.

2b) We know that there are five vocational disciplines: Applied Science, Business Administration, Engineering, Information Technology, and Childcare, Elderly and Community Services providing various courses to students at our IVE campus.

- Would you think the diversity of vocational content affect the use of Moodle to support teaching activities in lectures? How?
  It is difficult to say yes or no to this question because it depends on how we use Moodle. For example, if we just use the basic functions of Moodle such as uploading materials for students, it can be suitable for teaching any subject no matter academic or vocational. However, if we want to have comprehensive use of Moodle for teaching, we may need to consider the nature of the vocational content carefully and choose the appropriate function of Moodle to deliver it in the online environment. So, there is no simple answer at all.

- In your subject(s), how did you consider Moodle fit for the subject nature, requirements, teaching method and assessment scheme?
  I feel that Moodle is fine for the subject nature, requirements, teaching method and assessment scheme in most of my subjects. For example, in teaching engineering subjects, I usually use Moodle to show more online information of the related topics as well as some interesting videos in

YouTube to keep my students up to date about the engineering world.

<u>Topic 3</u>: Use of Moodle to give tests/examinations

Furthermore, we will look into the use of Moodle to provide tests and examinations in vocational teaching. According to the last data bar in **Chart (A)**, just a few of teachers (35%) agreed to use Moodle to give tests/examinations for their students.

- In your subject(s), would you use Moodle for carrying out any test or examination? No, I did not use Moodle for any test or examination.

- What do you think about the situation that many teachers did not use Moodle to give tests or examinations in their vocational teaching?
  For many vocational subjects, there are different methods of assessment such as laboratory work or group projects, rather than tests or examinations. In that sense, Moodle cannot be used.

- Does this imply any problem or issue in the design of such a learning platform for vocational teaching?
  Yes, it may imply that a learning platform cannot be used to conduct all kinds of learning activities in vocational teaching.

- Or, was this related to the subject requirement on particular assessment format such as practical work, hands-on tasks, experiments or studio projects rather than online test or examination conducted in Moodle?
  I agree with this explanation because I think that learning platforms can be useful to perform written tests and examinations but not feasible for assessment by experimental or laboratory work.

<u>Topic 4</u>: Different ways of teaching by using Moodle

In this topic, we want to understand more about teachers' motivation of using Moodle. As reflected by the third data bar in **Chart (B)**, many teachers (81%) would like to try different ways of teaching their subjects as their original motivation in using Moodle for vocational teaching.

- How would you interpret that intention?
  It is natural for a teacher to try different ways in his or her teaching work if he or she does not feel that current methods are satisfactory.

- In what kind of different ways did you try to teach your subjects such as using various activities or media (audio/video) in Moodle?
  In my subjects, I have tried using Forum in Moodle to discuss the application of some engineering theories with students after they have viewed related video materials in YouTube.

- Did your find it an effective way or not in teaching your subject(s)?
  Yes, it was an effective way to make students feel more interested in the subjects.

- Why do you think it as an effective (or ineffective) way?
  I think Moodle is effective in this way. Most students cannot connect their knowledge to the real-life applications of my subjects but now many of them can understand the importance of engineering theories in the real world.

Topic 5: Teachers' use of Moodle and students' interest in vocational subjects

Other teachers' motivation in using Moodle was to get students more interested in their subjects. As indicated by the last data bar in **Chart (B)**, some teachers (65%) were motivated to get their students more interested in their vocational subjects by using Moodle.

- Before using Moodle, in what way did you do to get students interested in your vocational subjects?
  I would use some examples from our daily lives to let students understand how the engineering concepts or theories can be transformed into actual applications in order to make them more interested in my subjects.

- After using Moodle in your teaching, did students feel more interested in your vocational subjects?
  I think that students can view more examples of applications in engineering from various online resources as I have found online videos and put their links in Moodle for teaching. Therefore, they seem to be more interested in my subjects after using Moodle in my teaching.

- Could Moodle help to develop students' interest or distract them in your vocational subjects? What are the reasons behind this reality?
  To a certain extent, Moodle can help to develop students' interest in my subjects but this can still be improved. Actually, if I can explore the more advanced features of Moodle and make use of them to deliver learning materials in different ways, it should have a more positive impact on students' interest.

Topic 6: Use of various activities in Moodle for vocational teaching

In this topic, we discuss more about how teachers actually used Moodle in their vocational subjects.

6a) There are various resources and activities provided in Moodle for vocational teaching. The data bars of **Chart (C)** tell us that the teachers' use of Moodle tends to be convergent to a few of activities only rather than fully use of them.

- How would you comment on the situation that teachers preferred using Page (87%) or URL (84%) in Moodle more than other activities for vocational teaching?
  It is understandable. Teachers were always quite busy preparing and updating their learning materials. If there are simple functions provided in Moodle such as Page and URL, they would become the most popular online tools for teaching. That could explain teachers' high usage of Page and URL in Moodle.

- Do you think that most activities provided in Moodle are not appropriate for vocational teaching? Why or why not?
  I do not agree with this explanation because colleagues may not have sufficient time to try so many activities in Moodle for their subjects. Thus, they selected the basic ones so that they would be more effective. The advanced activities would pose more of a risk.

- What is your preference? What is your major concern in choosing a particular activity in Moodle for your vocational subject(s)?
  In addition to Page and URL in Moodle, I like to use Folder, File, Assignment, Glossary, Forum, and Lesson in my teaching. I found that these activities are quite useful in my teaching work. For example, Folder, File, Glossary and Lesson provided systematic arrangement of learning

materials to deliver many different topics in my engineering subjects while Forum and Assignment helped me to communicate with students in a more efficient way.

6b) In contrast to the above part (6a) by the last two data bars in **Chart (D)**, many teachers (77%) agreed that Moodle provided necessary resources or activities for their teaching, and also they (67%) could manage different tools and features of Moodle for teaching. This data seems to express that although Moodle provided necessary activities for vocational teaching and teachers were able to manage them, actually most teachers did not use them for teaching.

- How would you explain this situation?
  This is a difficult question to answer indeed. I can imagine that many teachers have already attained skills or knowledge on using Moodle but it may not be easy for them to apply the knowledge in teaching their subjects. Just like the engineering theories I taught in my subjects, most students can understand them and recognize their importance but they are not sure how to apply them in the actual environment.

- Does it imply any dilemma in using Moodle for vocational teaching? Or is there any other implication?
  I don't think it is a problem or having any implication to vocational teaching. This is common to many tools that we actually used in our daily lives. Similar to the situation of driving a car, most people agree that it is a necessary means of transport and also many of us can manage to drive it but you may not fully use all the features of a car when you drive it.

Topic 7: Learning process of students and communication with them

Lastly, we would look into the impact of teachers' use of Moodle in vocational teaching.

7a) With reference to the first two data bars in **Chart (E)**, many teachers agreed that their use of Moodle in vocational teaching could help to improve their students' learning process (75%) and develop better communication with them (71%).

- How did you find Moodle helpful or difficult to improve students' learning process?
  In my engineering subjects, the use of Moodle can help to improve students' learning process by providing faster and easier access of updated information on the subject matter.

- In your communication with students, how far could your use of Moodle actually help?
  As an additional channel, I can post some questions and resources in Moodle for further discussion with students after my lectures on various engineering topics. In that sense, it helped me to have better and more communication with my students.

7b) On the other hand, by looking at the last two data bars in **Chart (E)**, just a few teachers thought that the use of Moodle could substitute for classroom sessions (10%) or laboratory/practical sessions (17%) for vocational teaching in spite of the advantages mentioned above.

- Was this true in your subject(s)?
  Yes, this situation was true because Moodle could not replace the classroom sessions or laboratory sessions in my subjects.

- How do you explain this real situation in contrast to the functions of Moodle agreed by teachers in part 7a?
  Classroom teaching is still important since many engineering theories cannot be easily understood by students by themselves. They are also expected to learn many concepts through their experiments conducted in various laboratories and so Moodle cannot replace the laboratory sessions.

D) FINAL COMMENT

No further comment was made by the interviewee. The interview finished.

APPENDIX E: Summary of Interviews with IVE Teachers

INTERVIEW 1

Informant: Interviewee 1

Date & Time: 3pm on 18th February 2016

Venue: Learning Resources Centre of IVE (Sha Tin) Campus

Background of Interviewee:

Interviewee 1 is currently an IVE lecturer in the Discipline of Business Administration. He has attained two Master Degrees including one in Accountancy and the other one in Engineering Management. As a vocational teacher, Interviewee 1 has already worked in VTC for over 20 years. For the first eight years, he mainly taught Management subjects such as quality control and work studies. After becoming a member of the Hong Kong Computer Society and British Computer Society, he then taught Business Administration subjects such as commercial software, business statistics, information technology in accountancy, stress management, and IT applications in business for various levels of vocational students. Interviewee 1 also has extensive experience in using online platforms from WebCT to Moodle.

Summary of Discussion:

Regarding communication with students in Moodle, Interviewee 1 describes that there are two ways. The first is the traditional way to put the

announcements, circulars and teaching materials online to let students access them. The second way is to create a communication forum with notices informing students details of coming visits, activities, and events as well as encouraging them to participate. Here, Interviewee 1 mentions an interesting point that WhatsApp is actually used to remind his students about updated information or materials available in Moodle because it is more commonly used among students in Hong Kong and so they have no excuse for missing any information in their subjects.

However, Interviewee 1 has found limitations to teaching with Moodle, particularly for interactive activities such as video, demonstrations, or online quizzes. For example, Interviewee 1 has prepared multiple choice exercises for students' self-test in Moodle after his classroom lectures but the response rate was very low. He tries to explain that problem by the learning habit or learning style of students as most are still are not used to the digital learning environment. As many students are marks oriented (hopefully just in Business subjects), they see no point to "touching" materials if no mark given for their efforts. Eventually, Interviewee 1 says that teaching activities in Moodle are quite ineffective to his subjects as he needs to spend a significant amount of time to prepare them.

On the other hand, Interviewee 1 feels that some practical skills can be taught and delivered in Moodle by using links to online videos which may be either customized for his purpose or by using existing ones in YouTube. For

example, in teaching stress management, he has tried playing videos during his classroom lectures to demonstrate different ways to release pressure. To his surprise, he observed that many students have immediate responses for the videos and could easily discuss with each other on the issues presented in the videos. In this way, peer learning is initiated and developed in the classroom rather than the online forum in Moodle.

Regarding activities and resources provided in Moodle, Interviewee 1 often uses URL, Folder, File, Assignment, and Label in his subjects but seldom uses them in other activities. He explains that the main reason is to strengthen communication by making his students aware of important learning materials including lecture notes, PowerPoint slides, and assignment briefs. For other activities or resources in Moodle, he does not currently find them useful, but he thinks that they may be useful in other vocational subjects.

For social learning or community learning, Interviewee 1 thinks that Moodle can hardly compete, with social platforms like Facebook or Twitter in teaching vocational subjects. He emphasizes that Moodle cannot instantly respond to students' questions without much delay. At this point, Interviewee 1 states that he thinks that this is caused by limitations on teachers' time or alertness to reply to students, rather than any problem of the online platform. To have improvement in the future, he suggests that there should be another teaching associate or tutor to responds to students' questions or discussions in Moodle.

INTERVIEW 2

Informant: Interviewee 2

Date & Time: 10am on 26th February 2016

Venue: Learning Resources Centre of IVE (Sha Tin) Campus

Background of Interviewee:

Interviewee 2 is currently an IVE lecturer in the Discipline of Information Technology. She has attained a Bachelor Degree in in Physics and a Bachelor Degree in Computing. As a vocational teacher, Interviewee 2 has already worked in VTC for more than 20 years. For the first four years, she mainly taught the subjects of mathematics and physics. On completion of her second degree and transformation of her department, she began teaching IT-related subjects mainly for Higher Diploma students. Interviewee 2 is experienced in using online platforms for teaching her vocational subjects, both WebCT to Moodle.

Summary of Discussion:

To encourage students to use Moodle, Interviewee 2 mentions that all official announcements, notices, and teaching and learning packages (TLP) for her subjects would be uploaded for online access. However, she seldom uses tools like Email, Chat, Forum or Feedback in Moodle to perform two-way communication individually because most students want to receive a quick

response from their classmates or teachers when they post ideas or questions in their discussion group by using mobile devices. With Moodle, they have to login to the platform and wait for responses from the others. So, Interviewee 2 finds that students tend to choose other popular platforms such as Facebook for instant communication in discussing assignments, projects, and teaching materials. When she compares the effectiveness of Moodle with other platforms, Interviewee 2 expresses that as her students are mainly IT students who want to get the required information as fast as possible. Students are quite impatient about times gap between messages, so they do not like to have any asynchronous communication or discussion in Moodle.

To support her teaching activities, Interviewee 2 points out that she simply uploads her lecture notes and links of online resources in Moodle for students to access. She would also use the Assignment tool in Moodle to collect her students' assignment work because it provides a time stamp for recording the submission date effectively. Due to the shift of her subject nature from text-based computer programming to multimedia content such as video editing or image processing, she cannot prepare the learning materials and assignment projects in Moodle directly. Instead, she has to create the required materials by other tools or platforms and then save them to compatible file formats for upload to Moodle. On the other hand, to follow the central policy of the Information Technology Discipline, the TLP for most subjects are prepared in the "standard" way and many teachers including Interviewee 2 do not have much flexibility to

develop their own materials for teaching with Moodle. In this way, she feels that Moodle cannot be much help in supporting her subjects.

Interviewee 2 would not consider performing any online test or examination with Moodle since tests and examinations are centralized to be conducted in written formats for a number of classes from different vocational Disciplines. In addition, students need to take a test or examination at the same time in the same venue. Practically, it is not feasible to provide such a large venue with so many computers for students to take an online test or examination simultaneously in Moodle.

Regarding the use of resources and activities, Interviewee 2 would firstly consider whether they could effectively deliver the teaching materials. Then, she would check whether they are user-friendly to herself and her students before applying them for her subjects in Moodle. Otherwise, it may cause a waste of her effort for much preparation work or result in students' low response rate. However, Interviewee 2 still thinks that Moodle has its value if we can view it as a virtual place to show the necessary information and collect assignments even though it cannot be a substitute for the laboratory or practical sessions for vocational teaching. Students need step-by-step guidance by actual teachers to complete practical tasks and they often require teachers' immediate assistance for r any difficulty encountered in laboratory sessions. Interviewee 2's final comment is that Moodle is a quite sophisticated platform for vocational teaching and it may better help teachers in those vocational subjects which can

be delivered theoretically, but not effective for subjects that rely on laboratory or practical training.

INTERVIEW 3

Informant: Interviewee 3

Date & Time: 4pm on 26 February 2016

Venue: Learning Resources Centre of IVE (Sha Tin) Campus

Background of Interviewee:

Interviewee 3 is currently an IVE assistant lecturer of the Engineering Discipline. He has attained a Master Degree in Electronic Engineering. As a vocational teacher, Interviewee 3 has worked at the VTC for six years mainly teaching trade modules (non-generic modules) in mathematics and electronic for students at the Higher Diploma and Foundation Diploma levels. Therefore, Interviewee 3 has experience in using online platforms such as WebCT and Moodle for teaching his vocational subjects.

Summary of Discussion:

Interviewee 3 mentions that about 90% of his subject materials in Moodle are TLP, assignments, and solutions while the remaining 10% are

supplementary information such as video links on some engineering related topics. Apart from announcements of examination timetables and presentation schedules, Interviewee 3 does not do much communicating with students in Moodle even though he knows that there are various tools including Chat or Forum provided in Moodle. This is because of his busy teaching work and the availability of many other convenient tools, for example, email, phone conversation, WeChat, and WhatsApp discussion groups. Interviewee 3 points out that according to the policy of the Engineering Discipline, it is required to upload the teaching materials of his subjects for students' access in Moodle. Therefore, he would spend time to organize lecture materials, tutorial notes, assignments, and laboratory worksheets for his subjects in Moodle to align with the teaching schedule.

For student assessment, Interviewee 3 does not give test or examination in Moodle because many engineering questions and solutions are expressed by technical symbols or mathematical terms which cannot be easily used in Moodle. Students solve engineering problems with an uncountable combination of steps or by using various scenarios without unique answers. In addition, Interviewee 3 still quite uncertain about the security issues and hardware capability of Moodle to support the implementation of online tests or examinations. Therefore, the traditional way of assessment by paper-based tests and examination is still being adopted in his engineering subjects.

As a different way to teach students, Interviewee 3 recalls that he has provided video links in YouTube to explain the advanced topics of his subjects in Moodle and students can acquire supplementary knowledge by viewing those online videos. However, he finds that it is not possible to know how many students have actually viewed the specified videos and their effectiveness. To improve the situation, Interviewee 3 is currently thinking that he might prepare worksheets for his students to complete certain tasks or solve engineering problems after viewing the videos. He can then collect the worksheets to check whether they can perform self-learning by the online videos.

Regarding the use of the resources and activities in Moodle, Interviewee 3 says that he would make his choices by considering the teaching needs and nature of the subject. He admitted that although he mainly uses URL, Folder, File, and Assignment in Moodle, the remaining activities such as Questionnaire, Lesson, Survey, or Database are still necessary for teaching other vocational subjects rather than engineering.

To comment on the impact of the use of Moodle, Interviewee 3 agrees that it can improve students' learning process and communicate better with them. But he also thinks that the use of Moodle cannot substitute for laboratory sessions in engineering subjects because students need to acquire the hands-on experience and they cannot ask any question directly if they just view the online video demonstration. Above all, Interviewee 3 emphasizes that teachers can observe the actual learning process of students in the laboratories or classrooms

so that they can respond to students' difficulty effectively without any time delay or avoid any unnecessary problems caused by the lack of teacher supervision.

INTERVIEW 4

Informant: Interviewee 4

Date & Time: 3pm on 29 February 2016

Venue: Learning Resources Centre of IVE (Sha Tin) Campus

Background of Interviewee:

Interviewee 4 is currently an IVE lecturer of the Discipline of Childcare, Elderly and Community Services. He is now studying a part-time Doctorate programme in Education (EdD) in Health Studies. As a vocational teacher, Interviewee 4 has worked in the VTC for eight years mainly teaching the subjects of healthcare, green education, and special education for Higher Diploma students. Therefore, Interviewee 4 has had previous teaching experience in using online platforms including WebCT and the existing platform, Moodle.

Summary of Discussion:

Interviewee 4 describes that it is necessary to place subject requirements, timetable of lectures, assignment schedules, and teaching materials for all of his subjects in Moodle. He also creates useful links to other online materials on related topics for additional learning or reference. Since students need to understand the philosophy of organizations that are connected to their job training, Interviewee 4 would organise and provide the websites of these organisations for teaching his practical subjects. He often advises students to access the materials in Moodle because he finds that there is not enough time to deliver all items in classroom teaching. A few of students would regularly login to Moodle to attain subject information, but most would need to be reminded by Interviewee 4. Therefore, he feels that one of the important issues in using an online platform for vocational teaching is the students' capability and attitude of learning by themselves. He explains that there is no effective way to help students change from teacher-centred learning to self-directed learning after they have already received so many years of teaching-based education in primary and secondary school. As indicated by Interviewee 4, most of his communication in Moodle is one way from teacher to students with few interactions.

On the other hand, Interviewee 4 considers that students often need to have face-to-face discussion, for topics such as Childcare, Elderly and Community Services. He points out that due to the subject nature, students are required to develop their interpersonal skills to deal with different people in the real

environment rather than sitting in front of computers or using mobile devices for communication in the cyber world. So, Interviewee 4 that it may instill the concept or culture in his students to put more effort on direct contact for the real connections rather than virtual communication in Moodle.

Regarding student assessment, Interviewee 4 does not consider any online test or examination in Moodle for his subjects because he is still worried about potential security issues and technical problems. Furthermore, students are usually required to discuss scenarios or analyze certain cases in form of the essay-type questions without any standard answers. Hence, Interviewee 4 provides paper-based tests and examination in his subjects for part of the student assessment even though he encourages students to make use of the e-resources and online materials to improve their assignment work or projects.

To choose which resource or activity in Moodle for teaching, Interviewee 4 reflects that he would consider those that have more user-friendly functions. He suggests that teachers would like to try or use more teaching activities in Moodle if some templates or samples can be given for direct application. This could help teachers to save time in preparing similar teaching activities for their subjects in Moodle. Although Interviewee 4 concentrates on several activities in Moodle rather than fully using its features, he thinks that they are still important for vocational teaching because different resources and activities can be useful to cater for the diversity of learning content in vocational areas and not just customized for teaching the subjects of Childcare, Elderly and

Community Services. In addition, Interviewee 4 suggests that provision of more teacher training, adjustment of the central policy in student assessment, and improvement of hardware support may help encourage the wider use of activities in Moodle.

For vocational subjects involving workplace practice or job-skill training such as many subjects in Childcare, Elderly and Community Services, Interviewee 4 feels that they cannot be taught by just using Moodle. Students have to interact with the real environment and people to attain the required skills. Therefore, he thinks that the use of Moodle cannot substitute any practical session or classroom lecture for his subjects.

INTERVIEW 5

Informant: Interviewee 5

Date & Time: 9.30am on 1 March 2016

Venue: Learning Resources Centre of IVE (Sha Tin) Campus

Background of Interviewee:

Interviewee 5 is currently an IVE lecturer in the Discipline of Applied Science. She has a Master of Science in Environmental Science and Postgraduate Diploma in Education. As a vocational teacher, Interviewee 5 has

worked at the VTC for 10 years and has mainly taught environmental science-related subjects for Higher Diploma students. Interviewee 5 is quite experienced in using online platforms for teaching vocational subjects since the era of WebCT to Moodle.

Summary of Discussion:

Interviewee 5 mentions that she uses Moodle more in her management-related subjects for example Quality Management and Environmental Management because she has prepared video links to introduce the daily operation of the concerned organisations and her students can access them in Moodle. In that way, students find it more interesting to become familiar with the organisations rather than spending time on visits. To teach laboratory skills, Interviewee 5 would demonstrate the appropriate steps in using various apparatus during the practical sessions, her students would have the hands-on experience and direct coaching. Therefore, she feels that it may not be necessary to show the videos of her demonstration in Moodle unless students want to view them again, not for learning, but just for revision before tests or examinations.

As done by many teachers, Interviewee 5 would upload her lecture notes, tutorial handouts, class schedules, assignments, and solutions for her subjects in Moodle. However, she seldom uses tools like email, chat, forum or feedback in Moodle because she lets students to raise questions in classrooms or laboratories so that she can share the questions for group discussion without any time delay.

As such, students can receive responses from their classmates and Interviewee 5 much faster than an online chat room, discussion forum or email messaging by Moodle. She notes that students seem to be more active in face-to-face discussion in classrooms rather than in the online environment. At this point, Interviewee 5 explains that in Moodle, students cannot share their ideas efficiently among themselves because they have to login to the platform and wait for the others' interaction. Therefore, Ms. WONG actually does not use Moodle much for discussion or communication in teaching her subjects.

To encourage self-learning by students, Interviewee 5 also puts some video links in Moodle to let them have their after-class activities for her subjects. These links are often showing information of organizations in the form of case analysis for students to get them to think about how different policies and operations developed in organizations to implement environmental management. In this way, she feels that Moodle can help students to learn further on related topics and get more interested in her subjects. However, Interviewee 5 does not carry out any online test or examination with Moodle as students are required to have critical thinking to answer the questions of her subjects, thus answers are without unique solutions, and so most of them are conducted in written format. Therefore, it is not practically feasible for her students to take online tests or examinations in Moodle.

About the resources and activities in Moodle, Interviewee 5 says that she has tried many of them for her subjects but not frequently. For example, she has

used the Questionnaire tool to help her arrange the makeup class schedule and the Feedback tool to collect students' responses on the scenarios presented at the end of her lectures. To consider tools in Moodle, Interviewee 5 is concerned whether they could be applied effectively to deliver teaching materials and whether students would find that they were simple to use. Nevertheless, Interviewee 5 thinks that Moodle is a useful platform for vocational education as she can find many tools to fit different teaching purposes. However, the tools of Moodle cannot substitute for laboratory or practical sessions in vocational teaching. She explains that students need "live" coaching by teachers to complete some practical tasks and they often require teacher's responses to any difficulties encountered in the laboratory. Interviewee 5 has her final remark that with the shift from teacher-centred to student-driven learning in vocational education, classroom teaching can be recorded to become video clips for online access in Moodle which may become a virtual classroom for vocational teaching in the future.

INTERVIEW 6

Informant: Interviewee 6

Date & Time: 10am on 8 March 2016

Venue: Learning Resources Centre of IVE (Sha Tin) Campus

Background of Interviewee:

Interviewee 6 is currently an IVE lecturer in the Discipline of Business Administration. Before teaching, he obtained a Master Degree in Business Administration. As a vocational teacher, Interviewee 6 has worked at the VTC for 12 years. He has mainly taught Accountancy, Commercial Law, Auditing, and other business-related subjects for vocational students at the Foundation Diploma and Higher Diploma levels. Interviewee 6 has extensive experience in using online platforms including WebCT and Moodle for teaching his subjects.

Summary of Discussion:

For communication with students, Interviewee 6 acknowledges rapid changes in this area. To follow the central policy of the Discipline, he still uploads his subject information and learning materials into Moodle for students to access them at any time or place such that Moodle is the primary source of information for his subjects. However, understanding the popularity of social networking tools such as WhatsApp and Facebook, Interviewee 6 also posts urgent announcements and important news to students in the message groups of those channels for faster updates on his subjects. Consequently, most students prefer asking questions by these auxiliary tools or face-to-face discussion in classrooms rather than using Moodle. Therefore, he feels that at present, the communication aspect of Moodle is less important.

Regarding student assessment, Interviewee 6 does not post any test or examination in Moodle because many questions and answers in business areas are of the essay type which cannot be marked electronically, whether in Moodle or on any other learning platform. Students can respond to questions based on various concepts or theories and present their ideas by different rationales according to the business case. Therefore, Interviewee 6 still adopts the traditional way of student assessment in the form of written tests and examinations for his vocational subjects.

In contrast to communication or assessment purposes, Interviewee 6 feels that Moodle helps to support his teaching activities in more effective ways. Before using Moodle, he had to photocopy all lecture notes and tutorial handouts in advance for distribution to students. He now does not need to do any photocopying but simply upload his material to Moodle. Furthermore, for any amendment to his teaching materials or even changes in upcoming class schedules, he just needs to make the modifications directly in Moodle and his students can obtain the updated information conveniently even after his lectures. In addition, Interviewee 6 would post links of supplementary resources and news, such as online newsletters of the Association of Chartered Certified Accountants, to enable his students to be more aware of current developments in the industry.

To consider the resources and activities of Moodle for teaching, Interviewee 6 focuses on their purpose and appropriateness. He just

concentrates using a few activities in Moodle rather than fully use its features because he can complete all the necessary tasks by using these few activities and so he is not aware of the other activities in Moodle. However, Interviewee 6 thinks that they are still important for vocational teaching because different resources and activities should be designed for teaching different vocational subjects. They are not customized features for just teaching the business subjects. At this point, Interviewee 6 suggests providing more teacher training to improve their technical skills on using advanced activities in Moodle so as to promote their application in vocational teaching.

Above all, Interviewee 6 emphasizes that the use of Moodle cannot act as a substitute for teachers. He explains that all of his subjects are delivered by classroom teaching in which the interaction between teacher and students is indispensable. This is important because Interviewee 6 describes that the self-learning ability of most of his students' is still weak and they actually need teacher-centred learning with Moodle as an assistant learning tool in his vocational subjects.

INTERVIEW 7

Informant: Interviewee 7

Date & Time: 3pm on 10 March 2016

Venue: Learning Resources Centre of IVE (Sha Tin) Campus

Background of Interviewee:

Interviewee 7 is currently an IVE senior lecturer of the Discipline of Applied Science. She has attained her Master of Environmental Management, a Master of Science in Computer Networking and a Doctorate Degree in Business. As a vocational teacher, Interviewee 7 has worked at the VTC for over 15 years. Recently, she is teaching both generic and specific subjects in Applied Science for students of different class sizes and at various levels. Interviewee 7 has used online platforms to teach her vocational subjects for a long time since the period of WebCT and she is now using Moodle.

Summary of Discussion:

Interviewee 7 firstly shared her experience in teaching enrichment modules which are designed for students to study certain non-major subjects so as to explore their interests for further learning or acquire basic knowledge in other vocational area that is related to their career plan. In these enrichment modules, Interviewee 7 describes that there are students from different Disciplines such as Business, IT, Engineering and Child Education taking the same module and attending the same class. Having such a diversity of student background, Interviewee 7 finds Moodle effective for communication with them, even better than email or WhatsApp. It is because they come from different Disciplines and do not have much contact with Interviewee 7. So, they have to rely on subject

information and materials in Moodle. This motivates them to access Moodle frequently and helps many of them to develop self-learning skills. In contrast to the enrichment modules, for students majoring in Applied Science, Interviewee 7 feels that the communication function in Moodle is not useful because she has much contact with them during lectures and laboratory sessions. They would get more information or discussion directly and thus have less need for online access.

In using Moodle to support her teaching activities, Interviewee 7 mentions an example that she would divide students into groups and post their assignment work in the discussion forum for peer review. This can help them to establish critical thinking on the same issue and explore a possible solution with each other. Although Interviewee 7 finds that her students are not that active in the forum, it is meaningful to encourage their access or contribution as part of their learning. Interviewee 7 thinks that this me be due to the nature of many Chinese students in worrying too much about comments from other people. She believes that this culture would also occur in the virtual environment of Moodle.

Secondly, Interviewee 7 also provides video links for various topics in Moodle. She would make video recordings for the significant results of some experiments performed in the laboratory and then they would be uploaded to Moodle for her students to review after lessons. Interviewee 7 finds that many students have to login to Moodle to view the videos, particularly when they do not obtain successful results of experiments carried out in the laboratory.

Interviewee 7 would usually not let students view these videos during lectures and laboratory sessions. She would arrange follow-up exercises as homework or self-tests for students when they viewed the videos after classroom sessions.

Regarding the use of resources and activities in Moodle, Interviewee 7 would consider whether they could provide the required function in easy and effective ways. She uses URL, File, Folder, Label, and Assignment more than other tools in Moodle. Interviewee 7 suggests that if some templates can be given to teachers, she would be happy to try other advanced activities for her subjects in Moodle. Furthermore, Interviewee 7 advises to have a technical specialist or a team locally for direct support to teachers in campus so that she would spend less time for trial or testing of the advanced features in Moodle. Nevertheless, Interviewee 7 thinks that Moodle cannot be a substitute for the laboratory or practical sessions for vocational teaching. At present, due to the inability of students' self-directed learning and diversity of their academic background, they still need much guidance from teachers to gain laboratory skills. Therefore, Interviewee 7 makes a final comment that online platforms including Moodle can mainly be used for theory teaching in vocational education.

INTERVIEW 8

Informant: Interviewee 8

Date & Time: 3.30pm on 15 March 2016

Venue: Learning Resources Centre of IVE (Sha Tin) Campus

Background of Interviewee:

Interviewee 8 is currently an IVE lecturer in the Discipline of Business Administration. Before teaching, he has attained a Master Degree in Finance and worked as a staff trainer in the banking industry for many years. Interviewee 8 then became a vocational teacher in VTC, a position he has held for over seven years. He mainly teaches Finance, Insurance, and Banking-related subjects for vocational students at the Higher Diploma level. Interviewee 8 therefore has extensive experience in using electronic platforms for job training previously as well as Moodle for teaching his vocational subjects currently.

Summary of Discussion:

Interviewee 8 first shares his experience of using online platforms for job training in banks and vocational teaching at the IVE campus. He describes the main difference in learners rather than the learning materials or teachers. In banks, most of the staff are mature and have better attitude in self-directed learning. Interviewee 8 did not spend much effort to provide training for them with digital platforms. In contrast to the bank environment, most students at the

IVE campus are comparatively younger with less initiative for self-learning. In turn, Interviewee 8 needs to make extra effort to motivate his students to use Moodle for learning.

Meanwhile, to align with the fast pace of technology development, Mr. PUN mentions that recent changes that have impacted on communication with students in the cyber world. During the previous years, he would upload all things such as announcements, teaching materials, and subject information to Moodle for student access. Now, Interviewee 8 will share most updates on his subjects and news about the industry in the WhatsApp groups for instant access by students via their mobile devices. So, he feels that the purpose of communication in Moodle is not as important as before.

For student assessment, Interviewee 8 does not give any test or examination in Moodle because many questions in finance or banking related to case analysis and they are required to be answered in written format which cannot be marked electronically, whether in Moodle or any other online platform. Students have to show their justification and apply the theories they learnt to formulate their solution for the cases in essays. Therefore, Interviewee 8 still adopts the old-fashioned but effective way of student assessment in form of written tests and examination for his vocational subjects.

Regarding the arrangement of teaching activities, Interviewee 8 mentions that he likes to prepare some learning materials in Moodle for students to

preview before they come to the class. Then, he would raise up questions related to this material for his students to answer or discuss in class. However, it seems that his students are not motivated enough to reading these materials beforehand. Interviewee 8 points out a possible reason is that that their participation in class is usually not counted in subject assessment.

Interviewee 8 prefers using simple activities to advanced ones in Moodle. He would make more frequent use of URL, Page, Folder, and File in Moodle to deliver the necessary materials for his subjects based on actual needs. Recently, he has also considered using Assignment and Quiz to provide online exercises for students. However, Interviewee 8 is still afraid of that using more advanced features would consume too much time and be more difficult for his students to use. This may be caused by the lack of user training on the part of both teacher and students.

Furthermore, Interviewee 8 thinks that teaching with Moodle should be more effective for informative or theoretical subjects rather than those needing hands-on practice. For instance in his banking subjects, students are required to work on job skills at the model bank in the IVE campus. If they just learn by viewing a video demonstration, they will not have interaction with people (customers) and experience of the real environment (bank). Therefore, Interviewee 8 stresses that the use of Moodle cannot substitute for the role of teachers in vocational education, particularly for those subjects which require training or practice of job skills in workplaces.

INTERVIEW 9

Informant: Interviewee 9

Date & Time: 2:30pm on 17 March 2016

Venue: Learning Resources Centre of IVE (Sha Tin) Campus

Background of Interviewee:

Interviewee 9 is currently an IVE lecturer of the Discipline of Childcare, Elderly and Community Services. She attained her Bachelor Degree in Nutrition and Master Degree in Counselling Psychology. As a vocational teacher, Interviewee 9 has worked in VTC for 12 years. She mainly teaches subjects related to child education for students in the first year and final year of the Higher Diploma. Interviewee 9 has extensive experience in using online platforms including WebCT in the past and Moodle currently for teaching her subjects.

Summary of Discussion:

First, Interviewee 9 says that Moodle is useful to show subject requirements, assignment schedules, assessment outlines, and learning materials for all of her subjects in Moodle. She would also communicate with certain students in Moodle if they have low attendance rates for the lectures or if they forget to submit their assignment work in Moodle. In this way, her students have no more excuses for missing lessons or assignment deadlines.

Since students can have direct contact with Interviewee 9 during her lessons and through email after lessons, she has only received very few responses from students by using the communication tools in Moodle even if students have problems for discussion. In other words, Interviewee 9 just uses Moodle for one-way communication with her students.

Interviewee 9 uses videos to teach those topics on child development. She states that there are two different types of video including type is copyrighted and produced by internal staff and the other type are ones posted by educators in public platforms like YouTube. For the public videos, Interviewee 9 would share their hyperlinks in Moodle so that students can access them conveniently. For videos with copyright, Interviewee 9 shares them on any online platform only during her lectures. Interviewee 9 says that it is an interesting point that it is more effective for students to view the videos in class rather than online in Moodle because she can observe their feedback directly and they can often have a face-to-face discussion together after watching the video. Interviewee 9 further explains that there is not much offline interaction in Moodle for reasons such as the atmosphere in classrooms, the importance of live coaching by teachers and the presence of peer pressure.

Regarding the resources and activities in Moodle for teaching, Interviewee 9 that she considers two things in this area. Basically, she would choose activities if they can deliver teaching materials effectively. She would also consider whether the activity is convenient to students as well. Interviewee 9

also says that she would try using more teaching activities in Moodle if additional training can be provided and more spare time can be found in her teaching schedule. Interviewee 9 has recently only used only a few of activities available in Moodle rather than making full use of its features. However, she thinks that the provision of different resources and activities should be beneficial to teaching of various subjects and they should not be viewed as tailor-made tools for teaching particular subjects. On the other hand, there are theoretical and practical parts for vocational learning. Based on experience, Interviewee 9 feels that most of the theoretical content can be properly delivered by Moodle but it is not the same situation for practical parts of her subjects.

For instance, to meet the requirements on subjects related to child education, Interviewee 9's students need to receive training of various skills to teach children and take care of them in kindergartens. Interviewee 9 points out that students have to learn from the real environment, people, and facilities to acquire the vocational skill. Therefore, she thinks that although the use of Moodle may help to deliver the theoretical parts of her subjects, but it cannot substitute for practical sessions. As a final remark, Interviewee 9 feels that it is not difficult to use Moodle in teaching her students so far. In Moodle, she is able to identify particular activities and apply them to deliver the informational parts of her subjects on child education. She hopes to attend more training in future for better use of Moodle in her teaching.

INTERVIEW 10

Informant: Interviewee 10

Date & Time: 3pm on 22 March 2016

Venue: Learning Resources Centre of IVE (Sha Tin) Campus

Background of Interviewee:

Interviewee 10 is currently an IVE lecturer of the Engineering Discipline. He has attained a Master Degree in Electronic Engineering. As a vocational teacher, Interviewee 10 has already worked in the VTC for 20 years teaching subjects such as computer programming, software engineering, and digital electronic design for students mainly at the Higher Diploma level with a few of classes for those undertaking the Foundation Diploma. Therefore Interviewee 10 has lot of experience in using online platforms such as WebCT and Moodle for teaching his vocational subjects.

Summary of Discussion:

Interviewee 10 mentions that all of his subject materials in Moodle basically include syllabus, TLP, assignments, and solutions for his students. Additionally, in certain subjects like programming, he has also tried using quizzes for testing his students. However, for some other subjects like engineering mathematics and logic design, students cannot input the technical symbols directly or draw the circuit diagrams by using any tool in Moodle. Then,

his students would be assessed by the traditional method with written tests and examinations.

To communicate with students in Moodle, Interviewee 10 says that he would usually post general information such as subject requirements, class schedules, or assessment criteria for his subjects. For some urgent announcements like the details of makeup classes or cancelled classes, Interviewee 10 would prefer messaging to students by mass email. On the other hand, he reflects that if his students find any problem or question about the online materials, they usually contacted him by email rather than making any response in Moodle. Interviewee 10 explained that students are not comfortable with the interface of Moodle and so they would keep using email as the primary tool for communication. Another possible reason is that students feel that it is more convenient in sending or receiving email messages directly by using mobile Apps which is not provided in Moodle and users need to open web browsers to login to the online platform even if they just want to send out simple messages.

To support the teaching of subjects on computer programming, Interviewee 10 always prepares some executable examples to illustrate the logic and syntax of certain programming languages. He would also upload them to Moodle for students' access before lessons so that they can download the programming examples for learning during the lessons because most of Mr. Chang's subjects are delivered in computer laboratories. He would copy some

subject materials including programming editors, compilers, graphics, images, and videos into Moodle for students' download to complete their assignment work or projects. This can help Interviewee 10 to observe and understand how students develop a computer program or design a mobile App by using his materials. Furthermore, to make students interested in the subjects of programming and software engineering, Interviewee 10 would post video clips or links of related topics in Moodle as tutorial materials for students. He finds that the time for offline teaching is quite limited to go through many topics that are included in most of his subjects. Therefore, he would use video for their supplementary learning as well as referencing materials to elaborate the concepts presented in his lectures.

Regarding the use of the resources and activities in Moodle, Interviewee 10 says that he would choose to use them by considering the actual needs in his teaching work. He mainly uses URL, Folder, File, and Assignment for his subjects but he has also tried Lesson and Glossary in Moodle. At this point, Interviewee 10 expresses that many engineering students are not so active to use the online platform even though he has prepared various resources and activities for his subjects in Moodle. He explains that most of his students are not interested in the nature of engineering subjects and so they do not have much motivation to perform self-learning in Moodle. Hence, Interviewee 10 thinks that it is not the challenge on how many tools a teacher can use in his or her subjects. Instead, he wants to improve the engagement of students in Moodle

because generally they do not have the concept of self-directed learning and they are easily distracted by many other activities on the Internet. Interviewee 10 makes his final comment that the use of Moodle can actually support his teaching work but it cannot be a substitute for any classroom teaching or practical session for teaching his engineering subjects at this moment.

APPENDIX F: Online Survey on Use of Moodle in Vocational Teaching

Edit this form

Use of Moodle in Vocational Teaching

I sincerely thank you for your time and willingness to participate in this online survey for my research study in the University of Nottingham. This survey is about investigating IVE teachers' experience in using Moodle for vocational teaching. The statistical findings from this survey will provide background data to the case study later in my research for academic purpose only. As a result of your participation in this survey, I would have better understanding on your teaching experience which will inspire other teachers to have effective use of Moodle.

Your participation is entirely voluntary and this survey can be completed in about ten minutes. It is important to understand that you do not have to participate in this survey at all, and that you can withdraw from any participation at any point. All of your responses will be stored securely and processed confidentially. They will not be identified or shared with any third party as I have been committed to carrying out my research by following the Code of Research Conduct and Research Ethics in the University of Nottingham.

Please answer ALL questions based on your actual experience with Moodle in teaching during the Academic Year 2014-15.

1. What is your gender?

▾

2. What is your age?

▾

3. What is your highest educational qualification?

- Bachelor degree
- Master degree
- Doctorate degree
- Other:

4. What is the major subject area in your graduation?

5. Which vocational area are you teaching in this IVE campus?

- Applied Science
- Business Administration
- Child Education and Community Services
- Information Technology
- Engineering
- Other:

6. How many year(s) have you already used online learning platform(s) in vocational teaching?

	1	2	3	4	5	6	7	8	9	10	
No. of year(s):	○	○	○	○	○	○	○	○	○	○	or more

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7. How many vocational subject(s) did you teach in this academic year (2014-15)?

	1	2	3	4	5	6	7	8	9	10	
No. of vocational subject(s):	○	○	○	○	○	○	○	○	○	○	or more

8. How many of your subject(s) did you use Moodle to teach in this academic year?

	1	2	3	4	5	6	7	8	9	10	
No. of vocational subject(s):	○	○	○	○	○	○	○	○	○	○	or more

9. Name ONE vocational subject that you use Moodle the most for teaching in this academic year.

ATTENTION: With the subject you mentioned in question 9, please answer the following questions (10 - 18) according to your experience or the actual situation.

10. How did you use Moodle in teaching your mentioned subject?

	Never	Seldom	Sometimes	Always
To keep my teaching materials organized	○	○	○	○
To let my resources available to students	○	○	○	○
To evaluate students through the learning activities in Moodle	○	○	○	○
To communicate with students (through chats / forums / messages)	○	○	○	○
To collect or mark my students' assignments	○	○	○	○
To perform online test or exam for my subject	○	○	○	○
To support teaching activities in my lectures	○	○	○	○

11. To start using Moodle in teaching your mentioned subject, which of the following originally motivated you? For each of the motivation on the left, please rate your degree of agreement.

	Strongly disagree	Disagree	Agree	Strongly agree
To follow the central policy or departmental guidelines	○	○	○	○
To get students more interested in my subject	○	○	○	○

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	Strongly disagree	Disagree	Agree	Strongly agree
To try different ways of teaching my subject	○	○	○	○
To better communicate with my students	○	○	○	○
To backup and organize my teaching materials	○	○	○	○

12. The following resources function could be added in Moodle for teaching. How often did you use them for your mentioned subject ? (If you are not sure about them, please have a quick review at https://docs.moodle.org/26/en/Resources)

	Never	Seldom	Sometimes	Always
Book	○	○	○	○
File	○	○	○	○
Folder	○	○	○	○
IMS content package	○	○	○	○
Label	○	○	○	○
Page (showing text / images)	○	○	○	○
URL (link) to another web site	○	○	○	○

13. For the following interactive activities provided in Moodle, how often did you use them? (If you are not sure about them, please have a quick review at https://docs.moodle.org/26/en/Activities)

	Never	Seldom	Sometimes	Always
Assignment	○	○	○	○
Chat	○	○	○	○
Choice	○	○	○	○
Database	○	○	○	○
Feedback	○	○	○	○
External tool	○	○	○	○
Forum	○	○	○	○
Glossary	○	○	○	○
Journal	○	○	○	○
Lesson	○	○	○	○
Questionnaire	○	○	○	○
Quiz	○	○	○	○
SCORM package	○	○	○	○

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	Never	Seldom	Sometimes	Always
Survey				
Wiki				
Workshop				
Others (e.g. HotPot, Nanogong voice activity, Video Assignment)				

14. How often did you use the following media formats in Moodle for your mentioned subject?

	Never	Seldom	Sometimes	Always
Text				
Image				
Audio				
Video				
Other media formats				

15. How did the use of Moodle affect the teaching work for your mentioned subject?

Read the statements on the left and rate your degree of agreement based on your experience.

	Strongly disagree	Disagree	Agree	Strongly agree
It substituted the classroom sessions for vocational teaching.				
It substituted the laboratory or practical sessions for vocational teaching.				
It helped students to develop interest on my subject.				
It improved the learning process of students.				
It improved the learning outcomes of students.				
It helped me to quickly assess students' performance.				
It improved my communication with students.				

16. In addition to the statements in Question 15, any other change in your teaching work with the use of Moodle? Give some details or examples found in your mentioned subject please.

https://docs.google.com/forms/d/e/1FAIpQLSdSIE-Kjwk5_-VsCpYUcfedyRTuq3Mbp2H_VEOdrNbS8i2qOA/viewform?c=0&w=1 4/5

17. How would you comment your use of Moodle for teaching the mentioned subject?
Read the following comments and rate your degree of agreement with them by your experience.

	Strongly disagree	Disagree	Agree	Strongly agree
Work on Moodle from any location is a plus to my teaching.				
Work on Moodle at any time is advantageous to my teaching.				
It provided necessary resources or activities for my teaching.				
I could easily manage different tools/features of Moodle for teaching.				
It helped me to think more about the design of online teaching materials.				

18. In addition to the above Questions 1- 17, any other comment on your experience with Moodle for teaching?

This is the end of the survey.

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APPENDIX G: Statement for the Ethical Issues

Statement for the Ethical Issues

Project title: Teachers' Experience of Using the Online Learning Platform in the Vocational Training Council

Researcher's name: Wong Bo Man, Simon

Supervisors' names: Prof. John Holford; Prof. Charles Crook

Project aims and summary:

This research investigates the experience of teachers' current use of the online platform Moodle in vocational teaching in the Hong Kong Institute of Vocational Education (IVE). The methods used are a quantitative survey of fifty-two IVE teachers followed with ten in-depth semi-structured interviews. The interviews were conducted in Cantonese, audio-recorded and transcribed in Chinese with English-language summaries were prepared.

Ethical consideration and actions:

In my research planning, I recognize the Code of Research Conduct and Research Ethics, the University's Policy for Ethical Review and the University Ethics and Integrity website. Also, I have read various texts relating to research ethics in education, for example, *Research Methods in Education by* Louis Cohen, Lawrence Manion, Keith Morrison (2011), and took account of the *Ethical Guidelines for Educational*

Research from British Educational Research Association (BERA). The description below were my consideration and actions performed for the ethical issues being involved in my research.

(a) Informed consent

Participants were provided with details of the aims and methods to be used in the project. They were informed that they could withdraw at any time. For the survey, information was provided on the questionnaire itself. For interviewees, a participant information sheet was used. Interviewees completed a participant informed consent form (copy attached). Data will only be used for the purposes outlined within the participant information sheet and consent form.

(b) Confidentiality

Survey responses were anonymous, and the researcher was unable to identify the respondent. Although the identity of interviewees was known to the researcher, and recordings are stored by the researcher, participants were assured that they would be treated confidentially and not transferred to any other person. The researcher will make anonymized transcripts and summaries of the recordings, but only anonymized transcripts and summaries will be included in the researcher's thesis and any other publications.

(c) Security and destruction of data

All original data (surveys and recordings) has been kept securely in a password-

protected computer and will be destroyed on successful completion of the thesis; only anonymized transcripts and data will be retained. All hard copies of data collection tools and data which enable the identification of individual participants will be destroyed after completion of the research.

(d) Gatekeeper issues

The IVE management has been informed about the research project before data collection by the online survey and interviews. Approval has been given for the researcher to undertake them.

(e) Insider-researcher issues

The researcher is a member of staff at the IVE campus of the Vocational Training Council (VTC) in Hong Kong, and is therefore a colleague of the participants in the research. However, the research is not in any relationship of authority with respect to the participants: he is the Education Development Officer and they are members of the teaching staff. Nevertheless, the researcher is aware that the use of Moodle is a management policy in the IVE, and has ensured participants that they will not be personally identifiable in any reporting, and that their identities will not be disclosed to the IVE management.

Being the researcher, I have considered the above ethical issues and taken corresponding actions to collect the required data from the survey and interviews for my research accordingly.

Signed …… (researcher)

Date ……18th August 2017……

Contact details

Researcher: Wong Bo Man, Simon (ttxbmw@nottingham.ac.uk)

Supervisor: Prof. John Holford (john.holford@nottingham.ac.uk)
Prof. Charles Crook (charles.crook@nottingham.ac.uk)

School of Education Research Ethics Coordinator:
educationresearchethics@nottingham.ac.uk

APPENDIX H: Information Sheet and Consent Form for Research Participants

PARTICIPANT INFORMATION SHEET

Project title: Teachers' Experience of Using the Online Learning Platform in the Vocational Training Council

Interviewer: Wong Bo Man, Simon

Information for Interviewees:

You are being invited to take part in an interview for this research study. Before you decide whether you want to take part, it is important for you to understand why the research is being conducted and what your participation will involve. Please take time to read the following information carefully. Please contact me if anything is unclear or if you would like more information. Take time to decide whether or not you wish to take part. Thank you for reading this.

Aims:

The aims of this research are to investigate the experience of teachers' current use of the online platform Moodle in vocational teaching in the Hong Kong Institute of Vocational Education (IVE). The methods used are a quantitative survey followed with in-depth interviews. All interviews will be conducted in Cantonese, audio-recorded and later transcribed in Chinese text. The research findings will be used to identify different approaches that IVE teachers can adopt in using Moodle for their vocational subjects.

Requirements:

The interview will be based around a semi-structured dialogue pattern and will take approximately 60 minutes. It is intended as an opportunity for you to discuss your experience on teaching with Moodle and comment on how far it may support your teaching, with the main topics being included but not restricted to:

- original motivation and reasons for teaching with Moodle
- in what way you are currently using Moodle
- your adjustment to teaching as a result of using Moodle

- impacts to the teaching and learning process in your vocational subjects

Anonymity/Participation:
As part of the presentation of results, your own words may be used in text form. This will be anonymized, so that you cannot be identified from what you said. All research data will be stored by the researcher in a secure place in a separate, password-protected file.

Please note that:

- You can decide to stop the interview at any point.
- You need not answer questions that you do not wish to.
- Your name will be removed from the information and anonymized. It should not be possible to identify anyone from my reports on this study.

It is up to you to decide whether to take part or not. If you decide to take part, you are still free to withdraw during the interview or any time and without giving a reason. If you withdraw from the study all data will be withdrawn and destroyed.

If you do decide to take part you will be given this information sheet to keep and be asked to sign a consent form.

Once the thesis arising from this research has been completed, a brief summary of the findings will be made available by the researcher upon application. It is also possible that the results will be presented at academic conferences and journals. The original data will be kept securely and destroyed on completion of the assessment.

If this study has harmed you in any way you can contact the University of Nottingham using the details below for further advice and information:

Researcher: Wong Bo Man, Simon (ttxbmw@nottingham.ac.uk)
Supervisors: Prof. John Holford (john.holford@nottingham.ac.uk)
Prof. Charles Crook (charles.crook@nottingham.ac.uk)
School of Education Research Ethics Coordinator:
educationresearchethics@nottingham.ac.uk

PARTICIPANT CONSENT FORM

Project title: Teachers' Experience of Using the Online Learning Platform in the Vocational Training Council

Researcher's name: Wong Bo Man, Simon

Supervisors' names: Prof John Holford; Prof Charles Crook

- I have read the Participant Information Sheet and the nature and purpose of the research project has been explained to me. I understand and agree to take part.

- I understand the purpose of the research project and my involvement in it.

- I understand that I may withdraw from the research project at any stage and that this will not affect my status now or in the future.

- I understand that while information gained during the study may be published, I will not be identified and my personal results will remain confidential.

- I understand that I will be audio recorded during the interview.

- I understand that recordings will be stored securely by the researcher, and will not be transferred to any other person. I understand that the researcher will make anonymized transcripts and summaries of the recordings, and that only anonymized transcripts and summaries will be included in the researcher's thesis and any other publications.

- I understand that I may contact the researcher or his supervisors if I require further information about the research, and that I may contact the Research Ethics Coordinator of the School of Education, University of Nottingham, if I wish to make a complaint relating to my involvement in the research.

Signed …… (research participant)

Print name: ……

Interview date: ……..

Venue: Learning Resources Centre of IVE (Sha Tin) Campus

Contact details

Researcher: Wong Bo Man, Simon (ttxbmw@nottingham.ac.uk)

Supervisors: Prof. John Holford (john.holford@nottingham.ac.uk)
Prof. Charles Crook (charles.crook@nottingham.ac.uk)

School of Education Research Ethics Coordinator:
educationresearchethics@nottingham.ac.uk

APPENDIX I: Invitation for Participating in the Online Survey

22/7/2015 (週三) 19:27
WONG BO MAN
Survey on Using Moodle for Vocational Teaching

收件者 WONG BO MAN

待處理。 已於 2015年7月24日星期五 完成。
您已於 5/2/2016 12:27 回覆此訊息。

Dear Colleagues,

This is Simon from the LRC/ST and I am currently performing a research study on the impact of using Moodle (the online teaching & learning platform in VTC). The objective of my research is to collect and analyze the experience of IVE teachers on using Moodle so as to explore its effectiveness for vocational teaching. Knowing that you may have some experience in teaching your subject(s) with Moodle, I am writing to invite your great help to participate my online survey at:

http://goo.gl/forms/1CWDa6q2qV

I would deeply appreciate of your kindly support if you could spend a few minutes to click onto the above link to submit your responses for the survey and let me have your important data by next Wednesday (**29/7**) please.

Thank you very much for help.

Best regards,
Simon Wong
EDO/LRC/ST
(Tel: 22567640)

APPENDIX J: Approval of the Ethics Committee on the Research Ethics

University of Nottingham
UK | CHINA | MALAYSIA

School of Education
University of Nottingham
The Dearing Building
Jubilee Campus
Wollaton Road
Nottingham
NG8 1BB

educationresearchethics@nottingham.ac.uk

23/08/2017

Our Ref: 2017/88

Dear Bo Man Wong, Simon

Thank you for sending the documentation related to ethics for your project:

Teachers' Experience of Using the Online Learning Platform in the Vocational Training Council

The Chair of the Ethics Committee can now confirm that your research ethics has been approved.

Best wishes for your research.

Dr Kay Fuller
Chair of Ethics Committee

+44 (0)115 9514470
educationadmin@nottingham.ac.uk
nottingham.ac.uk/education