



UHASSELT

KNOWLEDGE IN ACTION

Faculty of Business Economics

Master of Management

Master's thesis

The use of blended learning in higher education

Shazia Kalsoom

Thesis presented in fulfillment of the requirements for the degree of Master of Management, specialization Business
Process Management

SUPERVISOR :

Dr. Marijke SWENNEN



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2018

2019



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The use of blended learning in higher education

A Dissertation

Submitted in partial fulfillment of the requirements for the degree of

Master of Management (Business Process Management)

Faculty of Business Economics

Universiteit Hasselt

by

Shazia Kalsoom

June 2019

Supervisor

Dr. Marijke Swennen

Acknowledgements

I would like to thank my supervisor Dr. Marijke Swennen who was very patient with me throughout this work. I appreciate her time for giving me feedback and suggestions that have been very helpful. I am very grateful for her guidance and very positive constructive criticisms to improve my work.

I would also like to thank my friends and family for their support during my studies.

Summary

The use of technology has been increased in higher education. Information and communication technologies (ICT) have become essential in the transformation of the learning process. Information and communication tools offered the flexibility of time and place in learning and enabled higher education to offer online courses. But this should not be taken as the end of traditional campus-based institutions, but as a means to best utilize both face-to-face (FTF) and online learning in higher education (Garrison & Kanuka, 2004). Blended learning is a flexible approach to design courses that combines the traditional face-to-face and online learning supported by information and communication technologies, as it enables the blending of the different places and times for learning purposes, it offers the convenience of fully online courses (i.e. flexibility, accessibility, and self-directed learning etc.) without loss of benefits of traditional face-to-face learning (Rovai & Jordan, 2004). The idea behind this approach is to maximize the advantages of both face-to-face and online learning. Previous research on blended learning shows that BL is beneficial for students and institutions, and they prefer the blended learning approach over other learning approaches. The literature on blended learning was explored as the main source to answer the research questions. The purpose of this study was threefold. The first aim of this study was to explore why blended learning is preferred over other learning approaches and what benefits it may offer to students and institutions. The benefits of BL found in the literature are: (1) cost-effectiveness, (2) Increased access to knowledge and flexibility, (3) Improved learning outcomes, (4) Increased satisfaction, (5) Enhanced pedagogy, and (6) Enhanced institutional reputation. Secondly, this study investigated whether knowledge and skill can be transferred in a BL approach and whether BL has an impact on students' performance. The research results revealed that blended learning has a positive impact on the transfer of learning and students' performance. It is more effective than fully traditional face-to-face learning or fully online learning. Despite many advantages, blended learning also poses some challenges to students and institutions. Lastly, this study outlined the issues and challenges that students, faculty, and administration face in the adoption of the blended learning approach and how administrators should address these issues in order to implement blended learning successfully. Blended learning requires learners to have effective time management, self-regulation, and technical skills. That's why it can be challenging for students that have inadequate time management, self-regulation, and technological skills. Blended learning poses some challenges to faculties as well. Redesigning the course in a blended format requires increased time commitments. The instructors need more time to redesign the course in the blended format as compared to the traditional classroom or online courses. Another challenge for faculty is the lack of support for redesigning the course in the blended format. Faculties need support to redesign the course in a blended format to decide what course components should be offered for the classroom instruction and what components should be offered for online learning. Moreover, they also need support to develop some pedagogical and technological skills to teach the course in a blended format. The challenges for the administration include policy, planning, resources, scheduling, and support systems. These items must be created by institutions to make the blended learning initiatives successful (Garrison & Kanuka, 2004).

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Chapter 1. Introduction

The past decade has witnessed a high utilization of technology in education. The use of information technology in education has become essential in educational development, and it is transforming the learning process (Olapiriyakul & Scher, 2006). Past studies have shown that the integration of technology into instruction improves access to information (Delialioglu & Yildirim, 2007). Technology has enabled higher education to offer blended courses and online courses (King and Arnold, 2012).

In the recent years, it has been seen that communication technologies and internet information has transformed the way we see society, this leads us to believe that it will be defining transformative innovation in higher education as well. The source of this transformation originates from the potentiality of the online learners, i.e., they are both together and apart at the same time. This enables them to remain connected to a community of learners at any point and place in time, without physically being present there or situation bound. Internet information and communication tools are flexible in nature as they provide no boundaries of time or place. However, this may not be taken as the end of traditional campus-based institutions, but as a means that will enable us to best utilize both face-to-face (FTF) and online learning in higher education (Garrison & Kanuka, 2004). Blended learning is a flexible approach to design courses that combines the traditional face-to-face and online learning, as it enables the blending of different the place and time for learning purposes, it offers the convenience of fully online courses (i.e., flexibility, accessibility, and self-directed learning etc.) without the loss of benefits of traditional face-to-face learning (Rovai & Jordan, 2004).

Delialioglu & Yildirim (2007) described blended learning (BL) and hybrid instruction as terms that are interpreted as means to integrate social aspects of face-to-face learning with web-based environments and their information-access methods. Hence, the concept behind both of these is to redesign the instruction so that the advantages of both face-to-face and online modes of instruction are maximized.

According to Picciano (2006), blended learning combines traditional face-to-face learning with web-based content along with other information and communication technology supporting activities. In one particular course, Blended learning might be useful for improving the traditional lecture setting by addition of electronic instructor notes, graphical representation of data, charts, images, additional reading materials/handouts, etc. While in another course, face-to-face instruction might be combined with online learning instead of a meet up in the classroom for three hours every week, there can be a class for two hours every week and the remaining one hour can comprise an online threaded discussion (Picciano, 2006).

A variety of techniques can be used in Blended learning, including substitutes, replacements or additional materials for lectures in the form of recordings, prior-class videos, ePortfolios, online tutorials, wikis as well as online assignments. Irrespective of the approach and technique used, the basic concept behind blended learning remains to engage and facilitate the learning process for students (Francis & Shannon, 2013).

According to Musawi (2011), learning technologies and delivery media are in the process of evolution and progress. Organizations (i.e., governments, corporations, and academics) support blended learning models over other single delivery models.

Blended learning is widely used in higher education. The reason behind the widespread use of blended learning is the benefits that it offers to students and institutions. Some benefits of blended learning found in the literature are: enhanced pedagogy, improved learning outcomes, improved time efficiency, accessing information easily, social interaction, cost-effectiveness, increased access to knowledge, flexibility, enhanced institutional reputation and (Vaughan,2007; Graham, 2006; Osguthorpe & Graham, 2013; Graham, Allen & Ure, 2005; So & Bonk, 2010). It may also provide pedagogical benefits such as satisfaction, increased learning effectiveness, and efficiency (Garrison & Kanuka, 2004). The literature reveals that blended learning may offer several benefits to institutions, for example, University of Florida adopted blended learning to increase enrollments, to reduce costs by optimizing the utilization of classrooms and improve students' learning outcomes (Dziuban et al., 2006). At London Metropolitan University, blended learning was used to improve students' success rates (Boyle et al., 2003). The benefits of blended learning will be discussed in more detail in the literature section.

Blended learning can be both simple as well as complex. While blended learning is the pensive integration of online learning experience with traditional FTF mode of instruction, it can be rather challenging to implement it as it comes with challenges like virtually limitless design possibilities as well as its applicability around various contexts (Garrison & Kanuka, 2004).

Dziuban et al. (2011) brings attention towards institutional struggle with the concept and implementation of blended learning. They reported that despite the idea of online instruction and classroom-based instruction is well perceived and understood, the combination of these two concepts seems to appear challenging for some institutions.

For example, some U.S. institutions faced some key strategy, structure, and support issues at three different stages: awareness/exploration, adoption/early implementation, and mature implementation/growth (Graham et al., 2012; Porter et as., 2014).

1.1 Problem statement

Blended learning is becoming an increasingly popular way of delivering content in higher education. A well-designed blended learning has the potential to achieve both face-to-face and online learning at its best. Previous literature shows that a blended learning approach has a positive impact on students' performance (López-Pérez et al., 2011; Lim & Morris, 2009; Means et al., 2013; Moskal, Dziuban, and Hartman 2013; Poon, 2013; Vaughan 2007). However, there is not much evidence in the literature whether this type of instruction is more effective or not than fully traditional FTF courses or online courses. There is limited experimental research that investigated in particular the impact of the blended learning approach on the transfer of learning (Demirer & Sahin, 2009).

From an administrative point of view, blended learning provides an opportunity to improve an institution's reputation, increase access to its educational offerings, and reduce operating costs. However, the institutions also face some challenges in developing such courses such as lack of support, time, and resources for redesigning the course, acquisition of new teaching and technical skills, as well as the risks associated with delivering a course in a blended format and aligning blended learning with institutional objectives and priorities (Porter et al., 2014). The blended learning has grown rapidly. Previous research on blended learning has focused on course-level issues such as better learning outcomes, but there is very limited research focused on institutional policy and implementation issues. Therefore, further research is required to identify the issues/challenges that the administration should recognize in order to guide their institutions toward successful adoption and implementation of blended learning (Graham, Woodfield & Harrison, 2013).

1.2 Purpose of the Study

This study has three objectives.

The institutions of higher education are increasingly adopting blended learning due to the benefits it may offer to institutions. The first aim of this study is to explore the benefits of blended learning that it offers to students, faculty and administration in the context of higher education.

Since the use of blended learning is increasing in higher education due to its beneficial effects, there's a need to investigate whether knowledge and skills can also be transferred to students in this approach. Demirer & Sahin (2009) reported that there is insufficient experimental research that particularly investigates the effect of the blended learning approach on the transfer of learning. The second purpose of the research is to investigate the impact of blended learning on the transfer of learning and students' performances in higher education.

Blended learning can offer several benefits to students, faculty, and institutions. It might also transfer the learning more effectively than purely traditionally FTF learning and online learning. Therefore, it is preferred over other learning modules. However, it also poses some challenges for students, faculty, and institutions. Graham et al. (2014) indicated that there is very limited research focused on the challenges that students, faculty and institutions face in blended learning adoption and to guide institutions toward successful implementation of blended learning. Additional research is needed to identify the issues that the administration should recognize in order to guide

its institutions toward successful adoption and implementation of blended learning. The last purpose of this study is to examine the issues and challenges that students, faculty, and institutions face in the adoption of blended learning and discuss how administrators should deal with these issues in order to successfully implement blended learning.

1.3 Research questions

1. Why are institutions adopting blended learning and how might blended learning be beneficial for students and institutions?
2. To what extent can knowledge and skills be transferred to learners using the blended learning approach?
3. Does blended learning have an impact on the performance of students?
4. What issues and challenges does an institution face in trying to implement blended learning and how to deal with these issues in order to successfully implement blended learning?

1.4 Research Methodology

A comprehensive literature review has been done in order to answer the above research questions. A literature search was conducted to gather articles on blended learning using search engines and databases such as EBSCOHost, ScienceDirect, ProQuest, ERIC (Education Resources Information Centre), Educational Research, Google scholar and U Hasselt library. The literature on blended learning was explored as the main source to answer the research questions. Different combinations of keywords were used to execute the research such as "Blended learning or Hybrid learning", "Benefits/Advantages in blended learning", "Issues/Challenges/Barriers in blended learning", and "Students' performance", etc. Since the term "blended learning" was introduced a long time ago, the search was conducted to select the papers on blended learning from 2000 to 2019. The search was further refined by selecting only those papers which specifically focused on blended learning in higher education. This means that all the papers that conducted research on blended learning in other educations are ignored.

Chapter 2. Literature Review

Chapter Overview:

This chapter is divided into three sections, according to the objectives of this research, which were outlined above. The first section of the chapter introduces the concept of blended learning as the combination of online and face-to-face instruction. It also includes the definition of blended learning. Furthermore, it describes the benefits of blended learning in higher education from the perspective of students, faculty, and administration.

In the second section, the impact of the blended learning approach on the transfer of learning and student's performances is discussed.

The third section of the chapter outlines the challenges the students, faculty, and institutions of higher education face in the implementation of blended learning approach. In addition, it provides details about issues administrators should address in order to successfully implement blended learning.

2.1 Why Blended learning?

It has become a common practice for higher education to incorporate online courses. Fully online courses have many advantages, as they are highly flexible in nature, student-focused and encourage self-directed learning (Bergstrand & Savage, 2013).

Means et al. (2013) discuss that online learning has gained popularity in recent years because it has the potential and capacity to provide flexible access to content that may be required for instruction at any point in time or place. They list down benefits of online learning as follows; Firstly, online learning programs involve making learning experiences for learners more easily available, especially those learners that do not or cannot attend traditional face-to-face classroom offerings. Secondly, assembling and disseminating online instructional content is cost effective, and thirdly, it becomes difficult to access qualified instructors to learners in some places, or the instructors may not be available in many locations.

However, fully online learning provides limited opportunities when it comes to interactions between students and teachers, and this may lead to making the students feel isolated. Online classes cause a fair amount of burden on students which may negatively affect the quality of education. Furthermore, the students have increased discretion over how they manage their time in online learning. As a result, students tend to learn less in online courses and online courses receive an overall lower course rating. On the other hand, with traditional face-to-face teaching, much in-class time is devoted to transfer the information from an instructor to the students (Bergstrand & Savage, 2013).

The inherent problems with online learning, including the pressure of limited resources (money, time, software, and hardware), and the other limitations of the pedagogical nature of purely online or traditional face-to-face learning have led to a new idea which mixes the benefits of both the online learning as well as traditional instruction.

Blended learning comprises an environment that combines the features of online instruction (e.g. efficiency, adequacy, and ease of accessibility) with attributes of traditional face-to-face classroom

learning, such as working with new information and interaction in the classroom with other students and the instructor (Delialioglu & Yildirim, 2007).

In a meta-analysis conducted by the US Department of Education in 2010, the report highlighted the potential benefits of well-designed blended learning and how it may help to achieve the advantages of both online learning as well as traditional face-to-face learning environments.

It can be concluded that Blended learning is a highly flexible approach to course design which facilitates the blending of different times and places for learning, providing the convenience of fully online courses without the loss of face-to-face experience of a classroom setting. As a result, it provides a more robust educational experience than either online learning or face-to-face learning offer individually (Rovai & Jordan, 2004).

2.2 Definitions of blended learning

There are many definitions of blended learning. Blended learning is generally defined as a combination of face-to-face and online learning, so that instruction occurs both in the classroom and in online environment (Bliuc, Goodyear, & Ellis, 2007; Delialioglu & Yildirim, 2007; Garrison & Kanuka, 2004; Osguthorpe & Graham, 2003; Rovai & Jordan, 2004). It is the combination of pedagogical approaches that combines the interaction possibilities and the effectiveness of the classroom instruction with the technological advantages (i.e., flexibility, increased access, and cost-effectiveness, etc.) of online learning (Dziuban, Hartman, Juge, Moskal, & Sorg, 2006). Delialioglu & Yildirim (2007) described blended learning (BL) and hybrid instruction as terms that are interpreted as means to integrate social aspects of face-to-face learning with web-based environments and their information-access methods. Hence, the concept behind both of these is to redesign the instruction so that the advantages of both face-to-face and online modes of instruction are maximized.

2.3 Benefits of blended learning

Blended learning is increasingly being adopted by Institutions of Higher Education. There are many reasons that an institution or learner might select blended learning over other learning approaches. Some reasons identified in the literature behind the utilization of blended learning are: (1) Cost-effectiveness, (2) Increased access to knowledge and flexibility, (3) Improved learning outcomes, (4) Increased satisfaction, (5) Enhanced pedagogy, and (6) Enhanced Institutional reputation. Each of these reasons will be explained below. This section formulates an answer to the first research question, which is, "Why are institutions adopting blended learning and how might blended learning be beneficial for students and institutions?"

1. Cost-effectiveness

Cost-effectiveness is a major advantage in blended learning in higher education (Graham, 2013; Vaughan, 2007). Cost-effectiveness is the reason to drive institutions towards adopting BL approaches in higher education (Betts, Hartman, & Oxholm, 2009).

Graham (2013) shared the factors that contribute to cost reduction for blended learning programs. These factors include a reduction in wait times for training, reduced training hours and reduced salaries associated with training facilities in general.

It can be quite expensive at times to produce high quality web-based content. On the other hand, traditional face-to-face instruction incorporates high end facilities including buildings, transportation, etc. It is possible to reduce these costs through use of blended learning by combining a variety of different methods using self-paced reading materials, case studies, assignments, recordings of events, powerpoint presentations etc. (Musawi, 2011).

Twigg (2003) reported that costs incurred by institutions are saved when materials are developed online and can be re-used repeatedly over extended periods of time. Blended learning not only reduces student and instructor classroom contact time, but eventually also helps to save staffing costs.

When the option of an online course is available, classroom space is more efficiently used. Blended courses can reduce use of traditional classroom time by 50 to 60 percent if optimally scheduled. It will allow multiple course sections to be scheduled into a single weekly classroom setting (Dziuban, Hartman, Juge, Moskal & Sorg, 2006). For example, the University of Central Florida has been successful in reducing the cost of their BL courses by improving scheduling efficiency and reducing the need for physical infrastructure (Dziuban et al., 2011). Blended learning augments access, maintain and enhance quality, while using the existing resources at hand (Moskal, Dziuban, & Hartman, 2013).

While blended learning requires less seat time than fully face-to-face courses, it encourages increased enrollment and enables a higher student retention as compared to fully online courses (King & Arnold, 2012). York University has chosen blended learning to increase its enrollment via maximising utilization of its existing classroom space (Owston et al., 2013).

Blended learning is also cost effective from a student's perspective. The cost of traveling to participate in a Face-to-face lecture can be reduced since some components are offered online which can reduce the number of classes. Bleed (2001) suggested that due to the reduction in travel time and expenses, blended learning can reduce the costs of a student's education.

2. Increased access to knowledge and flexibility

One reason for the growth of BL around the world is access issues. The blended courses offer flexibility both in time and space to learners. Moskal, Dziuban & Hartman (2013) discuss how blended learning reduces actual face-to-face class time, students perceive reduced class time and reduced logistic demands as a positive factor. Not only this, the online components of blended courses are easily shifted to fit into the lifestyle of students by allowing them to complete asynchronous components on their own time and in their own space, either they prefer to do the coursework at home, or in the university's coffee shop.

Some students are facing obligations of family or work, and therefore they are attracted towards blended courses. High opportunity costs for choosing higher education in a traditional setting await students who have jobs, children at home or other responsibilities that can make the rigid school

schedule inaccessible for them. Meanwhile, flexible online courses can reduce these opportunity costs related to time and space scheduling (Graham, 2013).

If the learners are able to access the course content at any time and place, they will be able to utilize their abilities and resources more efficiently. This can give them opportunities for good and effective communication while studying and can provide them help and guidance when they need it via synchronised meetings and learning interaction (Norberg, Dziuban & Moskal, 2011).

The flexible nature and its ability to allow students to learn at their own pace is one of the main attributes of blended learning. This improves the students' learning experience and achievements (Poon, 2013). Moreover, hybrid/blended model uses the technology which enables the students to access the course content anywhere, reducing time to commute between campuses and transfer of information to students in form of face-to-face lectures. Students can make use of this saved time by engaging in constructionist learning activities (Dowling, Godfrey & Gyles, 2003).

3. Improved students learning outcomes

Poon (2013) acknowledges that when a blended teaching model is implemented, it significantly improves learning outcomes. A blended delivery model that motivates and encourages students to take control over their own learning and helps engage in a more active learning process, ultimately increases their learning outcomes (Dowling, Godfrey & Gyles, 2003). Blended learning influences the perception of students about their learning environments, their learning experiences, learning outcomes and eventually their academic achievements. Moskal (2017) reported that hybrid/blended courses provide increased access to learning which leads to positive students' learning outcomes. Past research demonstrates that those courses which used blended learning as a delivery method contributed to improved learning outcomes for students (Dziuban et al., 2006; Lim & Morris, 2009; Twigg, 2003a).

Research conducted on students' performance by López-Pérez et al., (2011) showed similar outcomes. The study shows that the use of blended learning has a positive effect on improving learning outcomes. Means et al. (2013) compared the blended learning approach with face-to-face instruction and their study revealed that blended learning approach results in better learning outcomes when compared to traditional face-to-face learning. Similarly, the study of Kiviniemi (2014) also shows that moving course content from traditional face-to-face approach to blended learning approach leads to an increase in student learning experience and exam performance.

4. Increased satisfaction

Compared to face-to-face courses, student satisfaction has been reported quite higher for blended learning (Dziuban et al., 2006; Twigg, 2003a). Prior research on blended learning also identifies the causes/reasons that can lead to student satisfaction in blended learning courses. Nonetheless, learner satisfaction is complicated, as it is seen to be influenced by preferences of the learners, their expectations and goals, and also the way the course has been designed and implemented. It depends on the learners on what they prefer, some learners are seen to prefer both the benefits of traditional face-to-face class environment, and also the comfort and convenience, flexibility, and the cost reduction that online learning offers. Perhaps this combination of face-to-face learning and online learning is the reason for high levels of student satisfaction for blended learning

(Graham, 2013). Satisfaction may refer to the kind of course materials that are employed, the educational activities, or the teachers involved etc. (Sanderson, 1995). Satisfaction can also be related to the marks obtained by learners (Macedo-Rouet et al., 2009).

Graham (2010) states that blended learning can also provide added satisfaction for faculty. According to studies at the University of Central Florida, 88% of instructors said they felt contented and satisfied with teaching blended courses (Dziuban et al., 2004).

Vaughan (2007) indicates that the reasons for a high level of faculty satisfaction are: increased interaction with students, increased student engagement in learning, and flexibility of the teaching and learning environment. Bolliger & Wasilik (2009) state that the faculty satisfaction with course design for online education was influenced by various student-related factors, instructor-related factors and institution-related factors. Student-related factors include satisfaction with the course, level of interactions with the instructor and the peers, performance, etc. While instructor-related factors include opportunities for collaboration with their colleagues, opportunities for professional development, recognition for their work, availability of the reliable technology, etc. Institution-related factors included the workload reduction issues that arise due to adoption of online courses, tenure issues, promotion rules, compensation packages, etc. In all these factors, Student-related factors were regarded as most important because if the students are not having a positive learning experience, the faculty will also be not satisfied with the process (Moskal, Dziuban, & Hartman, 2010).

5. Enhanced pedagogy

One of the most common reasons for adoption of blended learning is more effective pedagogical practices. Blended learning may offer pedagogical benefits such as increased learning effectiveness, satisfaction, and efficiency (Garrison & Kanuka, 2004). Blended learning can provide greater opportunities for faculty members to design more efficient teaching and learning environments. This approach could potentially promote a much more reflective student population and extend learning far beyond the traditional classroom boundaries (Moskal, Dziuban & Hartman, 2013). Blended learning supports student-teacher and peer-to-peer interactions, and it enables faculty members to achieve learning objectives through learning activities in a more flexible and convenient way than traditional classroom instruction (Phillips, Schumacher & Arif, 2016).

Through the innovative use of Internet and communication technologies, blended learning provides an opportunity to enhance the campus experience and learning (Garrison & Kanuka, 2004). In blended learning environments, teachers may use a variety of ICT tools such as synchronous and asynchronous learning technologies to facilitate and encourage interaction, communication, collaboration, and knowledge construction (Al-Huneidi, 2011). These technologies include: "content management system, learning management system, reusable learning objects, peer-to-peer collaboration tools, assistive technologies, wireless technologies, digital libraries, e-books, Weblogs, Wikis, language support, virtual worlds, digital portfolios, intelligent agents, tablet PCs, massive multiplayer, online games, handheld devices and wearable technologies as well as physical classroom media/technologies" (Musawi, 2011; Bogle et al., 2009). As a result of the advancement in communication and network technologies, more innovative teaching and

learning solutions have emerged in order to enable learners to gain valuable learning experiences in academic contexts (Lim & Morris,2009).

6. Enhanced institutional reputation

Institutions may have different purposes for adopting blended learning. Blended learning offers the opportunity for an institution to enhance its reputation and expand access to its educational offerings (Porter, Graham, Spring & Welch, 2014). The opportunity to enhance an institution's reputation is associated with improving the quality of the institutional learning environment for students (Vaughan, 2007). Flexibility offered by blended learning allows individual institutions to adapt to the concept to maximize their potential while meeting the needs of a new generation of students (Moskal, Dziuban & Hartman, 2013). If blended learning is designed thoughtfully, it offers the potential to enhance the campus experience and learning through the innovative use of Internet and communications technologies (Garrison & Kanuka, 2004).

Conclusion on the benefits of blended learning:

The literature on blended learning reveals that BL is beneficial for institutions. It can provide several benefits to students, faculty and institutions. Institutions may have different purposes for adopting a blended learning approach. For example, the University of Florida adopted blended learning to increase enrollments, to reduce costs by optimising the utilization of classrooms and improve students' learning outcomes (Dziuban et al., 2006). London Metropolitan University used blended Learning to Improve Students' Success Rates (Boyle et al., 2003). To benefit from blended learning, it is important for an institution to define the goals and objectives it wants to achieve from the adoption of blended learning.

2.4 Effect of blended learning on the transfer of learning and students' performance

In the previous section, the benefits of blended learning were explored and the literature that was reviewed shows that BL might be beneficial for students, faculty, and institutions. Blended learning is becoming a popular method of content delivery in higher education because of its beneficial effects. But is a blended learning approach also effective for the transfer of knowledge and skills to students? And is blended learning more effective than purely traditional face-to-face courses or purely online courses? This section will investigate whether BL is useful for the transfer of knowledge and skills to students and how it impacts students' performance. This section formulates an answer to the second and third research questions, which are, "To what extent can knowledge and skills be transferred to learners using the blended learning approach?" and "Does blended learning have an impact on the performance of students?"

Blended learning is a way for instructors to use various delivery forms to improve their students' learning (Musawi, 2011). Several studies have shown that blended courses affected students' learning positively (Gunter, 2001; Sanders & Morrison-Shetlar, 2001; Yildirim, 2005). A well-designed and implemented blended instruction can help students by providing more access to information, giving an opportunity to use multimedia environments to reach multiple senses of students, and providing support to understand the content (Delialioglu and Yildirim, 2008).

The utilization of online resources to learn through participation and carrying out online tasks enables learners to acquire knowledge and develop various skills e.g. reasoning, problem solving and decision making (López-Pérez et al., 2013). In addition, the face-to-face classroom part of blended learning is also important in the processes of knowledge-building and the transfer of learning, as the blended learning approach quickly creates a sense of community among learners (Garrison & Kanuka, 2004).

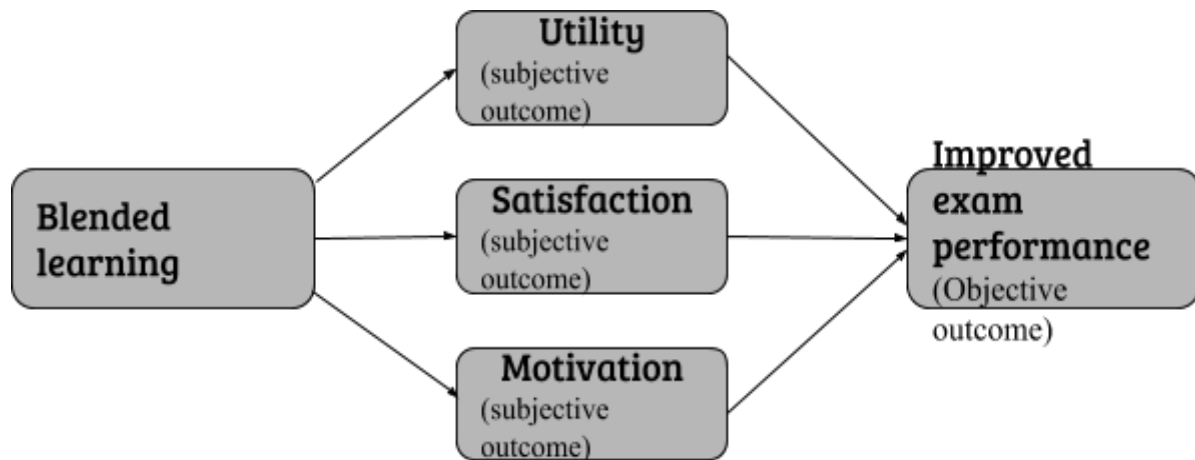
Demirer & Sahin (2009) conducted a study to analyse the impact of blended learning on the transfer of learning. They reported that blended learning approach provides more opportunities for students to learn and interact with the teacher and peers. As a result, students who participate in the blended course produce better results for knowledge transfer. Therefore, the blended learning approach has a positive impact on the transfer of learning

Twigg (2003a) also reports that blended course design has resulted in higher grades, greater knowledge, and greater understanding of course concepts for students. Kiviniemi (2014) reported that moving presentation of course content from a traditional approach to blended learning approach, leads to an increase in student learning as assessed by exam performance.

Effect of BL on students' performance:

This section is based on a study conducted by Pérez-López et al., (2011). According to Pérez-López et al. (2011), Blended learning provides a higher degree of utility, motivation and satisfaction which can encourage students to have a positive learning behavior and to improve exam marks. Blended learning can produce two types of outcome measure: on the one hand, an objective measure constituted of the final exam marks awarded; and on the other hand, a

subjective outcome (perceived utility, satisfaction and motivation), based on the student's perception of the blended learning experience. The aim of the study is to examine the extent to which the blended learning experience has created such a relation between the students' perception (the subjective measure) and the final grades awarded (the objective measure).



➤ Subjective outcome

Utility

One measure of effectiveness is the perceived utility (Ozkan & Koseler, 2009). Through their perception of the utility derived from BL approach, students can express their preferences, the issues they encounter with the proposed learning media, or their perception of the benefits provided by the various available learning tools. The use of different instruction and learning methods enables students to gain a deeper insight into the subject, promotes positive perceptions of the teaching received, clarifies goals and guidelines, and give students a higher degree of independence in the learning process (Crawford et al., 1998; Ginns, Prosser & Barrie, 2007). These extra resources or activities may be considered by students as additional, or external to the primary activity (the one to be evaluated), but also as elements that help in the construction of academic understanding (Orton-Johnson, 2009). Instructors and students both reported that the online components of blended learning facilitated the development of critical thinking skills (Dziuban et al., 2006; Twigg, 2003a). Therefore, the perceived utility of blended learning may be seen as a subjective measure of students' outcomes, but it may also influence the final marks obtained (Pérez-López et al., 2011).

Satisfaction

The improvement in results derived from the use of blended learning may also be related to students' satisfaction with the learning process. Students are more satisfied with blended courses compared with purely face-to-face courses (Dziuban et al., 2006; Poon, 2012; Twigg, 2003a). Lim & Morris (2009) reported that student satisfaction increases when blended learning is adopted. Satisfaction may refer to the teacher, the educational activities or the course materials employed (Sanderson, 1995). Blended learning combines FTF and online learning, learners can benefit from both the enhanced interactions in a face-to-face environment and the flexibility, convenience, wider and easier access to learning resources, a higher level of autonomy in regulating their

learning and reduced opportunity costs associated with online learning. This combination might be the reason for the high level of student satisfaction with blended learning (Garaham, 2013; Owston et al., 2013). It may also be related to the marks obtained in the blended course (Macedo-Rouet et al., 2009). Owston et al., (2013) found that students that show greater satisfaction in blended courses are high achievers, however, low achievers are least satisfied with BL approach.

Motivation

One of the variables that has frequently been studied in the field of education is the motivation to learn (Lim & Morris, 2009). Students' motivation is a key factor in attaining a successful learning process (Okaz, 2015). Wlodkowski (1985) defined learning motivation as a force determining the direction to be taken and choosing of a particular attitude towards learning. It can be said that motivation constitutes a set of goals, beliefs and emotions derived from the various tasks performed (Ford, 1992). Several studies showed that students' motivation increased in some experiments where blended learning was implemented, resulting in positive attitudes towards learning and higher exam marks (Donnelly, 2010; Sharpe et al., 2006; Wang, Shen, Novak, & Pan, 2009; Woltering et al., 2009). There might be various reasons for increased motivation in a blended learning environment. Blended learning provides additional modes of communication and participation which can lead to increased student motivation (Ho et al., 2006). Additional learning materials provided in blended learning enhance the understanding gained in class, improve and support their learning process and motivate students (Lei, 2010). Motivation is essential for a blended course, intrinsic motivation is the key component to attain the success in the blended course (Delialioglu & Yildirim, 2007).

➤ Objective outcome

The subjective outcome variables mentioned above (perceived utility, satisfaction and motivation) are sometimes used as proxies for the objective results (Broad, McDonald, & Matthews 2000). The objective outcome (final marks) derived from a blended learning experience is positively correlated with the subjective outcome (perception of utility, satisfaction and motivation). A higher degree of utility, motivation, and satisfaction is perceived from blended learning which could lead students to have a positive attitude towards learning and to improve exam marks (Pérez-López et al., 2011). Salili, Chiu, and Lai (2001) found that students who were motivated to learn, spent more time and effort and achieved higher levels of performance than those who were not motivated. Sankaran and Bui (2001) also found that less motivated learners did not perform as well on knowledge tests as motivated students. Similarly, Tseng & Walsh (2016) compared and assessed students' experiences and perceptions in a blended and traditional course, as well as their level of learning motivation, level of learning outcomes and skills, and learning achievement. The results revealed that students in the blended course reported significantly higher overall learning motivation than students in the traditional course. They also reported higher levels of learning outcomes and final grades. Student satisfaction is also reported to be higher in blended learning courses compared with purely face-to-face courses, which can lead to achieving higher exam marks compared with FTF or fully online learning (Dziuban et al., 2006; Twigg, 2003a). Similarly, Heterick & Twigg

(2003) found that students achieve as well or better on exams and are more satisfied with the BL approach.

Conclusion on the impact of BL on the transfer of learning and performance of students:

Several blended learning studies have shown that students show better performance in a blended learning environment than either FTF or fully online environments (Means et al., 2013; Moskal et al., 2013; Vaughan 2007; López-Pérez et al., 2011).

At London Metropolitan University, blended learning was used to improve Student success rates, and the study revealed that blended learning can improve success rates. Several studies at the University of Central Florida on blended learning experiences also suggest that blended courses have a higher success rate than traditional FTF and fully online courses (Dziuban et al., 2006). Similarly, studies at the University of Wisconsin-Milwaukee (Garnham & Kaleta, 2002) also found that students learn more in blended courses and perform better than they do in comparable traditional FTF courses. It can be concluded that blended learning positively affects the transfer of learning and students' performance. And it is more effective and efficient when compared to traditional classroom learning or online instruction.

2.5 Challenges in blended learning

Blended learning has become increasingly common, to take advantage of the technology and potentially increase the efficiency, effectiveness, and flexibility of delivery. Blended learning can be beneficial for students and institutions. Several benefits of blended learning are identified in the literature. The literature revealed that Blended learning can also transfer the learning more effectively than purely traditionally FTF learning and fully online learning and can improve the students' performance. Despite many advantages, there are also some challenges for institutions in the blended learning approach. Graham et al. (2013) reported that there is very limited research focused on the challenges that students, faculty and institutions face in blended learning adoption. They suggested that Additional research is needed to identify the issues that the administration should recognize in order to guide its institutions toward successful adoption and implementation of blended learning. Blended learning can pose several challenges to students, faculty and institutions. In this section, the challenges of blended learning will be discussed from the perspective of students, faculty and administration. This section formulates an answer to the fourth research question, which is, "What issues and challenges does an institution face in trying to implement blended learning and how to deal with these issues in order to successfully implement blended learning?"

Graham et al. (2014) reported that from an administrative point of view, blended learning offers an opportunity to enhance the institution's reputation, expand access to the institution's educational offerings, and reduce operating costs. However, the institutions also face some challenges in developing such courses e.g. lack of time, support and resources for course redesign, acquiring new pedagogical and technological skills, and also the risks associated with delivering a course in a blended format and aligning blended learning with institutional goals and objectives. The other challenge for administrators, policymakers, and faculty of higher education institutions is to acknowledge and accept the significant and irreversible changes that have occurred in society's demands, funding deficits, competition, technological innovations, and student demographics. As a result, there is a critical need to act creatively and assertively to cope with and adapt to these changes. Responding to these demands successfully requires a change in mentality and a commitment to repositioning higher education institutions in terms of teaching and learning. Addressing this challenge, a creative and innovative action is needed. It also requires a change in thinking in the way we lead the educational enterprise (Garrison & Kanuka, 2004).

Student Perspective

The challenges that students face in a blended format can be categorised as time management, self-regulation, and technology.

1. Time Management

Blended learning can pose challenges to learners with regard to time management (Vaughan, 2007; Garrison & Vaughan, 2008). If students are participating in a blended course, it requires them to be self-motivated, with effective time management skills, like participation in a fully online

course (Lloyd-Smith, 2010). An action research study conducted at West Chester University in Pennsylvania revealed that blended learning can be challenging for students who are not ready to take responsibility for their own learning and lack of time management skills. The author reported that students had issues with time management in the blended course, some students waited until the last minute to post discussions and submit assignments (Kenny & Newcombe, 2011).

2. Self-Regulation

Bonk et al. (2006) consider self-regulation a critical factor for success due to increased flexibility and autonomy of learners in blended learning environments. Some studies show that BL seems to be challenging for learners with lower self-regulatory abilities but those who are able to regulate their own learning do well in this environment (Van Laer & Elen, 2017; Barnard et al., 2009). According to McDonald (2014), blended learning courses requires several self-regulation skills: self-motivation, discipline, time management, and self-efficacy to exercise control over the learning processes. Owston et al. (2013) found that increased flexibility and autonomy in the blended learning environment are especially beneficial for high achievers or students that possess self-regulation skills, while the students with low self-regulation skills are not ready to take responsibility for their own learning and find the blended learning challenging (Kenny & Newcombe, 2011).

3. Technology

Another challenge for students is having difficulty with more sophisticated technologies. Blended learning can only be successfully implemented if the learners have sufficient knowledge of the newly introduced technology and are ready to use it. Learners need to be trained in navigation in information and communication technologies used in blended learning (Poon, 2013; Harris et al., 2009). Students need technical tools which are up-to-date, reliable and easy to use. Otherwise, instead of enhancing the students' learning process they can obstruct it (Garrison & Kanuka, 2004). Poor internet connection is also a problem which can prevent students from participating in online discussion and it creates frustration for students which can impact the learning negatively (Poon, 2013). Moreover, students can also have issues of access to the online component of the course (e.g. website address and logon information) (Vaughan, 2007).

Another technological challenge is widespread access to technology. Although the flexibility of online and distance learning provided by blended learning is seen as an advantage, widespread access can also be invasive for the learners' personal lives. For some learners, the online component results in more study time and less personal concerns. This can make participants feel overwhelmed and tired (Smyth et al., 2012; Poon, 2013).

Faculty Perspective

From a faculty perspective, the key challenges of blended learning can be categorized as time commitment and development support.

1. Time Commitment

The faculty must be prepared for the initial time commitment necessary for preparing a blended course. Sometimes a complete course redesign is necessary which demands an extensive amount of time and resources from the instructor (Ho, Lu & Thurmaier, 2006). Garnham and Kaleta (2002) noted that the instructor must devote a significant amount of time and effort to the redesign of the course in order to teach the course successfully in the hybrid/blended format. Course redesigns also require a review of instructional strategies and assessment techniques. Johnson (2002) estimates that blended courses typically take two to three times longer than the amount of time required to design a similar course in a traditional format, planning and developing a large-enrollment. As in the case of online learning, researchers indicate that workloads for faculty in blended learning contexts may increase, particularly in the first few years of teaching (Colwell, 2006). Such an increase is partially due to the expectation of increased communication with the teacher through email and other ICT channels, as well as time needed to learn new technologies and teaching strategies and time required to create and manage online materials (Graham, 2013).

2. Development support

Poon (2013) reported that the lack of support for course design is another challenge in blended learning. Faculty needs support services such as help with course development needs, time management of their learning curve and technical assistance (Garrison & Kanuka, 2004). Many faculty members need to acquire new technological and pedagogical skills to teach in a blended format. They must provide support for a course redesign and learn new pedagogical and technological skills (Vaughan, 2007).

To redesign the course, faculty needs support in deciding what course objectives can best be achieved through online learning activities, what can best be accomplished in the classroom, and how these two learning environments can be integrated (Dziuban et al., 2006). Faculty also needs ongoing technology support to deal with sophisticated technologies to ensure that technology does not become a barrier to the adoption of blended learning (Garrison & Vaughan, 2013).

It is necessary to provide technology and professional development support for the academics who will be using blended learning. The development programs should train academics how to redesign their courses, the most efficient method to deliver their courses online, and the effective utilization of technology as well (Poon, 2013).

Administration perspective

Administration issues in blended learning can be categorized into the following: policy, planning, resources, scheduling, and support (Garrison & Kanuka, 2004).

1. Policy

Garrison & Kanuka (2004) reported that clear institutional direction and policy are crucial for adopting a BL initiative. They noted that based on individual faculty interest, when some forms of technology-mediated instruction are offered to selected and a small number of students in some

traditional universities, these courses are typically managed by the individual faculties, and require little administrative policy. However, because of the ability of the internet, blended learning offers an interactive learning experience to large numbers of students (e.g., high enrollment and/or high demand courses) in more accessible and cost-effective ways. It requires a more formal approach to the development of policies in blended learning approaches.

Graham, Woodfield, & Harrison (2012) conducted a study to explore issues surrounding the adoption and implementation of BL policies in institutions of higher education, they organized institutional policies regarding adoption and implementation into three following categories: strategy, structure, and support.

- **Strategy** addressed policies relating to the overall design of BL, such as a definition of BL, forms of advocacy, degree of implementation, purposes of BL and policies surrounding it.
- **Structure** included policies regarding the technological, pedagogical, and administrative framework facilitating the BL environment, including governance, models, scheduling structures, and evaluation.
- **Support** involved policies relating to the manner in which an institution facilitates the implementation and maintenance of its BL design, incorporating technical support, pedagogical support, and faculty incentives.

Moskal, Dziuban & Hartman (2013) state that policy areas where there is a general need to focus on the adoption of a blended learning initiative involve intellectual property ownership, copyright, and workload issues. These issues are often dealt with existing institutional policies or contracts, which need to be updated to reflect the specific conditions of blended learning.

2. Planning

After the creation of the policy, blended learning needs planning. Two essential levels of planning required to develop blended learning are strategic and operational planning.

Strategic planning includes the identification of needs, goals, and objectives; potential costs; and available resources (Garrison & Kanuka, 2004).

An institution must recognize what goals and outcomes it wants to achieve from blended learning. There might be institutional goals, faculty goals, or student goals. The goals of both administrators and faculty members must be in alignment. Institutional alignment is crucial for the success of a blended learning initiative. However, it might be challenging to achieve because this mode of instruction is unfamiliar to many administrators, they have not experienced it during their own education. Therefore, it might be difficult for them to link blended learning with institutional strategies and success (Moskal et al., 2013). Cost identification and calculation is an essential and complicated issue. Costs that need to be determined to implement BL are: "technology, delivery model and schedules, human resources (e.g., administrative support, course developers, instructors, and technical assistance), and infrastructure (e.g., hardware/software, Internet access, and office space)" (Garrison & Kanuka, 2004). Institutions must be pragmatic about the investment of the resources (i.e. technical, financial, and human resources) that are needed for development and implementation of blended learning (Poon, 2013).

Operational planning is essential for operationalizing the goals and objectives in an action plan. Operational planning with regard to blended learning involves the non-instructional components. For example, “promotional and advertising strategies; creating relationships for shared resources (e.g., registration, fees); managing technology; and creating an effective assessment process” are included in operational planning (Garrison & Kanuka, 2004).

3. Resources

The institutions that want to implement blended learning need to be pragmatic about the investment of time, effort, and resources that are needed for development and implementation (Poon, 2013). According to Garrison and Kanuka (2004), the requirement of a careful assessment of the resources that are needed to implement and maintain effective blended learning environments cannot be overestimated. The resources required to develop blended learning are not only limited to financial and technical but also involves the human resources used in developing and managing the implementation of blended learning (Poon, 2013; Garrison & Kanuka, 2004). Ongoing resources are additionally needed throughout the delivery of the module in order to keep up a high standard of delivery user support (Poon, 2013).

Garrison & Kanuka (2004) reported that financial resources are crucial for starting and supporting blended learning initiatives. Sustainable computers and release time incentives as well as support for instructional design and development are needed. The cost, however, is remarkably affordable and can be found in existing budgets with a reassessment of priorities. As such, there must be a commitment from the senior administration.

Human resources are also necessary for the development and delivery of blended learning courses. People with instructional design, curriculum development, and technological skills are required to help faculties that are new to blended learning. In addition to these skills, individuals who have the ability to give personal attention and motivational strategies for faculty who are unconvinced of the worth of blended learning approaches are needed (Garrison & Kanuka, 2004).

Finally, technical resources are required for the development of blended learning. Technologies to support learning are the core components to support blended learning. The technology required for hybrid learning consists of a technology infrastructure and instruction technology. Technology infrastructure constitutes the network systems that support the entire learning communities and communications. And instruction technology consists of tools and techniques which are needed for the course instruction. A significant amount of investment is needed for both these technologies, particularly in hardware and software installation costs (Olapiriyakul & Scher, 2006).

Technical resources should be up-to-date, reliable and easy to use to ensure that the technology improves the learning process rather than obstructing it (Garrison & Kanuka, 2004).

4. Scheduling

Vaughan (2007) reported that scheduling of courses is very challenging in institutions of higher education and scheduling of courses in a blended format requires considerable thinking to reduce classroom time. Garrison & Kanuka (2004) also reported that blended learning approaches require in-depth thinking about the scheduling of courses. Faculty and administration both need to rethink scheduling of courses in a blended format. “Will blended learning courses be scheduled in the

traditional format? (e.g., 3 days a week for 1 h). Or can a more flexible format be developed whereby flexible scheduling can be implemented in ways that provide learners and instructors with the ability to time-shift?" Any kind of change in course scheduling required by the registrar's office change can be a huge challenge for traditional higher education institutions (Garrison & Kanuka, 2004).

Similarly, Dziuban et al. (2011) state that a more effective approach is needed to schedule blended courses to fit into a regular and predictable meeting schedule. When an institution offers a blended course that has face-to-face meetings on an irregular basis (e.g., the first three weeks of the term are in class, the next two meetings are online, followed by two weeks in class, and then every other week online), such a schedule would not allow an institution to optimize the use of classroom space. Classrooms will remain reserved for the entire term due to irregular schedules, even during online sessions.

5. Support

Providing support for both students and teaching faculty is an essential component of blended learning. Student or faculty support issues can be simple as resetting a password, a question about a feature of the course management system, or they can be extensive subjects such as course content or an assignment. Support for students and faculty members can be provided using several platforms: "live telephone support, voicemail with call-back, email, instant messaging, informational websites containing documentation or tutorial videos, or walk-in centers" (Moskal et al., 2013).

Garrison & Kanuka (2004) reported that in addition to situational, dispositional, informational, and institutional challenges, providing effective support for blended learning needs at the minimum an understanding of the course management environment that will be used by students and faculty. More particularly, a student support center must be set up to help students access the technology, which includes not only access to a computer with the essential software and Internet connections, but also support with the skills required to succeed in a blended learning environment (Garrison & Kanuka, 2004).

Garrison & Kanuka (2004) reported that faculty needs support services such as assistance with course development needs and time management of their learning curve and technical assistance. Providing a course development team for the development of blended learning courses is considered the most effective support systems for faculty. This team consists of "the instructor as a content expert, an instructional designer who assists with course design, and a media specialist who assists with the technical creation of course materials" (Garrison & Kanuka, 2004). Dziuban et al. (2006) discuss that faculty needs support for a course redesign to decide what course objectives should be achieved through online learning activities, what can best be accomplished in the classroom, and how these two learning environments can be integrated.

Vaughan (2007) emphasized that support for the faculty is a key element in blended learning and there must be support for the faculty for redesigning the course and learning new pedagogical and technical skills in order to ensure a successful blended learning experience for students. The faculty must receive ongoing technology support to ensure that technology does not become a barrier to the adoption of blended learning (Garrison & Vaughan, 2013).

It is necessary to provide technology and professional development support for the academics who will be using blended learning. The development programs should educate academics how to redesign their courses, the most effective method to deliver their courses online, and also how to use the technology effectively (Poon, 2013).

Conclusion on the challenges of blended learning:

BL offers many benefits to students, faculty, and administration that have been mentioned earlier. However, blended learning also poses some challenges for them. It requires students to be self-regulated and they must have effective time management skills to participate in a blended course. Students also need technological skills to deal with sophisticated technologies (Vaughan, 2007; Poon, 2013).

Blended learning is also challenging for faculty. Redesigning the course in a blended format requires the time commitment. The lack of support for course design is another challenge for faculty. There must be university support for the course redesign in order to make the blended course successful (Vaughan, 2007; Poon, 2013).

The challenges for the administration relate to policy, planning, resources, scheduling, and support in the adoption and implementation of blended learning (Garrison & Kanuka, 2004).

The administration needs to create institutional policies for adopting blended learning initiatives. Related to the policy, the administration must make a set of strategic and operational plans. The administration needs to determine the investments in resources (financial, technical and personnel) required for blended learning. Scheduling of blended courses is also challenging, and the administration must help faculty in scheduling the blended courses. Finally, the administration needs to provide support to the faculty for redesigning the course, and it should also provide technical support to both faculty and students to ensure that technology does not become a barrier in the success of blended learning initiatives.

2.6 How to implement Blended learning successfully?

Despite many advantages, BL can also be challenging for some institutions. Previous research on blended learning discussed the challenges faced by institutions in the implementation of blended learning, but there is little of the research to guide institutions of higher education on how to deal with these challenges in order to successfully adopt and implement blended learning. An additional research is needed to guide the institutions on how BL can be implemented successfully. This section is aimed to discuss what is required for Successful adoption of blended learning.

The factors that contribute to the success of blended learning as identified in the literature are outlined below.

1. Identify institutional goals and objectives

First of all, to succeed in blended learning, an institution needs to have an idea of the goals and outcomes it wants to achieve. There can be different goals such as student goals, faculty goals, or institutional goals for adopting blended learning (Moskal, Dziuban & Hartman, 2013).

The senior administrators of the institution must play a significant role in formulating goals and objectives for blended learning. But those goals cannot be the sole responsibility of senior management. The faculty also needs to be involved in this initiative and its success, and the goals formulated by the senior administrators must be acceptable to them because blended learning is ultimately all about teaching and learning. In short, to succeed in blended learning initiatives, there must be alignment between the goals of both administrators and faculty (Moskal, Dziuban & Hartman, 2013).

Moskal, Dziuban & Hartman (2013) suggested that an initial blended learning strategy should include the answers to a set of following questions:

- ❖ Why should the institution adopt a blended learning approach? What goals and outcomes do we want to achieve from this approach, both initially and for the longer term?
- ❖ How will we involve and support our faculty in order to make our objectives successful?
- ❖ How are we going to deploy blended learning across institutions? Where should we start?
- ❖ What investment levels are we ready to make and what returns are we expecting?
(Moskal, Dziuban & Hartman, 2013).

2. Policy Development

When the institutional goals and objectives are identified, the administrators should develop policies to achieve those goals and objectives. A successful adoption of a blended learning approach requires the creation of clear institutional policies (Garrison & Kanuka, 2004). Vaughan (2007) suggests that a policy framework should be developed which states how blended learning supports the vision, values and principles of the institution.

3. Analyze institutional and pedagogical contexts

Designers must be pragmatic about the investment of time, effort, and resources that are needed for development and implementation of blended learning. The resources required for development

are not only limited to the financial resources and acquisition of equipment and technology, but also include the human resources needed for development and implementation of blended learning (Poon, 2013; Garrison & Kanuka, 2004). Blended learning designers should investigate the readiness of the institution in the terms of: "technical/financial infrastructure (e.g., Hardware, software, servers, bandwidth, security), administration and personnel, and ethical/political philosophy (e.g. copyright regulations, admissions procedures, and course offerings)" (Musawi, 2011).

Designers should examine the characteristics and needs of learners in order to know their demographic information, academic levels, geographic distribution, prior knowledge, and level of anxiety (audience analysis). The ethical issues involved in delivery processes need to be identified. Issues such as equal opportunities, cultural diversity and accessibility to the Internet should be dealt with in a manner that does not offend learners. Alternative learning opportunities should be provided for learners with special needs (Musawi, 2011).

Designers should also determine the best ways to deliver the learning content (content analysis) and analyze it according to the characteristics of predetermined learners. In a blended learning approach, designers should determine the concept, sequence, design, development, and strategies (Dziuban, Moskal & Hartman, 2005; Musawi, 2011).

4. Investment in appropriate technology infrastructure

Blended learning designers need to select appropriate ICT technologies that can be used in blended learning environments and best fit the learning modes/forms prescribed (Musawi, 2011).

The technology required for blended learning consists of a technology infrastructure and instruction technology. Technology infrastructure constitutes the network systems that support the entire learning communities and communications. And instruction technology consists of tools and techniques which are needed for the course instruction (Olapiriyakul & Scher, 2006). These technologies include: "content management system, learning management system, reusable learning objects, peer-to-peer collaboration tools, assistive technologies, wireless technologies, digital libraries, e-books, Weblogs, Wikis, language support, virtual worlds, digital portfolios, intelligent agents, tablet PCs, massive multiplayer, online games, handheld devices and wearable technologies as well as physical classroom media/technologies" (Musawi, 2011; Bogle et al., 2009).

In order to facilitate interactivity through the user interface, designers should also perform the interface design and ensure its usability. They should make sure that the user interface integrates and supports different components (such as structure, navigation, arrangement, and help) to allow the student to switch between them (Musawi, 2011).

Designers need to organize and provide different offline and online resources to students. These resources can be provided in the following forms: "consultation, private tuition, a frequently asked questions-section (FAQs), email/chat help, library, and website links" (Musawi, 2011).

Reliable and transparent technical resources are needed to ensure that the technology can improve the learning process rather than hinder it. This requires course management tools that are up-to-date and capable of meeting the learning needs of students. The technical tools must be

reliable and easy to use (Garrison & Kanuka, 2004).

5. Faculty development and course development support

The goal of faculty development is to ensure that online courses are designed and delivered in a way that leads to achieve expected levels of student learning, mastery, and success in the online environment. These expectations are usually based on student performance in similar face to face learning environments. Faculty development also provides a forum for faculty members to address important issues i.e., copyright, accessibility, more efficient evaluation methods, and other issues they may not have encountered previously (Moskal, Dziuban & Hartman, 2013).

The course development process aims at creating an online learning environment that successfully realizes the design goals formulated during faculty development. It is also an opportunity to examine the utilization of different media to achieve the objectives of the course. Other learning resources can be created to enhance the learning environment and engaging students, beyond basic web pages, graphics, sound, video, and animations (Moskal, Dziuban & Hartman, 2013).

Faculty needs support for course redesign to decide what course objectives should be achieved through online learning activities, what can best be accomplished in the classroom, and how these two learning environments can be integrated (Dziuban et al., 2006). It is necessary to provide technology and professional development support for the academics who will be using blended learning. The development programs should educate academics how to redesign their courses, the most effective method to deliver their courses online, and also how to utilize the technology effectively (Poon, 2013). Vaughan (2007) emphasizes that development support must be provided to the faculty for redesigning the course and learning new pedagogical and technical skills in order to ensure that students have a successful blended learning experience.

Garrison & Kanuka (2004) suggest that providing a course development team for the development of blended learning courses is considered the most effective support systems for faculty. This team consists of “the instructor as a content expert, an instructional designer who assists with course design, and a media specialist who assists with the technical creation of course materials”.

When the course development process is done, the course should be reviewed by the instructional designer and faculty members and approved for the first use (Moskal, Dziuban & Hartman, 2013). Effective faculty development and course development support result to reduce the workload of faculty members, leading to better design for the courses, more student engagement, more contextual and authentic evaluations, and improved students’ results (Dziuban, Hartman, Cavanagh, & Moskal, 2011).

6. Use resources and methods

The management should be conducted to secure infrastructure, facilities and logistics in order to use and implement blended delivery modes.

- The processes such as LMS administration, materials upload, students' registration and enrollment, and class scheduling and allocation should be completed. Since learners are located in different time zones in the online part of the blended education, implementer (e.g. instructors, facilitators, moderators, tutors, technicians) should ensure their accessibility to servers (Musawi, 2011).

- Instructors should deliver the course materials for the students in blended mode to achieve intended learning outcomes through traditional and online instructional strategies, taking into account factors such as satisfaction with their outcomes, balance of delivery, teacher and peer engagement, workload, selected technologies, perceived career advantage, and student satisfaction (Musawi, 2011).
- Musawi (2011) suggests that the on-campus part of the blended education should be taken as an essential aspect of the development of a learning community. Although such communities can be developed online, face-to-face interaction with other students and the implementers make communication easier and also support experience during the online part. Online materials can be learned in a synchronous or asynchronous format. Instructors can make a number of modifications to further improve the communication aspects of the blended learning.

7. Interaction/participation

When the course has been designed, the blended instructional process should aim to engage learners through different activities (e.g. reports, presentations, workshops, debates, small group discussions, and threaded discussions). Students should interact in face-to-face or online environments with their colleagues and teachers, depending on the blended format (Musawi, 2011).

8. Evaluation and review

Designers should evaluate the usability of the blended learning, the effectiveness of its components and the feasibility of the delivery method used for blended learning (Musawi, 2011). The aim of the evaluation process is to determine both the student preferences and perceptions concerning the use of technology to support their learning as well as effectiveness of the instruction (Olapiriyaku & Scher, 2006). Monitoring the transformations resulting from the utilization of blended learning approaches, in terms of learning outcomes, student satisfaction, retention and achievement, are necessary to use as basic measures of change that arise from blended learning courses. The success and satisfaction of the teaching, learning, technology, and administration of the new blended course should be evaluated in a systematic way. In addition to the assessment of the learning outcomes, there should be an assessment of the learning process as well (Garrison & Kanuka, 2004).

Instructors should evaluate the achievements of their students of learning outcomes, performance, involvement in activities, participation in the discussions, and understanding of concept explained qualitatively and quantitatively (Ramsey et al., 2009). Course effectiveness should also be evaluated by using standard measures, including the level of achievement of course goals and objectives, the level of student satisfaction, the progress in student performance, and the comparison between the of student achievement level that was expected and actual outcomes (Olapiriyaku & Scher, 2006).

Conclusion on how to implement blended learning successfully:

Blended learning offers many benefits to institutions. However, it can pose some challenges to institutions if it is not implemented in an appropriate manner. For successful implementation, it is crucial that administrators identify the institutional goals and objectives which they want to achieve through the use of blended learning. And they should develop clear policies to achieve those objectives. Designers/implementers should analyze different institutional and pedagogical contexts as mentioned above. The investment should be made in the reliable technology infrastructure required to initiate blended learning. The administration should provide development support for the faculty to redesign the courses in the blended format. When the course has been designed, instructors should deliver the course materials to students in the blended format and should engage the students through different activities to let them interact with their colleagues and the teachers in the face-to-face or online environments, depending on the blended format. Lastly, the blended learning designers and implementers should assess and evaluate the effectiveness of blended learning.

Chapter 3. Discussion and recommendations for future research

Information and communication technologies (ICT) have become essential in the transformation of the learning process. Information and communication tools offer flexibility of time and place in learning. But this should not be taken as the end of traditional campus-based institutions, this will enable the institutions to best utilize both face-to-face (FTF) and online learning in higher education (Garrison & Kanuka, 2004). The inherent problems with fully online learning, including the pressure of limited resources (e.g., money, time, software, and hardware), and the other limitations of the pedagogical nature of purely online or traditional face-to-face learning have led to mix both the online learning as well as traditional instruction. Blended learning (BL) integrates social aspects of face-to-face learning with web-based environments. The idea behind this approach is to maximize the advantages of both face-to-face and online modes of instruction (Delialioglu & Yildirim, 2007). Blended learning is a flexible approach to design courses that combines the traditional face-to-face and online learning supported by information and communication technologies, as it enables blending of different place and times for learning purposes, it offers convenience of fully online courses (i.e. flexibility, accessibility, and self-directed learning etc.) without loss of benefits of traditional face-to-face learning (Rovai & Jordan, 2004).

Blended learning is widely used in institutions of higher education. The reason behind the widespread utilization of blended learning is the benefits that it offers to students and institutions. The literature reveals that blended learning may offer several benefits to students and institutions. Blended learning is a cost-effective approach for the institutions. It can be quite expensive at times to produce high quality web-based content. On the other hand, traditional face-to-face instruction incorporates high end facilities including buildings, transportation, etc. It is possible to reduce these costs through use of blended learning by combining a variety of different methods using self-paced reading materials, case studies, assignments, recordings of events, powerpoint presentations etc. (Musawi, 2011). Graham (2013) shared the factors that contribute to cost reduction for blended learning programs. These factors include a reduction in wait times for training, reduced training hours and reduced salaries associated with training facilities in general. It can also enhance reputation which leads to a high number of enrollments. Furthermore, it can enhance pedagogy and faculty satisfaction because of increased interaction with students, increased student engagement in learning, and flexibility of the teaching and learning environment (Vaughan, 2007).

Blended learning may also provide several benefits to students. The blended courses offer flexibility both in time and space to students, allowing them to complete asynchronous components on their own time and in their own space. Students with obligations to family or work are attracted towards blended learning because of the increased accessibility and flexibility which it may offer to them. As blended learning offers students the benefits of traditional FTF instruction (i.e., interaction with instructors and peers, increased engagement, etc.) and some conveniences of online learning (i.e., flexibility, accessibility, and self-directed learning) as well, it results in a

high level of students' satisfaction and eventually leads to improve their learning outcomes.

In addition to its benefits, blended learning is also useful for improving the performance of the students. Some institutions adopted blended learning to improve their students' performance. For example, London Metropolitan University used blended Learning to Improve Students' Success Rates (Boyle et al., 2003).

Some past studies show that blended courses affect students' learning positively (Gunter, 2001; Sanders & Morrison-Shetlar, 2001; Yildirim, 2005). Since this approach combines the advantages of both traditional FTF learning with online learning, knowledge and skills can be transferred more effectively in this approach as compared to FTF or online learning individually. The study of Demirer & Sahin (2009) shows that blended learning can transfer the knowledge to students effectively. The researcher noted that the blended learning approach provides more opportunities for students to learn and interact with the teacher and peers. As a result, students who participate in the blended course produce better results for knowledge transfer. Therefore, the blended learning approach has a positive impact on the transfer of learning. However, they indicated that there's insufficient experimental research that investigated the impact of the blended learning approach on the transfer of learning. The limitation of this study is that the findings are based on the previous literature. Therefore, in the future, an experimental research can be conducted to analyse the impact of blended learning on the transfer of knowledge. The future research should investigate the impact of blended learning on the knowledge transfer in different courses/faculties to get a broader picture.

Previous literature shows that a blended learning approach has a positive impact on students' performance (López-Pérez et al., 2011; Lim & Morris, 2009; Means et al., 2013; Moskal, Dziuban, and Hartman 2013; Poon, 2013; Vaughan 2007). A study conducted by Pérez-López et al. (2011) found that blended learning can produce two types of outcomes: a subjective outcome (perceived utility, satisfaction and motivation), which leads to produce objective outcome (final exam marks). Based on their study, this study was aimed to examine the relation between the subjective measure and the objective measure. The research revealed that there is a positive relation between subjective and objective outcomes. Blended learning can provide a higher degree of utility, motivation, and satisfaction, which leads students to adopt a positive attitude towards learning and to improve their performance (exam marks).

However, the findings of this research are based on different studies that analyzed the impact of blended learning on students' performance in different courses/faculties. In the future, research can be done to find out if blended learning is more useful in specific courses or specific topics or faculties. Furthermore, the future research can also investigate whether blended learning is more useful/necessary in the 1st year in higher education, or in the last year (master)?

Despite of many advantages, blended learning also poses some challenges to students and institutions. Garrison & Kanuka (2004) state that while blended learning is the thoughtful integration of online learning experiences with a classroom face-to-face learning experience, it can be rather challenging to implement. This study outlined the issues and challenges that students, faculty, and administration face in adoption of blended learning approach. Blended learning

requires the learners to have effective time management, self-regulation and technical skills. That's why, it can be challenging for the students that have inadequate time management, self-regulation and technological skills. Blended learning can pose some challenges to faculty as well. Redesigning the course in a blended format requires a time commitment. The instructors need more time to redesign the course in the blended format as compared to traditional classroom or online courses. Another challenge for the faculty is the lack of support for the course redesign. Faculty needs support to redesign the courses in a blended format to decide what course components should be offered for the classroom and what components should be offered for online learning. Moreover, they also need support to develop some pedagogical and technological skills to teach the course in a blended format. The challenges for the administration involve policy, planning, resources, scheduling, and support systems to adopt and implement blended learning (Garrison & Kanuka, 2004).

The administration needs to create institutional policies for adopting blended learning initiatives. Related to the policy, the administration must make a set of strategic and operational plans. The administration needs to determine the investments in resources (financial, technical and personnel) required for blended learning. Scheduling of blended courses is also challenging, and the administration must help faculty schedule the courses. Finally, the administration needs to provide support to the faculty for redesigning the course and it should also provide technical support to both faculty and students to ensure that technology does not become a barrier in the adoption of blended learning initiatives.

Lastly, this study identified the factors that are necessary for the success of blended learning. The factors include: Identify goals and objectives, policy development, analyze institutional and pedagogical contexts, investment in appropriate technology infrastructure, faculty development and course development support, use resources/methods, interaction/communication, evaluation and review. For successful implementation, it is crucial that administrators identify the institutional goals and objectives which they want to achieve from the use of blended learning. And they should develop clear policies to achieve those objectives. Designer/implementers should analyze different institutional and pedagogical contexts as mentioned above. The investment should be made in the reliable technology infrastructure required to initiate blended learning. Furthermore, the administration should provide development support for faculty to redesign the courses in the blended format. When the course has been designed, instructors should deliver the course materials to students in the blended format and should engage the students through different activities to let them interact with their colleagues and teachers in face-to-face or online environments, depending on the blended format. Lastly, the blended learning designers and implementers should assess and evaluate the usability and effectiveness of blended learning.

Graham et al. (2014) indicated that there is very limited research focused on the challenges that students, faculty and institutions face in blended learning adoption and to guide institutions toward successful implementation of blended learning.

Most previous studies have examined the potential of blended learning to enhance learning. However, limited research has been discovered related to the challenges in a blended learning environment and the factors of successful adoption and implementation. Most of the research is

outdated. Further research should be conducted to determine the type of challenges that the institutions are currently facing in implementing blended learning.

Chapter 4. Conclusion

The institutions of higher education are increasingly adopting blended learning. The first purpose of this thesis was to identify the reason behind the adoption of blended learning, and explore its benefits for students, faculty, and administration in the context of higher education.

Another purpose of this thesis was to investigate the impact of blended learning on the transfer of knowledge and skills and students' performances in higher education.

The last purpose of this study was to examine the issues and challenges that students, faculty, and institutions face in the adoption of blended learning and discuss how administrators should deal with these issues in order to implement blended learning successfully.

This thesis had four research questions, according to the objectives of this research, which are outlined above. The literature on blended learning was explored as the main source to answer these research questions.

RQ1. Why are institutions adopting blended learning and how might blended learning be beneficial for students and institutions?

RQ2. To what extent can knowledge and skills be transferred to learners using the blended learning approach?

RQ3. Does blended learning have an impact on the performance of students?

RQ4. What issues and challenges does an institution face in trying to implement blended learning and how to deal with these issues in order to successfully implement blended learning?

Research question one. The inherent problems with fully online learning, including the pressure of limited resources (e.g., money, time, software, and hardware), and the other limitations of the pedagogical nature of purely online or traditional face-to-face learning have led to mix both the online learning as well as traditional instruction. The idea behind combining FTF and online learning is to maximize the advantages of both face-to-face and online modes of instruction (Delialioglu & Yildirim, 2007). Blended learning is a flexible approach to design courses that combines the traditional face-to-face and online learning supported by information and communication technologies, as it enables blending of different place and times for learning purposes, it offers convenience of fully online courses (i.e. flexibility, accessibility, and self-directed learning etc.) without loss of benefits of traditional face-to-face learning (Rovai & Jordan, 2004).

Blended learning is widely utilized in the institutions of higher education. The reason behind the widespread use of blended learning is the benefits that it offers to students and institutions because of the combination of FTF and online learning. The literature reveals that blended learning may offer several benefits to students and institutions. Some benefits of blended learning found in the literature are; Cost-effectiveness, Increased access to knowledge and flexibility, improved learning outcomes, increased satisfaction, and enhanced Institutional reputation, and pedagogical benefits such as increased learning effectiveness, satisfaction, and efficiency.

It can be concluded that blended learning is beneficial for students and institutions. However, to benefit from blended learning, an institution must set the goals and objectives that it wants to achieve by adopting this approach.

Research question two and three. The use of blended learning is increasing in the institutes of higher education due to the benefits it may offer. This study investigated whether knowledge and skill can be transferred in the BL approach and does BL have an impact on students' performance. Some past studies show that blended courses affect students' learning positively (Gunter, 2001; Sanders & Morrison-Shetlar, 2001; Yildirim, 2005). Demirer & Sahin (2009) noted that blended learning approach provides more opportunities for students to learn and interact with the teacher and peers. As a result, students who participate in the blended course produce better results for knowledge transfer. Therefore, the blended learning approach has a positive impact on the transfer of learning. Since this approach combines the advantages of both traditional FTF learning with online learning, knowledge and skills can be transferred more effectively in this approach as compared to FTF or online learning individually.

Previous literature shows that a blended learning approach has a positive impact on students' performance (López-Pérez et al., 2011; Lim & Morris, 2009; Means et al., 2013; Moskal, Dziuban, and Hartman 2013; Poon, 2013; Vaughan 2007). A study conducted by Pérez-López et al. (2011) found that blended learning can produce two types of outcomes: a subjective outcome (perceived utility, satisfaction and motivation), which leads to produce objective outcome (final exam marks). Based on their study, this study was aimed to examine the relation between the subjective measure and the objective measure. The research revealed that there is a positive relation between subjective and objective outcomes. Blended learning can provide a higher degree of utility, motivation, and satisfaction, which leads students to adopt a positive attitude towards learning and to improve their performance (exam marks).

Based on above discussion, it can be concluded that blended learning has a positive effect on the transfer of learning and students' performance. And it is more effective than fully traditional face-to-face (FTF) learning or fully online learning.

Research question four. Despite of many advantages, blended learning also poses some challenges to students and institutions. Garrison & Kanuka (2004) state that while blended learning is the thoughtful integration of online learning experiences with a classroom face-to-face learning experience, it can be rather challenging to implement. Blended learning requires the learners to have effective time management, self-regulation and technical skills. That's why, it can be challenging for the students that have inadequate time management, self-regulation and technological skills. Blended learning can pose some challenges to faculty as well. Redesigning the course in a blended format requires a time commitment. The instructors need more time to redesign the course in the blended format as compared to traditional classroom or online courses. Another challenge for the faculty is the lack of support for the course redesign.

The challenges for the administration involve policy, planning, resources, scheduling, and support systems to adopt and implement blended learning. Institutions must create the necessary policies, planning, resources, scheduling, and support systems to ensure that blended learning initiatives

are successful (Garrison & Kanuka, 2004; Vaughan, 2007; Poon, 2013).

The factors that contribute to the success of blended learning include: Identify goals and objectives, policy development, analyze institutional and pedagogical contexts, investment in appropriate technology infrastructure, faculty development and course development support, use resources/methods, interaction/communication, evaluation and review. For successful implementation, it is crucial that administrators identify the institutional goals and objectives which they want to achieve from the use of blended learning. And they should develop clear policies to achieve those objectives. Designer/implementers should analyze different institutional and pedagogical contexts as mentioned above.

Finally, it can be concluded that blended learning is beneficial for institutions, however, considerable attention should be paid to its implementation in order to make it successful.

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