Sheffield Hallam University

A Sheffield Hallam University thesis

The Development of E-Learning in a Lebanese Higher Educational Context

Fawzi Baroud

A thesis submitted in partial fulfillment of the requirements of
Sheffield Hallam University
for the degree of Doctor of Philosophy

June 2011

Abstract

This thesis examines the experience of faculty members, academic administrators and students at Notre Dame University-Louaize (NDU), Lebanon in the development process of e-learning implementation for encouraging intellectual activity in teaching and learning.

The research methodology consisted of an in-depth single-case study which was adopted to drill down into the e-learning implementation process centering on analyzing the attitudes and views of faculty members and academic administrators. In addition, students' learning styles and preferences together with their views on how their teachers use technology in teaching were examined. The total sample of the study was 203 faculty members, 18 academic administrators, and 259 students.

Both qualitative and quantitative methods of data gathering were employed including two questionnaires administered to faculty members, interviews with academic administrators, interviews conducted with faculty members, and a questionnaire administered to students. Document analysis of meeting minutes and strategic planning was conducted to complement interviews and questionnaire data obtained from faculty members and academic administrators.

Main results showed that institutional processes involved several steps for implementing e-learning. Change in leadership resulted in change in the direction of e-learning implementation, indicating the role of the culture of the institution in the context of change. The most important element in the process of implementing e-learning was the transition from one phase to another through training and faculty members' participation in the e-learning implementation process suggesting the significance of these factors in the change process. A key theme that arose from the research findings was the need to create a culture of engagement in the process of change. Other key factors which have facilitated the process of implementing e-learning were analyzed. Initiatives to implement e-learning were partly offset by the lack of written policies that will determine the use of e-learning in the educational process. Faculty members revealed the concern that training should take into consideration how to use technology in teaching. Moreover, academic administrators emphasized the need to develop e-learning policies. The study showed that the methods of teaching and students' learning styles are two distant areas and drawing links between the two needs adaptation and further inquiry.

Contributions to knowledge and the limitations of the study are discussed. Recommendations for implementing e-learning and carrying out future research are provided.

2

Table of Contents

List of Tables

List of Figures

The work submitted in this thesis is the result of my own work, except when otherwise stated.

Any errors or inconsistencies that appear in the thesis are those of the author.

Fawzi Baroud

Signature

Date_____June 17, 2011_____

To my wife, Paula and our three children, Serge, Caline and Kevin.

Acknowledgements

Chapter 1

Introduction: The Conceptual Background and Structure of the Study

1.1 Introduction

During the last two decades, a series of global changes have brought new opportunities and challenges to commercial, financial, business, educational, and government sectors. The most remarkable aspect of this change has been the emergence of information technology as a tool that provides various opportunities for access to and dissemination of knowledge. These opportunities were accompanied by numerous challenges. Information technology has provided many opportunities such as widening access to information, fast delivery and dissemination of knowledge regardless of time and space, and facilitating communication at personal, commercial and cultural levels. However, these opportunities are offset by digital divisions within and among countries and related issues in institutions such as lack of adequate infrastructure, equipment, and cultural resistance.

In the context of education, information technology has presented itself as a partner to the various works of educational institutions. These educational institutions became concerned with how to deal with information technology in teaching and learning, because they use a variety of teaching methods and strategies in the delivery and development of knowledge that can no longer persist without technology. As a result, the role and effectiveness of information technology in teaching and learning as well as its role in assuring quality in education became important issues for consideration in these institutions. Moreover, issues of change constitute a vital focus in these institutions given the critical nature of understanding the implementation of technology in teaching and learning from the perspective of all those involved in educational contexts.

The above issues have been the subject of ongoing research which has produced a large amount of publications given the relatively short period of time since the emergence of modern technology in higher education contexts. In turn, research in the field has provided conflicting theories and diverse terminologies to indicate the role of information technology in teaching and learning, often taking the form of a crisis regarding which theory is to be endorsed and which terminology would best describe the role of technology in the educational process. These issues are discussed in this chapter.

Growing research in the field does not necessarily mean that the picture of technology in teaching and learning has been completed as the topic is still controversial. This suggests that more research is needed specifically in Arab countries whose share of research in the field is limited.

This study seeks to contribute to the development of knowledge in the field by taking Notre Dame University-Louaize in Lebanon as a case study. The identification of the aims, objectives, and research questions of the study help clarify its direction and specify the terms of its contribution to knowledge in the field. These aspects of the study are discussed in this introductory chapter in light of the conceptual framework of the study presented below.

1.2 The Conceptual Framework

This study is set within the framework of drawing on the experiences of higher educational institutions in the development process of e-learning implementation for encouraging intellectual activity taking Notre Dame University-Louaize (NDU) as a case study. Using an eclectic approach this study considered a combination of theories and models related to technology acceptance and change which informed the conceptual framework of the study as follows:

- It determines the issues of the development of e-learning implementation and their underpinning theories where variables can be identified and tested;
- It helps identify which of these theories may differ from or resemble to the institutional realities of NDU;
- It helps understand which factors are currently under-researched and should be given more focus in the present study;
- It provides a framework to examine the contribution to knowledge this study makes to theories in the area.

The eclectic approach centered on selecting factors for measuring the development process of e-learning implementation at NDU. The theories and models considered for the study are:

- The Technology Acceptance Model (Davis, 1986);
- The Innovation Diffusion Theory (Rogers, 1995);
- The Unified Theory of Acceptance and Use of Technology Theory (UTAUT) (Venkatesh, Morris, Davis & Davis, 2003);

15

- The E-learning Acceptance Model (ELAM) (Umrani-Khan & Iyer, 2009);

- The Motivational Model (Vallerand, 1997).

The section that follows provides a brief description of the above theories and models, and a detailed examination of them in relation to the factors to be used for measuring the development process of e-learning implementation at NDU will be discussed in Chapter 3.

1.2.1 The Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM) developed by Davis (1986) which argues that the user's attitudes toward technology is affected by the simplicity of use and expected utility of technology, i.e., the extent to which an individual believes that by using a certain system, he/she improves their work (Babic & Jadric, 2010). This theory provides a foundation for this study which looks into the readiness of faculty members and academic administrators to implement e-learning and its utility in the educational process.

1.2.2 The Innovation Diffusion Theory (IDT)

The Innovation Diffusion Theory (Rogers, 1995) explains five factors related to the dissemination of new ideas. These are: knowledge, persuasion, decision, implementation, and confirmation. This theory helps understand the change process from different perspectives including the decision to adopt technology in teaching and learning, persuading faculty members to engage with e-learning, the e- learning implementation process and its verification.

1.2.3 The Unified Theory of Acceptance and Use of Technology Theory (UTAUT)

This theory developed by Venkatesh, Morris, Davis & Davis, (2003) is a combination of a variety of theories (theory of reasoned action, technology acceptance model, motivational model, theory of planned behavior, a combined theory of planned behavior/technology acceptance model, model of PC utilization, innovation diffusion theory, and social cognitive theory). It determines four factors that affect the user's acceptance of technology: expecting the effect of technology use, the expected effort, social impact and personal attitude. This theory provides a useful tool for assessing the likelihood of success for new technology introductions such as Blackboard at NDU and helps understand the drivers of acceptance in order to proactively design interventions such as training offered to faculty members.

1.2.4 The E-learning Acceptance Model (ELAM)

ELAM (e-learning acceptance model) (Umrani-Khan & Iyer, 2009) identifies the key factors in acceptance of e-learning as measured by behavioral intention to use the technology and actual usage as adapted from the Unified Theory of Acceptance and Use of Technology Theory (UTAUT) developed by Venkatesh et al. (2003). The four determinants of e-learning acceptance are: performance expectancy; effort expectancy; social influence; and facilitating conditions. This theory considers the attitudes of both students and faculty members to explain acceptance of e-learning. It postulates that the nal desire to engage with technology in teaching for no apparent motivation provided by the institution. On the other hand, extrinsic motivation is faculty members' use of technology based on monetary incentives and promotion. Alanis (2004) has s and preferences in relation to how their teachers taught them in class.

1.2.5 The Motivational Model (MM)

Rooted in theories of motivation which stem from Maslow's (1943) hierarchy of needs, Bandura's (1975) social learning theory, the early work of Pavlov and the behavioral paradigm (e.g. Skinner, 1972), the Motivational Model (MM) has been used abundantly in many psychological studies that focused on change in behavior following reinforcement and reward. Many studies have examined motivational theory and adapted it for specific contexts (e.g., Vallerand, 1997). Motivational theories focused on intrinsic and extrinsic motivation. In the framework of information technology, extrinsic motivation is when users perform an activity since it is perceived to be instrumental in achieving valued outcomes that are distinct from the activity itself, such as improved job performance, pay, or promotions (Davis, Bagozzi, & Warshaw, 1992). On the other hand, intrinsic motivation is when users will want to perform an activity for no apparent reinforcement other than the process of performing the activity as such (Ibid.).

This study uses the Motivational Theory to examine the extent to which faculty members use technology in teaching and learning based on intrinsic and extrinsic motivation.

1.3 The Contribution of E-learning to Quality

The relationship between e-learning and assuring quality education in institutions of higher education is established through the facilitating role of e-learning in a variety of activities and programs that support quality standards that emphasize what they

described as accessibility, collaboration or community-building, for either teachers or learners (e.g., Connolly, Jones, & O'Shea, 2005; Jara, 2006 cited in Åström, 2008). E-learning strategies have been implemented in many higher educational contexts over the past years. Although these implementations have different objectives, the use of e-learning to potentially improve the quality of education has been widely accepted. For example, the e-learning Program of the European Commission, promotes what is referred to as the effective integration of Information and Communication Technologies (ICTs) in education and training systems in Europe (2004 – 2006). As stated by the European Commission, ICT, properly used, should contribute to the quality of education and training and to Europe's move to a knowledge-based society. In this study, e-learning is conceived as a tool that entwines learning with technology for potentially achieving desirable learning outcomes, here perceived as student learning outcomes that are properly defined in terms of knowledge, skills, and abilities that a student has attained at the end (or as a result) of his or her engagement in a particular set of education experiences (The New England Association for Schools and Colleges, 2008)[1].

This study recognizes that e-learning has the potential to facilitate teaching and learning with clear educational outcomes that could enhance the quality of education and at the same time is aware of what learning through technology can and cannot achieve (Heppel, 2000). In addition, this thesis conceives e-learning as one response to challenges of change and provision of learning opportunities in a private higher educational context in Lebanon involving faculty members, academic directors and students.

1.4 Definition of Terminologies

This chapter provides a definition of 'open and flexible modes' (Debande, 2004) used in teaching and learning. Second, it draws on a perceived typology that demarcates the challenges of change in higher educational contexts. This latter provides a theoretical approach to the study in terms of statement of the problem, aims, objectives, and research questions.

In attempting to adopt a definition for 'open and flexible modes' that uses technology in teaching and learning, the review of literature gave a number of definitions that seem to

---

[1] http://www.neasc.org/

serve the same purpose, i.e., integrate technology successfully in order to enhance teaching and learning. The existing literature is characterized with overlapping terminologies such as Web-based learning, e-learning, Web-based instruction, off-site learning, mobile learning (m-learning), e-education, online instruction and online learning. Zemsky and Massy (2004) explained three domains that define e-learning functions. These are: e-learning as distance education; e-learning as facilitated transactions software; and e-learning as electronically mediated learning. The categorization of the e-learning functions is helpful. Given this diversity of concepts and terminologies appearing in the literature and continuous resistance to the notion of e-learning to have a clear definition, Whitlock (2000) makes the point that a suitable term to cover all types of technologized learning has yet to emerge. With the near absence of an agreed terminology that describes flexible and open technologized learning environments, Whitlock applies e-learning as an umbrella term that refers to the provision of learning through computer-based processes or multi-media. Drawing on this definition, this study perceives the term e-learning as electronically mediated learning (Zemsky & Massy, 2004) which refers to the use of the internet and digital technologies to construct experiences that educate learners (Horton, 2001). Moreover, in as much as this study is concerned with cultures of change in a higher educational context, it also alludes to OECD'S (2001, p.22) definition that relates to empowerment, defined in this study as creating learning opportunities for learners.

> It enables learning to take place in a variety of different places, both physical and virtual. Learners have a choice and increasingly wish to combine the options, choosing when and where they study and learn. For education providers, the preparation and integration of materials and services become a challenge, since it fundamentally changes the learning environment (p.22).

Moreover, the changing environment perceived in this study refers to the modern global environment that inevitably puts higher educational institutions face-to-face with multifaceted challenges of the era of global change. Haddad and Draxler (2002) developed a four-domain typology of change challenges in the modern global environment which influence the function of higher educational institutions in terms of adapting their curricula to address these challenges effectively: (1) rapid development and dissemination of knowledge; (2) global social concerns pertaining to the quality of life; (3) increased international pressure to widen access to education; and (4) changes in patterns of trade, economic competition and technological innovation.

There is evidence that response to the challenges of change has been aided by Information Communication Technology (ICT) (e.g., O'Neill, Singh, & O'Donoghue, 2004). The fast development and dissemination of knowledge has been facilitated by information technology and media, although such development and dissemination are inequitably distributed because of economic and technological gaps between and within nations. Additionally, global concerns regarding quality of life have been voiced in local and international circles. The International Development Goals Pact (IDGP) promulgated by Organization for Economic Cooperation and Development (OECD) and international organizations such as the World Bank in 2000 called for the improvement of health services, protection of the environment, wider access to education and spread of political democracy and human rights. Furthermore, the use of ICT in enhancing the quality of life has been recommended by the IDG pact. In terms of access to education, many international initiatives have called for the need to provide education for all and eradicate illiteracy. For instance, the Education for All conference in Jomtien, Thailand in 1990, the Poland Declaration in 1999 and other similar international initiatives attest to the need to provide Education for All (El-Ameen, 2005). These calls recognized the need to develop and meet learners' learning needs and enhance their skills through the provision of training at any time and any place; hence, to facilitate, partly at least, access to knowledge to dispersed groups through individualized curricula that can deliver "just-in-time" learning on a global basis through technology. In connection with this, the declaration of principles drafted by the League of Arab States (LAS) in 2003 called for the immediate infusion of technology into education and training in Arab educational contexts, both formal and informal in order to improve the conditions of life-long learning.

The ability and willingness of educational contexts to respond to the new global challenges in the nexus of change presuppose the ability of these contexts to devise new strategies, restructure their educational policies and adopt new learning paradigms driven by what Dwyer, Barbieri, and Helen (1995) described as the 'information age' which connotes the inevitability of integrating ICT into social, economic, political, economic and educational spheres.

This study conceives that Information and Communication Technology (ICT) has changed the way knowledge is represented and the way learners access it (Snyder, 2001). As a result, new learning paradigms have been revitalized out of the infusion of Information and Communication Technologies (ICTs) into teaching and learning

resulting, among other things, in changes in the very core of teaching and learning pedagogy (Billeh, 2001). This study endorses Watson's (2001) argument that this infusion has resulted in a dialectical relationship between technology and learning; e-learning is one such example of the dialectical relationship between learning and technology.

1.5   The Dialectical Relationship between Technology and Learning

The dialectical relationship between technology and learning is debatable as the growing research in the area has yielded mixed results. Carl (1991) has detailed the positives of e-learning. In his view, e-courses can be monitored more easily than the traditional classroom, off-campus students can use electronic mail (asynchronous) to have the same quality of communication with faculty members that on-campus students have, and e-learning may result in cost savings. Hofman (2002) reported that Web-based learning courses enabled students to understand course content more effectively than when delivered through traditional classroom instruction due to a better collaborative learning environment provided by the Web as a learning tool and resource. Dwyer et al. (1995) explained the educational advantages that arise when supplementing a course with Web-based tools including student-to-student and faculty-to-student communication, and student-to-content interaction enabling student-centered teaching approaches, providing 24 hours-a-day accessibility to course materials, and providing just-in-time methods to assess and evaluate student progress. On the other hand, many studies (e.g., Gifford, 1998; Kincannon, 2002) downplayed the effectiveness of e-learning in the light of the evidence that a higher percentage of students participating in online courses tended to drop out before the course was completed compared to students in a conventional classroom. Russell (1999) argued that the majority of research comparing the learning outcomes of e-learning and traditional education yielded no significant differences among learners. In brief, views on e-learning are of two types: proponents of e-learning adhere strongly to the claim that technology inevitably improves education and by contrast, opponents to e-learning claim that the use of technology does not necessarily improve education, and maintain that there is no significant difference in the learning outcomes between traditional education and learning facilitated by technology (Russell, 1999; Greenberg, 2004). A limitation of Russell's finding is that his study did not survey faculty members who are in the very best position to judge the efficacy and quality of their teaching in achieving the intended learning outcomes of their students whether taught through traditional education or

through e-learning.

In light of this controversy, this study is aware of the accomplishments of technology in economic, business and financial circles (Newton, 2003); while it also acknowledges that the degree of success of the use of technology in teaching and learning is still contentious. The resultant conceptual question is what type of knowledges learners' need amidst global changes, and how to use ICT effectively to achieve learning outcomes set by teachers, students and the curriculum.

Cornu (2000) observed that the constant and fast developments in the use of Information and Communication Technologies (ICTs) in teaching and learning created interest in the functions of new technological tools instead of interest in its role in pedagogy itself. Cornu's observation questions the degree to which educational contexts evaluate the use of technology in teaching and learning rather than deal with it as a tool in its own right. Cornu also refers to the "taken for granted" attitude that technology leads to changes in styles of pedagogy.

The extent to which technology changes pedagogy is also debatable. In a study on e-learning in a Scottish further and higher education context, Harvey and Beards (2004) concluded from interviews with teachers and policymakers that a great deal of discussion on e-learning was based on the view that technology inevitably leads to changes in practice. Their personal view on this was, however, that a process, which is driven by technology, would very likely fail, since it would not take into consideration the culture and practice of education. Moreover, in their evaluation of 104 e-learning projects in Australia, Alexander and McKenzie (1998) found that information technology does not by itself enhance learning and cause change. Rather, they identified a wide range of issues that potentially contribute to the success of e-learning in improving learning such as understanding the teaching and learning context, teacher thinking, teaching strategies and student learning needs.

Understanding teacher thinking and the strategies they use in teaching might provide evidence of how e-learning is viewed and used in many educational contexts. For example, in documenting the experience of an e-learning pilot project in Botswana, Bose (2003) showed that e-learning was misinterpreted after it was introduced in a higher educational context. Faculty members described it as putting all learning on computers and felt that e-learning could keep students out of class.

Based on the above, this study questions the use of technology in teaching and learning

22

contexts, and examines how technology may lead to changes in styles of pedagogy based on exploring the views and attitudes of faculty members, academic administrators and students.

O'Donoghue and Maguire (2005) have argued that the constant development of ICT and its extensive use in business and economic circles have affected pedagogy in educational contexts as *fait accompli* of the sweeping penetration of ICT and its inevitable relationship with pedagogy. The resulting question is how can educational contexts successfully use technology in teaching and learning? In light of this question, this study argues that in considering e-learning as a potential tool for improving learning, it is important to understand e-learning not only as a flexible approach to learning with instructional resources and logistics (Collis & Monnen, 2001) that potentially make education effective, efficient and immediate as many claim (e.g., Riley & Gallo, 2000; Redding & Rotzien, 2001; Gifford, 1998), or as a mere response to changes happening in culture and society (Sloman, 2001), but also as a potential tool that resonates with and responds to the practice and culture of education.

The research process of this study falls within the scope of the above positions that can be summarized as follows:

- The response of a private higher educational context in Lebanon to challenges of change through the use of e-learning;
- The dialectical relationship between technology and learning;
- Student learning needs;
- The way academic administrators, faculty members and students in the particular higher educational context view the utility of using technology in teaching and learning.

The positions of this study are clarified in the general and particular statements of the problem presented below.

1.6   Statement of the Problem

The statement of the problem of this study is of two parts, the general problem and the particular problem. Discussing these problems and related concerns provide rationale for this study.

1.6.1 The General Problem: The Issue of Quality Education in an Arab Context

During the past decade (1998-2008), the Arab states have witnessed a great

increase in the number of students in higher education. The student population increased from 2.9 million in 1998/1999 to 7.6 million in the 2007/2008 academic year, a jump of 256%. In the meantime, the total population increased from 229.3 million to 319.8 million, a growth of 139%. This means that part of the increase in enrolment is due to population growth, as the number of students increased, during the same period, from 1,294 to 2,379 per 100,000 inhabitants, an increase of 184%, while Gross Enrollment Ratio (GER) rose from 18% to 22% only (UNESCO Regional Report, 2009).

This increase in students was clearly accompanied with increase in the number of institutions involved, from 174 universities to 467 in the same period, i.e., 2.7 times as much. Two features of this increase in particular capture the concern of researchers and policy makers: a) augmentation in the share of the private sector out of the total (48% of all universities now are private, compared to 20% ten years ago), and b) a belief that this expansion in the private sector has contributed to a drop in standards, particularly at a time when public institutions became overburdened with excessive enrolment, coupled with diminishing resources at their disposal. Therefore, the main consequence of this increase is the deterioration in the quality of higher education.

In fact, there is a lack of quality assurance frameworks in Arab higher educational contexts which emphasize the development of knowledge, skills, and attitudes needed for handling information through making use of technology in teaching and learning. For many teachers designing their teaching that provokes higher-order learning seems a daunting task. There is suggestion in the literature that putting hands-on, case based activities in class does not guarantee that students learn relevant theories or perform related-activities in depth. According to Newman, Webb, & Cochrane, (1996), active participation can easily become an end in itself, regardless of the intellectual quality of the students' work. Powel and Weenk (2003) proposed the use of authentic tasks related to real life situations in educational settings that would provoke skills and cognitive processes related to problem-solving, reasoning and decision-making which are considered critical in the development of learners' problem solving and reasoning skills. This problem falls within the scope of the use of e-learning as a tool that potentially facilitates the assurance of quality education in a higher educational context, particularly the provision of problem-solving education and mastery skills rather than learning by rote.

Although quality in higher education is difficult to define (Lagrosen, Seyyed-Hashemi,

& Leitner, 2004) due to a lack of agreement over its meaning, the present study adopts Green's (1994) definition which states that quality is a form of change, enhancement and empowerment. In this context, empowerment means the creation of learning and development opportunities for learners. Furthermore, the presentation of the general problem is needed as higher educational institutions in Arab states need to benefit from problems and possibilities of using technology in education as a potential contributor to quality education. In particular, in recent years, higher education in Arab states has made three quantitative leaps: (i) increase of enrolment rates; (ii) wider female access to education; and (iii) a remarkable expansion of higher educational institutions, particularly private ones. These recent achievements have opened doors to issues of quality education. A recent World Bank study conducted in 2000 mentioned a number of shortcomings in the Arab higher education contexts. These are:

- Education does not impart the higher-order cognitive skills such as flexibility and problem-solving abilities;
- Teaching is flawed by what Freire (1985) described as 'narration sickness';
- Learning is rote with little or no relation to Arab's indigenous context;
- University preparation and training little prepare students for the dynamics of the labor market;
- Arab universities produce little indigenous knowledge.

In a related study, a Harvard report on Arab higher education concluded that the lack of a research culture in many Arab universities deters teaching from achieving the optimal application of theory into practice (Cassidy & Miller, 2002). Moreover, internal critiques were reported by numerous studies conducted in Arab states. These studies and reports documented the lack of knowledge production and dissemination (El-Ameen, 2005; Rugh, 2002). The most noticeable criticism has been lodged against the remarkable failure of educational institutions to contribute to the process of change in the context where they are embedded, by remaining mostly traditional in face of the recent impressive breakthroughs of Web resources, which over the last few years, have boosted the expansion of online teaching and learning (Kramer, 2000). In fact, criticism of higher educational systems in Lebanon and Arab states is currently leading to greater interest in quality education and evaluation, which currently are inadequate to reform education (Badran, 1999).

The above reflect challenges in relation to change in higher educational contexts in

25

Arab states and raise questions as to their ability to cope with these pressing challenges. The conditions of higher education in Arab states are not atypical in Lebanon where this study is conducted. In view of this, assuring quality education encompasses, among other things, the experimentation with original styles of pedagogy that have the potential to promote problem-solving, mastery learning and interactive collaborative learning in the classroom. E-learning has the potential to contribute to the realization of assuring quality in educational contexts (Shirley, 2001) and become a vehicle for reform.

1.6.2 The Particular Problem: The Need to Assure Quality Education in Lebanese Educational Contexts

Lebanon's higher educational system is characterized by a diversity of private institutions, which are based on the American credit-system of higher education, the French, or the Arabic one. The reason for this complex mixture of systems is rooted in the coexistence of several social groups which make up the plural social fabric of Lebanon. Some of these groups seek to acquire American-type education while others attend French style higher educational institutions which articulate their cultural traditions resulting from their long-standing cultural allegiance with France. The development of higher education in Lebanon has passed through three phases. The first phase, called the colonial period (Bashshur, 2001), originated from the work of American and British Protestant missionaries as well as French Jesuit missionaries established higher educational institutions in 1866 and 1887. These institutions aimed at socializing Lebanese students along Western cultural lines (Barakat, 1977). The second phase, labeled the national period, witnessed the founding of the Lebanese national university; the first state-run university after Lebanon's independence in 1943. The third phase, known as the post 1975-90 civil war-period marked the mushrooming of a large number of private higher educational institutions offering a wide-range of majors.

Recent figures published by the Center for Educational Research and Development (CERD) showed that in 2010 Lebanon had 42 officially licensed private higher educational institution which enrolled during the academic year 2009-10 around 180,850 students constituting 40% of the total enrollment by sector. These students enrolled in the fields of humanities, sciences, engineering, medicine and fine arts. Despite the quantitative expansion of higher educational institutions in Lebanon together with associated expansion of knowledge, problems persist because of reliance

of these institutions on rote learning with little production of new knowledge (El-Amine, 2005). In brief, while the colonial and national phases of the development of higher education in Lebanon generated discussions over the political and cultural roles of missionary-founded higher educational institutions, quality education has been the focus of attention during the third phase of the development of higher educational institutions in Lebanon.

In line with the issue of assuring quality education in Lebanon, several piecemeal private initiatives have called for the fully fledged integration of e-learning in teaching and learning. To substantiate, following the conclusion of the protracted 1975-90 war, Lebanon has made important strides toward adopting ICT. Funded by international organizations and the World Bank, part of Lebanon's official administrative system introduced ICT into its various administrative functions. In education, Lebanon had introduced during the 1960s automation including electro-mechanical machines into the work of the Ministry of Education known by the time, the Ministry of Education and Fine Arts as part of the "Fourth Point" project funded by the U.S. government. The use of these machines (e.g., Tableau de connection and Gamma 100) was exclusively limited to data entry, sorting and verification of educational records. With the establishment of the Center of Educational Research and Development (CERD) by virtue of Legislative Decree 2653 dated December 10, 1971, the Ministry of Education and Higher Education has further introduced main frame computers for data entry and analysis of educational information. The introduction of automation reinforced a strategy that aimed at reforming the administrative structure of Lebanon's formal educational sector. Later on, technology was introduced in teaching and was recognized as part of the new national curriculum established on May 8, 1997 by Legislative Decree 10227. Furthermore, in higher educational institutions, e-learning has been introduced in reputable private universities. Despite this, little evidence exists regarding how e-learning is used and for what particular purposes.

Previous research and early piloting of the research instruments in this study have shown that educational decision-makers may fear that e-learning would unexpectedly shift traditional education into a new pedagogical undertaking where teachers and policymakers are not adequately familiarized with its objectives, content and learning outcomes (Nasser & Abouchedid, 2001). In addition, many decision-makers consider that the implementation of e-learning in educational institutions may result in an abrupt change in both content and styles of pedagogy which educational decision-makers

cannot currently accommodate due to the near absence of plans for a smooth transition from traditional education to e-learning. Moreover, many decision-makers contend that the introduction of e-learning might eradicate the platform from which a deliberate academic discourse takes place (Matthews, 1999), although e-learning might become an instrument of benign oppression, fearing that universities will become 'no lecture' institutions. Although these skeptical views might be legitimate due to lack of acquaintance with e-learning functions and potentials. However, such reservations and concerns need to be analyzed in order to evaluate their potential resistance to innovation in education.

Therefore, in considering the issue of quality education in Lebanese higher educational contexts, one must consider a proactive awareness initiative that would provide evidence of students' and teachers' convenience or inconvenience with e-learning tools and software available to teachers and students (Rothery, 2004). Such an understanding requires examination of teachers' and students' views of e-learning, how educational priorities are set, and what are the mechanisms of implementation and monitoring of technological-pedagogical process that aims at evaluating teaching and learning and possibly improving them.

In the context of the present study, one of the tasks ahead for higher educational institutions in Lebanon is to enhance the quality of education through the use of e-learning. Higher educational institutions working on assuring quality education might need to consider strategies with respect to integrating e-learning in their educational delivery for the purpose of improving teaching and learning and meeting the challenges of change. The question is what type of strategies regarding the implementation of e-learning in educational contexts are employed in teaching and learning, and what are the influences that affect the implementation process, namely, attitudes towards the potential benefits and drawbacks of e-learning, infrastructure needed, and culture. Pfeffer and Salancik (1978) referred to linkage between cultural and attitudinal influences and institutional strategies for implementing a new strategy.

The assumption underpinning this study lies in the need to examine the attitudinal, cultural and physical factors that foster, or impede the implementation of strategy for introducing e-learning in higher educational contexts. This assumption suggests that this study deals with attitudinal images of e-learning in a higher educational context in Lebanon. Positive attitudes towards using e-learning in teaching in educational contexts

cannot be taken for granted, and how one can implement e-learning remains problematic. On the other hand, obstacles to implementing e-learning can take many forms such as suspicion, negative attitudes and lack of strategies for implementation which are manifestations of lack of awareness of and policies about the potential contribution of e-learning to teaching and learning processes. In addition, infrastructure resources occupy a central position in the implementation process of e-learning. Examples of these are presented and analyzed in this study through characterizing the attitudes of students, faculty members and education decision-makers towards the role of e-learning in teaching and learning at a private higher educational context, centering on quality assurance in education.

Moreover, in the context of change, it is widely accepted that institutions of higher education tend to change slowly. Even many scholars believe that deep cultural changes are a key component in moving toward and assessing campus sustainability. To be successfully implemented and maintained, e-learning must become part of the culture of the university (Guri-Rosenblit, 2005). While there are no systematic studies on the importance of cultural change in promoting sustainability of e-learning, this study coalesces with Fullan's (1999) and Rogers (1995) views which purport that the leadership role is important in any educational initiative. Both the general and particular problems described above reflect the general aim of the present study.

1.7 Aim of the Study

The aim of this study is to gain an in-depth understanding of the experience of faculty members, academic administrators and students at Notre Dame University-Louaize (NDU), Lebanon in the development process of e-learning implementation for encouraging intellectual activity in teaching and learning.

1.8 Objectives

Given the use of the internet and digital technologies such as e-learning at NDU and in light of the need to create experiences that help educate learners (Horton, 2001) this study seeks to achieve the following objectives:

1. Examine the readiness of faculty members and students to engage in e-learning through understanding their attitudes towards its potential effectiveness in enhancing teaching and learning;

2. Explore the readiness of academic administrators to implement e-learning;

3. Assess the infrastructure needed for implementing e-learning into teaching and learning.

These objectives do not merely seek to report the level of endorsement of or opposition to implementing e-learning, but to examine the pedagogical and cultural reasons underpinning these views, and thereby to determine the likelihood for gaining a greater understanding of how technologies can be best used to enhance teaching and learning at the University.

1.9 Research Questions

In light of the objectives of the study, this study attempts to answer the following questions:

4. What are the attitudes of teachers towards e-learning in terms of their interest in it, the benefits generated from e-learning, and the efficiency of e-learning in teaching and learning?
5. What are the potential benefits of e-learning in meeting students' learning needs as compared to traditional education?
6. To what extent are educational institutions ready to integrate ICT in the curriculum?
7. What obstacles (financial, cultural, and technical…) could hinder the implementation of e-learning?

1.10 Context of the Study

The study was carried out in a higher educational context in Lebanon, Notre Dame University-Louaize (NDU) which was founded in 1987 as a medium size teaching university which accommodates as of 2010-11, 6487 students, of whom 95% are undergraduates. The University offers 108 degrees, diplomas, and certificates, including 71 bachelor's and 31 master's degrees, 5 Teaching Diplomas, and 1 Teaching Certificate. The model NDU follows is the American one and uses English as a medium for instruction. NDU has seven Faculties and 18 departments. The Faculties are:

1. Faculty of Humanities
2. Faculty of Natural & Applied Sciences
3. Faculty of Business Administration & Economics
4. Faculty of Nursing & Health Sciences
5. Faculty of Engineering

6. Faculty of Architecture, Arts & Design
7. Faculty of Political Sciences, Public Administration & Diplomacy

As with the rest of higher educational contexts in Lebanon and the surrounding region, technology initiatives are part of the University's strategic goals. Although technology plays an important role in administration and budgeting, i.e., transactions are performed electronically such as payrolls and budgets, its use in teaching and learning is not yet well developed particularly with regards to policies, practices, and strategic planning. The Division of Computing Services (DCS) is in charge of all Information Technology (IT) management at the University and performs semi-autonomous activities related to IT planning on campus. However, decisions and actions about technology implementation in teaching and learning fall outside the scope of the DCS. Decisions about implementing technology in teaching and learning are centralized as they have to pass through a centralized administrative structure whose strategies are subject to change according to changes in the senior management.

The Fall of 2001 marked the official inception of the Virtual Learning Environment *VLE* at the University; the objective was to provide a flexible learning environment to students and to support learning at the University. The implementation process of e-learning at NDU brought with it a number of challenges and opportunities that this study seeks to analyze in the context of change from the perspective of faculty members, academic administrators and students.

A more elaborate presentation and analysis of the context of the study are presented in Chapter 4 of this study.

1.11 The Methodological Position of the Study

The methodological approach of this study is a single-case study conducted at Notre Dame University-Louaize (NDU), which was chosen in part because of its typicality, i.e., it was not in any major way extreme or unusual (Patton, 1990) from the rest of private higher educational institutions in Lebanon. In this study, no hypotheses were established because the researcher did not have any preconceived notions about the e-learning implementation at the University. Data were collected through personal interviews, questionnaires and document analysis to analyze the research questions of the study and document how the experiences of respondents were meaningful to understanding the e-learning implementation process at NDU.

Analyzing the attitudes and views of faculty members, academic administrators, and students would potentially provide valid sources of knowledge about the e-learning implementation process at the University. Faculty members were surveyed and interviewed about their knowledge and skills in using e-learning in teaching, their attitudes to its potential role in facilitating teaching and learning and the barriers they believe prevented them from using e-learning. Furthermore, semi-structured interviews were conducted with academic administrators to investigate their views about the benefits of e-learning and to identify barriers to its implementation in light of the decision-making process, their personal evaluation of the efficacy of e-learning in teaching and learning besides aspects of the infrastructure at the University. A questionnaire on learning styles and preferences was administered to students to compare the extent to which approaches to e-learning met with their learning styles and preferences. In addition, this study examined key documents regarding e-learning implementation at NDU from 2001 to 2009 since this period represented a significant portion of strategic planning process and discussions regarding the implementation of e-learning on campus. The data generated from interviews, questionnaires and document analysis were compared in order to understand the overall case investigated.

The findings of the study are reported thematically and lessons derived from the case-study are reported for consideration by educationalist, policymakers and higher educational contexts in Lebanon.

1.12 The Research Methods

Qualitative and quantitative methods of data collection were used to enable the study to drill down into the e-learning implementation process at NDU from 2007 to 2009. Because this single-case study sought to examine the views of faculty members, academic administrators and students in addition to understanding institutional processes in e-learning implementation, questionnaires, interviews and document analysis were used to understand the experiences as well as the cultural and social context of the participants in the study. The different methods of data collection used in this study potentially enhance the validity and reliability of the research findings of the study (Cohen, Manion, & Morrison, 2002). Issues of validity and reliability will be discussed and analyzed in Chapter 5.

Figure 1-1 below summarizes the research instruments and their relation to the objectives and research questions of the study.

Figure 1-1 The Research Framework
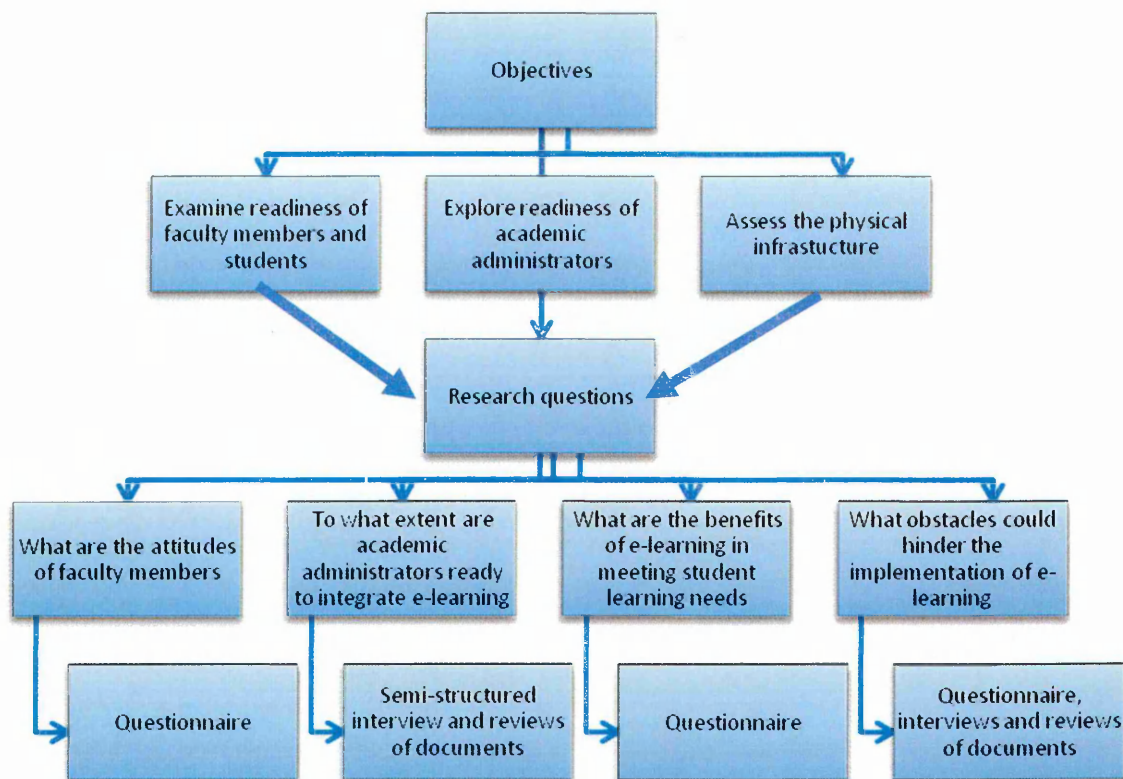
The research framework presented in figure 1-1 shows the key components of the research design which is presented and analyzed in Chapter 5. The main instruments of data collection were interviews and questionnaires with faculty members, interviews with academic administrators, and questionnaires with students. The triangulation of methods allowed revealing the various experiences of individuals from different positions at NDU.

1.13 Data Analyses

The data analyses of this study involved analyses of questionnaires, interviews and documents. Gathering qualitative and quantitative data from faculty provided a large amount of information about their experience with the e-learning implementation at NDU in addition to the opportunities of e-learning in teaching and their concerns about the obstacles associated with the implementation process. Analyzing interviews obtained from academic administrators sought to build upon data obtained from faculty members and document analysis regarding the e-learning implementation process at NDU including planning and aspects of decision-making process. As for students, information about their learning styles and how their teachers taught them in class were obtained from interviews. Quantitative data obtained from questionnaires were coded

and entered into the Statistical Package for the Social Sciences (SPSS). As for qualitative data, semi-structured interviews conducted with faculty members and academic administrators were entered into Atlasi.ti software for coding and analyses. Both qualitative and quantitative data proved efficient in linking findings obtained from different perspectives and resources.

1.14 The Pilot Studies

Since the research was based on fieldwork, it allowed for experimenting with a triangulation of qualitative and quantitative designs of data collection in case studies. This triangulation of methods proved efficient in the three pilot studies conducted with students and academic administrators. It was clear that the perceptions and attitudes of education decision-makers and students were central to the understanding of the attitudinal barriers to implementing e-learning and the prospects for overcoming these barriers as received from respondents. In addition, students' learning styles and preferences provided guidance for the administration of the learning styles and preferences inventory. Details of the pilot studies are presented and discussed in Chapter 5 and the full results are presented in appendices 1 and 7.

1.15 Contribution to Knowledge

As a result of the study, and through the dissemination of its results upon its completion, it is hoped that those involved in the shaping and execution of e-learning initiatives in educational contexts will have access to the following:

(i)   a better understanding of issues and problems associated with the development and implementation of e-learning in educational contexts in Lebanon;

(ii) a clearer grasp of which of those issues and problems are capable of being addressed by education decision-makers, teachers, researchers and government officials;

(iii) a basis for a more systematic and proactive approach to the implementation of e-learning in educational contexts in countries where e-learning is not yet well developed.

1.16 Structure of the Study

Chapter 1. Introduction: The Conceptual Background and Structure of the Study

This chapter sets the tone for the study and provides a conceptual framework of e-learning concepts and experiences that will be explained in subsequent chapters.

Chapter 2. Education and ICT Infiltration in Lebanon: a Longitudinal Perspective

This chapter is divided into three parts. Part 1 describes education and higher education in Lebanon by focusing on their historical development, types of schools and universities, curriculum, access to education, student-teacher ratio and student distribution across these institutions by gender, class and region. Part 2 describes and analyzes the infiltration of ICT in education, infrastructure, and access to ICT facilities, how ICT is used in schools and universities, and how e-learning is used in educational institutions and for what purpose. The third part of this chapter evaluates the preparedness of educational institutions in Lebanon to use e-learning in education at both policy and practice levels. The main data source of this chapter will be obtained from primary and secondary resources, archive material, national statistics and other relevant resources.

Chapter 3. Factors of E-learning Implementation: A Conceptual Framework

This chapter discusses the technology acceptance theories and models of change that shaped the conceptual framework of this study.

Chapter 4. The Context of the Study

This chapter describes the historical and educational profiles of NDU as well as the educational policies and practices pertaining to ICT use at the University.

Chapter 5. The Research Design Method of the Study and Its Operational Fieldwork Measures

This chapter presents and analyzes the operational fieldwork measures used in the study and will describe, on a step-to-step basis, how data were collected, coded, and analyzed. Interpretation of the research findings both qualitative and quantitative will be presented with rationale and methods used for each type of analysis of the case understudy. Limitations of fieldwork data collection will be also presented with steps used to reduce the potential impact of these limitations on the overall study.

Chapter 6. Data Presentation, Interpretation and Analyses

This chapter presents and analyzes the findings obtained from fieldwork regarding the e-learning development process at NDU over a period of three years from early 2007 to 2009. The data obtained from faculty members, academic administrators, students, and document analysis are presented and analyzed according to the research questions of the study that guided data collection. Finally, the chapter prepares the ground for the discussion of the research findings in Chapter 7.

Chapter 7. Discussion

This chapter discusses the research findings of the study in the context of the literature in order to identify the specific contributions this study has made to the existing knowledge in the field and reinforce current thinking regarding e-learning implementation in higher educational contexts. The chapter prepares the ground for the presentation of the main conclusions and recommendations.

Chapter 8. Conclusions and Recommendations

In light of the results of the study, this chapter proposes a number of recommendations related to the implementation of e-learning in Lebanese educational contexts in terms of weaknesses, strengths and prospects for overcoming the weaknesses identified.

1.17 Conclusion

With the conclusion of the introduction and structure of the study, analyses will be shifted to the analyses of the potential contribution of e-learning to the improvement of education in higher educational institutions. This will be carried out through first reviewing Lebanon's educational system and ICT infiltration into its educational institutions in Chapter 2 and the importance of developing factors for measuring e-learning in educational contexts which will be presented and discussed in Chapter 3 of this study.

Chapter 2

Education and ICT Infiltration in Lebanon: a Longitudinal Perspective

2.1   Introduction

This chapter describes Lebanon's educational system and emphasizes the use of technology in the three sectors of education: schools, higher educational institutions, and the vocational education and training sector. The reason for this is to provide a window into this case by allowing readers to familiarize themselves with ICT use in Lebanon's three sectors of education and to help them locate the study within the wider educational and societal context. The use of technology in these sectors will be explained from cultural, social, economic, infrastructure and pedagogical perspectives. In discussing the use of technology in these three sectors of education, this chapter uses the terms Information Technology (IT) and Information and Communication Technology (ICT) interchangeably according to the way they are used in the particular context. The first term is used most commonly to refer to the key components of computing technology, the software, hardware and the skills required to use a computer effectively while the latter term allows communication of information via email, shared access to databases and software and management information systems (MIS), which link together the business aspects of a provider of education and training (Global Alliance for ICT Policy and Development, Kuala Lumpur, 2006). Moreover, the fact that IT and ICT are essential components of e-learning (Anderson & Elloumi, 2004), the descriptions provided in this chapter will be compared with factors of e-learning implementation in higher educational contexts as discussed in Chapter 3.

This chapter is divided into two parts. The first part describes Lebanon's educational system by focusing on its historical development, types of schools and higher educational institutions, curriculum access to education. This part emphasizes the penetration of ICT into educational contexts and describes infrastructure and access issues. In order to support the discussion with evidence, this chapter describes two cases of higher educational institutions that use technology in teaching and learning. The second part describes the e-strategies in Lebanon, particularly those concerned with education.

The data in this chapter were obtained from primary and secondary sources, national statistics, and case studies to provide further background information of ICT use in educational contexts in Lebanon.

37

2.2 Education in Lebanon: A General Framework

Despite its relatively small geographic area (10.452 Square Kilometer) and population (approximate 4 million), Lebanon has a large number of schools and higher educational institutions. Lebanon's educational system can be characterized to several key aspects: Firstly, the establishment of schools and higher educational institutions, mostly private, started long before the declaration of Lebanon as a state by the French Mandate in 1920. These private educational institutions were founded either by Protestant or Jesuit missionaries, or funded and owned by Lebanese confessional[2] communities, mainly Christians. These schools enjoy a constitutional right to run their private affairs which have clear implications on their educational policies and practices. In particular, the Lebanese Constitution echoes Article 8 of the French Mandate in 1920 which gave Lebanese communities the right to maintain their own schools for the instruction and education of their own members in their own language. However, these communities had to conform to the educational requirements set by the administration (Khalil 1962, p.96). Article 10 of the Lebanese Constitution states:

> The religious communities shall have the right to maintain their own schools provided that they do not transgress upon public order. They should conform to the general prescription related to public instruction and regulations laid down by the state (Article 10 of the Lebanese Constitution, May 23, 1926).

As a result of this constitutional legacy, schools and higher educational institutions are characterized by their diversity of using foreign languages as media of instruction besides Arabic, and variety of educational models they follow. In particular, educational institutions in Lebanon are based on the French, Arabic, American or British systems of education. This diversity reflects what Barakat (1977) described as Lebanon's social mosaic which is deeply rooted in the history of the country.

Access to schools in Lebanon is high compared to neighboring Arab countries. For instance, in 2010, 97% of Lebanese male and female students were enrolled in primary and elementary cycles although about 18% of these students drop out from school when they reach the fourth intermediate level, i.e., three years before higher education (CERD, 2010). There are 2805 schools in Lebanon of which 1442 are private and private semi-subsidized as opposed to 1365 public (state) schools (CERD, 2010). In higher education

---

[2] Lebanon's religious sects are most commonly referred to as confessional communities since they articulate and confess their social and political agendas (see Hudson, 1968; Khashan, 1992; Barakat, 1977).

the situation is different. With exception to the Lebanese University (LU), which is the only university in the country that is owned and run by the government, higher educational institutions are private. In 2010, Lebanon has 42 officially licensed higher educational institutions.

The sections that follow will deal with Lebanon's three sectors of education (schools, vocational education and training centers and higher educational institutions) in order to familiarize readers with Lebanon's educational system, particularly their use of ICT in the curriculum. The term higher educational institutions will be used throughout this chapter since the Decree of 1961 which deals with organization of higher education in Lebanon places all universities, colleges, and university institutes operating in the country within higher education.

2.3 Schools

The historical establishment of schools in Lebanon is traceable to foreign involvement in Lebanese political and cultural affairs as well as to competition among Western countries over the country's resources (Phares, 1995; Hudson, 1968). This competition reached a peak in 1861 following a civil war that broke out among Lebanon's confessional communities in the Mount-Lebanon region which was the nucleus of today's Lebanon (Salibi, 1965). The Christian Maronites (Catholics) were sponsored by the French, the Druze (Branch of Islam) by the British, and the Greek Orthodox by the Russians, while the Muslims were left without a sponsoring country because the Ottoman Empire which was mainly Muslim lost ground in favor of Western European powers (Salibi, 1965; Meir, 1985). This competition led to the establishment of schools and higher educational institutions in Mount-Lebanon to provide education for members belonging to the sects that the interested powers at the time had sponsored. According to Bashshur (1988), missionary education in Lebanon took the form of inculcating students with Christian teachings.

An important aspect of missionary education was in Lebanon's exposure to aspects of globalization and modernization (Szyliowcz, 1973) which brought with it early technology, foreign languages, and Western life style. This development was borderless as Western missionaries were given prerogatives by the Ottoman Empire to establish their cultural and educational institutions in Lebanon (Spagnolo, 1977; Salibi, 1965).

The spread of printing from Lebanon at the beginning of the 17th century facilitated modern renaissance in the Arab world (Hitti, 1957). Christian religious establishments

played a major role in housing and facilitating printing. The first press imported into Lebanon by Maronite Monks of the Monastery of Saint Quzhayya was in 1610. The second press of the whole East was that of the Monastery of Saint John Sabigh, The Showyri, Khunshara in 1734. The latter was known for printing liturgical books. Thus, Mount-Lebanon was not only receptive to Western missionary education and ideas but also committed to using early forms of technology such as the printing press for the purpose of disseminating knowledge similarly to ICT use today which seeks, among other things, to spread information and facilitate wider access.

The legacy of the past had shaped the structure of education in Lebanon today. It is worth describing this structure since there are certain educational and financial discrepancies between the private and public schools which, in turn, have implications for the use of and access to technology in teaching and learning.

2.4 Types and Structure of Schools

Schools in Lebanon are of two types: private which includes philanthropic and foreign schools and public schools which are funded and supervised by the state (Bashshur, 1988). However, officially, schools in Lebanon are of three types. Public (non-fee paying), private (fee-paying) and private subsidized by the government. The administration of public schools is centralized and is run by the Ministry of Education (Legislative Decree number 10832, October 9, 1962). On the other hand, private schools are run either by confessional communities, or private association and individuals as legitimized by Article 10 of the Lebanese Constitution of May 23, 1926 and by Decrees number 7962 May 1, 1931 and number 7000 October 1, 1946.

Schools owned and run by private associations had different educational purposes, and schools controlled by individuals were mainly commercial (Bashshur, 1988). Moreover, foreign schools are mainly French, American and British. French, British and American schools constitute a complete ladder from kindergarten to pre-university. British and American schools are comparatively few in number compared to the French ones (CERD, 2007).

On the other hand, before World War I, Lebanon had only one public school (Matthews and Akrawi, 1949). However, areas outside the present Lebanese territories, which were parts of Beirut and Damascus and subject to the direct rule of the Ottoman Sublime Port, had public schools administered by *Nizam Al Maarif Al Uthmani* (Ottoman Ministry of Education) (Abu Mrad, 1985). These schools formed the nucleus of the current Lebanese

public school system when the former Ottoman regions were annexed to Mount-Lebanon by the French mandate in 1920.

Public or state schools are run by the government. This type of school started to grow shortly before Lebanon gained its independence in 1943. However, despite their growth, they do not outnumber private confessional and foreign schools even today (Bashshur, 1988). The process of expansion of public schools started at a more rapid pace than private schools between 1945-48 (CERD, 1974), due to the government's policies to increase the number of public schools in the country (Abou-Rjaili, 1999). Despite the expansion of schools in the public sector their share of enrolment remained around the 33% level throughout the period from the mid-1950s to the early 1980s (Bashshur, 1988; Abou-Rjaili, 1999; CERD, 1980) and continued so the present date (CERD, 2007). This enrollment rate is important to document since one of the reasons behind students' low enrollment in public schools is the lack of high quality teaching, poor buildings and lack of essential educational facilities needed for teaching and learning as compared to the private sector (LAES, 2007).

Contemplating the task of reform, the Lebanese government established the Centre for Educational Research and Development (CERD) by Decree number 1637, dated August 11, 1971. It was granted certain educational responsibilities such as revising the curriculum, publishing educational material and conducting educational research to improve the curriculum. Despite the reform policies of the government to improve teaching in the public sector of education, the reforms were not implemented because of political unrest and economic degeneration (Bashshur, 1988; El-Amine, 2000). In particular, the 1975-90 war took its toll on the whole educational sector in Lebanon. This war led to the destruction of many school buildings. Some of these schools, mostly public were occupied by the displaced and the government had to rent new premises to accommodate for students (Abou-Rjaili, 1999). In addition, the fact that there was one teacher per 10 students in the public sector during the war (Ibid) placed a burden on the government's budget for education since 67% of education funding went on teachers' salaries and associated bureaucracies rather than on improving the curriculum and providing public schools with appropriate teaching facilities (Byron & Jarrar, 1983).

The reconciliation charter called the Ta'ef agreement which ended the civil war in 1989 brought important changes in education by establishing that education be provided to all and shall be compulsory up to the elementary stage at least. It added that freedom of

41

education shall be continued according to the general laws and regulations of the government and that private education shall be protected (Hiro, 1993). As part of the new educational reforms, the Ministry of Education through the Center of Research and Development (CERD) introduced a new national curriculum in 1997 by Decree 10227 (see figure 2-1 of the New Curriculum), replacing the 1968 curriculum which was criticized on a number of grounds including, over-reliance on rote learning, teacher-centered approaches, outdated books and content and lack of citizenship socialization of youth (The New Framework for Education, 1997)[3].

The new national curriculum, which has been implemented gradually since the school year 1997/98 to the present, structures education into four main cycles. These are: Preschool education is at the lowest educational ladder and includes kindergarten. This cycle is followed by basic education, which is structured into two cycles: six years of primary education, and lower secondary education that lasts for three years. In turn, this latter is sub-divided into two options: general education and qualification module-based vocational training. In addition, primary and lower-secondary education makes up "basic education" which is normally completed by a student at the age of 15. There remain two main options after the successful completion of basic education. These are: general secondary education leading to the Baccalaureate with four mainstream educational options, namely, socio-economic, humanities, life sciences and general sciences. In addition, there is a separate option which is technical education and vocational training offered for those who would consider vocational education. At present, there is much discussion on the issue of teacher-training and the ability of schoolteachers, particularly in public schools to implement the requirements of the new curriculum which aimed at providing up-to-date education that emphasizes student-centered pedagogy, self-inquiry learning, mastery learning and problem-solving education (LAES, 2007).

---

[3] The New Framework for Education in Lebanon is an official policy document of the Ministry of Education and Higher Education. It details objectives, content and outcomes of the new curriculum.

Figure 2-1 Structure of the New National Curriculum

Organization plan for different levels in vocational and technical education
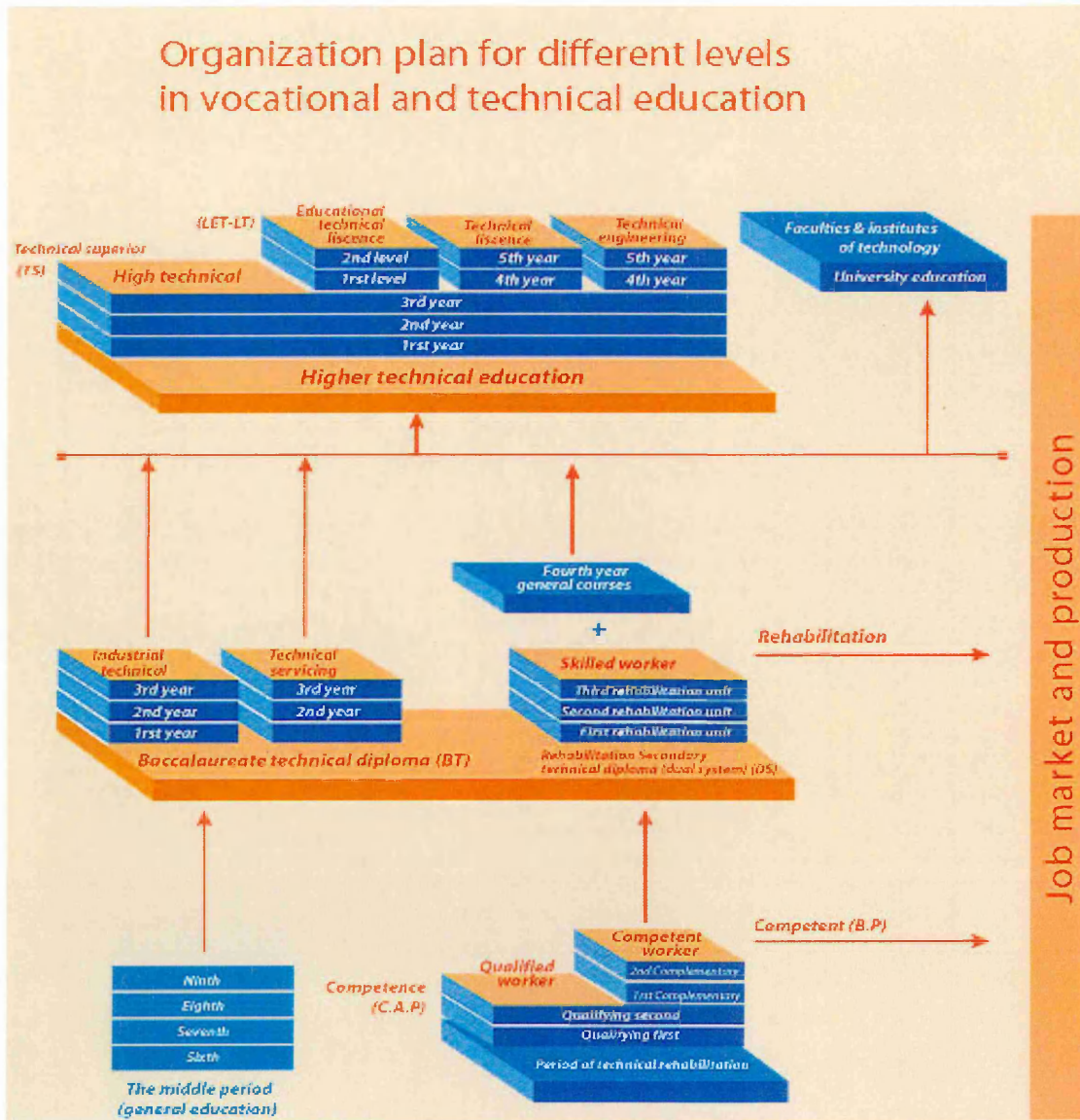
According to statistics that I collected and compiled from the Center of Educational Research and Development (CERD), the enrollment of students in Lebanese schools reached 97% level in 2009-2010 year. However, this rate was only 68.5% in the intermediate level. According to Decree 686 dated March 16, 1998, schooling in Lebanon became mandatory up to 12 years of age.

The total number of students enrolled in schools in 2009-10, excluding students enrolled in the United Nations Relief and Works Agency for Palestine Refugees (UNRWA) was 909741 students, of whom 33.1% are in public schools, 14% in semi-subsidized schools and 53% in fee-paying private schools Students are almost equally distributed by gender (55%) for males and 45% for females. However, the distribution of schools across regions in unequal as the Beirut and Mount Lebanon regions have the largest number of both private and public schools as a result of the fact that these two regions had witnessed

43

missionary activities almost one century ago.

The unequal distribution of students in private and public schools is also reflected in digital divides and differences in levels of access to technology in these schools as well as lack of resources needed to implement the new curriculum (BouJaoude, 2003).

2.5 IT in Schools

In addition to the introduction of Information Technology such as electro-mechanical machines to facilitate the administrative works of the Ministry of Education (see Chapter 1), the new curriculum introduced an IT course to be offered for one hour per week to Third Cycles (Grade 7 through 9) of Basic Education and throughout the various sections of the Secondary Cycles. After assessing the degree of success or otherwise of the experience of IT courses on the existing curriculum, teaching of IT was to be extended at a later stage to all educational cycles of the national curriculum.

The general aims of the IT curriculum are to develop positive attitudes towards computers and reinforce students' self-confidence through the efficient use of this technology. In addition, the new IT curriculum aimed to value the educational and economic role of the computer as well as its function in facilitating communication. In keeping with Lebanon's historical openness to world cultures, an important aim of the curriculum was to facilitate interaction with other cultures and civilizations through various programs and computer networks. In relation to learning, the IT curriculum aimed to develop creativity, logical thinking, problem solving, and analytical skills through programming. An important aspect of the new curriculum was to recognize the uniqueness of the computer as a programmable machine which can perform specific tasks upon the user's orders and help students acquire basic computer concepts and their use in various cultural, industrial, and commercial domains needed in the labor market (Decree 10227, 1997). An important feature of the new curriculum is its relation with the labor market whether in terms of needs, skills, and competencies or in training of students on ICT use. According to Najib (2000), this relation is weak in Lebanon since there is no mechanism in place to provide students with training opportunities in economic and production sectors, which results in gaps between what they learn and what they will face after graduation, and this is interpreted by employers as low quality in the education of students.

Yaghi (1999) has evaluated the IT curriculum introduced in Lebanon in 1997. His study showed that one of the advantages of the new curricula in Lebanon is the introduction of

a new subject - informatics - to be taught at the intermediate and secondary level at the rate of one hour per week. Yet, despite its importance, Yaghi reported a number of deficiencies in the curriculum due to the following reasons:

- One hour is barely enough to train students in using the computer to acquire such basic skills as electronic typing and drawing;
- The new curriculum overlooked ways of introducing the computer as a means of teaching other subjects;
- The curriculum focuses on training students in using computer skills more than it focuses on developing such intellectual skills as problem-solving and decision-taking;
- The curriculum does not allocate any instructional time for using computers at the elementary level.

More importantly, Yaghi questioned the value of textbooks and curricula if computers are unavailable in schools. In fact, as part of the ICT policy initiative, computers and communication networks (intranet and internet) were introduced gradually into both private and public schools. However, a digital divide which denotes that there is a disparity in terms of access to the information about and subsequent use of ICT (Choudrie & Weerakkody, 2007) was evident in the distribution of IT facilities across private and public schools with the former having more technology equipment and facilities than the latter (see table 2-1 and figure 2-2).

Table 2-1 Distribution of Technology Infrastructure in Schools

Equipment	Purpose of use	Public	Private semi-subsidized	Private fee-paying	Total
PCs	Teaching	8812	3267	19276	31355
	Administration	1869	598	5290	7757
Servers	Teaching	313	59	400	772
	Administration	110	44	334	488
Printers	Teaching	903	319	1920	3142
	Administration	1226	437	3354	5017
Hubs	Teaching	389	97	984	1470
	Administration	73	56	741	870
UPS	Teaching	5677	909	5641	12227
	Administration	1347	319	3030	4696
Scanners	Teaching	404	150	658	1212
	Administration	406	140	837	1383
LCDs	Teaching	235	98	742	1075
	Administration	72	35	267	374
Modem-fax	Teaching	399	144	1046	1589
	Administration	199	84	757	1040

CERD, 2009

Figure 2-2 Distribution of Technology Infrastructure in Schools
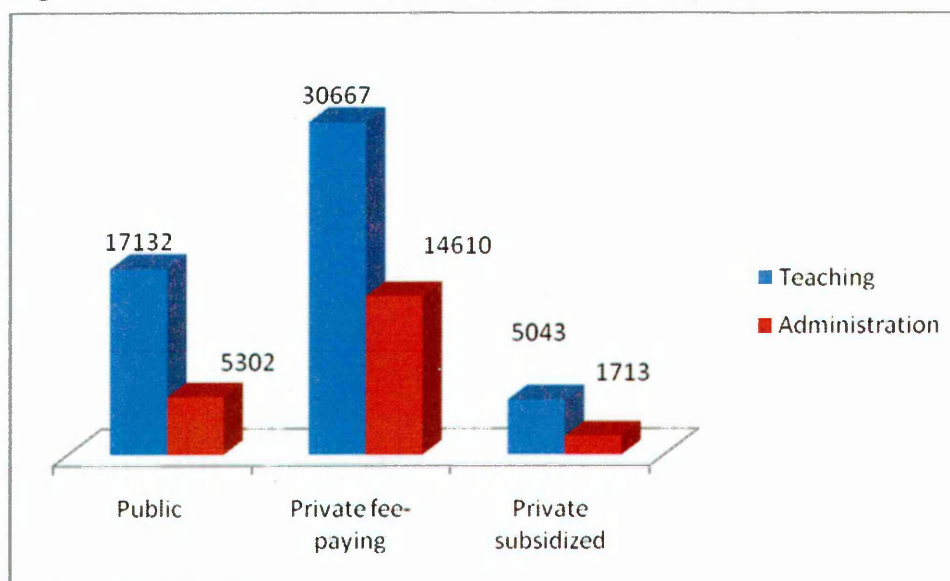
CERD, 2009

In order to measure digital divide between private and public schools, I calculated the average student-to-computer ratio by using the ISCED level 1-3 equation provided by the UNESCO institute of measurement[4]. The following equation was used:

$(\sum LC / \sum CP)*100$ where LC is the number of students and CP the number of

computers. From table 2-1 and the number of students enrolled in the private and public sectors in all educational cycles, excluding those in the semi-subsidized schools, every 33 students have access to one computer (33:1), whereas in the private sector every 27 students have access to one computer (27:1). Although the ratios provided neither represent a measure of actual use of computers in schools nor of time spent by students in using computers, they still represent a slight divide in students' access to computers between private fee-paying and public schools. In addition, student-to-computer ratio sharply fall behind comparative ratios for the year 2007 in the United States of America which is 3:1 and are similar to those in Russia (33:1) and emerging states such as Serbia whose student-to-computer ratio is (33:1) (Voogt, 2008). The digital divide among schools widens across regions with the poor and underdeveloped ones such as the South, North and Bekaa have fewer facilities than schools in Beirut and Mount-Lebanon regions (see figure 2-3).

Figure 2-3 Average of computers in schools by governorates
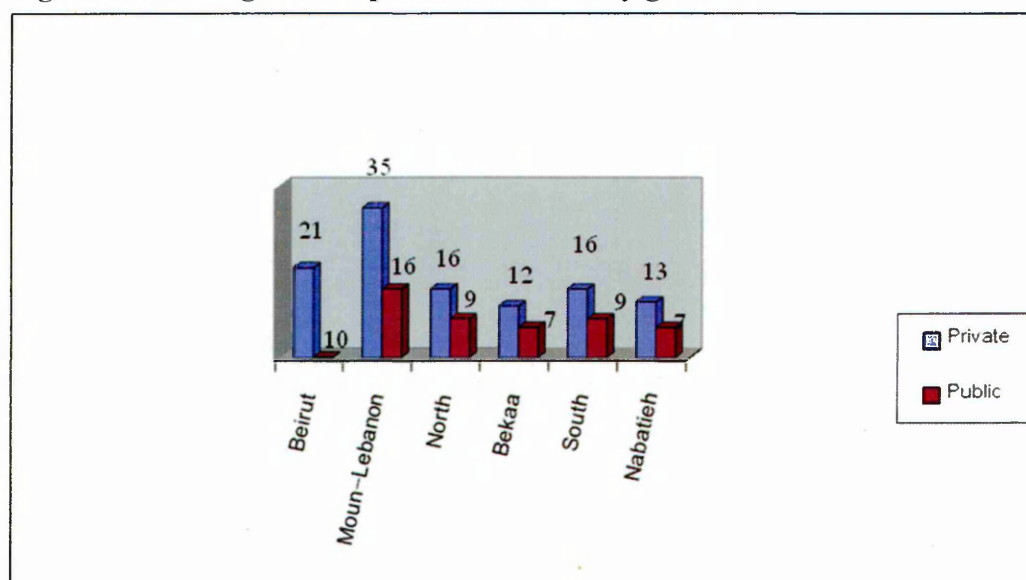
In a complementary step towards introducing computers in public schools, CERD offered training to IT teachers. A number of engineers and computer specialists were

---

[4] Cited in the Background document of the Firth Regional Workshop on Information Society Measurement. Rio de Janeiro, 6th-8th April, 2009.

recruited to conduct teacher-training in the six provincial areas of Lebanon after receiving training sessions in IT teaching methodology and strategies. However, the training remained limited in scope and only provided technical instruction to schoolteachers how to operate computers rather than using them in teaching and learning.

It must be noted that some public schools have managed to equip an IT lab and hire an IT teacher using a school fund for courses conducted by CERD, or with the cooperation of specialists, but without undergoing formal training. In private fee-paying schools, 2.7% of teachers teach through IT: some hold certificates in IT, but also without having gone through training in IT teaching methodology.

With regard to teachers, according to Decree 1436 of 1950, which is still in effect until the present, private school directors are granted the right to add subject matters and use styles of pedagogy not included in the official national curriculum as they see fit. Thus, although CERD provides training to schoolteachers in the private sector, such training augments the already established training in many private schools, and the participation of private schoolteachers in CERD's training sessions is a matter of protocol of cooperation between the private and public sectors of education. Regarding the selection of teachers for IT training by CERD, usually private schools delegate many of their teachers to participate in the IT training. These are mainly science teachers since the training is concerned with teaching certain IT skills that teachers feel they need in fulfillment of the IT and sciences curricula. Thus, IT training is limited to basic skills to a particular segment of schoolteachers, rather than to employing IT as a teaching and learning tool in all subjects in the national curriculum.

2.6   Summary

The introduction of IT as a subject in schools was one of the innovations introduced by the 1997 curricula. From my personal experience as an author who worked on the IT curriculum at the Centre for Educational Research and Development (CERD), I found that the IT curriculum is limited to technical skills and does not stress its use in other subject matter areas or in autonomous learning. In addition, the IT as a subject matter is not assigned any weight in school evaluation or in official examinations. One of the obstacles facing the contribution of education to building an information society is the delay and slow pace of equipping public schools with computer laboratories and internet access.   Another obstacle is the lack of qualified

Informatics teachers in public schools. Lately, the Ministry of Education launched many experimental projects in this respect, such as the "Manara" project that included 17 public schools, the "Partners in Lebanon" project which involved 200 teachers, and the MOS project that involved 75 teachers a year over a period of five years. However, these projects remain limited in their scope and do not follow a comprehensive plan, the lack of which renders such projects un-synchronized in their goals and mechanisms. Even if equipment is made available, the greatest obstacle will be how to use IT in teaching in such a way as to make technology an effective tool that aids students in learning, both in school and at home, and not just in locating information but also in answering questions, choosing relevant information, and constructing knowledge through individual and group efforts.

According to a vision document developed by the Lebanese Association for Educational Studies (LAES) in 2007 and submitted to the Ministry of Education and Higher Education (MEHE) in 2008, the use of ICT as an effective tool that aids students in learning whether in schools or in higher educational contexts is a matter of public concern. Both the public and educationalist in Lebanon might gain from the experience of the present case-study which aims at encouraging intellectual activity through considering ICT in teaching and learning.

2.7 Vocational and Technical Education

The first technical public school in Lebanon was established in Sanayeh, Beirut in 1904. During the 1960s Lebanon laid emphasis on vocational education and training which led to the establishment of the vocational city at Dekwaneh to the eastern suburbs of the capital Beirut in 1962. The aim of the provision of vocational education in Lebanon has been to offer practical learning opportunities to students outside the realm of formal mainstream education and tie up students' practical skills with the requirements of the labor market and therefore strengthen the country's economy. In terms of structure, the Legislative Decree 9404 dated May 4, 1962, divides vocational and technical schools into four categories: schools for vocational training without a degree, vocational schools with a degree, hospitality industry schools, and high technical schools. The field of specialization at these schools is of two types: (1) vocational rehabilitation, and (2) technical education.

In 2003 the number of these schools in the public sector was 58 whereas in 2005 the number increased up to 76 schools across Lebanon. This substantial growth in student

bodies at VTE schools both public and private is attributed to many factors including: (1) the inability of many students to further their formal education due to financial constraints; (2) the new national curriculum provided opportunities to students to enroll in VTE schools, with the possibility of joining majors in mainstream higher education at a later stage, namely engineering as is the case of the BT and TS certificates; (3) sizeable numbers of unemployed seek VTE in order to find job opportunities upon graduation. Thus, the increasing emphasis on the importance of vocational education and training in Lebanon in line with the various governmental and non-governmental initiatives to promote tertiary education capable of responding to the emerging economic needs of post-war Lebanon, cannot be considered as sole factors underpinning the numeric increase of vocational and technical schools.

2.8   Introduction of IT in the Vocational Education and Training Sector

Despite the relatively high indicators of ICT use in Lebanon in general, the penetration of IT into the vocational education and training sector is still in its early stages. Attempts to penetrate IT into the vocational education and training sector are limited and mostly undertaken by the private sector with an outreach very much concentrated in Beirut, Mount Lebanon and major cities (ETF, 2005). Although both government and NGOs have taken up initiatives for setting up e-systems and networks for vocational training and education in the public and private VTE sectors, these initiatives are still in their early stages of implementation, and thereby development. Much of the focus is now on ICT equipment although there is discussion about teacher training which usually recommends better and up-to-date equipment for successful training, utilizing the notion that for any successful teacher training to take place, more equipment is needed (LAES, 2007). However, I have learned from the IT teacher training program designed by the Faculty of Education at the Lebanese University to train 1200 schoolteacher from public schools in 2004-05, that although ICT equipment was provided for the training, there has been little use of this, and schoolteachers' prime interest in the training itself was to pass the four-month mandatory training period for promotion, salary increase and job security purposes. However, these facts may not necessarily apply to schoolteachers from private schools since these schools enjoy a semi-autonomous status in recruitment, training and teaching.

To summarize, although there is a national drive towards reforming the vocational and technical education sector in Lebanon, the VTE sectors still experience the following:

- Little emphasis is given to ICT;
- The share of ICT in the national drive is extremely narrow and almost always limited to private piecemeal initiatives.

In the early 1990s the VTE Directorate General conducted new executive studies to keep abreast of the latest developments in IT. These studies, which were financed by the World Bank, covered the following:

- Computerization of budgeting procedures at VTE Directorate General;
- Follow-up of students at public schools and institutes, and update their registration files;
- Computerization and updating the files of private schools and institutes;
- Computerization of the entrance examinations for public schools and institutes;
- Production of application programs for establishing a database for official examination questions.

Not all of the above steps were implemented due to a lack of follow up of the implementation process. The reason for this lack of implementation is due, partly, to political instability in Lebanon besides the economic degeneration of the country which makes the implementation of educational projects including technology quite difficult. This situation, however, is different in private higher educational institutions which are self-financed and their revenues depend on students' tuition fees and external research funding.

2.9   Higher Education

Lebanon's higher educational system is characterized by the presence of private institutions, which are based on the American credit-system of higher education, the French, or the Arabic one as outlined in the previous chapter. The reason for this complex mixture of systems is rooted in the coexistence of several distinct social groups which make up the plural social fabric of Lebanon. Some of these groups seek to acquire American-type education while others attend French style higher educational institutions which articulate their cultural traditions resulting from their long-standing cultural allegiance with France. The development of higher education in Lebanon has passed through three phases.

The first phase known as the colonial period (Bashshur, 1997) during which higher educational institutions were established by American and British Protestant

51

missionaries as well as French Jesuit missionaries in 1866 and 1887. As referred to earlier, these institutions aimed at socializing Lebanese students along Western cultural lines (Barakat, 1977). The second phase, labeled the national period, witnessed the founding of the Lebanese national university; the first state-run university after Lebanon's independence in 1943. The third phase, known as the post 1975-90 civil war-period marked the spreading of a large number of private higher educational institutions offering a wide-range of majors.

The conditions of higher education in Lebanon are not atypical in neighboring Arab states. The most noticeable criticism has been made against the remarkable failure of educational institutions to contribute to the process of social change in the context in which they are embedded, by remaining very traditional. This coincides with a period of development in Web resources, which over the last few years have boosted the expansion of online teaching and learning (Kramer, 2000). In fact, criticism of higher educational systems in Lebanon and Arab states is currently leading to greater interest in quality education and evaluation processes which at this time are seen inadequately developed for a full-fledged reform plan (Badran, 1999).

2.10 IT in Higher Education

According to the Center for Educational Research in Lebanon (CERD, 2010), thirteen out of 42 higher educational institutions in Lebanon offer ICT-related programs. New technologies are common practice in these institutions. In addition, the teaching methodology in some of the leading universities in Lebanon is also changing, involving a shift in the teaching methodology from teacher-centered learning to student-centered learning, utilizing ICT in teaching. In the section that follows, I provide two case-studies of the use of ICT in two private higher educational institutions in Lebanon that pattern after the American system of education as does Notre Dame University-Louaize (NDU), the case study of this thesis. These two case-studies provide a general contribution to the description of the overall context of e-learning in higher education in Lebanon and do not constitute part of the main fieldwork data collection for this study The two studies described are based on data collected by the author from desktop search and research articles. These cases described did not follow single-case study protocol or based on rigorous data collection. Rather, they were descriptive accounts of e-learning in two higher educational contexts that follow the American system of higher education as is the case of Notre Dame University-Louaize (NDU).

2.10.1 The American University of Beirut

The American University of Beirut (AUB) is the oldest higher educational institution in the Arab world. It was founded in 1866 by American Protestant missionaries under the name of the Syrian Protestant College. On November 18, 1920, the Board of Regents of the State University of New York changed the name of the institution from the Syrian Protestant College to the American University of Beirut; other charter amendments expanded the functions of the University. At the end of July 2002, the number of degrees and diplomas awarded since June 1870 was 66,107 (AUB yearbook, 2006).

The American University of Beirut is considered as a leading higher educational institution that is modeled on the American system of education and uses English as medium of instruction. According to Souto-Silva (2005), AUB invests heavily in ICT for teaching and learning across all faculties at the university. Although the university is the oldest in the region, the use of ICT in its educational programs is considered as new compared to the age of the university. During the year 2000-2001, the university established the Academic Computing Center (CCC) which was vested with the task of providing teacher-training on the use of ICT in teaching. Continuous training aimed to equip faculty members with ICT tools for use in their teaching and scholarly activities and particularly research since the institution relies heavily on research for hiring, firing and promotion of faculty. Firstly, access to computers and software such as PowerPoint, Word, Excel, FrontPage, and Internet facilities were provided to all faculty members, students and staff members. In 2001, faculty members received training on the use of Web Course Tools (WebCT). During the fall of 2001-2002 academic year, 21 courses across all faculties at the university used technology in teaching. The use of these tools was made primarily to facilitate teaching and learning. During the same semester, teachers received Internet training to help their students upload articles and conduct desk top research in their research projects and learning modules. In 2002, training developed to include the Blackboard (Bb) with emphases on synchronous and asynchronous learning to facilitate learning and research among students and faculty members.

A survey on the use of ICT at AUB conducted by Souto-Silva (2005), showed the general satisfaction of faculty members and students with the use of the various forms of technology in teaching at the university. However, the study showed that a large number of faculty members were skeptical about the utility of Blackboard and other tools in achieving course objectives. In addition, the survey pointed to a main question as to whether the use

of technology is enhancing students' learning and therefore, achieving desired performance objectives such as mastery learning and critical thinking among students. These questions are still researchable and relevant as few studies conducted at the university have attempted to examine the pedagogical utility of using technology in teaching and learning.

2.10.2 The Lebanese American University

The Lebanese American University (LAU) was founded in 1835 by American Presbyterian missionaries as the American School for Girls. In 1924, it was expanded to include a two-year junior college program. Three years later, the college broke away to become the American Junior College for Women. In the early 1970's, the College began accepting a limited number of men into selected programs. In recognition of this changing reality, the College once again changed its name to the Beirut University College (BUC). BUC became fully co-educational in 1975. In 1994, the Board of Regents granted BUC permission to change its name to the Lebanese American University. In 2005, the university housed 6000 students (http://en.wikipedia.org/wiki/Lebanese_American_University).

Like the American University of Beirut, LAU capitalizes on technology-based teaching, learning and administration. All students, faculty members and staff have full access to Internet facilities, email and computers that are used in teaching, research. In addition, the university has an e-reserve system which facilitates online registration. At present, the university uses WebCT as a course management tool in addition to Blackboard in teaching and learning. However, the use of Blackboard is not mandatory since the university is traditional in teaching although some blended courses are offered occasionally (Majdalani, Stockman & Osta, 2005). Besides, the university employs video-conferencing for communication between its three campuses and also for communication with other educational institutions outside Lebanon. Despite the use of technology at LAU, very little is known about ICT applications in pedagogy and whether technology deployed on campus serves students learning performance and outcomes.

2.11 Synthesis of ICT in Lebanon's Educational Context

With the conclusion of the protracted 1975-90 war, Lebanon has embarked upon a policy of national reform based on the recommendations of the Charter of National Reconciliation called the Ta'ef Accord, which was signed by Lebanese parliamentarians

in 1989. In the context of reform, formal initiatives to mainstream ICT in Lebanon began in the Public Administration, under the National Administrative Reform Program. The Office of the Minister of State for Administrative Reform (OMSAR), established in 1993, was vested with the responsibility of leading e-government initiatives through technical assessments, preparation of specifications, and outsourcing functions. In 2002, OMSAR assisted by the United Nations Development Program (UNDP) reviewed and expanded its targets to the formulation and mainstreaming of a national e-Strategy, with the aim of expanding ICT as a tool for enhancing decision-making capacity in government, promoting a citizen-based administration, increasing digital inclusion, as well as enhancing coordination and linkages with other UNDP/civil society/private sector programs in the area of ICT. In addition, other ministries have initiated actions pertaining to ICT integration such as the Ministry of Finance, Public Work, Industry, Economy of Trade, and the Ministry of Telecommunications. These ministries have been the principal actors for promoting ICT in the public sector through the gradual implementation of the initial steps with the help of international organizations and governments such as the World Bank, the UNDP, and the European Union (EU).

In education, a number of IT companies organize and conduct training programs for their staff and some for their customers to introduce ICT. Furthermore, many leading institutions of higher education started to use ICT in the curriculum as shown in the two cases presented earlier. In line with the various strategies, policies and actions taken to integrate ICT in the work of the public sector, there has been an observable development of ICT infrastructure, growth in the number of computers and Internet users (Arab Advisors Group, 2005).

Despite the growth of IT infrastructure and access to computers and telephone lines over the last few years in Lebanon (see table 2-2), the country is still characterized by a digital divide particularly between Beirut and Mount-Lebanon on the one hand, and the regions of Bekaa, North and South Lebanon, on the other. Many low-scale often piecemeal-initiatives have been taken by many local and international organizations to widen ICT inclusion in Lebanon's governorates. However, these initiatives are local and underdeveloped at a national level, and in educational contexts they remain very limited, particularly in regards to the use of ICT in teaching and learning.

Table 2-2 IT and Internet Infrastructure 2000-2005

IT and Internet Infrastructure	2000	2001	2002	2003	2004	2005
Internet Accounts (000s)	100	120	150	160	195	230
Subs Added (000s)	20	20	30	10	35	35
Growth %	25%	20%	25%	7%	22%	18%
% of Total PCs	57%	48%	55%	52%	57%	60%
Internet Users (000s)	350	420	450	480	585	656
Users Added (000s)	70	70	30	30	105	71
Growth %	25%	20%	7%	7%	22%	12%
Subs penetration %	2.87%	3.39%	4.17%	4.38%	5.27%	6.13%
User penetration %	10.06%	11.86%	12.50%	13.15%	15.81%	17.48%
PCs (000s)	175	250	275	305	340	385
PCs added (000s)	25	75	25	30	35	45
Growth %	17%	43%	10%	11%	11%	13%
PC penetration %	5.03%	7.06%	7.64%	8.36%	9.19%	10.26%
Total country bandwidth Mbps		45	60	60	90	115
Bandwidth per Account in kbps		0.375	0.400	0.375	0.462	0.500
DSL Lines (000s)	0	0	0	0	0	0
DSL Added (000s)	0	0	0	0	0	0
Growth %	0%	0%	0%	0%	0%	0%
DSL lines as % of total mainlines	0%	0%	0%	0%	0%	0%
DSL lines as % of total Internet	0%	0%	0%	0%	0%	0%

Source: Arab Advisors Group, 2005

Second, many low-scale piecemeal-initiatives have been taken by local and international organizations to widen ICT inclusion in Lebanon's governorates. Despite initiatives to expand ICT into the rural areas, the number of connected schools is still very low, availability of facilities in these schools is inadequate, and few teachers join training sessions for their professional development. Thus, despite the ICT inclusion initiatives, the digital divide remains in the education and training sectors in Lebanon with associated consequences for the use of ICT in education.

In relation to the compulsory education system, schools make little use of technology in teaching, and when used, students unevenly learn basic skills on the use of computer and software. As for e-learning, there is no evidence that schools use this facility in their teaching and learning processes. Thus, the use of ICT in schools and in the vocational education and training sectors is still at the stage of ICT as a main content focus and on learning how to use ICT. It has not used ICT as a core delivery tool that supports learning through facilitating or networking technology in the pedagogical process as outlined by (Jung, 2005).

Figure 2-4 explains the four main rubrics for teaching how to use ICT. It shows that ICT can be used as a core or a complementary means to training (Collis & Jung, 2003).

Most of the early ICT teaching and training programs in the 1990s focused on ICT use as the main content focus area (Jung, 2005). This approach has an emphasis on teaching and training on how to use ICT in the classroom. It addresses issues such as selecting appropriate ICT tools and supporting students in the use of those tools, using ICT to promote learning activities, developing new methods of facilitating learning and evaluating student performance, and so on. At present, despite the fact that the focus has shifted from ICT in terms of content and how to use it, to ICT as a core delivery tool in teaching and learning (Ibid), schools in Lebanon have not used ICT as a core delivery tool that supports learning.

Figure 2-4 Rubrics of ICT Training
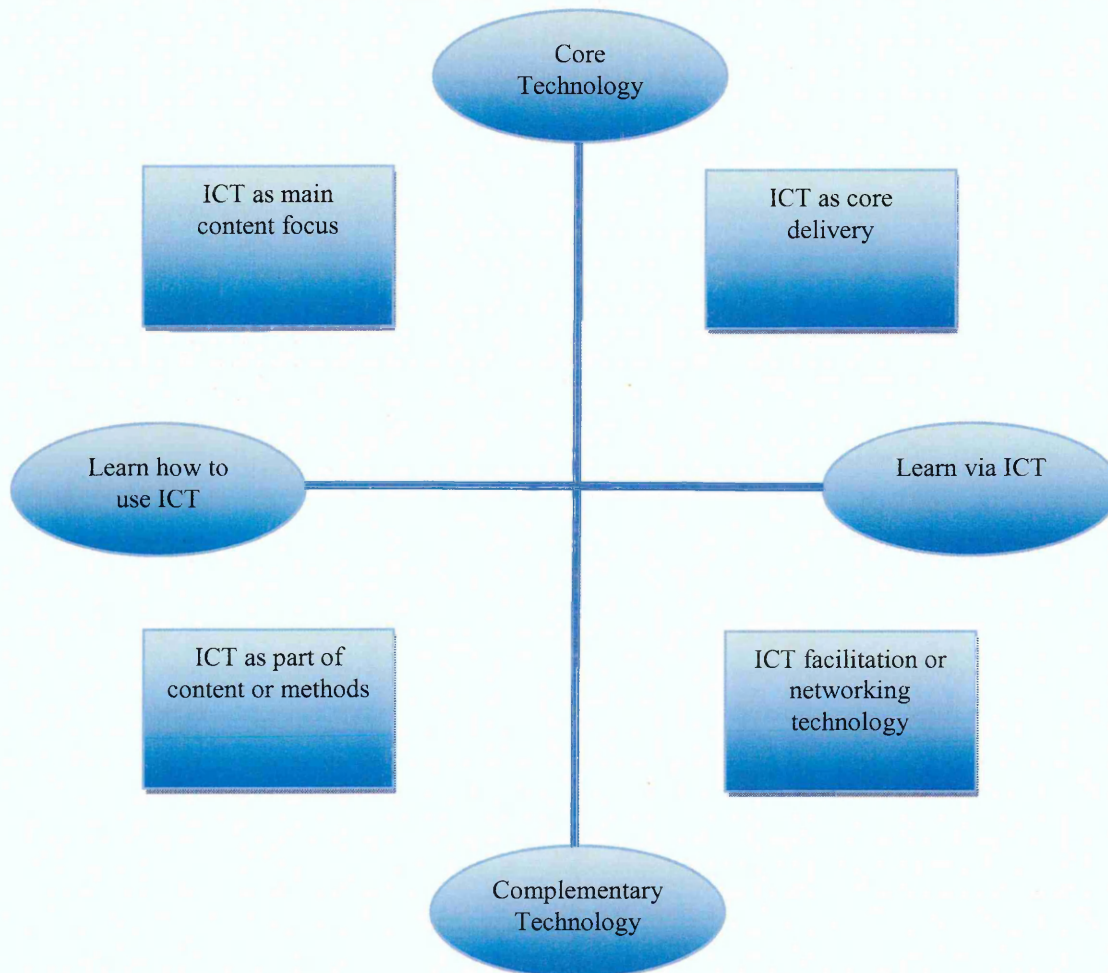
With regards to higher educational institutions, despite the fact many of them use technology in teaching and learning, very little is known about the attitudes and educational outcomes of using technology. In addition, social and cultural aspects of ICT in Lebanon have not yet been researched. More importantly, there are few studies that deal with the pedagogical aspects of e-learning in Lebanese higher educational contexts. These gaps in the literature warrant more research into e-learning in Lebanon

in the context of higher education and this is what the present study seeks to examine.

2.12 Summary of Findings

This chapter pointed to the slow implementation process of Information and Communication Technology (ICT) in Lebanese educational institutions, despite the fast-paced developments in the field. Although many educational contexts use ICT as a subject in the curriculum, the greatest challenge remains on how to use ICT as an effective tool that aids students' learning.

The contribution of schools in Lebanon to building an information society remains limited as evidenced in the current IT curriculum which covers only the development of basic skills. In addition, the IT in the curriculum does not aim to develop knowledge, attitudes, and skills needed for handling information or for using information and communication technology in acquiring knowledge in various subjects and domains. More importantly, the curriculum is not followed in many schools in general, and in most public schools in particular. In the vocational education and training sector and higher educational institutions, the use of IT in teaching and learning remains a very slow process. In addition, teacher preparation in knowledge and skills pertaining to the use of ICT in teaching and learning is limited. In addition, the emphasis of the Lebanese ICT school curriculum is on students' acquisition of basic computer knowledge as main content focus rather than as a tool adapted to foster a constructivist learning approach which emphasizes collaborative, argumentative and reflective skills (Ravenscroft, 2001) that potentially encourage students' analysis, synthesis and evaluation at the higher levels of Bloom's taxonomy of education (Seigel, 2004; Grabe & Grabe, 2001). This lack of emphasis on using ICT for constructivist pedagogical purposes is common place in Lebanese higher educational contexts, where ICT use in the educational practice is not yet adapted to fulfill constructivist learning approaches. The constructive perspective of learning reflects the view that "knowledge is built by the learner, not supplied by the teacher" (Papert, 1990, p.3).

Although the general goals of some subjects in the curriculum noted the need to develop some general thinking abilities, such as problem-solving in mathematics, it is worth noting that the curricula did not explicitly mention moral reasoning though it referred to "moral commitment." The evaluation of the new curricula showed that the general thinking skills, if referred to in the curricula, have not been reflected in the goals of different subjects, textbooks, and teaching practices (UNESCO, 2003). In general, basic

education in Lebanon does not help students acquire the skills (critical thinking abilities and moral reasoning), attitudes (accepting others), and beliefs (learning does not end with formal education) that develop their ability to live and work in a changing society and to become lifelong learners. This critique led many Lebanese education decision-makers to call for providing spaces for educationalists to experiment alongside with their own students on the utility of technologies and pedagogies in meeting students' learning needs and fulfilling learning targets (El-Amine, 2005).

Most importantly, due to the rapid proliferation of ICT and the need to respond to the changes happening in culture and society, demands for higher education to transform themselves in response to these perceived changes are high. As a result, education decision-makers and educators alike are under the pressure of integrating advanced technology into teaching and learning in higher education. As Owston (2000) argued, the pressure of adopting the newest technology into teaching and learning is likely to cause educators and academic administrators to jump on the bandwagon of technology; hence, their endorsement of technology in educational contexts becomes at times, a response to the dot-com boom (Pittinsky, 2003), rather than as a response to encouraging constructivist learning facilitated, partly at least, by the use of ICT.

In fact, using ICT in the classroom without assessing its efficacy in enhancing the educational practice, may weaken students' learning as there are appropriate and inappropriate uses of ICT in educational contexts; appropriate uses help facilitate learning while inappropriate use can hinder it (Achacoso, 2003). The literature points to numerous reasons that hinder learning through the inappropriate use of ICT. One of the most pressing reasons behind ICT's lack of success in fostering constructivist learning is the lack of pedagogical adaptation (Detweiler, 2004; Zemsky & Massy, 2004) that encompasses the promotion of interactivity (Amirian, 2003) and critical thinking (Wong, 2006) that result in higher student satisfaction with the teaching and learning processes in educational contexts (Alanis, 2004).

With the advances in ICT and increasing calls for its implementation in teaching and learning, there is an equally increased need to assess the efficacy of its use in education (Owston, 2000), particularly in light of the distressing gap between ICT use and sound pedagogical models (Alanis, 2004; Salmon, 2000; Chou, 2003). A sound pedagogical model presents strategies which seek to meet students' learning needs through many tools including ICT. In fact, subsuming pedagogy within the doctrine of Instructional

Design (ISD) was described by Downes (2003) as the "educational equivalent of dictatorship…. a manufactured environment where every movement, every idea, is carefully guided and nurtured". Therefore, pedagogic strategies facilitated by ICT to support constructivist learning environments need to take into consideration, among other things, students' learning needs, that might help teachers/facilitators of learning to encourage individual learning and knowledge construction among students. In Lebanon, this gap extends into issues related to quality education, change, and the role of ICT being cited as one of the critical factors in dealing with such issues.

As with most countries concerned with ICT implementation in education either in their national priorities or in laws pertaining to education sector (UNESCO, 2003), Lebanon is not an atypical case. This chapter presented the national ICT indicators in Lebanon within the process of the Information Society which started to take place in 1993, three years after the official conclusion of the 1975-90 war. In fact, the concept of Information Society has continued to engage the attention of policymakers, governments and researchers. A recent United Nations document referred to the emergence of an Information Society suggesting ICT as a mover in the transformation of public and private spheres in recreating new social, political, economic and cultural realities throughout the world (UNDSF, 2005). In referring to Information Society, distinctions are usually made between three forms: data, information, and knowledge. Beer (1985) provides an overview drawn from systems theory, suggesting that data are symbols that have not yet been subject to interpretation, they are "statements of fact". Further, Beer describes information as "that which changes us" – data become information when it can be used and acted upon. Information can be considered as being linked to a specific situation and has only limited validity (van der Spek & Spijkervet, 1997). On the other hand, Knowledge Society which is driven from *Knowledge* is what enables people to assign meaning to data and therefore generate information. It includes insights, experiences and procedures that guide people's thoughts, behavior and communication (Ibid.).

According to the Arab Human Development Report in 2002, building an information and knowledge society in the Arab region requires the completion of the process of empowering people to utilize information and communication technology. This will entail access to knowledge, its redistribution, and producing new and localized knowledge based on the specific situation of the region. Plans and programs should be focused towards the special needs of information users, staff, and information producers

and not just working on existing knowledge bases. The report provided a number of recommendations, among which was the emphases on: (i) building and developing capacities, supporting research and scientific achievements; (ii) increasing awareness on the importance of ICT, particularly in the curricula to raise the level of knowledge.

2.13 Conclusion

Despite the potential role of Information Society in the process of change, its recommendation to deploy ICT facilities in education and public spheres has not been implemented yet in Lebanon and there is little emphasis on the promotion of the Knowledge Society. As shown in this chapter, the educational sector in Lebanon suffers directly or indirectly from the following: (i) large segments of Lebanese society do not have access to ICT due to between and within-region digital divides and structural inequalities fueled by political instability (El-Amine, 2005) resulting in students' lack of access to ICT facilities at home that would link them with their schools and peers when doing assignments or working on projects that require the use of technology; (ii) the fact that there is a shortage of ICT equipment and facilities in public schools (CERD, 2006), students in the public sector have little opportunity to utilize ICT in their learning; (iii) while the implementation of ICT into all sectors of the country is considered a national priority, no incentives for teacher-training, adequate ICT facilities and equipment are provided to the educational sector, particularly the public one.

Although national priorities in Lebanon call for the deployment of ICT in education, there is no reference to assessment and evaluation of the use of ICT in teaching and learning, even within the meager ICT resources available in educational contexts in the country. Even if enough ICT equipment were provided, notions of assessment for ICT in the educational practice are not well developed. As mentioned earlier, while many higher educational contexts use ICT in teaching and learning and enjoy a good ICT infrastructure, there is a lack of assessment of the potential of ICT in facilitating learning in these institutions, probably because teaching and learning in these institutions is mostly traditional (MEHE, 2007), i.e., instruction is carried face-to-face. It should be noted here that the Ministry of Education and Higher Education (MEHE) does not license distance education and e-learning institutions. Another interpretation to the lack of assessment of ICT use in the pedagogical practice is not because of lack of innovation, but rather due to the presence of too many disconnected superficially adorned projects (Fullan, 2001), or in other words, the presence of too many

uncoordinated piece meal initiatives for ICT use.

In brief, the curricula, teaching methods, and related classroom activities do not aim to develop critical thinking and moral reasoning and related attitudes capable of enabling individuals to live and work in a changing modern society and to turn into lifelong learners (LAES, 2007).

In this context, more in-depth research is needed to examine the reasons of the underdevelopment of using IT in teaching and learning in educational contexts in Lebanon. Taking Notre Dame University-Louaize (NDU) as a case study, probing the attitudes of students, faculty members and administrators towards the use of IT in teaching and learning might help understand the opportunities and barriers associated with integrating IT in the curriculum as a core delivery tool that supports learning. This understanding depends on using a number of factors that can be used as a measuring stick to examine the experiences related to IT in the teaching and learning processes in educational contexts. These factors will be discussed in the chapter that follows.

Chapter 3

Factors of E-learning Implementation: A Conceptual Framework

3.1   Introduction

This chapter discusses the following technology acceptance theories and models of change that shaped the conceptual framework of this study:

- The Technology Acceptance Model (Davis, 1986);
- The Innovation Diffusion Theory (Rogers, 1995);
- The E-learning Acceptance Model (ELAM) (Umrani-Khan & Iyer, 2009);
- The Unified Theory of Acceptance and Use of Technology Theory (UTAUT) (Venkatesh, Morris, Davis & Davis, 2003);
- The Motivational Model (Vallerand, 1997).

Although the above theories are derived from multiple backgrounds, they are worth considering for establishing the conceptual framework of the study since they illustrate the following factors applicable in examining the e-learning implementation process:

- The views and attitudes of faculty members and academic administrators towards the implementation of e-learning as an innovation;
- The change process involved in implementing the innovation;
- The facilitating conditions and barriers to the e-learning implementation process;
- Mediators to the e-learning implementation process such as students' learning styles and how faculty members use technology in teaching.

The above factors will be adapted from each theory considered in this chapter in order to guide the analyses of the research questions of the study presented in Chapter One. Then, each adapted factor will be examined in the light of the existing literature.

The adapted factors that constitute the conceptual framework of the study serve as rubrics for evaluating the success or failure of implementing technology for pedagogical purposes at NDU and potentially in other higher educational contexts in Lebanon. Successful models of e-learning implementation in education will be utilized as rubrics for yielding good examples of implementation in higher educational contexts. On the other hand, unsuccessful examples of e-learning implementation will help to identify which of these factors underpinning failure can be understood and addressed by educationalists and education decision-makers seeking change and innovation through

appropriate uses of technology in the educational practice.

3.2   The Conceptual Framework of the Study

This study uses an eclectic approach to establish its conceptual framework as derived and adapted from a combination of theories and models applicable in the e-learning implementation. The conceptual framework is set to guide the analyses of the research questions of the study which focus on the following:

- The readiness of faculty members and students to engage in e-learning;
- Faculty members' attitudes towards its potential effectiveness in enhancing teaching and learning;
- The readiness of academic administrators to implement e-learning;
- The infrastructure needed for implementing e-learning into teaching and learning.

It is worth noting here that factors other than those identified and analyzed in this chapter may emerge during data collection since theory of this study is likely to be developed inductively from analyses of data generated from fieldwork following the grounded-theorizing approach (Glaser & Strauss, 1967; Strauss & Corbin, 1990).

The sub-sections set forth consider the different theories of technology acceptance and change that emphasize, among other things, the e-learning implementation process. Then, this chapter identifies the adapted factors and discusses them in light of the related literature in the area.

3.2.1 Factors Derived from the Technology Acceptance Model

The conceptual framework of this study benefits from the Technology Acceptance Model (TAM) developed by Davis (1989) as an adaptation of the Theory of Reasoned Action (TRA) developed by Fishbein and Ajzen (1975) because it emphasizes personal attitude and subjective norms that can be employed for guiding the analyses of the attitudes of faculty members and academic administrators towards the implementation of e-learning as an innovation at NDU. According to TAM, perceived usefulness and perceived ease of use determine an individual's intention to use a particular system. Perceived usefulness is emphasized in the literature as an important determinant of behavioral intention to use technology (e.g., Venkatesh et al., 2003) such as the intentions of faculty members at NDU to use Blackboard and MS-Office in teaching. According to Chuttur (2009), TAM has behavioral elements, assuming that when

someone forms an intention to act, that he/she will be free to act without limitation. Constraints such as limited ability, time, environmental or organizational limits tend to limit the freedom to act. Organizational limits are worth investigating at NDU since they provide understanding of the reasons behind them and help set recommendations for overcoming them. Moreover, the TAM explains user behavior across a wide range of computing technologies (e.g., MS-Office programs, Blackboard, e-mail etc...) and user population (e.g., students, faculty members and academic administrators), which constitute the sample of the present study discussed in Chapter 5.

In fact, the focus of TAM on personal attitude and subjective norms will be used in the present study to examine the readiness of faculty members and academic administrators to adopt technology and how they view its potential effectiveness in enhancing teaching and learning. The factors adapted from TAM for this study are:

- Perceived benefits and efficiency of e-learning in teaching;
- Self-reported benefits of e-learning (Bb features);
- Use of technology in teaching.

Since analysis of the factors mentioned above would require self-reported data which is regarded as one of the main criticisms against TAM model because self-reported data is a subjective measure and is considered unreliable in measuring actual use of a system (Legris, Ingham & Collerette, 2003, Yousafzai, Foxall, & Pallister 2007), this study employs a variety of research design methods to overcome these limitations. These methods include the use of interviews, document analysis and questionnaires to analyze the development process of e-learning implementation at NDU. Details of the research methods used in the study are discussed in Chapter 5.

The factors derived and adapted from TAM are discussed in the sub-sections below.

Perceived benefits and efficiency of e-learning in teaching

Perceived usefulness and perceived ease of use which determine an individual's intention to use a system lays the foundation for examining faculty members' perceived benefits of Blackboard in the courses they teach and to reflect on the impact of using technology on teaching methodologies in the classroom such as providing immediate feedback to students, increasing interaction with students, and increasing active learning opportunities in class. This factor is important to consider in the present study since e-learning has been found to facilitate enhanced communication between and among

students and faculty members, besides providing students with greater access to course materials in comparison to more traditional less flexible educational methods (O'Donoghue & Singh, 2001; Hemsley, 2002).

Self-reported benefits of e-learning (Bb features)

The self-reported benefits of e-learning at NDU focus mainly on making use of Blackboard for facilitating the teaching and learning process. There are several features of Blackboard that allow for communications with students including announcements, discussions, email, posting course syllabi and conducting online exams.

Use of technology in teaching

This study expands on the perceived usefulness which is emphasized in the literature as an important determinant of behavioral intention to use technology (e.g., Venkatesh et al., 2003), to examine not only faculty members' intention to use technology in teaching but also to engage their students with technology such as MS Excel, PowerPoint and MS Word for their assignments, use electronic library resources, and email which can be seen as a tool that can be used to send group emails with attachments of documents needed in the course (Allen & Slutsky, 2003).

3.2.2 Factors Derived from the Innovation Diffusion Theory

An essential part of this study lies in its attempt to examine the development of the e-learning implementation process as an innovation in teaching and learning at NDU. One of the significantly researched theories in innovation is the Innovation Diffusion Theory developed by Rogers (1995). This theory is the most appropriate for investigating the adoption of technology in higher education and educational environments (Medlin, 2001; Parisot, 1995). According to Babic and Jadric (2010), this theory has been used in the analysis of technology-led change which constitutes an important element in the development process of e-learning implementation. Based on this theory, potential adopters of an innovation such as e-learning at NDU must learn about the innovation (knowledge), be persuaded as to the benefits of the innovation (persuasion), decide to adopt (decision), implement the innovation (implementation), and confirm the decision to adopt the innovation (confirmation). In the context of NDU, the Innovation Diffusion Theory benefits the analyses of the processes involved in the persuasion of faculty members to adopt technology in teaching and learning, training on technology use offered to them as part of the persuasion, the various decision-making

process undertaken by the senior administration regarding the implementation process, the forming of committees to study the implementation, and the change process related to technology use in teaching and learning from 2007 to 2009. The following factors were obtained from the Innovation Diffusion Theory:

- Persuasion;
- Training;
- Decision to adopt technology;
- Change process.

Persuasion

Persuasion takes place when the individual has a negative or positive attitude toward the innovation, but "the formation of a favorable or unfavorable attitude toward an innovation does not always lead directly or indirectly to an adoption or rejection" (Rogers, 2003, p. 176). The degree of uncertainty about the innovation's functioning and the social reinforcement from others (senior administration, colleagues, etc.) influences the individual's views and beliefs about the innovation. Zaltman and Duncan (1977) argued that even the most effective change effort usually encounters some resistance as some individuals working in an organization consider the innovation as eroding their status. Others would like to adopt the innovation, but they lack the knowledge or skills to do so and opposition to innovation may come from deep-rooted values and beliefs, or from lack of confidence that the innovation is capable of leading a successful process of change. In the case of NDU the attributes of innovation are the effective use of technology in teaching and learning and related e-learning activities. The Innovation Diffusion Theory helps to identify the most influential attributes of e-learning implementation such as top leadership commitment to change and innovation, establishing professional development and training on the use of ICT in education as well as engage faculty members in the e-leaning implementation process.

Training

This study conceives that part of persuasion to engage with technology is training which can provide ongoing professional development opportunities for faculty members and reduce potential anxiety towards technology use in teaching and learning (Fontaine, 2001). In addition, Salmon (2004) argued that focusing the training on the features of the e-learning system is the first step to success in the implementation process. Based on Rogers' Innovation Diffusion Theory, Jacobsen (1998) found that

key to diffusion will be training suggesting that without investment in the human infrastructure nothing of sustainable value will be achieved. In line with this, a key factor in the e-learning implementation process at NDU is to examine change in behavior among faculty members towards technology use in teaching and learning after training as a mediating factor.

Decision to adopt technology

Institutional processes have been the focus of change management research in higher education (e.g., Duderstadt, 2000; Fullan, 2001; Cuban, 2000), specifically with regards to responding to emerging educational needs and innovations. Moreover, it has been argued that higher education became part of a global shift to a new way of creating and using knowledge (Divjak & Begicevic, 2006). In this study, institutional processes would involve a number of steps for implementing e-learning such as the need for change, decision to change, and approaches used in the process of change to e-learning implementation. In analyzing institutional processes involved in the change process at NDU, the present study adapts the Innovation Diffusion Theory but with a more comprehensive view of change as it looks into additional factors outside the premises of the Innovation Diffusion Theory mainly, the approaches used in the process of change to e-learning implementation which, to the best of my knowledge, have not been previously researched.

Moreover, aspects of change in higher educational contexts have been discussed in the literature from the perspective of leaders who lead change in higher education such as university presidents, vice-presidents, and academic directors (Olcott, 2005) but not from perspective of faculty members who in addition to leaders in higher education are involved in the e-learning implementation process. From this point of view, the present study will look into the decision that influenced the e-learning implementation process from the perspective of the senior administration, academic administrators, and faculty members. These individuals can provide information needed to understand the challenges faced during the implementation process and opportunities for recommending how to overcome these challenges in the future of the e-learning implementation process.

The change process

Studies on the change process illustrate the need to focus on the culture of higher educational contexts. For instance, Rosenberg (2003) provides a strategy that helps

understand the practice and culture of education in the wake of implementing e-learning as an innovation. This strategy involves developing a receptive culture toward e-learning, involving the community, communicating its value, and leading through the change. In this study, academic administrators' attitudes towards technology use in teaching and learning are connected to socio-cultural aspects of society, including the culture of education (Barajas, 2000). The culture of education in the context of change is an important aspect for understanding receptivity and or resistance to change at NDU focusing on the decision-making process and the role of academic administrators in this regard.

3.2.3 Factors Derived from the E-learning Acceptance Model

The E-learning Acceptance Model (ELAM) developed by (Umrani-Khan & Iyer, 2009) identifies the key factors in acceptance of e-learning as measured by behavioral intention to use the technology and actual usage. This model is an extension of the Unified Theory of Acceptance and Use of Technology Theory (UTAUT) (Venkatesh et al., 2003) which focuses on four factors of e-learning acceptance: performance expectancy; effort expectancy; social influence; and facilitating conditions.

According to Umrani-Khan and Iyer (2009), performance expectancy is based on beliefs about perceived usefulness, interactivity and flexibility. Effort expectancy is based on beliefs about ease of learning, perceived ease of use and self-efficacy. Social influence is based on subjective norm and image. Studies of e-learning technology acceptance have considered TAM or UTAUT testing them on either teachers (Nanayakkara 2007; Yuen & Ma 2008), or students (Keller, Hrastinski, & Carlsson, 2008; Masrom, 2007). These studies provide evidence for the importance of attitudes in acceptance of e-learning. It is found that perceived ease of use or effort expectancy is the most important factor for teachers, while perceived usefulness or performance expectancy is the most important factor for students (Jung, Loria, Mostaghel, & Saha, 2008; Raaij & Schepers 2008). While the conceptual framework of this study was partly shaped by TAM, there was no need to further adapt replicated factors presented in ELAM. However, this latter emphasizes facilitating conditions not mentioned in TAM as one of the determinants of e-learning acceptance. These facilitating conditions involve institutional support to the e-learning implementation process including incentives given to those involved in the implementation process, infrastructure and facilities. Being an extension of TAM discussed in the preceding sub-section, some of the factors were overlapped. This study

employs two factors from the E-learning Acceptance Model (ELAM), namely, student's learning styles and faculty members' teaching. As for incentives, this study considers motivational models which focus on intrinsic and extrinsic motivation. This latter will be examined under the Motivational Theory (MM).

In fact, one of the advantages of e-learning is its adaptability. There is a lack of research on the moderating factors for e-learning acceptance presented in this model which emphasize teaching style on acceptance of e-learning by faculty. Another moderating condition presented in this model is students' learning style as a factor in e-learning acceptance. From this theory, the present study adapted the following two factors from ELAM:

- Students' learning styles and preferences;
- Faculty members' teaching in the classroom using technology.

Students' learning styles and preferences

The E-learning Acceptance Model (ELAM) (Umrani-Khan & Iyer, 2009) considers learning styles as a consistent learning way of learners. This model argues that e-learning systems that deal with learning styles are a special case of adaptive educational systems, which focus on students' learning preferences as the adaptation criterion. This study considers students' learning styles as a moderating factor for examining the e-learning development process.

Faculty members' teaching

Faculty members' teaching in the classroom has been conceived as an important mediating factor for e-learning implementation. In line with this, Grasha (1996) identified five teaching styles that represented orientations and strategies faculty members employ (displays detailed knowledge), formal authority (establishes learning goals, and rules of conduct), personal model (shows how to do things), facilitator (encourages students to make informed choices) and delegator (makes students work independently on projects or as teams). In this study, faculty members' teaching will be limited to their views on how they teach their students using technology in class to be further compared with how students' report their teachers teaching in class.

3.2.4 Factors Derived from the Unified Theory of Acceptance and Use of Technology Theory

Unified Theory of Acceptance and Use of Technology (UTAUT) is a technology

acceptance model formulated by Venkatesh et al. (2003). This model explains user intentions to use an information system and subsequent usage behavior. The theory states that four key constructs (performance expectancy, effort expectancy, social influence, and facilitating conditions) are direct determinants of usage intention and behavior. The theory was developed through a review and consolidation of the constructs of eight models that earlier research had employed to explain information systems usage behavior (theory of reasoned action, technology acceptance model, motivational model, theory of planned behavior, a combined theory of planned behavior/technology acceptance model, model of personal computer utilization, diffusion of innovations theory, and social cognitive theory). Two of the factors adapted from this theory are infrastructure and familiarity, skills and use of technology among faculty members since the rest of factors in this theory are replica of ELAM and TAM.

Infrastructure

As part of analyzing the e-learning implementation process at NDU, this study addresses faculty members' attitudes to the availability of technology facilities needed for their use in teaching and learning. Technology facilities constitute an important factor in the development of e-learning, including infrastructure planning, hardware and software (Khan, 2003) and adequate technical support for e-learning implementation in educational contexts (Sife, Lwoga, & Sanga, 2007). The ability to gain reliable access to computers and the e-learning environment is a key issue cited in the literature (e.g., Gebhart, 2005; Salmon, 2004). Besides technology facilities in the e-learning implementation process, educational contexts implementing e-learning need to have financial resource to purchase equipment, replace old ones and enhance the infrastructure. Thus, the infrastructure needed in the e-learning implementation process is considered a facilitating factor that constitutes an essential part of the conceptual framework of the study.

Familiarity, skills and use of technology

Identifying faculty members' familiarity, skills and use of technology helps understand faculty members who may become restless with technology in teaching when they encounter a lack of familiarity with it. This lack of familiarity can lead to disinclination in using it in teaching (Owen et al., 2004). In fact, there is a strong component of faculty members' awareness for demonstrating in front of students to have technology competence. Faculty members should also have the skill in producing

learning materials using technology tools (Dale, 1998). Shortage of teachers' skills in using technology when teaching via technology may have a negative impact on students' motivation and engagement with a technology learning environment (Barajas, Magli, Owen, Toccafondi, Molari, & Safin, 2006). Thus, technology skills of faculty members constitute an important factor for measuring the success or failure of using technology in education. In order to understand faculty members' familiarity and skills in technology they will be asked to self-characterize their use of MS-Office programs and to access electronic resources and data bases for teaching purposes. According to Alanis (2004), faculty members' are not only required to become familiar with using technology, but also to gain the necessary skills to use technology in the most productive ways to promote learning.

3.2.5 Factors Derived from the Motivational Model

Founded in theories of motivation which are rooted in Maslow's (1943) hierarchy of needs, Bandura's (1975) social learning theory, the early work of Pavlov and the behavioral paradigm (e.g. Skinner, 1972), the Motivational Model (MM) has been used abundantly in many psychological studies that focused on change in behavior following reinforcement and reward. Many studies have examined motivational theory and adapted it for specific contexts (e.g., Vallerand, 1997). Motivational theories focused on intrinsic and extrinsic motivation. In the framework of information technology, extrinsic motivation is when users perform an activity since it is perceived to be instrumental in achieving valued outcomes that are distinct from the activity itself, such as improved job performance, pay, or promotions (Davis et al. 1992). In addition, intrinsic motivation is when users will want to perform an activity for no apparent reinforcement other than the process of performing the activity as such (Ibid.).

This study adapts the Motivational Model (MM) to look into intrinsic and extrinsic elements that affect faculty members' use of technology in teaching and learning. Intrinsic motivation is faculty members' use of technology as stemming from their own personal desire to engage with technology in teaching for no apparent motivation provided by the institution. On the other hand, extrinsic motivation is faculty members' use of technology based on monetary incentives and promotion. Alanis (2004) has suggested that there is little intrinsic motivation for many teachers to use technology in teaching and learning. If so, extrinsic motivation for teachers such as grants and monetary incentives might encourage them to experiment with technology in teaching

72

and learning in the classroom. This later is considered as a factor that measures the extent to which incentives encourage teachers to consider technology in the education practice. Thus, in addition to understanding teachers' attitudes towards the use of technology in teaching and learning, it is worth looking into their readiness to engage in technology-teaching activities in the classroom based on incentives and institutional support.

3.3 Summary

In the process of assessing the implementation of e-learning in educational contexts, the literature (e.g., Owston, 2000) emphasizes the importance of using a variety of methods because the needs of learning environments are multifaceted. One method is to establish factors that measure the complexity of ICT implementation in educational contexts. In this framework, the following dimensions were adapted from the conceptual framework of the study to examine the development process of e-learning implementation at NDU as shown in table 3-1 below.

Table 3-1 Factors derived from the conceptual framework

Factors	Theory/model	Population
• Perceived benefits and efficiency of e-learning in teaching; • Use of technology in teaching; • Self-reported benefits of e-learning (Bb features).	TAM	• Faculty members
• Persuasion; • Training; • Decision to adopt technology; • Change process.	Innovation Diffusion Theory	• Faculty members • Senior administration (President, academic administrators)
• Students' learning styles and preferences; • Faculty members' teaching in the classroom using technology.	ELAM	• Students • Faculty members
• Infrastructure; • Familiarity, skills and use of technology.	UTAUT	• Technology facilities at NDU • Faculty members
• Motivation (Extrinsic, intrinsic)	MM	Faculty members

The factors presented in table 3-1 were established to measure the development of e-learning implementation in teaching and learning at NDU. These factors are context-dependant (Lopez, Minguela, Rodrígues, & Sandulli, 2003), i.e., applicable to the particularities of Lebanese higher educational system described in Chapter 2.

3.4 Analysis of the Factors Influencing the Development Process of E-learning Implementation

The factors discussed in this chapter provide an edge for data collection about the e-learning development process at NDU. These factors are used as an essential part of the case study that aims at obtaining information through interviews, questionnaires, and document analysis involving faculty members, academic administrators and students. Based on the conceptual framework discussed in this study, the following section will discuss the framework for the development process of e-learning implementation which is a synthesis of the factors adapted from the multiple theories discussed earlier. This framework is similar to but not replica of Khan's (2001) E-learning Framework which is used to understand an organization's inventory of e-learning by examining eight dimensions of open and distributed learning environments as shown in figure 3-1 and explained in the box that follows.

Figure 3-1 Khan's E-leaning Framework
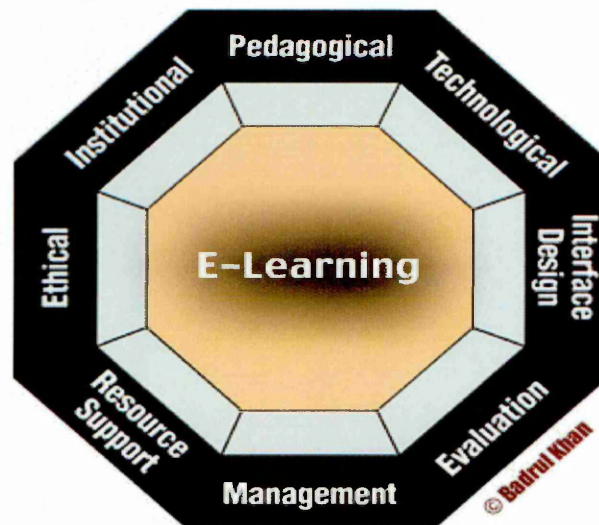
Pedagogical: Refers to teaching and learning. This dimension addresses issues concerning content, audiences, goal and media analysis; design approach; organization and methods and strategies of e-learning environments.

Technological: Examines issues of technology infrastructure in e-learning environments. This includes infrastructure planning, hardware and software.

Interface Design: Refers to the overall look and feel of e-learning programs. The interface design dimension encompasses page and site design, content design, navigation, and usability testing.

Evaluation: Includes both assessment of learners, and evaluation of the instruction and learning environment.

Management: Refers to the maintenance of learning environment and distribution of information.

Resource Support: Examines the online support and resources required to foster meaningful learning environments.

Ethical: Relates to social and political influence, cultural diversity, bias, geographical diversity, learner diversity, information accessibility, etiquette, and the legal issues.

Institutional: Issues of administrative affairs, academic affairs and student services related to e-learning.

The development process of e-learning implementation framework used in this study focuses on the following:

- Pedagogical (teaching; students' learning styles and preferences);
- Attitudinal (academic administrators' attitudes amidst the culture of change, students' attitudes, teachers' attitudes);
- Skills (teachers, students);
- Infrastructure and access.

The sections set forth discuss the framework of the study.

3.4.1 Pedagogical

Teaching

In a traditional classroom, instructors control their environment because they have a monopoly on information (Freire, 1985). With wider access to electronic resources and information, students may be less dependent on faculty for knowledge. Faculty may need to design their curriculum, goals and objectives and then consider how ICT can best serve the instructional objectives and activities of that curriculum. The design process might engage students as participants in learning. Clark (1994) emphasized the importance of establishing educational goals and objectives as a first

step before deciding on the proper tool to meet these goals and objectives. Ehrmann (1999) has further suggested that educators need to decide on what teaching strategies facilitate the fulfillment of the educational objectives, and then choose the technological tools that would best support those teaching and learning strategies. In this respect, pedagogical factors have been developed by ORIENTE, which is a European network of researchers specialized in the evolution of research connected with educational, institutional, organizational and symbolic aspects of new learning environments mediated by ICT (Stufflebeam, 2000). These pedagogical factors focused on the development of learning environments for constructing knowledge rather than for its transfer, i.e., utilizing constructivist paradigms in the classroom learning environment (Barajas, 2003). Therefore, this study suggests that the benefits generated from ICT and its efficiency in teaching and learning might be understood, partly by assessing the educational goals of courses that utilize ICT at Notre Dame University, Louaize (NDU) particularly the extent to which these courses accentuate constructivist learning through promoting discussion (e.g., chat rooms, discussion forum), self-directed learning (e.g., the process whereby the learners monitor, evaluate and regulate their cognitive learning strategies) (Bolhuis, 1996; Garrison, 1997), group work, online projects, where students are given the opportunity to pursue their special interests, and case study which requires them to draw upon their real life experiences and communicate it to others for discussion and reflection. ICT is used for instructional strategies that the teacher uses in her/his classroom. Since pedagogical paradigms define the way teachers facilitate learning, teachers who come from a constructivist paradigm will naturally use multiple instructional strategies to promote student construction of knowledge and thus enhance the learning of all students (Miller, 2002).

Students' learning styles and preferences

The use of learning styles and preferences has gained momentum in the fields of education and cognitive psychology (Hunt, 1975). Experimental research in education has sprawled over the efficacy of matching learning styles with instruction in order to assure better learning among students (Schmeck, 1988). Studies have shown that greater learning, as measured by students' achievement, may occur when teaching styles match learning styles than when they are mismatched (Pittenger, 1993). Research in the field of learning styles has demonstrated significant improvement in learning achievement when students are taught according to their learning preferences and styles (Williamson & Watson, 2007).

There is suggestion that understanding students' learning styles and preferences help instructors design e-learning courses that would potentially enhance their learning and achievement since students are likely to have different learning-style preferences as well as other characteristic differences that teachers need to assess in order to design and implement instruction accordingly (Grasha, 2000). More recently, attention has been paid to new pedagogies and non-traditional learning paradigms built on notions of constructivism and learning by doing (e.g., Dunn, Dunn, & Price, 1989). To explain this, Kozma (1994) argued that individuals' learning is more complicated than the recurrent cycles of stimulus reinforcement (e.g., Skinner, 1968; 1972) where learners create new knowledge based on their interaction with their environments; rather, learning involves a more pedagogical constructive process. This focus has prompted a shift in classroom pedagogy from one that is centered on providing instruction, to one that focuses on active, collaborative, and cooperative tasks which seek to engage students in their own education (Barr & Tagg, 1995).

In as far as learning preferences as a factor is concerned the issue of students' academic performance in relation to harmonizing their preferred learning styles with content and techniques of pedagogy are not yet well developed. One of the most widely-known theories assessed by Coffield (2005) was the learning styles model of Dunn, Dunn and Price (1984) which argued that students would perform better if course materials presented to them were matched with their learning preferences and styles. This model has been widely employed in schools in the US, particularly in traditional classrooms. Coffield (2005) concluded that despite evolving research on the relationship between learning styles and students' performance, theoretical limitations and lack of independent research, claims of better learning through matching students' learning styles and preferences with content and design of pedagogy are questionable. Furthermore, it is admitted that the concept of learning styles is not universally accepted and further research is needed (Dunn, Dunn, & Price, 1984).

While constructivism emphasizes "the central role of the learner in his or her own education" (Brooks & Brooks, 1999, p. 18), and views that "learners control their learning" (Ibid., p. 21), understanding students' learning style by teachers as facilitators/mediators of learning might help them provide appropriate tools to students that would potentially encourage individual learning and knowledge construction based on their learning preferences.

Since learning styles and preferences represent pedagogical factors related to students' learning, there are situational since they concern the institution such as flexibility and/or resistance to change among faculty members and administrators regarding the use of technology in teaching and learning processes.

3.4.2 Attitudinal

Administrators' attitudes amidst the culture of change

In considering e-learning as a potential pedagogical tool for improving learning, one needs to understand e-learning not only as a flexible approach to learning with instructional resources and logistics (Collis & Monnen, 2001) that potentially make education effective, efficient and immediate (e.g., Riley & Gallo, 2000; Redding & Rotzien, 2001; Gifford, 1998), or as a mere response to changes happening in culture and society (Sloman, 2001), but also as a potential tool that resonates with and responds to the practice and culture of education. Rosenberg (2003) provides a strategy that helps understand the practice and culture of education in the wake of implementing e-learning. This strategy involves developing a receptive culture toward e-learning and technology, getting key players on board, communicating its value, and leading through the change. Since quality education is a form of change, enhancement and empowerment (Green, 1994), a strategy on e-learning as outlined by Rosenberg (2003) can help develop a culture of change and empowerment, or assure quality education as alluded to earlier in this thesis.

Administrators' attitudes towards ICT in teaching and learning are connected to socio-cultural aspects of society, including the culture of education (Barajas, 2000). The culture of education in the context of change is an important aspect for understanding receptivity and or resistance to change in educational contexts. A change as a response to external or political pressure is least likely to succeed. On the other hand, change as a result of internal problem-solving has the best chance of success (Fullan, 1999). However, change is not without obstacles. Fullan asserts that successful implementation of change is related to management of a few key variables, but warns that understanding the process "has proven exceedingly elusive." He quotes his own earlier research (p. 399):

> Combining and balancing factors that do not apparently go together — simultaneous simplicity-complexity, looseness-tightness, strong leadership-participation (or simultaneous bottom up-top downness), fidelity-adaptivity, and evaluation-nonevaluation. More than anything

else, effective strategies for improvement require an understanding of process, a way of thinking that cannot be captured in any list of steps or phases to be followed (p. 67).

In this respect, Zaltman and Duncan (1977) argued that even the most effective change effort usually encounters some resistance as some individuals working in an organization consider the innovation as eroding their status. Others would like to adopt the innovation, but they lack the knowledge or skills to do so and opposition to innovation may come from deep-rooted values and beliefs, or from lack of confidence that the innovation is capable of leading a successful process of change. One way to understand potential obstacles is to adapt the innovation's attributes; in the case of NDU, the attributes of innovation are the effective use of ICT in teaching and learning and related e-learning activities. Diffusion of Innovations (Rogers, 1995) identifies the most influential attributes of e-learning implementation such as recognizing the potential of e-learning in enhancing teaching and learning, top leadership commitment to change and innovation, establishing professional development and training on the use of ICT in education and thereby to help the community in educational contexts learn more about innovative teaching and styles of pedagogy. Conducting surveys can be used for the systemic diagnosis (Reigeluth & Garfinkle, 1994) to understand obstacles and identify sources of resistance in order to plan for an overall change effort in the culture of educational contexts.

Students' attitudes

Numerous studies have compared the performance of online students with students participating in traditional classroom settings (Moore & Thompson, 1990; Russell, 1999). For example, Willis and Cifuentes (2005) compared outcomes of an online technology course for teachers with face-to-face instruction. What concerns this thesis is how university students perceive the use of technology as a potential facilitator for their learning. In fact, many factors affect student attitudes toward online education. Cashion and Palmieri (2002) investigated perceptions of online students in the U.S. toward online education. The majority (71%) believed that online education provided high-quality education. Negative factors identified included problems with online assessment, teacher responses, and a help desk, and they noted the lack of support, time, self-discipline, and self-motivation. Moreover, Alexander, Kandlbinder, Howson, Lukito, Francois, and Housego, (2002) investigated student attitudes among 220 freshman and sophomore business students. Findings showed that overall positive

attitudes towards the online environment encouraged faculty members and the administration at large to increase the frequency of teaching online.

Schultz (2001), who investigated online education at Virginia Community College, found that students liked the convenience of online education but disliked the lack of personal interaction. Peters (2001) found that students with home computers regard online education as more convenient than students who lack computer access. McMahon, Gardner, Gray, and Mulhern (1999) concluded that access to computers was a key factor in student attitudes toward online education and that computer use and online education are limited to the extent that students lack computer skills. Thus, in addition to examining student learning styles and preferences, it is important to consider their attitudes towards the use of ICT in teaching and learning in the context understudy, i.e., NDU.

Teachers' Attitudes

The people involved in the process of teaching are teachers themselves, whose attitudes towards ICT in the educational practice is worth investigating in the pre-planning phase of implementing ICT in teaching and learning. Amirian (2003) found that pre-planning is one of the activities for successful teaching and learning with technology which involves assessment of teachers' attitudes towards technology. The literature shows that the implementation of e-learning and modern technology in the teaching/learning process rests with teachers' assessment of their students' needs and the extent to which e-learning programs and technology meet those needs. How teachers perceive e-learning is an important component of background information useful to future consideration of e-learning implementation. In line with the burgeoning literature on e-learning (Mathews, 1999; Tam, 1999; Czerniak, Lumpe, Haney, & Beck, 1999) a critical factor when considering the implementation of technology in any training or academic program is to establish a vision. Such a vision cannot be adequately envisaged without identifying attitudes to e-learning as perceived by teachers themselves. Teachers' attitudes towards e-learning are considered important factors for the success or failure of e-learning since: (i) their attitudes are effective in inducing curricula change (McLaughlin, 1990) and represent a clear "guiding stick" in the planning procedure for e-learning (Tobin, Tippins, & Gallard, 1994); (ii) the belief systems of teachers (faculty members in our case) are major determinants to implement e-learning (Schuttlofel, 1998); (iii) not only teachers' knowledge or skills are needed for

80

implementing e-learning, but also their perceptions and attitudes of the use of technologies for the purpose of education (Tobin et. al, 1994). Further, Alanis (2004) has suggested that there is little intrinsic motivation for many teachers to use technology in teaching and learning. If so, extrinsic motivation for teachers such as grants and monetary incentives might encourage them to experiment with technology in teaching and learning in the classroom. This later is considered as a support factor that measures the extent to which incentives encourage teachers to consider technology in the education practice. Thus, in addition to gauging teachers' attitudes towards the use of technology in teaching and learning, it is worth while looking into their readiness to engage in technology-teaching activities in the classroom based on incentives and institutional support. In this thesis, attitudes of teachers (faculty members in the case of NDU) towards technology in teaching and learning will be explored in addition to their content knowledge and skills of ICT and the way they use the Virtual Learning Environment (*VLE*), i.e., Blackboard (Bb).

3.4.3 Skills

Teachers' ICT Skills

There is a strong component of teacher awareness for demonstrating in front of students to have compelling ICT competence. Teachers should also have the ability and skill in producing learning materials using ICT tools (Dale, 1998). Shortage of teachers' skills and abilities in using ICT when teaching via technology may have a negative impact on students' motivation and engagement with a technology learning environment (Barajas, Magli, Owen, Toccafondi, Molari, & Safin, 2006). Thus, skills of faculty members represent an important factor for measuring the success or failure of using ICT in teaching and learning.

Students' ICT Skills

This study adopts the stance that because emerging technologies are continually expanding the options for instructional design, development and delivery, it is important to understand students' ICT skills. According to Ropp (1999), the greater the unfamiliarity with computers, the greater is the student's potential anxiety. Löfström and Nevgi (2007) discussed ICT use in teaching. Building on theories of meaningful learning and an assumption that good teaching embraces an ability to adopt the learner role; the authors studied a group of teachers that participated in a web-based course. The findings show that the student experience turned out to be a powerful tool for the

teachers, resulting in increased comprehension of course design and the learner role.

3.4.4 Infrastructure and Access

When the Open University in the UK started its operation in 1960s, it was called by then the Prime Minister Wilson as "university of the air" after its plan to use the radio and television, in addition to mail, in delivering its materials. Later the concept was endorsed by the UNESCO in its declaration of providing access regardless of student age, or "life-long education" (Daniel, 1997). In the context of ICT, inequality of access is referred to as the digital divide which refers to those who have access to ICT facilities and those who do not (Billeh, 2005). According to the Human Development Report by the United Nations Development Program (UNDP) in 2001, around 400 million individual world-wide had access to computers and related ICT devices. Despite the rapid penetration of ICT during the last few years, there are 5.5 Billion persons in the world who do not have access to ICT facilities (Ibid). Statistics on access to computers and ICT facilities and applications in the Arab World shows a serious digital divide between Arab countries and the developed world. The Arab Human Development Report (UNDP, 2002) showed that the Arab region, with 5 percent of the world's people, have only 0.5% of Internet users and the Arab Region Internet and Telecom summit held in Muscat, Oman in 2001 indicated that the internet penetration in the Arab region is as low as 2.2%. In terms of infrastructure, updating ICT infrastructure causes a financial burden on educational institutions which are faced with the burden of replacing old equipment with new ones in light of the meager financial resources and allocations for ICT implementation in the educational practice (ESCWA, 2005). Therefore, the ICT infrastructure is a core factor for measuring the availability of resources and equipment needed for implementing ICT in teaching and learning in educational contexts.

3.5 Conclusion

This chapter has presented factors that have the potential to measure the success or failure of e-learning implementation in educational contexts based on the conceptual framework of the study. The factors established for assessing the utility of e-learning implementation at NDU are:

- Perceived benefits and efficiency of e-learning in teaching;
- Self-reported benefits of e-learning (Bb features);
- Use of technology in teaching;

82

- Persuasion;

- Training;

- Decision to adopt technology;

- Change process;

- Students' learning styles and preferences;

- Faculty members' teaching in the classroom using technology;

- Infrastructure;

- Familiarity, skills and use of technology;

- Motivation.

Since a robust set of factors is difficult to achieve and implement in certain contexts because of cultural, political and economic differences between countries with different educational priorities among them, considering new factors that could be generated from fieldwork might contribute to the process of evaluating success or failure of implementing e-learning in terms of a positive impact on learning among students and faculty members. Therefore, other factors might be formulated to measure the performance of technology use at NDU based on data generated from fieldwork research.

A description of the context of the study will be provided in the chapter that follows.

Chapter 4

The Context of the Study

4.1 Introduction

The present study derives its data and analyses from a higher educational institution in its own specific context, and lessons derived from this case study may shed light on ICT use in higher educational contexts in Lebanon. Although the issue of generalization is an inherent limitation in case study research, certain aspects of Notre Dame University-Louaize (NDU) is similar to other higher educational contexts in Lebanon, suggesting the possibility of making some generalizations: These are:

- Increasing demand on technology use in teaching and learning;
- Questions about the utility of technology to facilitate pedagogical processes;
- The issue of resistance to technology use in teaching and learning among faculty members;
- The role of the senior management represented by academic administrators in the technology implementation process.

Although the scope of the present study is relatively small to generalize its results to the population of higher educational institutions in Lebanon, the case study can produce a wealth of detailed data and information about a smaller number of people and increase understanding of cases and situations studied (Patton, 1990). The objective behind presenting the context of the study in a separate chapter is to familiarize readers with the characteristic features of the University, particularly those related to the development and implementation of ICT. It should prepare the ground for Chapter 5 which discusses the research design and related operational fieldwork measures used in data collection and analyses.

Moreover this chapter describes the historical and educational profiles of NDU. Emphasis will be given to the development of ICT use at the University. The data presented were generated from statistics obtained from students' and faculty members' records, archive material, the strategic planning report, evaluative surveys conducted on campus and other relevant documents.

In terms of structure, the chapter presents the historical development of NDU and emphasizes the particular characteristic features that impact the implementation of ICT. Moreover, the chapter provides the following:

- The Historical development of NDU;

- The Administrative profile of NDU;

- Students' use of ICT;

- Faculty members' use of ICT;

- Educational facilities;

- Faculty development priorities;

- Educational programs;

- Teaching;

- The development of ICT at the University;

- Institutional strategies;

- Strategic planning.

4.2 The Historical Development of NDU

Notre Dame University-Louaize (NDU) was established by the Monastic Orders of the Holy Virgin Mary (MMO) in 1987. The University follows the American system of higher education, and uses English as a medium of instruction. An important document developed by Monastic Orders, the sponsoring society of the University entitled "Official Documents of Louaize College for Higher Education 1978-1981" classifies the eleven private higher educational institutions in Lebanon into three categories: (1) the institutions which follow the Arabic curriculum (this was limited to only one university – Beirut Arab University); (2) the institutions that followed the Franco-Lebanese curriculum (these were six, among which we cite the Lebanese University, Saint Joseph University, and the Holy Spirit University); (3) the institutions that followed the American-Lebanese curriculum which these were four, among them was the American University of Beirut (AUB) and the Beirut University College (BUC). The report provided several conclusions, the most important of which is the possibility of majoring in applied science majors and technology are scarce in these institutions, while it is large in the humanities and the social sciences (LCHE, p. 6).

The term technological-based majors were coined in one of the most important vision documents developed by the Monastic Orders. The reference to technology was rare in policy papers at that time and it reflected a futuristic vision since the term "technology" became widespread in education and business sectors two decades later. The founders of NDU surmised that technology-based majors would meet the requirements of the information age and satisfy the increasing demand for technology skills needed in the

labor market in Lebanon and its surrounding region. However, despite the emphasis on the lack of technology-based majors in higher education in Lebanon as stated in the report, the main justification for establishing the LCHE was that "the Lebanese youth, especially the Christian youth in general and the Maronite (Catholic) youth in particular, are migrating in tens of thousands yearly in search of specializations in higher education in different countries...Thus our fresh young men and women find themselves entangled in spiritual, moral and financial problems that drive them to lose their Lebanese-Christian family upbringing (LCHE, p.2). In summary, establishing a higher educational institution by the Monastic Orders sought to fulfill a double pronged objective: (1) render majors that would meet labor market needs with emphases on technology; (2) create educational opportunities to students to stay in their homeland, Lebanon.

The Council of the Maronite Mariamite Order endorsed the project and announced it under the name "Louaize College for Higher Education". It was given a wing in a building and four specializations in applied sciences and liberal arts were offered. Both professional and non-professional majors were offered. These were: business management, computer science, computer and business management, and secretarial work. The emphasis on providing technology-based majors was remarkable, suggesting cognizance of the Orders to capitalize on labor market demands for technology majors such as computer sciences, which was not popular in Lebanon at the time. In the summer of 1979, a fifth major, Engineering was established. It consisted of two years of preparatory Engineering after which the student was sent to one of the agreed upon American universities in the USA with which LCHE had signed memoranda of understanding, in order to finish the remaining two or three years of the Engineering major. Seventy two students enrolled in the LCHE upon its opening on December 9, 1978, and the number increased up to 305 students in the fall of 1980.

From the administrative point of view, the Order undertook the management of the LCHE in cooperation with the Beirut University College. The former handles the administrative aspect of the LCHE and the latter controls the studies and the diplomas. Moreover, both handle the financial aspect.

With respect to the "aspirations of the LCHE", the report mentioned, in its last chapter, that LCHE is the nucleus of a Catholic University aiming at the development and promotion of the human resources in Lebanon: The LCHE is legally considered as a

branch of the Beirut University College...while the Order does not have an official license given by the Lebanese Government to provide higher education...the ultimate goal is for the Order to take full responsibility of the LCHE when it is granted the license to work in the academic field, when the United States of America recognizes the diplomas of this budding institute and when an independent university campus becomes available inclusive of buildings and equipment (LCHE, p. 8).

After three years, on August 14, 1987 decree number 4116 was issued granting the LCHE a license to operate as a higher educational institution in Lebanon. Hence, the name of the LCHE became Notre Dame University – Louaize. The decree was signed by the former President of the Lebanese Republic, Ameen Gemayel, and Salim El Hoss, Minister of Education and Interim Prime Minister. On October 12, 1995, on the occasion of the opening of the new semester for the academic year 1995-1996, the President of the University at that time declared that the first section of the new campus of a surface of approximately 30,000 square meters has been contracted and would be delivered in a maximum period not exceeding 26 months.

4.3   The Administrative Profile of NDU

The administrative profile of NDU and the way policies are made and decisions taken have clear implications on the implementation of new projects on campus, including ICT. NDU's administration is structured and bureaucratic where decision-making follows the top-down management approach. Academic, administrative and financial decisions cannot pass without the President's approval. To elaborate, according to the BY-laws of NDU, the President of the University should be a monk appointed by the MMO and helped by a Vice President for Academic Affairs (VPAA) whose name is suggested by the President and his appointment is approved by the Board of Trustees (BOT) which is the highest governing authority at the University and is chaired by the MMO. Key positions at the University such as the finance and administration are currently directed by MMO monks from the MMO and appointed by it. These monks are not necessarily academics or specialized in finance or administration but they often hold graduate degrees in theology. In addition, each Faculty has a Dean and Chairpersons who are not usually priests or monks. These Deans report directly to the VPAA. While the University does not impose any religious obligations on faculty members, staff and students, it is characterized by a strong administrative hierarchy with monks occupying key positions and exercising a wider

moral and functional say in the University's affairs.

When it comes to implement projects that involve decision-making, involvement from the top-level management does not seem to be sufficient enough to stimulate the implementation of ICT in teaching and learning. This is because the top-down decisions that often neglect the role of faculty members may fail to respond to their teaching and learning needs such as training on ICT as a teaching aid that could assist in the preparation of teaching material, lectures, and assessment. Moreover, since power is concentrated in the University President's hands including decision-making in academic and administrative affairs, the role of the Deans and department Chairpersons is often limited to administrating day-to-day routine tasks such as registration and advising of students, course offering, and supervision of faculty members' attendance rather than focus on strategic planning and development involving program evaluation and assessment. The lack of involvement opportunities for Deans and chairpersons in strategic planning has implications on the implementation of e-learning at the University which will be analyzed and discussed in Chapter 6.

4.4 Students' Use of ICT

NDU attracts increasing numbers of students equipped with skills to use computers and the Internet for the purpose of connecting with their peers through emails, chatting, and the Facebook. However, the extent of use of technology for learning is not known at NDU, although most of the students type their assignments on Word and often use the Internet to download information for their term-papers. Data on NDU students' use of technology for learning were obtained from a pilot study which sought to document student attitudes and experiences regarding the use of Blackboard at NDU involving a sample of 29 undergraduate students enrolled in Advanced Software Packages and Accounting Information System courses. The study was part of the RF2 submitted to Sheffield Hallam University in 2005 and reported in Chapter 5.

4.5 The Profile of Faculty Members

The increasing recruitment of full-time faculty members at NDU has been exponential over the years. The majority of full-time faculty members have Doctorate/ Ph.D. degrees. The majority of full-time faculty members have earned their degrees from the USA which is quite predictable given the emphasis of the University on the American credit system of higher education and the preference of the University's academic administration to recruit graduates from the USA.

Part-time faculty or adjunct faculty members outnumber full-timers who have a less teaching load, are paid less and do not enjoy fringe benefits as those enjoyed by full-timers. Part-time to full-time faculty members' ratio is 2.5:1. The majority of Full-time faculty members are in the rank of Assistant Professor. In terms of gender by rank distribution, the majority of full-time faculty members in the ranks of Senior Lecturer, Assistant Professor, Associate Professor and Full Professor are males while the majority of lecturers are females.

4.6   Educational Facilities

This section discusses the educational facilities available at NDU since part of data analysis in this study seeks to examine issues related to access and technology infrastructure needed for e-learning implementation at the University.

NDU students enjoy access to a variety of attractive educational, financial and educational services and facilities at the University. For instance, the library renders a host of services that facilitate students' conduct of research projects through subscription to refereed journals in different fields besides specialized academic books and primary resources that can be accessed on-campus and off-campus through the online database system. In addition, the Library resources include more than 50 electronic databases such as Expanded Academic ASAP International, JSTOR, ProQuest 5000 International, Emerald, and British Journals. An exhaustive list of online databases is found on the NDU website under Libraries/Electronic Resources. The Library also houses about 137000 titles that can be used by students as references in their research and course readings. Moreover, all students have access to many electronic facilities (e.g., e-mail, wireless Internet, online registration, and online databases). Moreover, about 80% of classrooms are equipped with overhead projectors and computers as of 2009-2010, to facilitate learning. Besides, NDU has newly constructed modern labs for students to engage in experimentation and research.

The physical facilities and resources supporting the teaching-learning process in the General Education courses are: two design studios, one ceramics laboratory, one photography laboratory, one acting class, a radio/TV studio, an Interpreting laboratory and a computer center equipped with up-to-date computers and software programs. Classrooms and labs are equipped with technology as shown in table 4-1 below.

Table 4-1 Number of PCs available in labs & classrooms across all three campuses

	Classrooms	Labs	Total per Campus
Main Campus	32PC + 32 LCDS	213 PC	245
Shouf Campus	9 PC + 9.LCDS	84 PC	93
North Campus	5 PC + 9 LCDS	26 PC	31
Division of Continuing Education (DCE)	5 PC + 9 LCDS	40 PC	45
Total per Usage	51 PC + 51 LCDS	363 PC	Grand Total: 414

Although there are technological facilities available to students and faculty members policies that govern ICT use are not yet developed.

4.7 Faculty Development Priorities

As part of establishing a culture of participation and engagement in accreditation by the University's various constituents, faculty members reported their development priorities in 2007. This survey published in the Strategic Planning Report detailed the development and scholarship needs of Faculty members. The highest frequency of answers was on having classrooms equipped with LCDs/audiovisuals /Internet/computers. This shows faculty members' recognition of the use of ICT for potentially facilitating teaching. The second priority was on attended international or interdepartmental workshops/ training/ conferences to improve their research and teaching skills. When asked about technology assets for faculty development needs, the majority of them reported library resources as a technology asset for their development, followed by their need for computer software and connection to the Internet, knowing the University provides each full-time faculty member with a computer, printer and full access to the Internet.

In addition, faculty members documented their need of resources (time, money, equipment, etc...) to meet their developmental needs. The majority of them mentioned reduction of course load/release time for fieldwork and research and a few of them reported their need for software to enhance their developmental needs. The course overloads and administrative duties given to faculty members do not facilitate their personal development in terms of research and training as some of them are overloaded with committees' work, departmental assignments, and other duties.

4.8   Educational Programs

NDU currently offers 108 degrees, diplomas, and certificates, including 71 Bachelors, 31 Masters, 5 Teaching Diplomas, and 1 Teaching Certificate (NDU Catalog 2006-2007, pages 97 to 99). These are distributed across faculty as shown in table 4-2 below.

Table 4-2 Distribution of Degree Programs across Faculties

Faculty	Bachelors	Masters	Teaching Diploma	Teaching Certificate
Architecture art & Design	12	4	--	--
Business Administration & Economics	14	8	--	--
Engineering	4	--	--	--
Humanities	16	10	5	1
Natural & Applied Sciences	17	3	--	--
Political Sciences, Public Administration & Diplomacy	7	6	--	--
Nursing	1	--	--	--

4.9   Teaching

All NDU programs are offered in classroom-based courses in addition to a number of internship, laboratory, and senior project courses. All these courses are delivered through face-to-face instruction and are given in classrooms or in labs where contact with the instructor is continuous for the duration of the allocated time slot for the course. Students completing their senior projects are required to meet with their instructor on a regular basis to assess progress, discuss future work, and solve particular problems encountered. Students signed up for internships are requested to pass by the faculty member in charge of the course to update him or her on the work experience gained.

All regular courses offered at NDU are assigned an instructor, a classroom, and a schedule as well as a maximum number of students allowed per class, as evidenced in course offerings and course schedules for the Fall and Spring semesters of the last three

years. Students enrolled in courses are requested to abide by a university-wide attendance policy that limits the number of absences to four sessions for those courses that are offered on Tuesdays and Thursdays, and six sessions for those offered on a Monday-Wednesday-Friday basis (NDU Catalog 2006-2007, p. 68). Absentees are requested to pass by the Students Affairs Office to justify their absences. As stated in the policy, the Student Affairs Office is the only NDU office allowed to issue excuses for absences. It has published a set of rules identifying the situations and conditions in which it issues such documents. They are made available to the students in the yearly agenda distributed to all enrolled students at the beginning of every academic year. These criteria are also found in the NDU Catalog 2006-2007 (p. 47). However, despite the face-to-face teaching in the classroom together with the attendance policies, the number of full-time faculty members supplementing their traditional face-to-face teaching with Blackboard is increasing. The Division of Computing Services (DCS) and the University E-learning Center provide support to Blackboard use and other technological facilities needed to help faculty members in teaching and research.

4.10 The Development of ICT at the University

In the year 2000 the University formed a committee drawn from the six Faculties to conduct a feasibility study on using ICT in teaching. A working group was formed to start the selection of faculty members in order to study together the implementation of e-learning at the University. The group comprised key administrators and Information Communication Technology (ICT) staff and specialists and was chaired by the director of the Division of Computing Services (DCS). The group conducted vendor demonstrations and reflected on processes of the ICT infrastructure of the University. The group also reflected on current teaching followed at the University in general. After lengthy discussions, the group recommended Blackboard as its VLE to support the teaching and learning process in traditional classrooms. Blackboard was used to supplement and not to replace the long-established traditional classroom teaching at the University.

The Fall of 2001 marked the official inception of Blackboard at the University; the objective was to provide a flexible learning environment to students and to support learning at the University. With the deployment of Blackboard at the University, many faculty members and students have been attracted to the learning opportunities provided by technology. One of the opportunities provided was to familiarize students and faculty

members on the use of Blackboard. As a result, specialists from the DCS provided instruction through the help desk which was founded to support this platform. At present, about 36% of faculty members use Blackboard in teaching while the rest are hesitant to use it due to their reluctance to post material on-line, particularly examinations, due to what they report as confidentiality and security issues (DCS Report 2006-07). At present, Blackboard is available to faculty members to use if they wish to as there are no policies that govern Blackboard use in teaching and learning and above all, its use is optional.

As part of the strategic planning process at the University which will be discussed in the section that follows, ICT training workshops were provided to administrative staff and full-time faculty members. The outcome of training workshops in relation to applying Blackboard to serve pedagogical purposes is not yet studied at the University, and little evidence exists regarding the pedagogical benefits gained from Blackboard. The need to deploy ICT in the various University operations was clearly documented in the strategic planning report presented in the section below.

4.11 Institutional Strategies

In 2006, the University embarked upon a policy of reform through quality assurance. The reasons for this strategic option were the fierce competition among higher educational institutions in Lebanon and the need to make the University distinguishable from other competing institutions. In addition, the former sponsoring body of NDU, i.e., the Lebanese American University (LAU) got recently its candidacy for accreditation with the New England Association for Schools and Colleges (NEASC) which is an accrediting agency in the USA. Besides, the American University of Beirut (AUB) was granted accreditation in 2004 from a North American accrediting agency. Notre Dame University-Louaize (NDU) under the mandate of the new President started preparing for accreditation with NEASC. This accreditation has been viewed as a very important step towards assuring quality education at the University, particularly that two other competing higher educational institutions that follow the American system of higher education have received their accreditation, i.e., were credited for their educational services and quality of teaching and research. As part of the preparation for accreditation, an eligibility report was submitted to NEASC and strategic planning report titled "Redefining Excellence in Higher Education: 2012" which was developed by the Strategic Planning Steering Committee and other sub-committees at the

University. The majority of the NDU's community was engaged in the strategic planning effort.

4.12 Strategic Planning

This section introduces the University wide strategies which reflect its responsibility for implementation that lies primarily within the upper administration of NDU with the obvious contribution of all groups of the community as mentioned in the Strategic Planning Report. Each of these strategies has an impact on most of the goals set into the latter section and should illuminate specific strategies meant to put in effect the different objectives to be attained. To devise these strategies, the Strategic Planning Steering Committee, has identified the major perceived weaknesses, strengths of NDU, and the threats and opportunities that loom ahead and might shape its future. The major weaknesses identified stem from the rapid growth of NDU in 20 years. This made it difficult to keep up with a rapidly increasing student population resulting in lack of adequate allocation of resources in areas such as staff and faculty development. This necessary growth phase for a young institution also showed disparity and weaknesses in the student body due to the inclusive admission policies followed. This state of affairs has produced weaknesses at the level of the overall administrative performance. NDU's rapid growth has also produced important assets and strengths. The NDU Library has grown in a relative short period of time as a strong asset as much as its IT infrastructure. NDU is also distinguished by a vibrant campus life and a strong faculty/student relation. Its new campus is also a major asset. However, NDU's main strength remains in its uniqueness in the whole Middle-East as a Catholic University of a Lebanese Maronite heritage adopting the American system of education. These allow NDU to seize some of the opportunities available in the nation and the region. The combination of location in an industrial area, ongoing development, and foundation and heritage makes it easier to tap into national and international research support programs, as well as network with other institutions with a diverse background. In a globalized world environment, it is also worth noting that NDU's uniqueness naturally leads to engagement in "diverse universality rather than uniform globalization" (Strategic Planning Report 2007).

However, threats exist in the present context as documented in the SWOT analysis published in the Strategic Planning Report. According to this report, some of these are directly linked to internal weaknesses such as "the lack of an established institutional framework". Recently licensed universities with a much lower tuition fee structure,

94

coupled with the increasingly alarming high school standards, threatens the very quality NDU aims to achieve. Financial resources which are based almost solely on tuition fees will hamper development goals and objectives.

Ten institutional strategies have been identified for NDU's first strategic plan. They address some of the major points raised in what precedes by continuing to support and enhance the University's strengths, work to close the major loopholes, provide responses to threats and lay the groundwork to benefit from opportunities. However, what concern this thesis are Goal 9 and its related objectives and action plans which emphasize the need to deploy ICT at the University. The section below presents the goals and objectives of the strategic planning pertaining to ICT.

Goals, objectives and action plans

The goal below is quoted from the strategic planning report.

GOAL 9: The University will accelerate its pace towards the full-fledged deployment of information technology at all levels of its activities.

Objective 1: Accelerate the introduction of up-to-date information technologies to support teaching and learning

Action Plans:

1. Develop policies for teaching and learning through technology (blended or full-fledged e-learning)
2. Work towards equipping all appropriate classrooms with high tech educational devices (computers, projectors, and large screens)
3. Organize workshops on the use of educational software packages such as Blackboard, Power Point, Microsoft Word, etc. for achieving pedagogical objectives

Objective 2: Develop training programs for faculty, students, administrators, and staff on the use of technology.

Action Plans:

1. Establish a plan with the explicit objective of improving the technology skills of faculty and staff
2. Organize a number of independent training workshops and seminars on a regular basis, for students, faculty, and staff

3. Work towards the establishment of certified, advanced, and self contained series of training courses in a number of high-demand specialties, technology for students, faculty, and staff

Objective 3: Secure resources to acquire and use appropriate new technologies in the University's libraries for effective and cost beneficial delivery of information and databases

Action Plans:

1. Continue to improve and modernize library tools and technologies including the online library service, in order to better serve the local and online library community

2. Expand existing library tools, devices, and technologies, including the acquisition of additional computers, in order to reach a wider spectrum of internal and external readership

3. Organize frequent library skills workshops for students, faculty, staff, and visitors

Objective 4: Grow and strengthen the pool of our technology-based corporate partners to explore new avenues of collaboration of common benefit.

The above objectives show the following:

1. There are no policies at the University for both teaching and learning through technology (blended or full-fledged e-learning). It is observed that full-fledged e-learning is in contradiction with the eligibility requirements of NEASC which accredits intuitions of higher education that deliver education through face-to-face instruction. Thus, the University would need policies for blended learning, given its emphasis on face-to-face teaching and change attendance policies.

2. Action plan 3 calls for organizing workshops on the use of educational software packages such as Blackboard, Power Point, Microsoft Word, etc. for achieving pedagogical objectives. What are these pedagogical objectives and how these can be facilitated or met through ICT is researchable as there are no clear objectives at the University regarding how ICT can serve pedagogical purposes.

3. Equally important is the emphasis of objective 2 on the development of training programs for faculty, students, administrators, and staff on the use of technology. Does this imply that faculty members, students, administrators, and

staff need training because they lack the skills for using technology, or because this training is needed to keep them updated with recent technologies?

The strategic planning report pertaining to the deployment of ICT at the University to serve pedagogical purposes and provide training to students, staff, faculty members and administrators raises a number of questions that echo the research questions of the present study. It remains to be seen what are the learning needs of students and how can these be met through ICT? What are the attitudes of faculty members to the use of ICT for pedagogical purposes in terms of their interest in it and their perception of its efficacy in enhancing teaching and learning? What are the potential benefits of using ICT in meeting students' learning needs as compared to traditional education? Perhaps, an important question to be raised and researched is to what extent are education decision-makers at the University ready to integrate ICT in the curriculum in terms of policies not just piecemeal initiatives undertaken by a department or unit at the University?

One year has passed after the development of the strategic planning at the University and some developments have taken place in the process of deploying ICT in the various works and operations at the University. However, the implementation is still slow and hesitant and the developments attained are not guided by clear policies that govern the ICT use for educational purposes at the University. Thus, what obstacles (financial, cultural, and technical...) hinder the implementation of ICT for pedagogical purposes at the University? These concerns are at the heart of the objectives and research questions of the present study.

4.13 Conclusion

This chapter has presented NDU as a case study. The various aspects of the University were presented and many questions and concerns regarding the ICT development and use were raised. Through using appropriate research design methodology, the study might be able to satisfy its objectives and answer related research questions. These will be explained in the next chapter.

Chapter 5

The Research Design of the Study and its Operational Fieldwork Measures

5.1 Introduction

Because this study is concerned with how people from a variety of positions in a higher educational context see the implementation of e-learning for pedagogical purposes, a case study was the best possible methodology for answering the research questions. This chapter is set to discuss the research design of the study, i.e., the plan and process of how the research was conducted (Polit & Beck, 2004). Particularly, it describes the focus of the study and the research questions upon which the study was based. It discusses the conceptual framework of the study which guided the categorization of data and analysis of themes derived from the perspective of respondents. Moreover, the chapter discusses the methodology used and the methodological position of the researcher. Then, the chapter discusses the sampling process and provides justification for each method used in data collection. The limitations of the research and the trustworthiness of the data are presented. Finally, the chapter demonstrates reporting of the research findings.

5.2 Focus of the Study

The present study was set to gain an in-depth understanding of the experience of faculty members, academic administrators and students at Notre Dame University-Louaize (NDU), Lebanon in the development process of e-learning implementation for encouraging intellectual activity in teaching and learning at the University.

It focused on analyzing the views and attitudes of faculty members and academic administrators. Faculty members were asked to comment on their knowledge and skills in using e-learning in teaching, their attitudes to its potential role in facilitating teaching and learning and the barriers they believed prevented them from using e-learning in teaching. The skills and frequency of technology use in teaching were assessed. Academic administrators were asked to comment on the benefits of e-learning and identify barriers to its implementation in light of the decision-making process, their personal evaluation of the efficacy of e-learning in teaching and the current infrastructure at the university. In addition to faculty members and academic administrators, students were asked to identity their learning styles and preferences and document the extent to which e-learning facilitated meeting these styles and

preferences. Students' attitudes about how their teachers used technology in class were also analyzed.

5.3 Research Questions

The research questions of this study were presented in Chapter 1. These questions sought to obtain information about the attitudes of faculty members towards e-learning in terms of their interest in it, the benefits generated from e-learning, and the efficiency of e-learning in supporting their teaching. This research used Spradley's (1980) Development Research Sequence (DRS) which is a cyclic process of asking questions, collecting and analyzing data and asking more questions based on analysis and feedback received from respondents involved in the study. More research questions for the study were added since new information and issues emerged from interviews and open-ended questions in the questionnaires. The first question added sought to gain understanding of faculty members' skills and use of Microsoft productivity tools (e.g., MS Word, PowerPoint and Excel) in teaching, the second about their confidence and familiarity with supporting tools in Blackboard, i.e., the Virtual Learning Environment (VLE) at NDU, and the third about their readiness to adopt e-learning in teaching. At the university, faculty members more frequently use Microsoft productivity tools than they use e-learning. The added questions sought to determine why faculty members use Microsoft productivity tools more frequently than they use e-learning for teaching purposes and whether Microsoft tools were more suitable for carrying out their learning targets than e-learning, and why. After modification and additions, the research questions of the study are:

1. What are the attitudes of faculty members towards e-learning in terms of their interest in it, the benefits generated from e-learning, and the efficiency of e-learning in teaching and learning?

2. What are the skills of faculty members in Microsoft tools and how they use them in teaching?

3. How do faculty members report their confidence and familiarity with e-learning tools?

4. How do faculty members perceive the implementation of e-learning in teaching?

5. What are the potential benefits of e-learning in meeting students' learning needs as compared to traditional education?

99

6. How do education decision-makers think of implementing e-learning in the curriculum?

7. What obstacles (financial, cultural, and technical…) could hinder the implementation of e-learning, and how?

5.4 The Conceptual Framework

As mentioned in Chapter 3, the conceptual framework used in this study was guided by combination of theories in which a wide range of issues are considered, particularly ensuring that the views, needs and concerns of those involved in the e-learning implementation process are identified and addressed.

By understanding the views, concerns and attitudes of academic administrators, faculty members, and students, it was proposed that the implementation of e-learning in teaching is dependent on how they feel about its pedagogical benefits in teaching and learning. It was also proposed that obstacles and/or opportunities for implementing e-learning are context-dependent, i.e., primarily understood in light of the experiences of faculty members, academic administrators and students, rather than upon fixed models and criteria.

5.5 The Methodology

Since this study is mainly concerned with how people from a variety of positions at NDU see the implementation of e-learning for pedagogical purposes, a case study was the best possible methodology for providing trustworthy answers to the research questions.

The case study involved collecting and analyzing data about the e-learning implementation process at NDU centering on the attitudes and views of faculty members, academic administrators in addition to students' learning styles and preferences and their views on how their teachers use technology in teaching and learning in class. Table 5-1 shows the three sample groups involved in the study.

Table 5-1 The three sample groups of the study

Faculty members			Academic administrators	Students
94 filled out questionnaire 1	84 filled out questionnaire 2	25 interviewed	18	259

The three samples groups made up the case study besides studying institutional process

based on document analysis.

5.5.1 Definition and Rationale for Using a Single Case Study

By definition, a case study is an intensive, holistic, description and analysis of a single instance, phenomenon, or social unit (Baxter & Jack, 2008; Merriam, 1998) that includes experiments, surveys, multiple-histories, interviews and analysis of archival information (Yin, 2002). The case study enables to concentrate more thoroughly on making sense of the various aspects of the case. The object of the case study is to understand the meaning that respondents interviewed and surveyed (e.g., students, faculty members, academic administrators) made of their experiences (Clark, 1985). Moreover, since e-learning in Lebanon has been relatively little studied (see Chapter 2) it is important to provide a thorough analysis of the issue through case study which is an appropriate methodology when a holistic, in-depth investigation is needed (Guba & Lincoln, 2005; Feagin Orum, & Sjoberg, 1991).

The literature suggests the existence of two types of case studies: single case study and multiple-case studies or cross-site analysis (Yin, 1993), where a multiple design must follow a replication rather than sampling logic. According to Yin (2003), when no other cases are available for replication, the researcher is limited to single-case designs. Yin further pointed out that generalization of results, from either single or multiple designs, is made to theory and not to populations. Multiple cases strengthen the results by replicating the pattern-matching, thus increasing confidence in the robustness of the theory. In addition, case studies focus on decisions, individuals, organizations, processes, programs, neighborhood, institutions and events and they benefit from prior development of theoretical propositions to guide data collection and analysis (Denzin & Lincoln, 2005; Hammersley, 1993).

The choice between single-case design and multiple-case design should also be kept open during the research process (Yin 2003). The reason is that the selected single-case may turn out to be a misrepresentation of the research phenomenon; or that the case does not work out well for some reason (Guba & Lincoln, 2005; Stake, 1995). Thus, while preparing the research design of this study, the possibility of including additional cases was considered. The single-case design turned out to be the most applicable option for studying e-learning in higher educational context in Lebanon that represents a complex subject to study that requires a thorough and in-depth analysis. Deciding upon a research design for a study entails four dimensions. According to Yin (2003) a case

study design should be considered when: (1) the focus of the study is to answer "how" and "why" questions; (2) one cannot manipulate the behavior of those involved in the study; (3) one wants to cover contextual conditions because he/she believes they are relevant to the phenomenon under study; or (4) the boundaries are not clear between the phenomenon and context.

Regarding the first dimension, the research questions used in this study are based mainly on the subjective views of faculty members and academic-administrators in a single higher educational context. The majority of questions of this study emphasized "why" and "how" questions which are appropriate for case studies (Labuschagne, 2003; Baxter & Jack, 2008; Merriam, 1998). In addition, the study emphasized three "what" questions which are suitable for survey research (Cohen et al, 2002). These questions sought to generate quantifiable data to verify data obtained from interviews and documents and not to measure the strength between variables through numbers aggregated for statistical analysis. Since the "why" and "how" questions used in this study sought to generate subjective views of respondents, it made the most sense to conduct a case study.

Regarding the second dimension about manipulating the behavior of those involved in the study, the researcher did not attempt to control the research context. This study involved a retrospective assessment of views rather than a prospective one with variables in control for prediction that entail manipulation of variables through parametric statistical analysis[5]. The perceptions and views obtained from respondents were assessed along with documents pertaining to strategic planning and other documents at the University that deal with e-learning implementation to create what Yin (2003) described as a connected chain of evidence.

In connection with the third dimension on covering contextual conditions that are relevant to the phenomenon under study, this study sought to document the views and attitudes of faculty members and academic administrators regarding e-learning implementation in teaching in a specific educational context. A case study was chosen because the case involved attitudes, views and concerns of academic administrators, faculty members and students which could not be understood without understanding the context within which these views, concerns and attitudes were elicited. The contextual

---

[5] According to Geisser and Johnson (2006), parametric statistics is a branch of statistics that assumes data come from a type of probability distribution and makes inferences about the parameters of the distribution.

dimension in this study involve administrative support, decision-making, technical support, equipment, and policies. As will be shown later in this chapter, questions addressed to faculty members and academic administrators were connected with the contextual dimension at the higher educational context under study.

Another reason for selecting the single-case study approach was to discover the participants' main concern regarding e-learning at NDU and to generate a theory out of these concerns. This theory has the following characteristics which shaped the research design of this study.

1. The need to get out into the field to discover what is really going on (i.e., to gain firsthand information taken from its source);
2. The complexity and variability of phenomena and of human action;
3. The belief that persons are actors who take an active role in responding to problematic situations;
4. The realization that persons act on the basis of meaning;
5. The understanding that meaning is defined and redefined through interaction;
6. A sensitivity to the evolving and unfolding nature of events (process);
7. An awareness of the interrelationships among conditions (structure), action (process), and consequences (Strauss & Corbin, 1998, pp. 9-10).

The following paragraph describes the types of case studies and why the intrinsic, exploratory and instrumental types characterize the case study in this research.

Yin (2003) has identified several types of case studies: *Exploratory*, *Explanatory*, and *Descriptive*. In exploratory case studies, fieldwork, and data collection can be performed before the definition of the research questions and hypotheses. On the other hand, explanatory cases are suitable for doing causal studies and descriptive cases require that the investigator begin with a descriptive theory, or face the possibility that problems will occur during data collection (Pyecha, 1988). Stake (1995) included three others: *Intrinsic,* i.e. when the researcher has an interest in the case; *Instrumental,* when the case is used to understand more than what is obvious to the observer, and *Collective,* when a group of cases is studied. This study can be grouped under the following types: intrinsic, since the researcher has an interest in the research and the context; exploratory which may be used for doing causal investigations; and instrumental since the researcher sought to understand more than what is obvious to him in the higher educational context understudy.

5.6 The Methodological Position of the Researcher

The methodological position of the researcher conforms to the naturalistic inquiry which includes qualitative research (Agostinho, 2005). However, I felt uncomfortable with the term qualitative research since it is too general. Particularly, both "scientific methods" and "artistic methods" fit under qualitative research (Egbo, 2005; Eisner, 1981). The research of this study is scientific rather than artistic in nature. It is tied to scientific inquiry in case study (Yin, 2002). The case-study approach adopted in this study is tied to naturalistic inquiry and this makes sense to me. Naturalistic inquiry is a way of doing social research (Hammersley, 1999) which provides the methodological structure for studying meaning as it is generated from people or a community involved in a process or action. This study generates its information through documenting the inside perspective of those being studied, i.e., faculty members, academic-administrators and students involved in the process of implementing e-learning in a higher educational context. One of the advantages of this approach is the close collaboration between the researcher and the participants, while enabling participants to tell their stories (Crabtree & Miller, 1999). Through these stories the participants are able to describe their views of reality and this enables the researcher to better understand the participants' views, concerns and attitudes (Lather, 1992; Robottom & Hart, 1993). A beginning place for describing the methodology of the study before detailing its methods is to present the nature and rationale for using a single-case study in this research.

5.7 Ethical Considerations

This thesis was guided by the Research Ethics Policies and Procedures of Sheffield Hallam University in particular aiming at positive good through benefitting NDU with a study that can be considered for the implementation of e-learning, avoiding any harm caused to participants and ensuring the confidentiality of results and voluntary willingness of respondents to participate in the study. Participants were informed that their names will not be divulged and their views will be only used for conducting a research on e-learning development at NDU. Permission to access respondents was obtained from the Vice President for Academic Affairs (VPAA) (see Appendix 2). All participants were reminded that they are free to withdraw from the study at any time and that their responses will be anonymous within the study. Moreover, University policy

papers and archives were secured after obtaining permission from the VPAA.

One of the challenges of conducting the research was to keep the professional experience of the researcher away from influencing their responses. To avoid possible bias in recording respondents' views and attitudes, the researcher avoided sharing his personal experience with respondents. Following the interviews, data collected were sent to each interviewee concerned for his/her own cross-checking of their responses.

5.8 The Sampling Process

The sampling process involved selecting the site and respondents for the study.

5.8.1 Selecting the Research Site

The research context of this study is Notre Dame University-Louaize in Lebanon (NDU). A description of the context was presented in Chapter 4. The context was selected because the implementation of e-learning for educational purposes at the University occupies a central position in the strategic planning and decision-making processes since 2001 to 2009, and because of the increasing pressure on exploring tools that have the potential to enhance teaching and learning. The various *ad hoc* committees and steering committee for accreditation emphasized the need to study the feasibility of implementing e-learning in teaching at NDU. These committees felt that the views of faculty members and academic administrators together with identifying student learning needs were not addressed. One of the recommendations of these committees and the academic administration at large was to further investigate into the attitudes of faculty members towards implementing e-learning in the curriculum and also to understand the role of the academic administration in facilitating the e-learning implementation, particularly the factors that promote or hinder the implementation process. As with the majority of higher educational institutions in Lebanon, an important part for a successful implementation of e-learning in teaching at NDU is dependent on understanding the needs and concerns of those involved in it.

5.8.2 Selecting the Respondents

The three sections set forth describe the number of respondents and their selection for the study; namely, academic administrators, faculty members and students. The types of sampling are described together with why the study chose the purposive sampling technique.

Academic Administrators

There are several sampling techniques used in research including: simple random, systematic sampling, stratified sampling, cluster sampling, stage sampling, convenience sampling, quota sampling, purposive sampling, dimensional sampling, snowball sampling (Cohen et al., 2002), and judgment or opportunistic sampling (Burgess, 1991). The selection of academic administrators (Vice Presidents, Deans, Chairpersons and Directors) followed the purposive sampling technique, i.e., "when researchers hand pick the cases to be included in the sample on the basis of their judgment on their typicality" (Cohen & Manion, 1994, p.89). All academic administrators were invited to participate in the study because: (i) they are key persons in the process of policy making and educational planning; (ii) they represent the major key players in the decision-making process at NDU. Academic administrators in higher educational contexts in Lebanon are generally accessible. Usually, they tend to lend themselves to interviewing although some of them are unwilling or too busy to participate in studies involving lengthy interviews. In this study, the majority of academic administrators were willing to participate in the study because e-learning implementation occupies a central position in their discussion and because they are members of the steering committee and strategic planning for accreditation. Following approval for access from the Vice President for Academic Affairs (VPAA), individual academic administrators were contacted for the interview. Preparatory meetings were arranged to brief academic administrators about the purpose of the interview and the objectives of the study. The preparatory meetings resulted in two outcomes: dates for the interview and a permission to access faculties were obtained. The total number of academic administrators interviewed was 18, including all Deans, the two Vice Presidents, Department Chairpersons and directors who are members of the University Council (UC).

Faculty Members

Thirty five faculty members from six Faculties were selected for the interview. Merriam (1998) argued that the acceptable number of individuals to interview for a case study is ambiguous and should be based on a point of "saturation or redundancy is reached" (p.64). Because interviewing faculty members reached a point of saturation where generated data from them became repetitive, I limited the interviews to 25 faculty members. These faculty members represent four categories: those who use e-learning in teaching; those who make little or no use of e-learning in teaching; members of planning

and steering committees; and those who were not members in any *ad hoc* or strategic planning for e-learning implementation. It is worth mentioning that the faculty of Nursing and Health Sciences is not included in the study since it was not established by the time of data collection. By interviewing faculty members from a variety of ranks faculty affiliation, and experiences, data obtained from them helped increase the wealth and diversity of findings.

As this study used a triangulation of methods for data collection, also two separate questionnaires were administered to faculty members. Ninety four faculty members (62% of all faculty members) filled out the first questionnaire, and then 84 faculty members (59% of all faculty members) filled out the second questionnaire. For the first questionnaire, all faculty members at the University were contacted to participate in the study through an email asking them to participate in the study after clarifying its objectives. The questionnaires were sent electronically to all faculty members through the WinSurvey software, which is used for creating, publishing and analyzing surveys. Faculty members submitted their responses electronically which were captured in a data base. The obtained data were then exported from the data base to the Statistical Package for the Social Sciences (SPSS) for analysis. Therefore, the sampling procedure sought representation of all Faculties and Departments at the University with exception to the Faculty of Nursing and Health Sciences which was not established in 2007. After checking the filled out questionnaire, the actual number of respondents who filled out the questionnaire were proportionally representative of the number of faculty members in each Faculty. In this way, the procedure ensured that the majority of faculty members participated in the study. Exactly the same procedure of sampling and data collection were followed in questionnaire 2.

The distribution of faculty members by their faculty affiliation in the first questionnaire is shown in figure 5-1 and for the second in figure 5-2. Faculty members were representative of the total number of faculty members in each faculty.

Figure 5-1 Faculty Members' Distribution by Faculty Affiliation (Questionnaire 1)
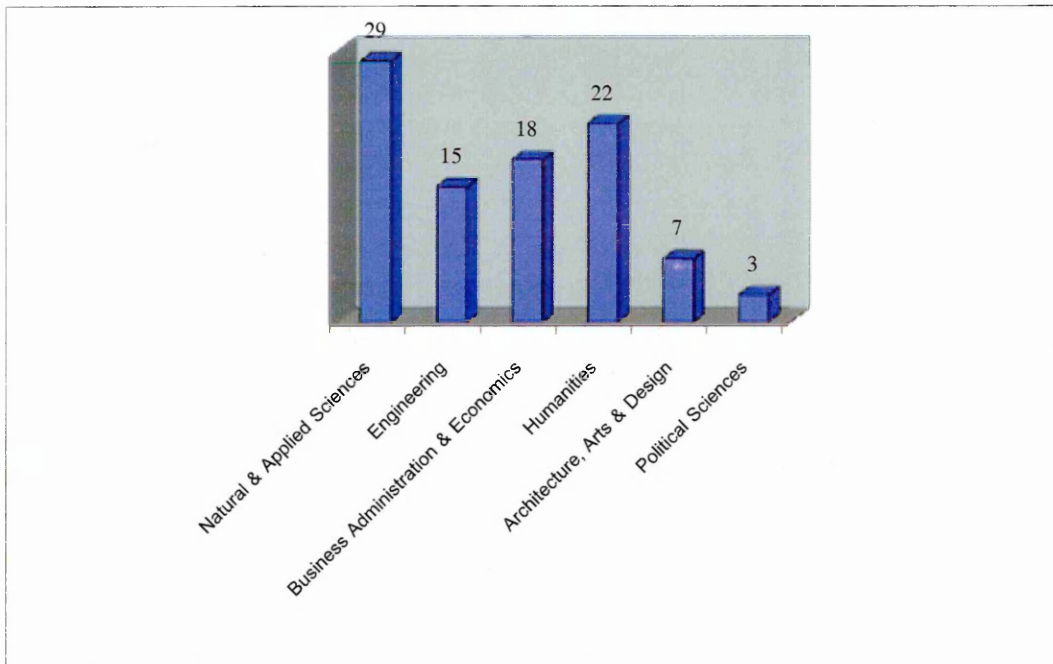
Figure 5-2 Faculty Members' Distribution by Faculty Affiliation (Questionnaire 2)
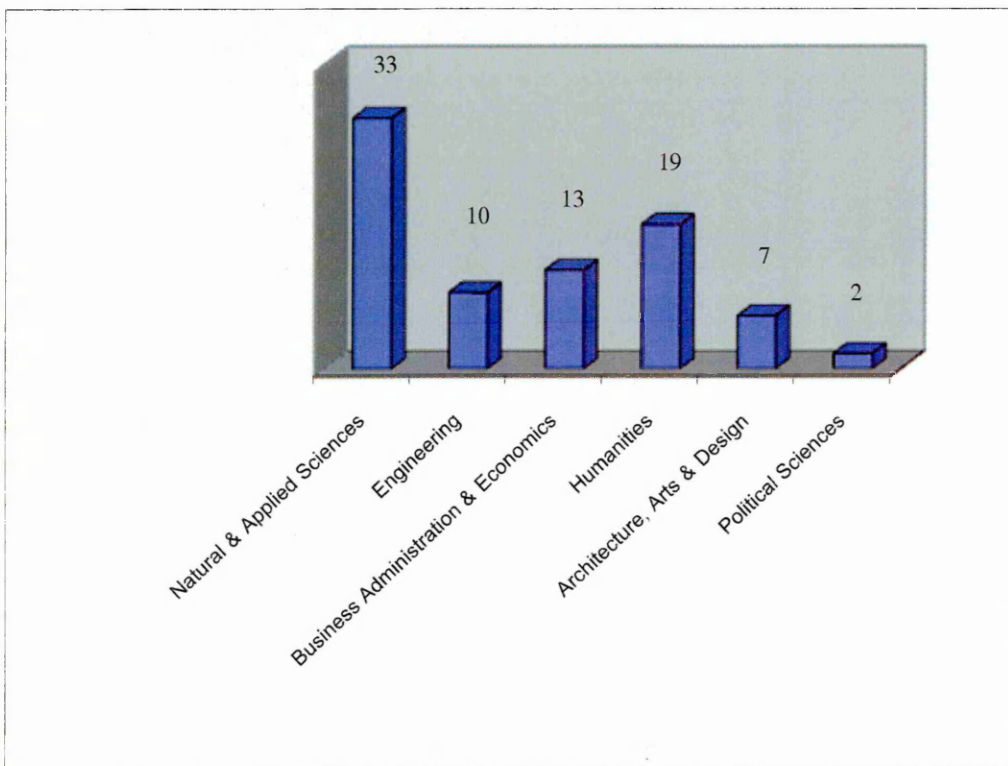
Results obtained from the open-ended questions were coded and grouped in tables for comparison and verification with comparable data obtained from interviews and documents.

Students

The number of students who filled out the learning styles and preferences questionnaire was 259. These students were selected from service courses, i.e., English and mathematics whose teachers use Blackboard and from courses whose teachers that did not. Their selection was based on recommendation from the faculty members involved in the study and taught them in serviced courses. Students were informed about the objectives of the study before participation. Eighty seven percent of students in these courses participated in the study.

Summary

The total number of the respondents involved in the study was 480. Their distribution is shown in table 5-1.

5.9   The Research Methods

The research methods in this study were interviews, documents and questionnaires. Case study is known as a triangulated research strategy. Snow and Anderson (1993) asserted that triangulation, a process of accuracy and alternative explanations that employs qualitative and quantitative data (Cohen & Manion, 2002), can occur with data, investigators, theories, and even methodologies. The triangulation arises from the need to confirm the validity of the processes. In case studies, this could be done by using multiple sources of data (Yin, 2003).

This study followed the case-study protocol. Within the guidelines of case study protocol set out by Yin (1994; 2003), I initiated the scheduling of field visits at NDU, verified access procedures, reviewed policy documents and archives and prepared the ground for the various logistics needed for fieldwork. This procedure aimed to ensure that the mechanism for data collection was both valid and reliable. For this purpose, within the methodological characteristic features of case studies, this study adopted a case study protocol and conducted three pilot studies. Each pilot study took two months of preparation in terms of design of questionnaires and interview schedules, fieldwork arrangements and related logistics. Results of the pilot studies and how they benefitted the research design of the study are presented in the sections that follow.

Pilot Study 1

A questionnaire of three parts was administered to students. Part A sought to generate background information about students such as gender, age, course type,

frequency of taking courses via Blackboard and frequency of connecting to the online environment. Part B of the questionnaire requested students to rate 17 question-items dealing with the use of Blackboard along a Likert scale ranging from 1 as 'very high' to 7 as 'very low' with 4 as the neutral response. The questionnaire items aimed to measure student attitudes towards the instructor's competency and help in delivering the course via Blackboard, the utility of Blackboard in learning, the degree of technical support provided by the University, access to information and communication with peers and the course instructor. The third part of the questionnaire had four open-ended questions on the prerequisites that should be established to effectively participate in an online course, how the learning material wins the learner's interest, advantages and disadvantages of using Blackboard in students current course, and a fourth blank question for additional comments.

The results showed that the majority were happy with the way the course was delivered and registered as well their satisfaction with easy accessibility to posted material. About 78% of students reported that the course was high or moderately high in meeting their learning needs. Open-ended responses coalesced with students' positive evaluation of their learning experience reported in the questionnaire. To the first question on the pre-requisite for effectively participating in an online course, the majority of students recorded teamwork, learning applications, and computer literacy. As for the material needed to win the learner's interest, students reported that it was very easy to put the whole data needed on a floppy or CD and read it later at their own pace. This encouraged students to browse the Web pages particularly in the advanced software package course. In addition, students reported that Blackboard reduces paperwork, saves time, and motivates students to check course material and announcements online. In terms of advantages, students reported that Blackboard facilitates communication with their instructor, as a student put it "the Blackboard helped me communicate with my instructor with no need to visit him to communicate with him". Students also reported that the way the course was delivered helped them to become aware of up-dates and new information in their respective fields of study. As for the disadvantages of using Blackboard: "is being accessible only through the intranet", and not from the Internet as many students reported.

The survey responses further indicated that being able to communicate easily with their instructors had a positive impact on student attitudes towards the courses and their related pedagogical activities. Students' positive attitudes towards Blackboard reveal

that technology plays a role in meeting their learning needs.

Pilot Study 2

The main instrument used in pilot study 2 conducted with 14 academic administrators was the semi-structured interview. The interview items included quantitative followed by qualitative questions for further exploration of ideas and attitudes. The interview was structured into 6 sections. The first section asked academic administrators to identify their academic background and administrative duties. The second section asked academic administrators to present their attitudes to technology in general and technology in education in particular along a 7-point Likert scale ranging from "very favorable" to "very unfavorable". In addition, interviewees were asked to list four areas of work that can be enhanced by the use of technology. The second section asked academic administrators to identify their satisfaction/dissatisfaction with the technical support provided by the Division of computing Center (DCS) along a 7-point Likert scale ranging from "very satisfied" to "very dissatisfied". The third section contained items on the definition of e-learning and the extent to which academic administrators have been previously involved in any e-learning initiative. The fourth section asked academic administrators about the existence of written policies regarding e-learning at the university. The fifth and sixth sections invited academic administrators to comment on the barriers to implementing e-learning at the university, how can these barriers be reduced, and future scenarios for implementing e-learning.

Main results of pilot 2 study showed that the majority (67%) of academic administrators reported that they have not been involved in any e-learning initiative and that they were unaware of any written policy on e-learning at the university although these interviewees represent the main decision-makers at the university. More importantly, while 85.7% of respondents were favourable to ICT in general and 92.3% favourable to e-learning, the university is still slow in infusing e-learning into the curriculum. Furthermore, 64.3% of respondents reported that faculty members always use technology in teaching and learning while at the same time reporting that there is a lack of trained faculty members in ICT use and e-learning. Regarding the implementation of e-learning in the curriculum, 54% documented resistance to change as a main barrier to implementation. Conservatism toward advanced technology, poor quality equipment and skepticism toward the effectiveness of technology were also reported as barriers to implementing e-learning at NDU.

A total of 79 undergraduate students were purposively selected for the study. Eighteen students were taking Advanced Software Packages; 5 students were taking Introduction to Education and another 56 were enrolled in Introduction to Astro Physics. About 40% of students were in their Junior level, 37% were seniors 20% Sophomore and 2 were enrolled in a Teaching Diploma program. In terms of gender, 56(71%) were males and 23(29%) females. The study employed Soloman's and Fedler (1999) inventory which is composed of 44 bi-polar items that identify students' learning styles and preferences. The study results showed the need to study learning style preferences in relation to styles and content of pedagogy in on-line courses. Understanding the relationships between learning preferences and e-learning is worth considering for exploring avenues that potentially enhance students' learning and success.

Main Conclusions Drawn from the Pilot Studies

The pilot studies focused on the 'what' of students and academic administrators' say, i.e., reporting findings at their face value. It might be imprecise and partial to document the views of students and academic administrators as adequate data for generalization and policymaking process relating to the planning and implementation of e-learning at the university. The 'how' and 'why' of respondents' attitudes will be employed in next step of the field research through more in-depth interviews. For example, pilot study 1 indicated absence of evidence of rejection to e-learning among students, cannot be taken as evidence of the absence of negative views to e-learning unless the study covers other aspects related to the e-learning implementation process through conducting in-depth interviews with faculty members and analyzing students' responses on how faculty members teach them via technology.

Regarding pilot study 2, the interview schedule used was worth replicating on a larger sample of academic administrators as analyses of the data provided useful information related to the development process of e-learning implementation at NDU. For example, results showed that academic administrators did not take any practical steps towards implementing e-learning at the University; hence, it was considered useful to reexamine their attitudes after progress in the e-learning implementation process has taken place at NDU.

Pilot study 3 showed that more work needs to be done on students' learning styles and

preferences to be compared with how faculty members teach them via technology.

Since the research was field-worked, the pilot studies allowed for experimenting with a mixture of qualitative and quantitative designs of data collection in case studies. In conformity with the case study research tradition, the present study will seek further reliability and validity of the data by means of collecting data from different sources which is an attribute of case study research (Yin, 1994).

Overall, the pilot studies conducted with students and academic administrators showed that further issues need to be explored in the studying of the development process of e-learning implementation at Lebanese educational contexts such as assessment of the physical infrastructure, accessibility issues, and faculty members' attitudes towards e-learning implementation in addition to document analysis. Moreover, the pilot studies conducted gave confidence that this type of research will provide examples of good e-learning models and highlight issues in which barriers to implementation can be reduced for a wider implementation of e-learning in higher educational contexts.

5.9.1 Interviews

The first part of data collection included interviews with faculty members and academic administrators. Yin suggests that "one of the most important sources of case study information is the interview" (Yin 1994, p.84). By the same token, Walker defines interview as "a method or a group of techniques specific to the social and human sciences" (Walker 1985, p.91). Powney and Watts (1987) define interviews as a process which involves people talking and listening to people. Moser and Kalton (1971) describe the survey interview as "a conversation between interviewer and respondent with the purpose of eliciting certain information from the respondent" (quoted in Bell 1993, p.91). Interviews lie in a range between structured and unstructured techniques depending on the design, content and techniques involved to collect appropriate information (Baxter & jack, 2008; Woods, 1985; Yin, 2003). This study used the semi-structured interview because it allowed the researcher to ask structured questions and probe for clarification (Merriam, 1998) and at the same time give the interviewee latitude to add more comments on issues related to the questions being asked. The semi-structured interview corresponded to a conversation between colleagues rather than a strict and formal type of interview where there are defined roles between the interviewer and the interviewee. The conversation allowed for generating more data and also helped interviewees express themselves in a relaxed manner.

5.9.2 Interviews with Academic Administrators

The interview items addressed to academic administrators included closed questions followed by open questions. The interview was structured into 6 sections. The first section asked interviewees to identify their academic background and administrative duties; the second requested them to present their attitudes to e-learning in general and its use in education in particular along a 7-point Likert scale ranging from "very favorable" to "very unfavorable". This section asked interviewees to identify their satisfaction/dissatisfaction with the technical support provided by the Division of Computing Services (DCS) and the University E-learning Center along a 7-point Likert scale ranging from "very satisfied" to "very dissatisfied". The third section contained questions regarding the definition of e-learning and previous involvement in any e-learning initiative. The fourth section asked academic administrators about the existence of written e-learning policies and strategic plans for the implementation of e-learning at the University. The fifth and sixth sections invited respondents to comment on the barriers to implementing e-learning at NDU, how can these barriers be reduced, and future scenarios for implementing e-learning in teaching and learning at the university (see Appendix 3). The time of the interview ranged from 45 to 60 minutes for each respondent.

5.9.3 Interviews with Faculty Members

The interview questions for faculty members were divided into the following parts: individual factors such as faculty views on the utility and effectiveness of e-learning use for teaching and learning at NDU, skills and knowledge considered necessary for the pedagogical use and exploitation of technology in teaching and learning, how does technology influence faculty members' teaching in class, to what extent do they use technology in curriculum related projects in class engaging students, the relation of technology use in teaching and learning, and their views on their teaching philosophy underlying the pedagogical use of technology in teaching and learning. The contextual dimensions included questions on faculty level of technology technical support provided by DCS staff, availability of technology equipment to support teaching and learning, faculty awareness of University policies for technology use in teaching, awareness of monetary and/or moral incentives given by NDU to those who use or experiment with technology use in teaching, and awareness of University strategic planning of technology deployment and use in the curriculum. The last section had questions on

114

training dimensions which included the following: involvement in research projects concerning the use of technology in teaching and learning, awareness of any research involvement of faculty members in your Faculty/department on technology use in teaching and learning, faculty or department technology training received from the DCS and their explanation of objectives of training, content and duration (see Appendix 4). The time of the interview ranged from 50 to 60 minutes for each respondent.

5.9.4 Questionnaires Administered to Faculty Members

In this study, self-administered questionnaires were filled out by faculty members. Polit and Beck (2004) define questionnaire as an instrument for gathering self-report information about respondents in a paper-and-pencil format. The questionnaires for faculty members were administered and filled out electronically. Two sets of questionnaires were administered to faculty members over a period of two years (see Appendix 5).

Questionnaire 1

The first questionnaire had 22 questions in addition to four open-ended questions. The first part of the questionnaire had the following independent variables: gender, age, Faculty affiliation, teaching status (part-time, full-time), location of campus, and course level taught. The second part concerned faculty members' needs to receive training on e-learning for use in their teaching in addition to questions on the extent to which they used Microsoft productivity tools in teaching. Also, those who mentioned that they used e-learning were asked about the features they used (e.g., post course syllabus, post lecture notes, and give online exams), and why. The third part requested faculty members to evaluate the impact of technology on a wide-range of classroom activities such as facilitating active learning, interaction with students, and teachers' ability to provide immediate feedback. The open-ended questions invited respondents to comment on what they regarded as the greatest barriers that deter using on-line or internet web-based technology in teaching. The items of the questionnaire were similar to but not replica of the Faculty Technology Survey (FTS) used to assess attitudes to technology use in many higher educational institutions in the United States of America.

Questionnaire 2

The second questionnaire had 8 independent variables on age, gender, faculty affiliation, levels of students (graduate, undergraduate) faculty members teach in addition

to other variables. Moreover, the second part of the questionnaire asked faculty members to document their degree of dependence on technology in teaching and research and were invited to describe their skills in using Microsoft productivity tools, the impact of using technology in teaching on students' learning, and the extent to which they use technology in teaching. Furthermore, faculty members were asked to comment on their use of e-learning and the particular features they mostly employed in teaching. The last part had questions on the benefits of using e-learning in meeting teaching needs, increasing contact with students, providing convenient online testing, and increasing time on task among students. The items of this questionnaire were shaped by my interviews with faculty members and from my reviews of the strategic planning process with regards to e-learning implementation at NDU.

5.9.5 Questionnaire Administered to Students

Students filled out the questionnaires during class time and in paper-and-pencil format because they do not regularly check their emails and are reluctant to respond to questionnaires delivered electronically. The questionnaire administered to students sought to document their learning preferences and styles in relation to e-learning content and styles of pedagogy at NDU and how their instructors deliver their courses. Particularly, the questionnaire looked into: (i) the learning-style preferences of a sample of students taking courses delivered in a blended way at a higher educational context in Lebanon; (ii) the extent to which the content and method of delivery of these courses match students' learning-style preferences as measured by the *Index of Learning Styles* (ILS) (Solomon & Felder, 1999). Overall, the aim of the questionnaire was to find ways for the future design and delivery of e-learning courses at NDU (see Appendix 6, the learning styles questionnaire). It is worth mentioning that a pilot study was conducted on 79 students in order to ensure the clarity of the questions, and assess students' level of understanding of the questionnaire content (see Appendix 7, publication of the pilot study results in Baroud, 2008). After the pilot study, each question was reviewed by two university professors, two statisticians and students themselves through both group and individual panels.

5.10 Documents

According to Woods (1985), useful support to interview is given to the judicious use of written or printed materials or documents including archive material, meeting minutes, strategic planning documents, notes and files. The documents collected in case studies are

of great importance because their overall value lies in the fact that they play an explicit role in any data collection process in case studies (Yin, 2002). This study used meeting minutes and planning documents regarding e-learning implementation at NDU from 2001 to 2009. This time frame was chosen because it represented a significant portion of strategic planning process and committee discussions regarding the implementation of e-learning. The documents examined were collected from committee chairs, concerned offices and units.

5.11 Data Analysis

There were three main goals for the data analysis in this study. The first goal related to the documentation of the e-learning implementation process at the University. This goal involved analyzing documents related to strategic planning and minutes of meetings and examined why the University considered implementing e-learning, the steps involved in the implementation process, the role of senior management in this regard, and the barriers to implementation. This goal involved also interviewing academic administrators. The second goal of data analysis concerned understanding faculty members' needs to receive training on e-learning, the e-learning features they used (e.g., post course syllabus, post lecture notes, and give online exams), and why, the impact of technology on a wide-range of classroom activities, the utility and effectiveness of e-learning in teaching, skills and knowledge considered necessary for the pedagogical use and exploitation of technology in teaching and learning, infrastructure and support in addition to the barriers to the e-learning implementation process at the University.

The third goal involved analysis of students' learning preferences and how their teachers used technology in class.

In fact, the data analysis in this study used the study propositions and research questions to categorize the data and analyze emerging themes in e-learning implementation at NDU. This procedure is consistent with Yin's (2003) argument that one important practice during the analysis phase of any case study is the return to propositions and research questions. This practice leads to a focused analysis and avoid the temptation of digression and over interpretation of data outside the research questions of the study. The data analysis in this study composed of three interrelated processes: data reduction, data display and conclusions" (Miles 1990, p.42). All the data generated from interviews, questionnaires and analysis of documents were converged in order to understand the overall case, not the bits and pieces of the case or the contributing factors that

117

influenced it. This was consistent with data analysis in case study discussed by Baxter and Jack (2008).

To summarize, the data were analyzed for the following information needed for the study:

- Analysis of the documentation of the e-learning implementation process at the University
- The factors that prompted the University to consider implementing e-learning;
- The steps involved in the implementation process;
- The role of senior management in the change process;
- The barriers to e-learning implementation;
- Faculty members' needs to receive training on e-learning;
- The e-learning features they used and why;
- The impact of technology on teaching;
- The effectiveness of e-learning in teaching;
- Skills and knowledge considered necessary for the pedagogical use and exploitation of technology in teaching and learning;
- Infrastructure and support.

The sections set forth will discuss how interviews, questionnaires and documents were analyzed.

5.12 Analysis of Interviews

All interviews generated from academic administrators and faculty members were written on interview sheets which were assigned numbers. Each faculty member was interviewed by the researcher. Then, interview data were typed by the researcher and returned back to the interviewee for verification. This was part of some sort of a contract between the interviewer and the interviewees. Most of the returned sheets had the approval of the interviewees who asserted that the data were correctly transcribed and that there were no omissions or additions. The interview data received were vast. In order to reduce the data, I found it convenient to label the interviews alphabetically and to number the pages. For example:

Use e-learning in teaching:

A. Helpful
B. Allows student participation

C. Provides variety of techniques

D. skillful and confident in using e-learning

This procedure was consistent with the data reduction procedure proposed by Woods (1985). Because the data were typed in Word, I created new files where I cut the data labeled alphabetically for each respondent and pasted them in a new file so they appeared all under their respective themes. For examples, under [A. Helpful] category, I pasted answers provided by each respondent under the question. Each answer given by each interviewee was given its corresponding number since each sheet was given a number (1, 2, 3, etc...). Then, next to each response, the title, position, and role in committee for each respondent were added in order to identify differences in responses based on the characteristics of respondents. This procedure helped me achieve category formulation (Ibid) and be in control of the corpus of data received for reading, understanding and comparing them with data obtained from questionnaires and content analysis of documents.

5.13 Analysis of Questionnaires

While quantitative data analysis is defined as the systematic organization and synthesis of research data to test a hypothesis or a set of hypotheses (Polit & Hungler, 1999), this study used descriptive statistics to complement and verify data obtained from interviews and documents and not to test hypotheses. To enhance data management, data were coded and then entered into the Statistical Package for Social Sciences (SPSS) for analysis. Analyses included frequency and percentages, means and standard deviations. As for students' learning styles and preferences questionnaire, scoring of the inventory was done as follows: The dichotomous items were re-coded based on students' responses using the *do if* command in SPSS. For example, an answer indicating a response to a certain item was given 1 while the no response was given a zero. Then, items loading 1 were added and classified in their nested dimension; for example visual or verbal. Then, the scoring scheme followed exactly Felder's and Solomon's (1999) scoring. Thus, students were classified in each dimension as balanced, moderate or strong in each of the dichotomous dimensions; for example active or reflective. Then, the three-point Likert scale concerning student views on how their teachers use technology in teaching were correlated with student learning styles.

5.14 Content Analysis

Strategic planning reports, minutes of meetings and archive material about NDU

were used in this study for analyzing institutional processes in the e-learning implementation process at the University. Content analysis documents were categorized according to their theme and stored in a data base program. This method was useful for storing, organizing, protecting and retrieving data.

5.15 Trustworthiness

Trustworthiness means that a study should be both reliable and valid. The literature of research underlines certain criteria which judge the quality of the research. The validity of results did not rely solely on questionnaire results, but on matching students' responses with interview data and documents. In this study, trustworthiness was established based on the framework presented by Lincoln and Guba (1985). The trustworthiness criteria of credibility, transferability, dependability, and confirmability were achieved by implementation of the following techniques: prolonged engagement in the research process by the researcher through pilot studies and continuous engagement in data collection in different phases, triangulation of methods to create a connected chain of evidence (Yin, 2002) and also to aid in providing a holistic picture of the e-learning view at NDU, interviewees' briefing of their responses to their responses and statements and formal feedback from them. As for questionnaires, their content validity was achieved by interviews and by means of statistical analysis dealing with the internal consistency of the data through Cronbach alpha reliability.

5.16 Reporting

The researcher found many techniques for reporting the case study results. Techniques for composing the report can include treating the case as a chronological recounting. Some researchers report the case study as a story, others in a chronological way. My goal of the written report for the case study was to portray the implementation of e-learning at NDU in a simple manner that is accessible to both academics and lay persons. I reported the results thematically in a structured way and according to the research questions of the study. I paid particular attention to displaying sufficient evidence of what has been explored by clearly communicating the boundaries of the case, and giving special attention to conflicting propositions. The data obtained from interviews were summarized and supporting evidence of ideas was presented in quotations using respondents' own language. Tables and graphs were created for presenting quantitative results. In addition, tables and diagrams were created to compare data obtained from interviews, questionnaires and documents as applicable.

5.17 Limitations of the Study

This study encountered several limitations. As with any case study, there are inherent limitations to the methodology. I faced difficulty in selecting which quotes from interviews or specific examples to report in the findings since there were too many important quotes and ideas and reporting them all would entail lengthy chapters. Another limitation experienced in the interviews was that many respondents tended to answer the interview questions based upon what they think others might say about them rather than presenting their personal opinions. For example, when faculty members were asked about their own need for training in e-learning for achieving pedagogical objectives, there was a tendency among many interviewees to recommend training for their colleagues without identifying their own training needs. This limitation is intrinsically rooted in Lebanese culture where there is avoidance to get directly to the point and provide personal opinions. A further concern relates to the generalization of results to other higher educational contexts in Lebanon such as the American University of Beirut (AUB) which has a longer history of engagement in e-learning implementation for educational purposes than NDU and may have more years of experiences than those of NDU faculty members and academic administrators. Despite this limitation, analyses that arose from e-learning implementation at NDU can provide some generalizations since there is increasing demand on technology use in teaching and learning in institutions of higher education in Lebanon and the issue of resistance to technology use in teaching and learning among faculty members is common in these institutions.

Moreover, regarding documents, not all of them were found and accessed easily; finding them was time-consuming. Some of these limitations of the study were counterbalanced by using data obtained from multifarious sources. These data enhanced my confidence regarding the validity of the data I collected from interviews, questionnaires and documents. In addition, a study of this kind allowed respondents to describe what was meaningful or important to them using their own words rather than being restricted to predetermined variables; thus respondents felt more relaxed during the interviews as they reported to the interviewer. In addition, the semi-structured interview with faculty members and academic administrators allowed for flexibility to use their knowledge, expertise, and interpersonal skills; hence, allowing the researcher to explore interesting or unexpected ideas raised by them. Moreover, the data obtained from questionnaires complemented the interviews and the data obtained from documents.

Overall, the results of this study must be taken for what they are. A further examination of these results by external reviewers and researchers may help clarify the nature of e-learning implementation in higher educational contexts in Lebanon and broadly in Arab states.

5.18 Conclusion

This chapter discussed the research design of the study, the focus of the study and the research questions upon which the study was based. Discussion of the conceptual framework was provided to guide the categorization of data and analysis of themes derived from the respondents involved in the study for discussion in the next chapter. The chapter discussed the methodology used and the methodological position of the researcher. The sampling process was discussed with justification for each method used in data collection provided. An examination of the study results which will be presented in the next chapter is expected to provide an in-depth analysis of the various corpuses of qualitative and quantitative data collected from fieldwork.

Chapter 6

Data Presentation, Interpretation and Analyses

6.1 Introduction

This chapter presents and analyzes the findings obtained from fieldwork regarding the e-learning development process at NDU over a period of three years from early 2007 to 2009. Analyses will cover the following main areas:

- Situational Details of the e-learning process at NDU;
- Characteristics of faculty members;
- Attitudes and views regarding e-learning;
- Conditions, familiarity, skills and the use of technology;
- Analyses of interviews;
- Potential benefits of e-learning;
- Students' learning styles and preferences;
- Students' views of teaching activities used in the classroom;
- Views of faculty members;
- Views of academic administrators.

The themes that emerge from analyses of findings will be provided for further discussion in Chapter 7.

Situational details unfolding over time that describe processes (Gephart & Rynes, 2004) of e-learning development are analyzed. These processes which are conceptualized in this chapter as changes that take place in the system of an institution or in a social unit (Kaufman, 2006), are accounted for since they give meaning to the attitudes and views of faculty members, academic administrators and students regarding the e-learning development process. These attitudes and views were obtained from questionnaires and interviews and complemented with document analysis such as minutes of meeting, memos, reports and policy drafts.

The data obtained from faculty members, academic administrators, students, and document analysis are presented and analyzed according to the research questions of the study that guided data collection (see Chapter 5). Analyses of the research questions will feature the responses of faculty members, academic administrators, and students as well as relevant information synthesized from document analysis. The data obtained from fieldwork will be presented and analyzed according to what each question seeks to

find out.

Quantitative findings obtained from two questionnaires addressed to faculty members and one to students are presented and analyzed. The findings of the first questionnaire administered in 2007 present the characteristics of respondents such as gender, age, and faculty affiliation. In addition, it provides analyses of faculty members' e-learning training needs, the degree to which they used a variety of software in teaching and learning, particularly MS-Office programs (e.g., Excel, Word, PowerPoint, Access) and the e-learning platform, Blackboard (Bb) features (e.g., course syllabus, lecture notes, discussion forum and online exams) which is the Virtual Learning Environment (*VLE*) used at NDU since 2001. Analyses of the impact of technology on a wide-range of classroom activities and the barriers of using technology in teaching are also analyzed.

The data obtained from the second questionnaire focus on analyses of faculty members' degree of dependence on technology in teaching and research, their skills in using Ms Office programs, faculty members' perceptions of the impact of using technology in teaching on students' learning, the extent to which they use technology in the classroom, the e-learning features they mostly use in teaching, and the demonstrable benefits of using e-learning in meeting teaching needs.

The third questionnaire analyzes students' learning styles and preferences in relation to faculty members' use of technology in the classroom. The quantitative findings are demonstrated in percentages and correlation coefficients. These findings are presented in tables and graphs.

Data obtained from interviews with faculty members sought to gain an in-depth understanding of their views and attitudes which clustered under three factors: individual, contextual and training.

Individual dimensions include faculty members' views on the utility and effectiveness of e-learning in teaching at NDU, skills and knowledge considered necessary for the pedagogical use of technology in teaching and learning, the way technology influences faculty members' teaching in class, the extent to which they use technology in curriculum related projects in class, and teaching philosophy underlying the pedagogical use of technology.

- The contextual dimensions analyze faculty members' views on the technical support provided by the Division of Computing Services (DCS), availability of

technology equipment to support teaching and learning, faculty members' awareness of University policies for technology use in teaching, and University strategic planning of technology.

- The training dimensions looks into faculty members' views on training for technology use in teaching and learning.

The findings obtained from interviews with academic administrators analyze their views on the significance of technological, e-learning and administrative/cultural dimensions that influence the implementation process of e-learning at NDU. The data obtained from interviews were summarized and supporting evidences of views were presented in quotations using respondents' own language.

Because providing evidence in case studies requires the establishment of a connected chain of evidence (Yin, 2003), tables and diagrams summarizing data obtained from interviews, questionnaires and analyses of documents are created to clarify possible relationships among findings obtained from different sources. This was done in order to connect findings into a coherent whole and ensure the validity of the data.

6.2   Situational Details of the E-learning Processes at NDU

NDU's decision to implement e-learning has been influenced by the changes taking place in the higher education environment in Lebanon and the Arab Middle Eastern region characterized by the penetration of technology in educational contexts accompanied with calls to increased use in teaching and learning (Arab Human Development Report, 2002).

The following sections provide information about four phases which constituted the institutional history of e-learning at the University. These are:

Phase 1: The early inception of Blackboard in 2001;

Phase 2: The establishment of the University e-Learning Center (UeLC) in January 2005;

Phase 3: The formation of the E-learning Center Committee (ElCC) in March, 2005;

Phase 4: Faculty members' development priorities in 2007.

6.2.1 Phase 1: Background of Early Inception of Bb at NDU in 2001

In 2000 a new President for NDU was appointed by the Monastic Orders, the sponsoring society of the University. As in previous appointments over the years, the

new President appoints his Vice Presidents and Faculty Deans and adopts a strategy for managing the University that is often different from the one adopted by his predecessor. Among other things, the new President introduced structural changes to the University including establishing new academic units, appointing a new senior management, and preparing the ground for deploying technology in teaching and learning at the University.

One of the reasons behind the University President's decision to deploy technology was to prepare NDU to accommodate what Sloman (2001) described as changes happening in culture and society. From this point of view it has been argued that higher education became part of a global shift to a new way of creating and using knowledge (Divjak & Begicevic, 2006). NDU was influenced by the global shift of creating and using knowledge facilitated by technology use in teaching and learning (Haddad & Draxler, 2002).

To consider providing a virtual learning environment to faculty members and students at the University, Blackboard (Bb), which is the Virtual Learning Environment (*VLE*) at NDU, was introduced during the Fall 2001 as a first step towards implementing technology in teaching at NDU. Since the Division of Computing Services (DCS) was in charge of technology at the University, the management and administration of Bb were undertaken by the DCS which provided access, technical support and training to faculty members who wished to use Bb, and upon their request. Thus, the use of Bb was optional and the role of DCS was limited to providing access, training and technical support.

In order to further encourage a greater use of Bb in teaching and learning at the University the President was concerned with finding ways to overcome potential cultural resistance on campus and financial constraints that may inhibit technology deployment for teaching and learning at the University. As mentioned in Chapter 4, NDU survives mainly on students' tuition fees. A low enrolment of students represents a risk that reduces income to the University and shrinks financial resources resulting in less expenditure on faculty development and teaching. The President reflected the concern of budgetary restriction as a primary issue for institutions.

Resistance from faculty is another important concern for institutions reflected by the President. As stated by Bates (2000), because of the central role that faculty members play in the work of the universities and colleges, any change, especially in teaching is

126

completely dependent on their support. To ensure the support of faculty members, the President wanted to overcome potential cultural resistance. The cultural resistance perceived by the President was in the potential reluctance of faculty members to engage with e-learning, particularly as many faculty members believe that e-learning is inferior to face-to-face instruction as Huynh, Umesh and Valachich, (2003) have argued. Another concern expressed by the President was to reduce the tension among Faculties as to who should be in charge of e-learning implementation at NDU. This was evident in the concern voiced by the Department of English, Translation, and Education (ETE) at the Faculty of Humanities. Particularly, faculty members at the ETE argued that since the DCS's staff members were ICT specialists not educationalists specialized in designing content and styles of pedagogy facilitated by technology, the ETE should be in charge of handling the pedagogical aspect of technology at NDU because it argued it had specialized faculty members to do the job. The attitude of faculty members at the ETE reflected a view held in the literature (e.g., Tedeschi, 2009) which argues that faculty members often experience frustration by relying on assistance from technology support staff members who do not understand academic needs. Perhaps, the ETE wanted to play a greater role at the University through sharing their e-learning experiences.

The early implementation of technology suffered from absence of specialized educationalists to handle its pedagogical aspect. From 2001 to 2004, the Division of Computing Services (DCS) continued to give training to individual faculty members who used Bb and provided them with technical support. To overcome potential cultural resistance to technology implementation at NDU, the University President decided to engage faculty members, including specialized educationalists in the implementation process. In 2005 he established an e-learning center to implement technology in teaching and learning at NDU and asked Faculty Deans to nominate their faculty members as representatives in a committee to specify the role of the center.

6.2.2 Phase 2: The Establishment of the University e-Learning Center (UeLC)

This section presents the origins and purpose of the University e-Learning Center (UeLC) and then details subsequent conflicts.

Origin and purpose of the University e-Learning Center (UeLC)

In response to potential cultural resistance and the need to institutionalize the implementation of technology at NDU, the University President formed the University

e-Learning Center (UeLC) on January 5, 2005 by sending a memorandum to all faculty members, administrators, and staff:

> *As you know, in the past years, the e-learning project has grown enough in the DCS to become a university center on its own. Indeed, this center has been already working, independently of the DCS and on a trial period, as of the beginning of this academic year.*
> *Due to its growth, need and success, I am now pleased to announce its official establishment, under the University e-Learning Center (UeLC). In fact, this is an important step in the advancement of the University mission and the role in teaching-learning process.*
> *Further issues related to this center will be soon announced.*
> *Thank you for your understanding, cooperation and support.*

Since its founding in 1987, NDU has studied proposed projects through small committees (4 to 8 persons) to test the waters by conducting small-scale feasibility studies of new projects or ideas in order to receive feedback that can help the senior management in its decisions regarding the implementation of these projects. To define the role of the University e-learning Center, the President established the E-learning Center Committee (ElCC) in March, 2005.

6.2.3 Phase 3: The Formation of the E-learning Center Committee (EICC)

The E-leaning Center Committee (ELCC), formed by the University President in March 2005, consisted of eight members of whom, five were in the senior management and three faculty members. The selection of this committee represented a top-down senior management centralized approach. Those who were in the senior management were the Vice President for Academic Affairs (VPAA), three Department Chairpersons and the Director of Computing Services and University E-learning Center. Since the idea of using technology in teaching at NDU was a new project, the committee was asked to study the feasibility of the center in charge of implementing e-learning at the University.

As with many higher educational institutions implementing technology in teaching and learning, administrators continue to confront difficulty in securing the participation of faculty members (Abel, 2007). Committee members were aware that a main hindrance to successful e-learning implementation was the fear of decision-makers that e-learning might result in an abrupt change in both content and styles of pedagogy which they cannot deal with due to the near absence of plans for a smooth transition from traditional education to e-learning. Besides, a shared concern among committee members was to overcome potential fears among faculty members that technology will

replace them. They believed they had to negotiate the e-learning implementation process with caution.

The ElCC members sought to provide faculty members with a sense of security that implementing technology through the e-learning center will not replace them, or remove traditional teaching. This shared was expressed in the minutes of first ElCC's meeting held on March 8, 2005:

> *...creating this e-learning center was not to replace traditional classroom teaching, but to "affiliate itself" to the traditional ways in a manner to complement the work of the educators.*

This realization meant that the use of technology was not about replacing established processes of learning but enhancement of such (O'Neill, et al, 2004). The attempt at providing faculty members with a sense of security about their teaching roles was seemingly a strategic process for what Rogers (1995) described as Diffusion of Innovations. Rogers (1995) defines an innovation as a, practice which is perceived to be "new" by the individual while diffusion is the process through which an innovation is communicated among the members of a social system. The innovation in the present study is represented by NDU's decision to implement e-learning.

In fact, the E-learning Center Committee (ElCC) members have discussed in three subsequent meetings ideas for laying the foundations for e-learning implementation at NDU in such a way that makes continued progress possible through the e-learning center. These discussions were intentional and can be seen as an implementation of the University President's vision   rather than a written strategic plan for e-learning implementation developed by the various constituents of NDU.

In addition, the Vice President for Academic Affairs (VPAA), who chaired the (ElCC), mentioned during the first meeting that the center would support NDU's preparation for institutional accreditation which started in 2005, reflecting his support to the center and its promising role in facilitating achieving excellence in teaching and learning at NDU. This became evident in the same ElCC's minutes which mentioned that the focus of the e-learning center was to create a platform to support NDU's commitment to excellence in higher education. Like the University President who mentioned in his memorandum for establishing the e-learning center to advance the University's mission and the role in teaching-learning process, the committee members had equated the role of e-learning center with promoting excellence in higher education. The term "Excellence in higher

education" was noted later on in institutional planning at NDU, and in 2007 it appeared as the title of the first University–wide strategic planning report entitled "Re-defining Excellence in Higher Education 2012", which was developed by the Accreditation Steering Committee (ASC) during the academic year 2006-07 in preparation for institutional accreditation. However, details of how would the center facilitate the achievement of excellence in teaching and learning was not specified by committee members. Apparently, the President and the committee were concerned that neglecting the role of the center in promoting excellence in teaching and learning will limit the relevance of NDU's preparation for accreditation since standards of accreditation focus mainly on assuring quality teaching and learning.

During the first two meetings, the ElCC sought to define the purpose of the e-learning center as follows: (1) to support traditional education; and (2) to help promote excellence in education at NDU. Then, a third purpose was documented by the ElCC members, i.e., to promote localization of content across the Middle East. On March 17, 2005 the ElCC discussed general terms used in Blackboard (Bb) to ensure its clear implementation at the University. In that meeting, many committee members wanted to know if promoting the use of Bb at NDU was the target function of the committee. The Chair of the committee pointed out that Bb and its implementation across NDU was not the only focus of the committee. According to him:

> *The creation of digital repositories and the use of authoring tools to construct learning objects to enable and promote localization of content across the Middle East were added long term focus of the project.*

Committee members displayed a conflicting definition of the role of the e-learning center. The emphasis was first on supporting traditional education and helping to promote excellence in education at NDU, then on creation of digital repositories and using authoring tools to construct learning objects, reflecting different roles for the center to different committee members. These different views reflected the held view in the literature (e.g., Shrivastava, 2008), about the presence of conflicting goals for implementing technology in teaching during the early planning process.

From the analysis of the meeting minutes, the ElCC displayed a random approach for the role of the e-learning center. The Chair wanted to accommodate for the different demands placed upon him by committee members and finalize defining the role of the e-learning center. On May 31, 2005, the Chair requested committee members to

130

comment on nine questions, through some sort of needs assessment, about e-learning at NDU. In other words, the Chair wanted to know the worth of establishing the center for implementing e-learning. If e-learning was not perceived positively by NDU, why then would the University need an e-learning center. The questions were:

1. Which of the potential benefits of using e-learning are relevant to Notre Dame University? For example, enhancing student learning; increasing flexibility, widening participation; overseas recruitment; supporting collaboration with Further Education Institutions…and other education providers.

2. Who is responsible for ensuring that a strategy for e-learning is being considered at Notre Dame University?

3. What is NDU strategy for e-learning and to what extent is it linked to other strategies such as learning and teaching?

4. What new staff roles might we have to consider, for example, learning technologists?

5. Are your support services and academic departments prepared to work collaboratively on e-learning developments?

6. What reward and recognition strategies do we need to encourage faculty members to adopt e-learning?

7. How do we overcome the perception of some faculty members that e-learning is not appropriate to their discipline?

8. What type of faculty development is provided for support and implementation?

9. How are students supported in the use of e-learning? What student support and skills development are provided?

The ElCC committee members did not submit their comments to the Chair.

Subsequent conflicts

Through the years at NDU, committee members tended to fulfill additional tasks requested by the Chair who is usually selected from the senior management. One of the reasons for ElCC reluctance to guide the process of e-learning through further engaging in answering the questions raised by the Chair, was due to preparations taking place at NDU for change in the senior management itself to which the Chair belonged to, particularly appointing a new University President in May 2005 by the Monastic Orders.

Another setback was in the irregular attendance of meetings by the ElCC members. On

May 12, 2005, the director of DCS and UeLC sent to the VPAA the following memorandum:

> *In light of absences of E-learning committee members, nominated by their Deans as in your memo (vp/6/sp05 of March 2005), I suggest nominating new willing members to speed up the implementation process of the president's memo (Pr.O/35/f04 of January 5, 2005) related to the establishment of the E-learning center at NDU.*
> *Thank you for your immediate consideration.*

Despite this memo, no new members were appointed and meetings stopped to take place. The ElCC seems to have been repeatedly derailed by the management turnover at NDU which is a re-occurrence at the University during the period of change in the leadership. The continuing absence of many ElCC members showed their reluctance to undertake tasks or firm decisions regarding the role of the e-learning center. They preferred to let the new President with his new senior management decide on the future course of action for e-learning implementation at NDU. Thus, the politics of change of leadership in the senior administration created a state of standstill at the University. As a result, the use of technology in teaching and learning was left at discretion of personal initiatives at the University.

Not much work has been done even after the appointment of the new University President because the senior administration including Vice Presidents and Deans was not changed because their appointment by the previous President was not expired. The new President had to wait for one more year to appoint the new senior administration. The focus of the new appointed President was to dedicate his first year in office to searching for a new senior administration team mainly Vice Presidents, Faculty Deans and Directors.

The second institutional process was characterized by the appointing of a new senior administration, i.e., Vice Presidents, Deans and Directors. Identifying faculty members' development needs was a main task undertaken by the new senior administration.

6.2.4 Phase 4: Faculty Members' Development Priorities in 2007

Standstill at NDU changed during the academic year 2006-07, i.e., after one year of the appointment of the new President. The main task declared by the President during his inauguration speech of the academic year 2005-06 academic year was to promote what he described as change at the University and prepare for institutional accreditation with the New England Association for Schools and Colleges (NEASC) in the U.S. For this

purpose, he hired an American Professor and appointed him as the new Vice-President for Academic Affairs during the academic year 2006-07.

As part of establishing a culture of participation and engagement in accreditation by the University's various constituents, the decision-making process at NDU became less centralized being characterized by a bottom-up approach which involved receiving input from the various constituents of NDU regarding academic affairs central to accreditation such as reviewing the University's mission, evaluating programs, and aspects of academic personnel. This bottom-up approach represented a shift in culture at NDU promoted by the new senior management.

The Vice President for Academic Affairs guided a needs assessment that sought to identify the development priorities of faculty members in 2007. This needs assessment, which was published in the Strategic Planning Report of 2007, detailed the development needs of faculty members. The highest priority identified by faculty members was to have classrooms equipped with computers, LCDs, audiovisuals, and Internet for use in teaching. In other words, faculty members' viewed technology as a tool to facilitate the realization of their developmental needs in teaching.

6.2.5 Summary

The implementation process of e-learning at NDU has passed through four phases, representing its institutionalization at the University. From analyzing the research findings obtained from document analysis it has become obvious that e-learning has not been widely adopted at the University. However, it has become equally clear that the University President wanted to implement e-learning in response to changes taking place in society and institutions of higher education. As a first step towards implementing technology in teaching at NDU, the President established the University E-learning Center (UeLC) in 2005. To define the role of the University e-learning Center, the President established the E-learning Center Committee (ElCC) in March, 2005. When the new senior administration was appointed in 2006, a bottom-up approach to e-learning implementation took place in 2007 involving faculty members in needs assessment of their development priorities in teaching and research and also in participating in the university-wide strategic planning.

Because the needs assessment did not ask faculty members how they were going to use technology and for what purpose, it was not clear whether they were aware of its potential benefits in teaching or about possible problems of using technology during

implementation. As a result, the views, concerns and lived experiences of faculty members, academic administrators and students regarding the use of technology in teaching at NDU remained covered. Therefore it was important to look into the use of technology in teaching and learning at the University through listening to and learning from the experiences of faculty members, academic administrators and students. Particularly, citing Stake (1995) in Chapter 5, this study is intrinsic where as a researcher I have an interest in the research and the context, and instrumental since I sought to understand more than what was obvious to me at NDU. Results that arose from questionnaires, interviews and document analyses are presented and analyzed in the sections that follow.

6.3   Characteristics of Faculty Members

This section recaps the characteristics of faculty members (e.g., gender, age and faculty affiliation) in the two questionnaires described in Chapter 5. In questionnaire 1 administered in 2007, 94 out of 152 full-time faculty members were surveyed. These faculty members represented 62% of the total number of registered full-time faculty at NDU, and 66% of those who were present on campus since 10 faculty members were on leave of absence. The gender distribution was 74% males and 26% females, reflecting the actual composition of full-time faculty whose majority are males. These faculty members represented the six faculties at the University at the time of administering the questionnaire, i.e., before the establishment of the Faculty of Nursing and Health Sciences (FNHS) which accommodated during the academic year 2008-09 three full-time faculty members only. Eighty five percent of faculty members surveyed reported that they taught both undergraduate and graduate students. About 69% of them were Ph.D. or Doctorate degree holders in different fields and the rest (31%) were Master degree holders. The youngest faculty member was 25 years and the oldest was 70 years. The mean age was 43, i.e., the majority of faculty members were in their middle careers.

In questionnaire 2 administered in 2009, 84 faculty members out of 142 responded to the questionnaire. These faculty members represented the seven faculties at the University, after the establishment of the FNHS during the academic year 2008-09. Thirty two percent were females and 68% males. The youngest faculty member was 28 years and the oldest was 73 years. The mean age was 46. Sixty percent were Ph.D. holders and 40% Master degree holders.

134

6.4 Attitudes and Views Regarding E-learning

This section analyzes findings of the first research question of the study which attempted to examine the attitudes of faculty members towards e-learning in terms of their interest in it, the perceived benefits generated from e-learning, and the efficiency of e-learning in teaching and learning. The term e-learning is conceived in this study as electronically mediated learning (Zemsky & Massy, 2004) which refers to the use of the internet and digital technologies in the teaching and learning process (Horton, 2001). The two questionnaires and the interview asked faculty members about technology and Bb use in their teaching. Results obtained from each questionnaire are presented in the sub-sections that follow.

6.4.1 Questionnaire 1: Faculty Members' Attitudes to E-learning

This section reports the findings obtained from questionnaire 1, particularly the attitudes of faculty members towards e-learning in terms of their interest in it, the perceived benefits generated from e-learning, and the efficiency of e-learning in teaching and learning. Moreover, to complement faculty members' views in questionnaire 1, they were asked to report what type of technology they felt was most pressed to master for use in their teaching in light of their request for equipping classes with technology and receiving training as documented in the development priorities needs. The results of questionnaire 1 are limited to the first research question of the study together with information about their training needs in technology.

Faculty members' interest in using technology and their actual use of technology are not the same. However, their degree of use of technology provided indication of their interest in using it, particularly in engaging their students to employ technology in classroom activities like submitting course assignments using MS-office programs, access the Internet. Judging by what faculty members answered, they said they used the following in their teaching: PowerPoint (59%) and Word processing (51%), and required their students to access the Internet (55%). Also, they said that they communicated with their students via email (53%). On the other hand, they reported other software as inapplicable to the courses they teach, particularly those which require knowledge and skill for use and application in students' work such as MS Access and statistical packages like MS Excel and the Statistical Package for the Social Sciences (SPSS) (see table 6-1).

Table 6-1 Responses to technology use in Percentages

Items	Undergraduate	Graduate	Not Applicable	Undergraduate and Graduate
In my classes, I set assignments requiring the use of a word processing (e.g. Word)	50%	1%	16%	33%
In my classes, I set assignments requiring the use of a spreadsheet program (e.g. Excel)	36%	3%	54%	7%
In my classes, I set assignments requiring the use of a statistical package.	16%	7%	75%	2%
In my classes, I set assignments requiring the use of discipline-specific software.	26%	7%	52%	15%
In my classes, I set assignments requiring the use of a presentation package (e.g. PowerPoint).	50%	9%	18%	23%
In my classes, I set assignments requiring the use of a database program (e.g. Access).	14%	5%	78%	4%
In my classes, I use email to communicate with students	49%	3%	18%	30%
In my classes, I require students to build a web page	5%	3%	92%	
In my classes, I require students to access internet	53%	2%	10%	35%
In my classes, I use wireless technology	12%	2%	86%	---

Despite their responses, the way their use of MS-Office programs has influenced their teaching in the classroom remained hidden. Reliability of responses of this part of the questionnaire was (α = .70) which is considered an acceptable internal consistency of responses as measured by Cronbach alpha[6]. Particularly, faculty members' responses regarding setting assignments that require their students to use Excel, Access word processing, statistical packages were correlated in order to see the strength of

---

[6] Cronbach alpha will generally increase as the inter-correlations among test items increase, and is thus known as an internal consistency estimate of reliability of test scores. Internal consistency measures whether several items that propose to measure the same general construct produce similar scores.

136

association between them. In addition, their responses to setting assignments that require the use of a word processing (e.g. Word) and PowerPoint, for example, were associated. These associations indicated acceptable internal consistency of the questionnaire items on responses to technology use shown in table 6-1.

While faculty members said that they required their students to access the Internet, they reported that the use of wireless technology was inapplicable to the courses they teach although this facility is available on campus for use by the NDU community including faculty members and students. As for Bb, faculty members were asked to indicate the features they use along a scale that ranged from never-to occasionally-to frequently. The majority of responses were clustered in 'never', as compared to occasional and frequent use of Bb (see table 6-2).

Table 6-2 Please indicate whether you use Bb to do the followings in your courses

Items	Never	Occasional	Frequently
Post course syllabus	62%	3%	35%
Post lecture notes	62%	9%	29%
Post assignments	61%	8%	31%
Provide examples of assigned projects	68%	6%	26%
Provide links to on-line resources	66%	8%	26%
Give online exams and quizzes	90%	1%	9%
Use chat rooms	96%	3%	1%
Help manage class content and	72%	10%	18%
Conduct discussion forum	89%	6%	5%

This suggests that the use of Bb at NDU did not work successfully in teaching and learning. As described earlier, the use of Bb was left at discretion of personal initiatives in light of the politics of change of leadership in the senior administration which created a state of standstill at the University during the early phases of implementing technology. In addition, giving online quizzes, conducting discussion forum in Bb, and use of chat rooms were the least used features, while the highest percentage (35%) was in posting course syllabi. Moreover, faculty members' lack of use of discussion forum and chat rooms was due to the fact that face-to-face teaching was the dominant approach in teaching and learning and also because faculty members did not learn how to use the discussion forum.

6.4.2 Benefits and Efficiency of E-learning in Teaching and Learning

Faculty members who said that they use Bb in the courses they teach were asked

to reflect on the impact of using technology on teaching methodologies in the classroom such as providing immediate feedback to students, increasing interaction with students, and increasing active learning opportunities in class. Faculty members have reported positive impacts of technology use, particularly in increasing interaction among students and with the faculty members, increasing active learning opportunities, providing immediate feedback, and perceived increasing their teaching effectiveness in terms of providing better learning opportunities for students through Bb. An exception was found in the equal distribution of responses concerning the impact of technology on enhancing students' time-on-task (see table 6-3).

Table 6-3 Impact of technology use

Items	Increased	No Effect	Decreased
Interaction between me and my students	79%	21%	---
Interaction among students	58%	40%	2%
Active learning opportunities for students	82%	18%	---
My students' time-on-task	48%	46%	7%
My ability to provide rapid feedback	82%	18%	---
My expectations of my students	69%	31%	---
My respect for different talents and learning preferences among students	65%	35%	---
My teaching effectiveness	80%	20%	---

Table 6-4 Correlation results

	Post syllabus	Lecture notes	Assignments	Examples of assigned projects	Links to online resources	Online quizzes	Chatting	Manage content	Discussion forum
Interaction with students	.13	.18	.26*	.32**	.24*	.06	.13	.34**	.24*
Interaction among students	-.05	-.01	.08	.18	.07	.02	.04	.16	.19
Active learning	.11	.19	.21	.21	.19	.14	.14	.28*	.19
Time on task	-.02	.06	.07	.11	.02	.07	-.02	.12	.15
Rapid feedback	.24	.22	.34**	.38**	.34**	.23*	.13	.28*	.21
Expectations of students	.22*	.30**	.34**	.34**	.37**	.15	.06	.34**	.22
Respect of learning preferences	-.05	.06	.10	.14	.07	-.02	-.03	-.08	.19
Teaching effectiveness	.27*	.32**	.34**	.31**	.37**	.13	.13	.33**	.25*

**P<.001; *P<.05

Since the majority of responses indicated little use of Bb (see table 6-2) as opposed to a slight increased efficiency of technology on aspects of teaching in the classroom (see table 6-3), a Pearson correlation coefficient was computed for finding possible relationships between the variables. Results showed positive and significant correlations between those who used Bb and reported increased impact of technology on classroom teaching (see table 6-4).

Correlation indicates the link between the components of the variables that emerged from the view of faculty to find which variable is mostly associated with other variables. To explain the table above, 24 correlations among variables were found, while four variables did not have any correlation with any of the variables of Bb use. These were: increasing interaction among students, time on task, respect of learning differences and preference and chatting. The variable with the highest mode of correlations was increased teaching effectiveness which significantly associated with posting syllabus, posting lecture notes, providing examples of assigned projects, links to online resources, management of course content, and discussion forum (see table 6-5). This suggests that faculty members attributed increased teaching effectiveness with their

use of Bb, indicating the need to further understand how did Bb increased teaching effectiveness. The lowest mode of correlation among variables was in increased active learning which had only one correlation with manage class content and instruction in Bb (see figure 6-1).

Table 6-5 Areas of correlation

	Post syllabus	Lecture notes	Assignm ents	Example s of assigned projects	Links to online resources	Online quizzes	Manage content	Discussi on forum
Interacti on with students			X	X	X		X	X
Active learning							X	
Rapid feedback			X	X	X	X	X	
Expectati ons of students	X	X	X	X	X		X	
Teaching effective ness	X	X	X	X	X		X	X

X = areas of correlation

Figure 6-1 Frequency of correlation of technology impact with use of Bb
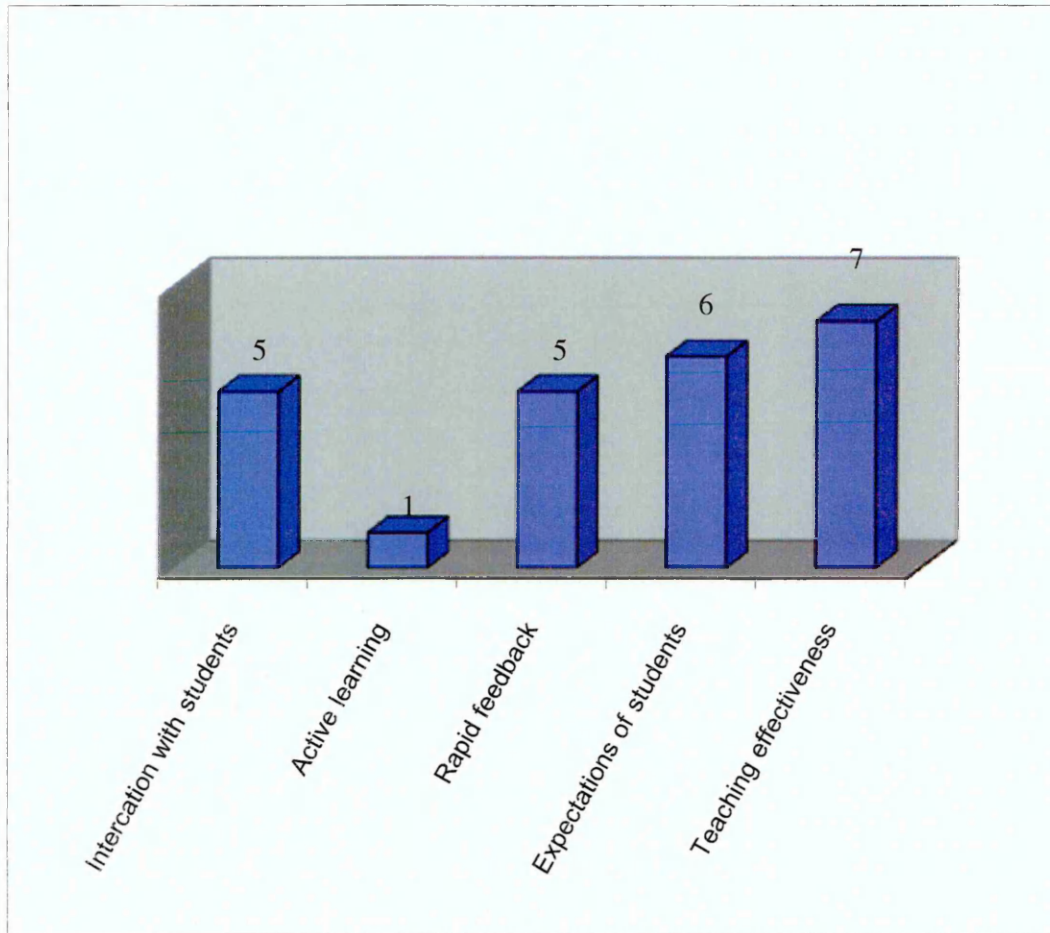
According to faculty members who used Bb, teaching effectiveness increased through the following: posting syllabus, posting lecture notes, providing examples of assigned projects, links to online resources, management of course content, and discussion forum. In posting lectures notes, students would be able to review lectures delivered in class. In addition, examples of assigned projects would provide guidance to students for their projects and links to online resources provided them with content needed for the course and assignments. In other words, faculty members viewed their teaching effectiveness in light of providing their students with learning opportunities facilitated by Bb.

From the experiences of faculty members, teaching effectiveness was increased at least from perceived learning opportunities provided to students by e-learning software, i.e., Bb. Because of documented positive experiences of those faculty members who used Bb in their courses, there was considerable demand at NDU to provide training to faculty members to gain competencies and skills in technology use for teaching and learning. A theme that emerged from faculty responses to the benefits and efficiency of

141

e-learning in teaching and learning items was to identify their training needs for wider use and more efficient use of technology in teaching and learning. Correlation results showed that respondents' belief systems were coherent but largely intuitive rather than based on empirical investigation. Interviews data with faculty members might provide empirical evidence of the association between the variables between faculty members' responses with respect to the variables used.

6.4.3 Training Needs in Technology

The literature suggests that the lack of training and support can lead to resistance and reluctance to utilize technology among faculty members (Owen & Demb, 2004). To understand their perceived training needs and support for using technology, faculty members were asked to comment on receiving assistance, training and technical support in a number of technology areas. Results showed that almost half of respondents (48%) agreed with receiving assistance in 'moving traditional teaching to (*VLE*) i.e., Blackboard (Bb)'. About 31% were neutral and very few (11%) disagreed with receiving training. In addition, 68% said they were interested in learning about podcasting devices to support teaching and learning, 75% for receiving technical support to enhance their technology skills, and 68% wanted training to develop WebPages (see table 6-6).

Table 6-6 Training needs and assistance in technology

Items	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	Don't use/ Does not apply
I would like assistance in moving any traditional teaching activities towards the Virtual Learning Environment (VLE), i.e., blackboard (Bb)	17%	31%	31%	8%	3%	10%
I would like to receive training using Blackboard (Bb)	15%	41%	22%	10%	3%	9%
I would like instruction in the use of scanners and digital cameras	8%	26%	24%	17%	9%	16%
I would like to learn more about podcasting devices to support teaching/learning process	20%	48%	18%	6%	1%	7%
I am interested in receiving technical support to enhance my technology skills	26%	50%	14%	6%	2%	2%
I would like training in developing web pages	27%	41%	16%	8%	1%	7%
I have received adequate technical support for using technology in teaching	10%	28%	25%	21%	7%	9%

Moreover, an open-ended question requested faculty members to report the type of technology they felt was pressing to master. Among the individual technology needs identified by faculty members themselves to master was the use of Bb.

They reported other needs such as training to give online exams through Bb and build WebPages. They also emphasized the need for software in engineering, library software for research and related software for each field 3Ds and animation, spreadsheet software for accounting, technical engineering software, and video-conferencing for communicating with other institutions and university campuses.

The identified needs of faculty members prompted the need to conduct training in technology for faculty members. Also, based on personal requests made by faculty members to receive training by the Division of Computing Services and University E-learning Center on MS-Office programs and use of computers to access electronic resources, several workshops were carried out during the academic year 2008-09.

6.5   Questionnaire 2: Conditions, Familiarity, Skills and Use of Technology

Questionnaire 2 was administered following the training. It asked faculty members to respond to questions on the following: conditions for using technology; familiarity and skills in technology; use of technology in teaching; demonstrable benefits of e-learning; factors that encouraged faculty members to use Bb; obstacles to implementing e-learning at NDU. The results presented in the section that follows seek to provide evidence for research questions 2 through 5 in addition to question 7.

6.5.1 Conditions for Using Technology

Past studies (e.g., Ely, 1999) have identified several conditions that facilitate the use of technology in teaching including the provision of training, incentives, and equipping classes with technology. Faculty members were asked to respond to five questions on the conditions that allow faculty members to make a greater use of technology in teaching. These were: receiving training, equipping classrooms with technology, rewarding innovation in teaching facilitated by technology, receiving monetary incentives from NDU, and using technology in teaching if NDU considered that for their promotion (see table 6-7). In turn, these conditions can be clustered as follows: training, equipping classes with technology and incentives.

143

Table 6-7 Attitudes to a greater use of technology

Item	Yes	No	Not Sure
Would you be more likely to use technology in teaching at NDU if you received training on the use of technology in education?	68%	11%	21%
Would you be more likely to use technology in teaching at NDU if more classrooms were equipped with technology (i.e. smart classrooms)?	86%	5%	9%
Would you be more likely to use technology in teaching if NDU rewarded innovation in teaching facilitated by technology?	63%	10%	27%
Would be more likely to use technology in teaching if NDU gave you monetary incentives?	50%	24%	26%
Would be more likely to use technology in teaching if NDU considered that for your promotion?	60%	19%	21%

Training

The majority of faculty members (68%) reported a common voice, i.e., that they were more likely to use technology in teaching if they received training compared to 11% who said no and 21% who were not sure. This result indicated considerable demand for training at NDU.

Equipping classrooms

Technology availability in classrooms emerged as a primary issue to make greater use of technology in teaching and learning. The highest percentage (86%) of faculty members' responses who answered this question (84 faculty members) was in using technology if more classrooms were equipped with technology (i.e. smart classrooms).

Incentives

Gannon-Cook (2003) indicated that higher educational institutions can motivate faculty members to engage in e-learning through providing them with incentives that can be monetary, promotion and rewarding innovation. Sixty three percent of faculty members reported that they were more likely to use technology if NDU rewarded innovation in teaching facilitated by technology. In addition, 50% was in receiving monetary incentives. However, 26% of faculty members were not sure that they would use technology in return for monetary incentives because over the years, the University has not provided any such incentives to faculty members or administrative staff, particularly in the near absence of a system of evaluation and follow up of faculty members' performance in teaching and other activities, mainly research and community service. When asked about whether faculty members would be more likely to use technology in teaching if NDU considered that for their promotion, 60% said yes, 19% said no, and 21% were not sure. It was not clear whether faculty members who

144

documented 'no' and 'not sure' responses alluded to their skepticism about promotion practices at the University or to other factors such as not knowing how using technology in teaching is evaluated for promotion at times when teaching is evaluated based on students' ratings of their faculty members.

6.5.2 Familiarity and Skills in Technology

Faculty members may become anxious with using technology in teaching when they encounter a lack of familiarity with it. Moreover, lack of familiarity with technology can lead to reluctance in using it in teaching (Owen et al, 2004). In order to understand faculty members' familiarity and skills in technology they were asked in questionnaire 2 to self-characterize their use of MS-Office programs and computers to access electronic resources and data bases. Although there are good reasons to be cautious in the use of self-report questionnaires, faculty self-characterization of their use of MS-Office programs and computers can be quite useful in providing a picture of how they feel about their familiarity and skills in technology which are verified and complemented with interviews data as mentioned in Chapter 5.

Results showed that 64% of faculty members said they were proficient and another 17% were expert in using MS Word (total 81%), 42% were proficient and 14% expert in using MS Excel (total 56%) which was the lowest percentage compared to other tools although training on MS Excel was provided with applications on how to record and analyze students' grades. In addition, there were 49% proficient and 18% expert in MS PowerPoint (67%), whereas there were 55% proficient and 14% expert in MS outlook (total 69%). Also, 55% reported they were proficient and another 20% expert in computers as an access tool for electronic resources at the University such as the library and online databases (total 70%) (see table 6-8).

145

Table 6-8 Familiarity and skills in technology

Items	Novice	Intermediate	Proficient	Expert	Not applicable
How would you characterize your use of MS Word?	---	19%	64%	17%	---
How would you characterize your use of MS Excel?	14%	28%	42%	14%	2%
How would you characterize your use of MS PowerPoint?	11%	20%	49%	18%	2%
How would you characterize your use of MS Outlook (e.g., email, contact, tasks)?	6%	21%	55%	14%	4%
How would you characterize your use of computers as an access tool to electronic resources (e.g., library, online databases, etc ...)?	4%	21%	55%	20%	---

Faculty members reported their proficiency in using MS-Office (e.g., producing handouts, course documents, assessments). They also said they were highly dependent on using technology in teaching and research and could not do without it (see table 6-9).

Table 6-9 Faculty members' dependence on technology

Items	Highly dependent	Dependent	Fairly dependent	Not dependent
How much do you feel you are dependent on using technology in teaching?	42%	32%	18%	8%
How much do you feel you are dependent on using technology in your research?	73%	20%	7%	---

6.5.3 Use of Technology in Teaching

To see in what areas faculty members ask their students to use technology in the classroom, they were asked in questionnaire 2 to comment on four questions. Faculty members (72%) reported they required the use of MS Excel, PowerPoint and MS Word in students' assignments (see table 6-10), indicating faculty members' desire to engage their students with technology. In addition, faculty members said they communicated with their students via email which can be perceived as a tool that can be used to send group emails with attachments (Allen & Slutsky, 2003). In addition, faculty members requested students to search for information on the Internet and access the University's electronic library for their course readings and assignments (see table 6-10).

Table 6-10 Responses to technology use in teaching

Item	Yes	No	Inapplicable
In my classes, I give my students assignments that require the use of Microsoft Office (Excel, PowerPoint, MS Word)?	72%	8%	20%
In my classes, I ask my students to communicate with me and among each other on course issue via e-mail	73%	27%	--
In my classes, I require my students to access the NDU electronic library resources for their courses readings and assignments	62%	38%	--
In my classes, I require my students to conduct internet search (desktop research) for downloading information related to their course readings and assignments	82%	18%	--

In addition, faculty members' responses were in favor of making a greater use of Bb than those who reported that they did not use Bb (see figure 6-2), but were still reluctant to give online exams, use the discussion forum, use the grade book and the calendar (see table 6-11).

Table 6-11 What Bb features do you use in your teaching?

Item	No	Yes
Announcements	4%	96%
Course Syllabus	11%	89%
Course documents or contents	9%	91%
Quizzes	78%	22%
Grade Book	50%	50%
Digital Drop Box (i.e., a place for students to submit their assignments	43%	57%
Email	20%	80%
Discussion forum	69%	31%
Calendar	76%	24%

The lack of use of the discussion forum and the digital drop box among faculty members was in line with previous research (Bush, 2008) which showed that using these features received the least support from faculty members due to the availability of alternative means. Faculty members' lack of use of these features is due to faculty members' preference for proctoring the exams and answer students' questions that might be vague or confusing. In addition, their limited use of the grade book on Bb is due to the fact that Departments provide each faculty member with hard copy grade book that should include students' grades and attendance throughout the semester. Faculty members submit their course grade book at the end of the semester to the Department Chair for his/her own verification of student attendance and for final approval of grades. Moreover, the lack of use of the discussion forum was due to the desire of faculty members to engage their students in discussions during class hours to make the teaching session vivid and lessen boredoms, particularly that part of faculty members' evaluation for promotion and renewal of contract is based on engaging students in face-to-face discussions during class hours.

Despite these, faculty members' made a greater use of Bb features from 2007 to 2009 as shown in figure 6-2 which compares questionnaire results administered in 2007 and 2009 respectively.

Figure 6-2 Differences between 2007 and 2009 among Faculty members on Bb use
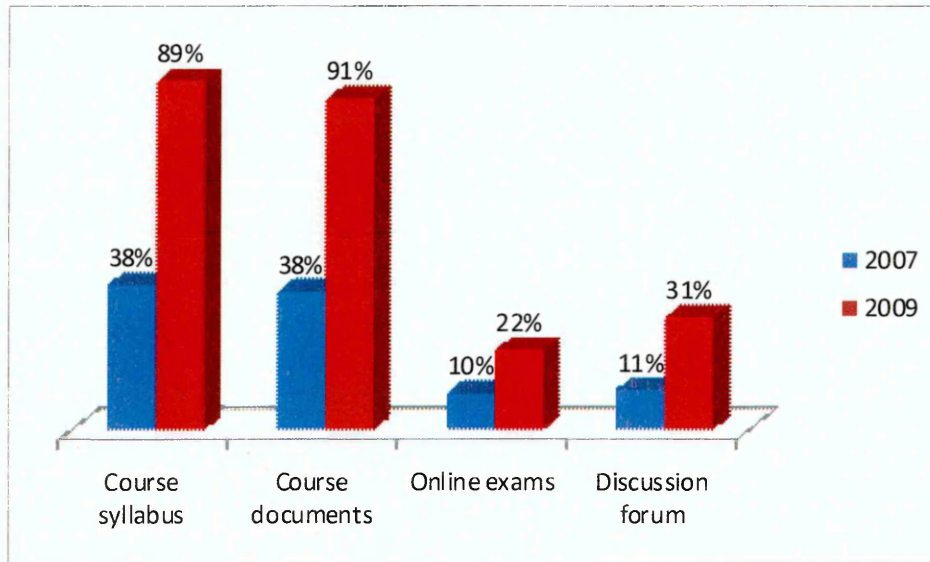
6.5.4 Self-reported Benefits of e-learning

E-learning as a practice has been found to facilitate enhanced communication between and among students and faculty members, particularly in terms of opening up opportunities for preparation and feedback of lectures and assigned readings by both faculty and students who can access these electronically. In addition, e-learning has been found to provide students with greater access to course materials in comparison to more traditional less flexible educational methods (O'Donoghue & Singh, 2001). Hemsley (2002) has shown also increased time on task for students and interactive learning as demonstrable benefits of e-learning. In this study, among the 84 respondents who answered the question, 64% said they used Bb as opposed to 36% who said they did not use Bb. Those who did not use Bb were excluded from subsequent questions related to how they use Bb. Among those who said they used Bb, the following clustered responses were documented and the percentages of their responses are presented in table 6-12.

- Bb was useful in meeting teaching goals of my course(s);
- Bb increased contact with my students;
- Bb provided more prompt feedback to students;

- Increased time on task for students;

- Provided a convenient online testing to my students;

- Facilitated more communication among students;

- Facilitated students' wider access to course materials;

- Facilitated more interactivity between students and the course teaching materials.

Table 6-12 Utility of Bb in teaching

Item	Very Useful	Useful	Little Useful	Not Useful at all	Not sure
How useful do you find Blackboard in meeting the teaching goals you are trying to achieve in your course(s)?	63%	35%	---	---	2%
How useful do you find Blackboard in increasing contact with your students	68%	28%	2%	2%	---
How useful do you find Blackboard in providing more prompt feedback to your students?	61%	31%	6%	---	2%
How useful do you find Blackboard in increasing time on task for your students?	38%	41%	2%	2%	17%
How useful do you find Blackboard in providing a convenient online testing for your students?	24%	21%	6%	8%	41%
How useful do you find Blackboard in facilitating more communication among your students?	40%	30%	7%	4%	19%
How useful do you find Blackboard in facilitating students' wider access to course materials?	65%	33%	---	---	2%
How useful do you find Blackboard in facilitating more interactivity between your students and the course teaching materials?	56%	37%	---	---	7%

6.5.5 Factors that Encouraged Faculty Members to Use Bb

Given the limited use of Bb in 2007 as compared to 2009 (see figure 6-2); I enquired about the factors that had encouraged faculty members' use of Bb in teaching at NDU. The majority of faculty members (64%) who answered the question reported that their belief in the efficient role of Bb in facilitating teaching and learning was the main factor that encouraged their use of Bb, followed by their level of comfort with technology. In other words, the impetus of faculty to use of Bb was their own personal belief about the benefits of Bb rather than directives. These personal beliefs came from their thinking over e-learning and arriving to an intuitive decision about the role of e-learning potentially enhancing teaching at NDU. The least influential factor that has encouraged faculty members' use of Bb was the request made by the Faculty or Department to use Bb. Results of the number of respondents' answers are presented in figure 6-3. In fact, all Faculties do not have policies at the department level that request

faculty members to use Bb or technology in teaching as there are no policies for using this facility at NDU and there is no system in place to evaluate the performance of faculty members' and students' use of Bb or any other technology in the teaching and learning process. Moreover, Faculties and Departments do not measure the learning outcomes achieved in courses that employ technology. Thus, at the Faculty and Department level the use of Bb is left at the discretion of the faculty member. Furthermore, although students who enroll at NDU are equipped with technology skills, they rarely request their teachers to use Bb according to faculty members.

Figure 6-3 What factors encouraged you to use Blackboard?
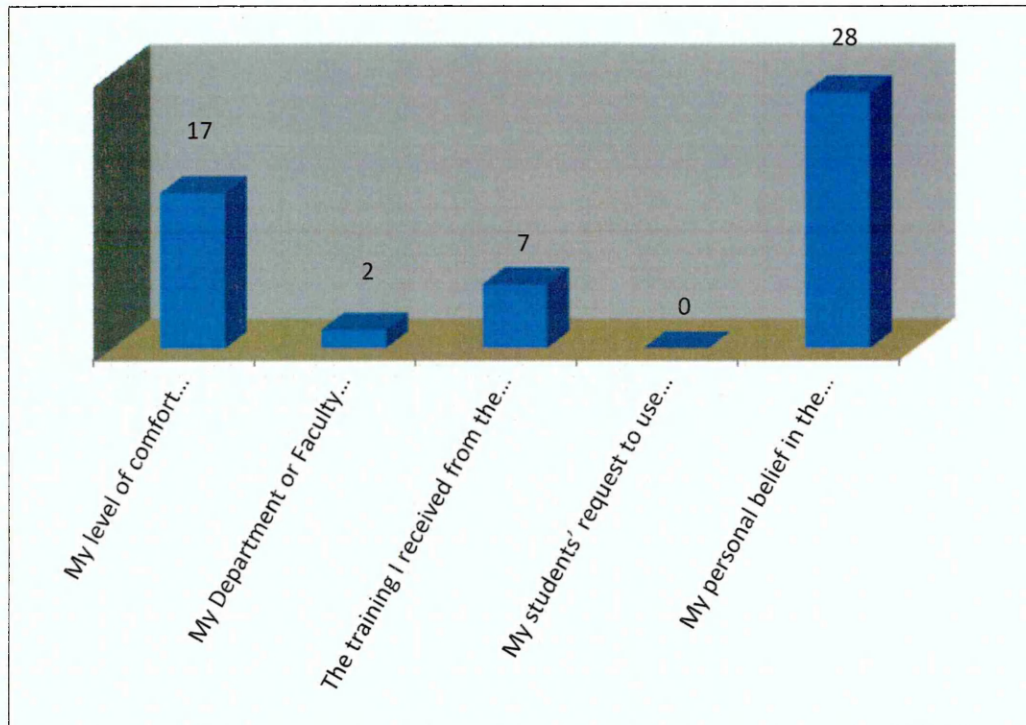
6.5.6 Obstacles to Implementing e-learning at NDU

While challenges lie in redefining the role of the faculty member and the use of technology as clearly indicated in ElCC's first meeting in 2005, other challenges may emerge from lack of support from the institution. In order to understand the views of faculty members regarding the obstacles to implementing e-learning at NDU, they were asked in the questionnaire to list these obstacles. The obstacle that received the highest percentage was the lack of classes equipped with technology (57%) followed by the lack of institutional planning for integrating technology into teaching and learning (54%), while the lowest reported obstacle was lack of motivation (10%) (see table 6-13).

150

Table 6-13 Obstacles to implementing e-learning

Item	No	Yes
Student reluctance to use technology	79%	21%
Lack of training for faculty members on the use of technology	74%	26%
Lack of incentives to faculty members who use innovative methodologies in teaching	80%	20%
Lack of personal confidence in using technology	89%	11%
Lack of motivation	90%	10%
Lack of institutional planning for integrating technology into teaching and learning	46%	54%
Lack of classes equipped with technology	43%	57%
Lack of policies at NDU that adopt using technology in teaching and learning	70%	30%

The lack of incentives to faculty members who use innovative methodologies in teaching was not regarded as an obstacle. In addition, their perception of lack of classes equipped with technology as an obstacle to e-learning implementation was in line with their attitudes to a greater use of technology if more classes were equipped with technology (see table 6-7), reflecting consistency in their responses and repeating the same concerns. The two major obstacles to e-learning implementation at NDU reported by faculty members were lack of classes equipped with technology and lack of institutional planning.

Lack of Facilities

The University provides faculty members with training on technology use in teaching and learning and provides them with access to many facilities for teaching and research. Each faculty member has a personal computer and a printer with full access to the Internet and an email account. Faculty members also have access to electronic resources made available to them by the University libraries. In addition, scanners are provided to faculty members according to their need and official request. Support services are continuously provided by the Division of Computing Services (DCS) and the University e-learning Center. Moreover, software requested by faculty members to use in their teaching and research are provided to them. However, faculty members viewed the lack of facilities based on their reported lack of equipped classes with technology rather than their personal access to computers, Internet, personal email or lack of technical support and access to software needed for teaching (see table 6-14).

Table 6-14 Access to technology

Items	Very Satisfied	Somewhat Satisfied	Not very Satisfied	Not at all Satisfied	Not sure
Please rate your satisfaction with access to software needed for your teaching at NDU?	39%	46%	11%	---	4%
Please rate your satisfaction with the support services provided by the Division of Computing Services (DCS)?	62%	32%	6%	---	---

In fact, faculty members reported their satisfaction with the services provided by (DCS) where 39% were very satisfied and 46% somewhat satisfied with access to software needed for teaching, and 62% were very satisfied and 32% somewhat satisfied with support services rendered by the DCS.

Lack of institutional planning

As mentioned in Chapter 4, NDU set plans for deploying technology in teaching and learning within the strategic planning process in preparation for institutional accreditation. However, implementing these plans such as increasing the number of computers and labs are not yet adequately met, particularly labs for online exams for multi-section courses. In other words, the plans are there but the implementation is slow mainly due to financial constraints particularly that NDU's revenues come mostly from students' tuition fees as shown in the financial statement below published in the President's annual report of 2008-09 (see figure 6-4).

Figure 6-4 NDU income 2008-09
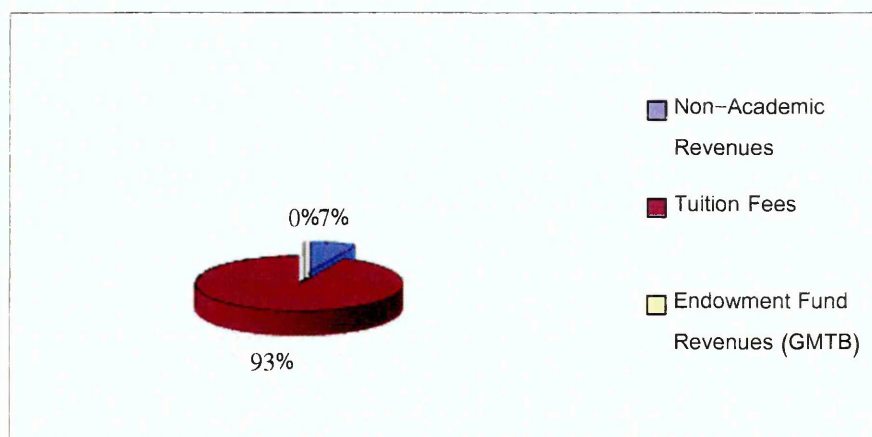
6.6   Summary of Questionnaire Results

Six years after introducing Bb at NDU, the results of questionnaire 1 administered in 2007 showed that the majority of faculty members did not use Bb and failed to engage in exploring its role in teaching and learning. However, the minority which used and explored Bb reported increasing interaction among students and with

152

faculty members, increasing active learning opportunities, providing immediate feedback, and improving teaching in terms of providing better learning opportunities for students. One of the concerns that emerged from questionnaire 1 was faculty members' refusal to give online exams and conduct discussion forum. In addition, faculty members' need to receive training and technical support in a number of technological areas was documented. Equipping classes with technology was perceived as a pre-condition for a greater use of technology in teaching and learning at NDU.

Following training provided by the Division of Computing Services (DCS), faculty members self-reported in questionnaire 2 proficiency in using PowerPoint, MS Word, MS outlook, and computers as an access tool for electronic resources at the University. Training seemed to have played a major role in increasing faculty members' use of technology in teaching and learning, but remained reluctant to give online exams and use the discussion forum regardless whether these features represent a step forward in e-learning.

Two main obstacles to e-learning implementation reported by faculty members were the lack of classes equipped with technology followed by the lack of institutional planning for integrating technology into teaching and learning. The questionnaire results were further probed in the interviews which investigated faculty members' skills and knowledge of technology use in teaching and learning; technology use in the classroom; potential benefits of e-learning; training; and policies on technology.

6.7   Analyses of Interviews

Analyses of interviews looked into individual, contextual, and training dimensions of technology use in teaching and learning. The three dimensions analyzed complemented analyses of questionnaires' findings and provided in-depth analyses of using technology in teaching and learning at NDU.

The individual dimension looked into skills and knowledge of technology use in teaching and learning; technology use in the classroom; potential benefits of e-learning training. The contextual dimension looked into views about availability of policies on technology. The training dimension sought to document faculty members' views on training needed for wider implementation of technology in teaching and learning.

6.7.1 Individual Dimension

An important finding that emerged from interviews with faculty members was their projection of lack of skills and knowledge for technology use in teaching and learning onto their colleagues at the University, perhaps to externalize their uncomfortable inner thoughts of their own lack of skills and knowledge in technology use in teaching, particularly given that 68% of faculty members said in questionnaire 2 that they were more likely to use technology in teaching if they received training. In fact, when asked about what skills and knowledge are considered necessary for the pedagogical use and exploitation of technology in teaching and learning at NDU, faculty members' answers focused on the deficiencies of their colleagues, without directly specifying the necessary skills and knowledge needed for technology use in teaching and learning. The majority (75%) of faculty members who were interviewed said that faculty members at NDU should have basic knowledge of PowerPoint and Bb alongside the right skills to present the information using what they described as ICT as a support tool but not as the single tool in their teaching. Their views was in the form of recommendations indicating the need for training on how to use technology in teaching and integrate such tools in their teaching being extremely useful as there are many faculty members who do not know how to use these tools in the classroom. As a faculty member said:

> *Faculty members need to have the basic skills first of using different tools in their teaching and I believe that lot of faculty members don't even have the basic skills of how to use ICT.*

Not only respondents recommended that faculty members would need to master the necessary skills for using technology in teaching, but 25% of them said faculty members' use of technology should be guided by pedagogy. One faculty member from the Faculty of Humanities who teaches both undergraduate and graduate education courses said:

> *Teachers have to know Pedagogy and I don't think that the majority of teachers plan their use of tools around methodology, communicating messages objective of tools, the effective teaching/learning environments is not focused on. For example the understanding of the learning theories, lesson planning, objectives and tools objectives along with content must be integrated together.*

This particular view is commonly held in the literature and this faculty member was pointing to the need of other faculty members to understand pedagogy and then

154

implement it through technology. Perhaps this faculty member has pointed implicitly to the relative isolation of her Faculty that should be in charge of handling the pedagogical aspect of technology at NDU when Bb was introduced at NDU in 2001.

Another faculty member from the Faculty of Humanities gave specific examples of what he described as technology use in teaching at NDU referring to the lack of skills in using ICT among faculty members to engage students in learning. In his words:

> *Most of the instructors use the technology available at NDU but I don't think it is used the right way. For example they are using Bb just to post materials like pdf and .doc but they don't use it to actively engage the students in the learning process. I think that instructors[7] need to be trained on how to use technology in a way to engage their students and to make them more active than just passive students. Another thing, instructors have to harbor the skills needed to use ICT in an efficient way to reduce the time needed for logistical preparations and thus saving this time to concentrate on the teaching process.*

The above quotation reflected the view voiced by 28% of faculty members that their colleagues do not use technology in a way that actively engages students in the learning process.

Skills for using technology were not seen only in the perspective of teaching and learning, but also had to do with academic honesty. In 2008, Faculties were engaged in discussions for taking necessary precautions to prevent plagiarism among students on campus. One suggestion to detect plagiarism was to purchase anti-plagiarism software. Twenty nine percent of respondents alluded to the need to create a culture suitable for ICT use to avoid academic dishonesty, particularly plagiarism. Before considering the use of ICT in teaching a culture suitable for an ICT setting is needed to avoid academic dishonesty. According to a faculty member:

> *The skills of respecting academic integrity, I mean that using ICT, for example, using a discussion board might undermine the honesty of presenting ideas as one's own.*

Reluctance to give online exams was evident in an announcement by the Department of Accounting, Finance and Economics at the Faculty of Business Administration and Economics (FBAE), although many of the Department's faculty members started

---

[7] The term instructor at NDU is used to refer to faculty members. The term faculty members appear in all University documents including the University Catalog, and instructors appears on the course offering for each semester. Also, the term instructor at NDU is the lowest academic rank. In this chapter, the instructor is the faculty member.

already to give online exams. On November 17, 2009, faculty members at FBAE received the following memorandum:

Dear All,
It is completely forbidden to do the second and final exams on Blackboard. For any exception please contact the department's chair for approval.

Thank you and regards.

To understand more about the FBAE ban, I interviewed the Chairperson of the Department of Accounting, Finance and Economics and asked him to clarify the online exam ban. The Chair explained that the ban was to assure uniformity in common exams for multi-section courses as there are faculty members in his department who give online exams while others do not.

Discipline, uniformity of common exams for multi-section courses, and internal rules and regulations reflected the lack of policies for online exams and how they can be handled when there were too many sections of the same course taking the same exam simultaneously with lack of enough computers. A faculty member explained one reason for online exams ban, particularly the need to upgrade the Blackboard server:

> *I think that the Blackboard server needs to be upgraded to a faster*
> *one to handle the load whenever we give an online exam for so many*
> *students at one time.*

Another faculty member said: "*...we need maybe to increase the number of labs and hence the number of computers for student use*".
The faculty member referred to the lack of computer labs that would accommodate large number of students of the same course from different sections taking the same exam simultaneously. In confirming this view, one faculty member asked for establishing large rooms equipped with enough computers for giving online exams:

> *We need for example a large room equipped with computers so that*
> *we can give online exams via Blackboard. What we do now is we split*
> *the class in two lots for any online exam.*

This showed that giving online exams for multi-section courses was constrained by the lack of enough computers. Despite this, 46% of faculty members reported giving online exams to their students. Despite the FBAE ban, there are no written policies that either prevent or endorse online exams. Due to the lack of an online exam policy, faculty members who give online exams take advantage of this. For example, a faculty member said that:

156

> *...my syllabus and all projects are posted on Blackboard, I even give my exams online using Blackboard.*

Furthermore, the limited use of the discussion forum by faculty members and students as documented in questionnaires 1 and 2 can be explained in light of the interview data. Interviews showed that the lack of faculty members' use of the discussion forum was due to the domination of traditional teaching in which discussion takes place in the classroom and that faculty members and students prefer to avoid spending a lot of time on the discussion forum.

Even among those who do not use technology in teaching (33%) recognized the need to use it in the classroom to engage students. The impetus for this was to cope with the change taking place at NDU where both training and more technology equipment were provided for faculty members to use in the classroom. As a faculty member put it:

> *Not much. But I think I should be using ICT more in my teaching to engage my students more but I really need the time to prepare all different contents for my course.*

Faculty members (64%) said they used technology mainly in facilitating interaction among students, specifically working on projects. A faculty member said:

> *When it comes to projects, I encourage the use of ICT because the richness of available resources, and the facilitation of interaction between group members working on the same project outside the classroom settings for example using emails, discussion forums, blogs, wikis. I think ICT should and can be used more for improved effectiveness of the final project. Also ICT is effective when using it to present your project to others.*

He added:

> *Another feature I use is the communication tool in blackboard because I divide my class into groups for which I create discussion forums on Blackboard. This helped a lot in communication between group members and me as instructor. I also post study guides on blackboard and track the students' usage of all posted materials and I do follow the progress and access to these materials for every single student.*

To complement quantitative data about the technology use in the classroom, faculty members were asked in the interview about the utility and effectiveness of technology use for teaching and learning at NDU. The most frequently counted response was the role of technology as a facilitator and supportive tool in teaching and learning. Next to the facilitating role of technology was the passing of information from the faculty member to his/her students. A faculty member said:

157

Utility is very high one. In one teaching hour using technology enables me to be more efficient in providing and passing information to my students. Technology facilitates the delivery of my teaching materials.

When faculty members were interviewed about how they use technology in teaching, 54% of them documented what they described as the richness of ICT use in the teaching and learning process.

There was agreement that ICT can be effective when it is used for implementing pedagogical objectives and meeting certain learning targets. As a faculty member stated: *"I think it is useful, and if you want to do it, it should be done correctly"*, meaning to use technology for achieving pedagogical objectives set by the faculty member. Another added: *"I believe that ICT can be useful and effective as a tool alongside any other educational methods"*. When faculty members were asked in the interview how ICT can be effective in teaching and learning at NDU, 67% of them reported that it would be more effective if faculty members have more ideas and more brainstorming sessions on how they are utilizing technology in their teachings because now they are using ICT without pedagogical objectives or how these objectives can be best met by technology.

Specific training for providing faculty members with skills needed to ICT use was recommended.

6.7.2 Contextual Dimension

During the interview, faculty members were asked to describe the level of technical support provided by the DCS staff to correlate with earlier findings and gain a richer account of what has emerged from questionnaire findings. The majority (83%) described technology support as very effective and efficient. A faculty member said: *"My learning process of integrating and using technology in my teaching would not have been feasible without the training and the support of the DCS technical team"*. Another added: *"Well honestly the support at NDU is among the best, if not the best among other services on campus"*.

Despite their positive views about the technical and training support they received, they were concerned about the lack of ICT equipment and technology infrastructure for supporting teaching and learning, particularly the lack of classes equipped with technology and availability of facilities for the growing number of faculty members who are increasingly using technology in teaching. To gain understanding about this issue,

faculty members were asked in the interview to answer the following question: To what extent do you believe NDU has ICT equipment and technology infrastructure available for supporting teaching and learning?

All faculty members interviewed asked for more computer labs and computers as the existing ones are not sufficient to accommodate the growing number of faculty members and students. A faculty member stated that:

> *I would say that as more faculty members are becoming aware of such tools that they can use in their teaching, I expect that NDU needs to expand, develop and upgrade ICT equipment to accommodate more faculty members.*

In relation to this, a faculty member added:

> *I think that NDU has advance Infrastructure. We have good amount of classrooms equipped with computers, LCD and Internet but I believe we need more as faculty members are using ICT more in their classrooms.*

In order to see if faculty members were aware of strategic planning and policies for ICT use at University and Faculty levels they were asked in the interview about their awareness of policies for ICT use in teaching at NDU, strategic plan for ICT use in teaching at their Faculty, and their awareness of any university-wide strategic plan for ICT deployment and use in the curriculum.

The majority (83%) of faculty members said in the interview that they were not aware of any University policies for ICT use in teaching. A faculty responded to this question by saying: "*Not really. By the way are there any policies?*" Another said: "*I am not aware of such policies at the university and if they exist I don't believe that they are implemented*". Three faculty members said the emphasis of the University on ICT use in teaching is vague. For instance, a faculty member said:

> *There is a vague emphasis by the administration for the use of ICT in teaching and learning. However most instructors are not aware of this and no strategy is in place to accomplish this endeavor.*

A more moderate response was stated by a faculty member who suggested that implementing ICT in teaching is a sign of some sort of policies:

> *I am aware of the University vision which is an umbrella for all policies. I am not aware of a specific set of policies for the use of ICT in teaching, but what I see being implemented is a sign of the presence of some kind of policies.*

Curricular changes, policies for implementing technology or evaluating its impact on the teaching and learning process are non-existent at NDU. As there are no written

policies for technology use in teaching and intentions of the leadership are not communicated, some piecemeal initiatives are undertaken in many faculties but not in a standardized way across the University. A faculty member said:

> *I am in the faculty of Humanities and faculty members are always encouraged to use ICT in the classroom, and a follow-up, regarding this issue, is done by faculty staff.*

In other Faculties, instructions rather than policies require the use of Bb for uploading course syllabi. According to a faculty member:

> *We have some instructions like we should upload course syllabi on the VLE (Bb). No photocopying anymore, is this enough? I don't think there is a philosophy of using such tools.*

The lack of written policies for technology use seemed to have created different practices for technology use across Faculties and Department. A faculty member referred to the need for a philosophy that would guide policies and practices for using technology. Those who use technology in the classroom do that on a personal basis as mentioned by a faculty member: *"But there are individual initiatives at personal levels"*. A guiding philosophy would require that faculty members agree on what they really want from using technology in teaching and learning based on discussion among them. A faculty member referred to lack of discussions for technology use in teaching or to what kind of philosophy to adopt at the University, which can be seen as a random approach for technology use in teaching rather than a well-planned one with guiding policies.

> *Because there was no discussions or meetings at the university level concerning ICT use in teaching or what kind of teaching philosophy we want to encourage. It is all done at the individual level of the teachers.*

Most faculty members underlined the importance of having a policy for ICT use in teaching at the University because:

> *I think there should be one [policy] and it is extremely important because teaching will be more uniform across different sections of courses taught by different faculty members.*

By uniform teaching faculty members referred to multi-section courses where one policy existed, i.e., to have common syllabi, common exam dates, and common exam questions. Faculty members used technology in some course-sections, others did not.

Another aspect in the interview questions on contextual factors was to inquire about faculty members' awareness of incentives for those who use ICT in teaching. About 81% simply said no. Regarding the provision of monetary incentives, a faculty member

said: *"You are joking my friend..."*. This view reflected the dissatisfaction of faculty members with the lack of incentives at NDU for rewarding good teaching and research whether faculty members used technology in teaching or not.

While some faculty members take the initiative to use technology in teaching and learning and engage in training, others might need encouragement and motivation. Although 80% of faculty members disagreed with considering lack of incentives for innovative teaching as an obstacle for e-learning implementation in questionnaire 2, 58% of faculty members interviewed recommended the provision of incentives to faculty members in order to encourage colleagues to use technology in teaching. According to a faculty member:

> *No Not really, but I hope in the future they have such incentives because I believe that people who are using technology will keep using it in their teaching and other people will be encouraged to utilize ICT in their teaching.*

Thus, lack of incentives was not viewed an obstacle to e-learning implementation, but as a motivation to engage more faculty members with technology.

6.7.3 Training Dimension

Interview questions about the training dimension asked faculty members to comment on the training they received from the DCS. Faculty members reported their satisfaction with the training provided by the DCS and the University e-learning Center. According to a faculty member:

> *I think we have a good technical support from the DCS team. I do appreciate all training and workshops offered by the DCS team to help faculty members know more and learn about ICT.*

Many faculty members (41%) said that not only training is needed to master the different tools but more time is needed to explore the system and become familiar with it. According to a faculty member:

> *Time is important for mastering different tools and technology available... Faculty members need time to explore that they can be familiar with the system.*

The faculty member referred to the lack of time given by the University to faculty development and training including receiving training in technology use in teaching and learning as most faculty members are engaged in committees, advising students and clubs, and involved in other administrative services which are counted for their promotion or renewal of contracts.

161

6.8 Potential Benefits of e-learning in Meeting Students Learning Needs

The Index of Learning Styles (ILS) (Solomon & Felder, 1999) was used with students in order to find possible match between how they would prefer to learn and actual teaching in the classroom which will be synthesized from the perspective of faculty members and students themselves. This section presents findings for the research question 5 which states "What are the potential benefits of e-learning in meeting students' learning needs as compared to traditional education?" This research question sought answers from both students and faculty members. Data about students were obtained from their responses to the learning style questionnaire which also included a separate section containing 12 statements about how their teachers taught in class on a Likert scale ranging from agree to neutral to disagree. Information from faculty members was obtained from interviews about how they taught in class. As students' learning styles transform along with changes in technology, the roles of faculty members may need redefining (Williams, 2009). Redefining the role of faculty members to match the needs of students entails a type of pedagogical shift that requires reexamining the role of the traditional teacher (Ibid.). As brought up in the literature, one of the potential benefits of e-learning is to provide a single experience that accommodates for the distinct learning styles of active learners, visual learners, sensing and reflector learners. Different learning styles are addressed and facilitation of learning takes place through varied learning activities and use digital contents based on students' learning styles (Bennett & Lockyer, 2008). The understanding of students' learning styles in this study sought to examine possible match between how they prefer to learn in class and how faculty members taught them. For this reason, faculty members were interviewed about how they actually taught in class and used technology in teaching. The responses of faculty members were compared with the responses of students to 12 questions about how their teachers taught them. The sections set forth will discuss the characteristics of students, questionnaire, student learning styles and preferences, students' views on teaching activities used in the classroom, and faculty responses.

6.9 Characteristics of Students

Students (n = 257) were requested to provide information about their learning styles and preferences as measured by the *Index of Learning Styles* (ILS) (Solomon & Felder, 1999) (see Chapter 5). The gender composition was 160(62.3%) males and 97(37.7%) females representing the total gender distribution of students at the

University which was 62% for males and 38% for females during the academic year 2008-09. Students' age ranged from 18 years old, i.e. sophomore level to 22 years which is the senior level. Given the diversity of schools in Lebanon, 96(34.7%) of the sample came from schools which use English as a second foreign language besides Arabic being the first language, 107(41.6%) from French teaching schools and 54(21%) from schools which teach both French and English as foreign languages besides Arabic and are called trilingual schools.

6.10 Questionnaire

The Index of Learning Styles (ILS) (Solomon & Felder, 1999) was used to examine students' learning styles and preferences, along four dimensions demonstrated in table 6-15.

Table 6-15 Dimensions of learning styles

Type of Learners	Characteristics
Active Learners	1. Like to be involved in new experiences; 2. Open minded and enthusiastic about new ideas; 3. Enjoy doing things and tend to act first and consider the implications afterwards; 4. Like to work with others.
Reflectors	1. Like to collect data and think about it carefully before coming to any conclusions; 2. Enjoy observing others and will listen to their views before offering their own.
Sensing	1. Practical; 2. Oriented towards facts and procedures; 3. Favor information arriving around their senses.
Intuitive	1. Conceptual; 2. Innovative; 3. Favor information that arrives from memory.
Visual	1. Prefer pictures and diagrams, flow charts and experiential explanations.
Verbal	1. Prefer written or spoken explanations and formulae.
Sequential	1) Linear; 2) Orderly learn in sequence and step-by-step process.
Global	1. Holistic; 2. Learn in leap steps; 3. Seek information from variety of resources.

Solomon & Felder, 1999

6.11 Students' Learning Styles and Preferences

This section presents and analyzes students' learning styles and preferences. Descriptive statistics show that the majority of students were classified as being balanced (65%), i.e., did not get far on any one side of the learning dimensions. These students were neutral and did not show particular learning styles. However, a preference

163

towards being moderately active emerged (23.7%) as opposed to a minority of moderate reflective (6.2%) and strong active (4.7%) (see table 6-16 and figure 6-5). Active students showed preference to work in groups and engage in physical activity, while those who identified themselves as balanced were likely to show flexibility in learning.

Table 6-16 Active/Reflective

	n	Percent
Balanced	167	65
Moderate active	61	23.7
Moderate reflective	16	6.2
Strong active	12	4.7
Strong reflective	1	.4
Total	**257**	**100**

Figure 6-5 Active/Reflective
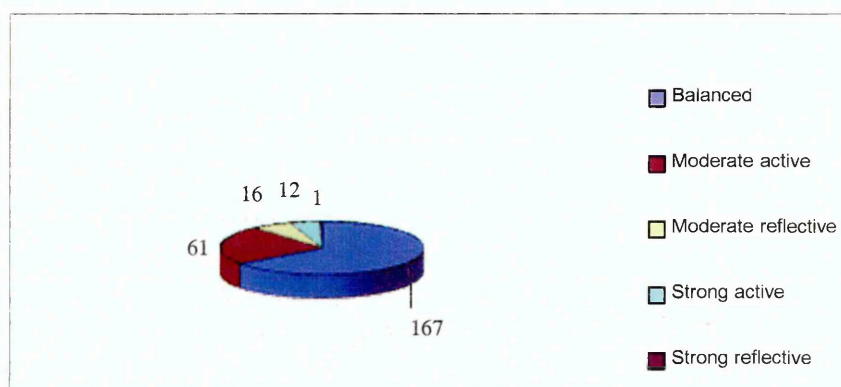
The highest for those who identified themselves as balanced appeared for sensing/intuitive dimension followed by a preference to moderate sensing as shown in table 6-17 and figure 6-6.

Table 6-17 Sensing/Intuitive

	n	Percent
Balanced	149	59.4
Moderate sensing	64	25.5
Moderate intuitive	19	7.6
Strong sensing	13	5.2
Strong intuitive	6	2.4
Total	**251**	**100**

Figure 6-6 Sensing/Intuitive
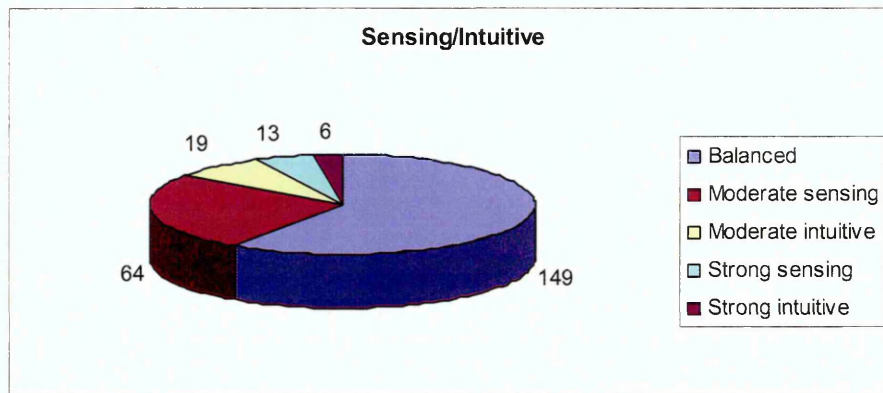
For the visual/verbal dimension, the percentage of those who identified their learning style as moderate in the previous two dimensions has dropped down and a tendency towards moderate visual (37.2%) and strong visual (24.4%) emerged, i.e., visuals accounted for about 62% of responses on the dimension (see table 6-18 and figure 6-7). These visuals prefer to learn through pictures, diagrams, graphs, and flowcharts.

Table 6-18 Visual/Verbal

	n	Percent
Balanced	87	34.4
Moderate visual	94	37.2
Moderate verbal	9	3.6
Strong visual	62	24.5
Strong verbal	1	.4
Total	**253**	**100**

Figure 6-7 Visual/Verbal
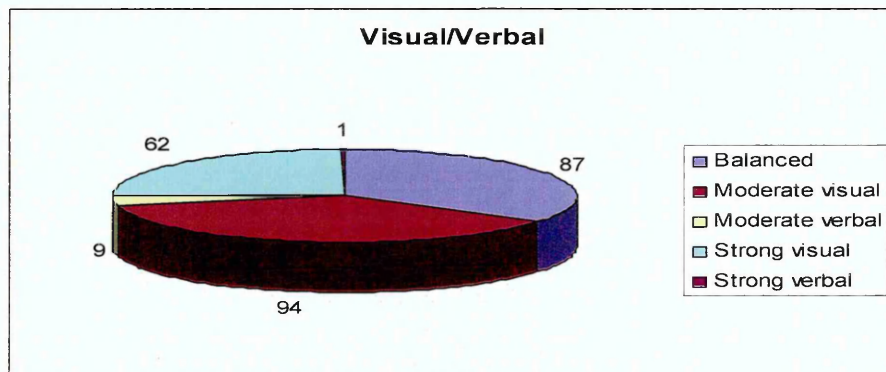
The fourth dimension defines whether one is sequential or global. The majority was balanced (68.8%) and the second highest percentage was the moderate sequential (17%) (see table 6-19 and figure 6-8), i.e., accommodate and understand material in small connected chunks as opposed to the global who tend to absorb information in seemingly unconnected chunks (Felder & Solomon, 1993; Felder & Spurlin, 2005).

165

Table 6-19 Sequential/Global

	n	Percent
Balanced	174	68.8
Moderate sequential	43	17.0
Moderate global	21	8.3
Strong sequential	11	4.3
Strong global	4	1.6
Total	**253**	**100**

Figure 6-8 Sequential/Global
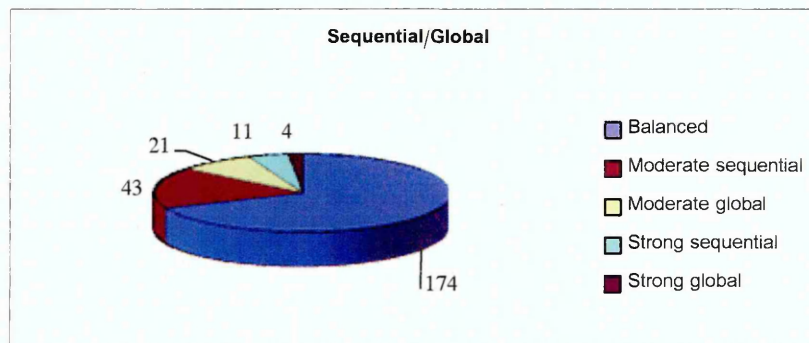
6.12 Students' Views on Teaching Activities Used in the Classroom

To familiarize with what type of activities and styles of pedagogy faculty members use in class, students were asked to respond to 12 questions on how their teachers taught in class along a scale that ranged from agree to neutral to disagree (see table 6-20). The questionnaire items reflected how teachers teach in class in relation to the dimensions of learning styles and preferences. For example, "the instruction of this course relies mainly on lectures" corresponds to the verbal dimension of learning styles like "Prefer written or spoken explanations" and "The instruction of this course tells us what to do in class step-by-step" which corresponds to the Sequential dimension like "Orderly learn in sequence and step-by-step process". The questionnaire also comprised items on technology use in the classroom and was administered to students to provide triangulation of data obtained from faculty members.

Table 6-20 Distribution of student responses in percentages

	Agreements	Neutral	Disagreements
65. The instructor of this course uses technology in teaching.	45%	30%	25%
66. The instructor of this course requests us to work in groups.	69%	18%	13%
67. The instructor of this course encourages us to work individually.	47%	37%	16%
68. The instructor of this course teaches us outdoors from time to time.	18%	18%	64%
69. The instruction of this course relies mainly on lectures.	57%	27%	16%
70. The instruction of this course requests us to do projects.	53%	32%	15%
71. The instruction of this course tells us what to do in class step-by-step	75%	16%	9%
72. The instructor of this course encourages us to read instructions related to the lesson.	71%	21%	8%
73. The instructor of this course encourages us to perform role playing.	56%	27%	17%
74. The instructor of this course requests us to do my assignments with one or two classmates.	56%	28%	16%
75. The instructor of this course relies heavily on the textbook when explaining the lesson.	55%	25%	20%
76. The instructor of this course asks us to read material from the Internet.	29%	35%	36%

From table 6-20, 45% of students have reported that their course instructor uses technology in teaching and only 29% said their course instructor asked them to read material from the Internet. At first look, these results contradicted faculty members' views in questionnaire 2 in which they said they used technology in teaching at NDU. Also, it contradicted with interviewing results with faculty members who taught these students. This contradiction was clarified through interviewing faculty members concerned with teaching these students.

6.13   Faculty Members

Interview data showed that faculty members used technology with their students enrolled in these courses. Those who used technology were mainly in posting lecture notes and syllabus on Bb and using MS PowerPoint for presenting their classroom lectures confirming what they reported in questionnaire 2. The demonstrable benefits to students of e-learning were presented in emails addressed to their instructors and in the course evaluation by students where they documented that their instructors enhanced their learning and made it more flexible through using Bb, according to faculty members interviewed.

An interpretation of the contradiction in the views between faculty members interviewed and students regarding technology use in teaching is that students could have not been aware of what type of technology use in teaching the question sought to

167

ask as 30% reported neutral responses on this question. In fact, 71% of students said the instructor of their course encouraged them to read instructions related to the lesson, responding to 21.3% of sequential students where 17% of them reported they were moderately sequential and 4.3% strongly sequential. In other words, these students prefer to learn in an orderly fashion, in sequence and step-by-step process through reading instructions, and learning in a structured and linear manner. According to faculty members interviewed, these instructions were posted on Bb. As for the 29% of students who said that their instructor asked them to read material from the Internet is due to the fact that faculty members discouraged students to download spammed information from the Internet for their assignments as some of the Internet sources may not be reliable and serve the purpose of the assignment. Instead, faculty members said they asked their students to use the electronic library of NDU which contains refereed journal articles and considered a reliable source for students' assignments and term-papers as confirmed by the interviewed faculty members who taught these students.

To find possible associations between student learning styles and faculty members' teaching of the course, a Phi- correlation coefficient test[8] was used among the items in the learning styles and items on how teachers teach as documented by students. No significant associations were found between the four learning style dimensions and faculty members' teaching of the course with exception to: "The instructor of this course relies heavily on the textbook when explaining the lesson" with sequential and "The instructor of this course asks us to read material from the Internet" with visuals. The results indicate that teaching methods used in the classroom at NDU do not in general respond to how students prefer to learn, which may indicate that the learning preferences measure is flawed. In fact, the concept of learning styles is not universally accepted and more research is needed (Dunn, Dunn, and Price, 1984). Moreover, criticism has been directed against the validity and reliability of learning style inventories. As far as e-learning is concerned, research on the connections of technology to teaching and learning- style preferences is not well developed (Grasha, 2000) and that is why the learning preferences measure can be flawed. More recently, attention has been paid to new pedagogies and non-traditional learning paradigms built on constructivism and learning by doing (e.g., Dunn et. al., 1989) which can be facilitated

---

[8] The phi coefficient is a measure of the degree of association between two binary variables. This measure is similar to the correlation coefficient in its interpretation (http://www.childrens-mercy.org/stats/definitions/phi.htm).

by technology. Learning styles can appear as a mechanical measure of students' learning that may contradict with constructivist learning.

6.14 Views of Academic Administrators

Interview data were obtained from academic administrators in order to analyze their opinions about implementing e-learning at NDU. As mentioned in Chapter 5, 18 academic administrators were targeted for the interview. However, 5 of them were too busy to complete the interview and were excluded from the study. The majority (76%) of academic administrators said they were involved in planning for deploying technology at NDU as part of their involvement in the strategic planning process for institutional accreditation in 2007. When asked about the presence of written policies for technology use at NDU, they were unaware of any written policy, particularly with regards to online exams but many of them (6) emphasized the need to develop policies on technology since there are increasing numbers of faculty members who are using technology in teaching. When I conveyed to academic administrators the concern of faculty members reported in the interview and questionnaire that not all classrooms were equipped with technology for their use in teaching, academic administrators were reluctant to give any promise for the near future to spend more money on new facilities because of financial constrains at the University. One academic administrator suggested that I submit a thorough proposal about emerging technology needs on campus and state a budget for purchasing them based on priority. One of the priorities was to increase the bandwidth of the Internet to make it faster for users as students who live on campus download large files resulting in slowing down the Internet. However, the request of the academic administrator that I submit a proposal about emerging technology needs on campus was outside my role as a researcher.

Regarding the implementation of e-learning in the curriculum, 90% of academic administrators interviewed were in favour of using e-learning on campus in the form of blended learning to complement face-to-face teaching in compliance with the eligibility requirement number 8 pertaining to institutional accreditation which states: *"Offers its instructional programs entirely or predominantly through coursework that includes face-to-face instruction"*. Based on the increased awareness of faculty members about the potential benefits of using technology in teaching at the University, academic administrators said they motivate faculty members to use the appropriate tools and styles of pedagogy that would translate the mission of the University in achieving

excellence in higher education which was in line with the President's memorandum that announced the establishment of the University e-Learning Center.

According to three key academic administrators interviewed, budgetary constraints are slowing down the process of purchasing more computers and equipments to accommodate for the emerging teaching and learning needs of faculty members and students.

6.15 Conclusion

This chapter has shown that the driving forces for implementing e-learning at NDU came from external and internal sources. Externally, NDU was influenced by the global shift of creating and using knowledge through technology in educational contexts. Internally, faculty members' request for training in technology reflected their own personal belief about the benefits of technology rather than directives that gave impetus to the deployment of technology and training at the University. In turn, the University President has played a major role in paving the way for the implementation of e-learning at NDU. The implementation of e-learning posited major challenges to the University, in particular, how to overcome cultural resistance to adopt e-learning and overcome financial constraints that may inhibit technology deployment for educational purposes. A strategy of containment and engagement of faculty members was adopted by the University President to reduce the tension among Faculties through engaging specialized faculty members in the e-learning implementation process and also by institutionalizing technology through establishing the e-learning center and then a committee to define its role and scope of work. The work of the committee to define the role of the center has been repeatedly derailed by the management turnover at NDU. Because of leadership change at NDU, the use of technology in teaching and learning was left at discretion of personal initiatives at the University with no communicated policies that would govern technology use in teaching and learning.

A culture of participation and engagement of all the constituents of the University brought by the new senior management representing a shift in culture at NDU and provided opportunities for a wider participation of faculty members in academic affairs.

In fact, questionnaire 1 showed that faculty members engaged their students with technology in classroom activities. However, the majority did not use Bb. Among those who used Bb they reported positive impacts of technology use. From the analyses of questionnaires and interviews, faculty members perceived increasing their teaching

effectiveness in terms of providing better learning opportunities for students through Bb like posting syllabus, posting lecture notes, providing examples of assigned projects, links to online resources, management of course content, and discussion forum.

A recurrent finding that emerged in this study was faculty members' request for training in technology use in teaching and learning. Following the administration of training session, the majority of faculty members at NDU engaged their students with technology in classroom activities like submitting their assignments and making PowerPoint presentations and made a greater use of Bb. However, although faculty members self-reported benefits of Bb in teaching and learning, they were still reluctant to give online exams, use the discussion forum, and use the grade book and the calendar. These Bb features received the least support from faculty members due to the availability of alternative means and department polices for faculty evaluation and promotion based on face-to-face discussions during class hours, student attendance, and faculty members' preference for proctoring exams and answering students' questions during exams.

Interview data showed that reluctance to give online exams was due to the lack of computer labs that would accommodate large number of students of the same course from different sections taking the same exam simultaneously in addition to the lack of communicated policies that either prevent or endorse online exams. Curricular changes, policies for implementing technology or evaluating its impact on the teaching and learning process are inexistent at NDU. As there no written policies for technology use in teaching and intentions of the leadership are not communicated, some piecemeal initiatives are undertaken in many faculties but not in a standardized way across the University.

Concerning the conditions for making a greater use of technology in teaching and learning, the majority of faculty members uttered a common voice, i.e., they were more likely to use technology in teaching if they received training. In addition, technology availability in classrooms emerged as a primary issue to make greater use of technology in teaching and learning; faculty members would use technology if more classrooms were equipped with technology. Moreover, faculty members reported that they were more likely to use technology if NDU rewarded innovation in teaching facilitated by technology, receiving monetary incentives, and if NDU took into consideration the use of technology in teaching for promotion.

Although faculty said they were proficient in using PowerPoint, MS Word, MS outlook, and computers, an important finding that emerged from interviews with faculty members was their projection of lack of skills and knowledge for technology use in teaching and learning onto their colleagues at the University, perhaps to externalize their uncomfortable inner thoughts of their own lack of skills and knowledge in technology use in teaching, particularly that 68% of faculty members who said in questionnaire 2 that they were more likely to use technology in teaching if they received training. In fact, when asked about what skills and knowledge are considered necessary for the pedagogical use and exploitation of technology in teaching and learning at NDU, faculty members' answers focused on the deficiencies of their colleagues, without directly specifying the necessary skills and knowledge needed for technology use in teaching and learning. The majority (75%) of faculty members who were interviewed said that faculty members at NDU should have basic knowledge of PowerPoint and Bb alongside the right skills to present the information using what they described as ICT as a support tool but not as the single tool in their teaching. Moreover, there was agreement that technology can be effective when it is used for implementing pedagogical objectives and meeting certain learning targets.

Turning to students, almost half of them have reported that their course instructor uses technology in teaching and only 29% said their course instructor asked them to read material from the Internet. These results contradicted faculty members' views in questionnaire 2 in which they said they engaged their students with technology.

An interpretation of the contradiction in the views between faculty members and students regarding technology use in teaching is that students could have not been aware of what type of technology use in teaching the question sought to ask. According to faculty members interviewed, course instructions were posted on Bb and lack of Internet use reported by students is due to the fact that faculty members discouraged students to download information from the Internet for their assignments as some of these sources may not be reliable. Instead, faculty members asked their students to use the electronic library of NDU which contains refereed journal articles for students' assignments and term-papers.

Turning to academic administrators, the majority of them said they were involved in planning for deploying technology at NDU as part of their involvement in the strategic planning process for institutional accreditation in 2007. When asked about the presence

of written policies for technology use at NDU, they were unaware of any written policy, particularly with regards to online exams but many of them (6) emphasized the need to develop policies on technology since there are increasing numbers of faculty members who are using technology in teaching. Also, they said that not all classrooms were equipped with technology for their use in teaching. Regarding the implementation of e-learning in the curriculum, academic administrators were in favour of using e-learning on campus in the form of blended learning to complement face-to-face teaching. Based on the increased awareness of faculty members about the potential benefits of using technology in teaching at the University, academic administrators said they motivate faculty members to use the appropriate tools and styles of pedagogy that would translate the mission of the University in achieving excellence in higher education.

Over the years, faculty members moved from reluctance to use technology in teaching to engage in a culture of technology use for educational purposes at NDU. Change in attitude among faculty members from 2007 to 2009 was facilitated by training and provision of more technological facilities, although faculty members were not satisfied with the current technology facilities and infrastructure at the University, particularly the lack of equipped classes with technology for research and administering online exams for multi-section courses in addition to the absence of written and well communicated policies that would govern technology use in teaching at the University. Faculty members reported benefits of using technology in teaching and increased impact on students learning. Although NDU has made progress in implementing technology in teaching and learning, certain obstacles hindered the e-learning implementation process such as lack of computers and related equipments and written communicated polices that govern technology use in teaching.

6.16 Summary

Through documenting and analyzing the views, attitudes and experiences of faculty members, academic administrators and students, nine clusters of qualitative and quantitative findings derived from analyses of the research questions of the study were analyzed. These are:

1. The development process of e-learning;
2. Faculty members' attitudes to e-learning;
3. Faculty members' interest in using e-learning;
4. Faculty members self-reported benefits and efficiency of e-learning in teaching

173

and learning;

5. Conditions, familiarity, skills and use of technology;

6. Factors that encouraged faculty members to use Bb;

7. Obstacles to implementing e-learning at NDU;

8. Potential benefits of e-learning in meeting student learning needs;

9. Views of academic administrators towards e-learning implementation at NDU.

The above nine clusters together with analyses of lessons learned from the analyses of participants' views and experiences will be discussed in Chapter 7 in relation to the literature review. It is expected that the discussion of the lessons learned will bridge the theoretical gaps in the literature on e-learning development in higher educational contexts.

Chapter 7

Discussion

7.1 Introduction

This chapter discusses the research findings of the study in the context of the literature in order to identify the specific contributions this study has made to the existing knowledge in the field and reinforce current thinking regarding e-learning implementation in higher educational contexts.

The chapter will start with presenting an overview of the study, its goals and methodology in order to prepare the ground for discussion of the research findings that arose from the analyses of the research questions of the study (see Chapter 5), making links back to the literature review of the study. These research questions are:

1. What are the attitudes of faculty members towards e-learning in terms of their interest in it, the benefits generated from e-learning, and the efficiency of e-learning in teaching and learning?

2. What are the skills of faculty members in Microsoft tools and how they use them in teaching?

3. How do faculty members report their confidence and familiarity with e-learning tools?

4. How do faculty members perceive the implementation of e-learning in teaching?

5. What are the potential benefits of e-learning in meeting students' learning needs as compared to traditional education?

6. How do education decision-makers think of implementing e-learning in the curriculum?

7. What obstacles (financial, cultural, and technical...) could hinder the implementation of e-learning, and how?

Discussion will center on the factors that made the most sense to understanding the development process of e-learning in a traditional higher educational context attempting to transform its teaching and learning to meet the demands for change in higher education. These factors are:

- The need to change;
- Decisions and institutional strategies involved in the change process;

- The patterns and practices of faculty members in the change process;
- The views of academic administrators regarding e-learning implementation at the University;
- The learning preferences of students with respect to teaching at NDU;
- Obstacles to e-learning implementation at NDU.

Discussion of the above factors was guided by the conceptual framework of the study. These factors help determine opportunities for success and obstacles of e-learning implementation at NDU, which in part depends on analyzing organizational factors such as existing leadership, structures, processes, and culture that either support or constrain the implementation process (Hannan, 2005).

7.2   Overview of the Study

This study was designed to gain an in-depth view of the development process of implementing e-learning for pedagogical purposes in higher educational contexts taking Notre Dame University-Louaize (NDU) in Lebanon as a case study. NDU was chosen in part because it was not in any major way an extreme or an unusual case (Patton, 1990) from the rest of private higher educational institutions in Lebanon. Though the literature is growing, according to Casanovas (2010), organizational issues regarding higher education institutions′ processes for adoption and institutionalization of e-learning represent a small part of the published literature. This study covered this gap in the literature by focusing on the entire implementation process of e-learning at NDU. It explored the entire implementation process of e-learning based on analyses of institutional processes, leadership approaches to e-learning implementation, the views of faculty members, academic administrators and students from all departments and disciplines. The study generated its data by conducting intensive and holistic analyses of NDU as a social unit (Baxter & Jack, 2008; Merriam, 1998) employing questionnaires, interviews, and document analysis to achieve the following: (i) gain an in-depth view of the e-learning development process; (ii) create a connected chain of evidence (Yin, 2002).

As a result of analyzing the large amount of qualitative and quantitative data obtained from fieldwork, a number of findings have emerged. Some of these findings have not been previously discussed in the literature and might be useful in many ways to higher educational contexts currently using or planning to implement e-learning. Other findings that emerged from this study were in line with the wider literature on e-learning

implementation, suggesting their generalizability to higher educational contexts outside the settings where such findings were derived taking into consideration limitations of generalizing research findings on the basis of a single-case study (Flyvbjerg, 2006).

The following sections will discuss the development process of e-learning at NDU in the context of the literature. This discussion attempts to explore how the development process varied from or agreed with previous findings reported in the literature and why.

7.3 The Development Process of E-learning Implementation

This section discusses the factors that have determined the decisions involved in the change to e-learning implementation in teaching and learning at NDU, the implementation of the change, and the challenges faced during the implementation process. These aspects of e-learning development in higher educational contexts have been discussed in the literature from the perspective of leaders who lead change in higher education such as university presidents, vice-presidents, deans, and academic directors (Olcott, 2005). In this study, institutional processes involved several steps for implementing e-learning, particularly the need for change, the decisions to change and the approaches used in the process of change to e-learning implementation. These institutional processes have been the focus of change management research in higher education (e.g., Duderstadt, 2000; Fullan, 2001; Cuban, 2000), specifically with regards to responding to emerging educational needs characterized by increasing number of diversified educational provisions, and providers, stakeholders as well as the way knowledge is delivered and disseminated through technology.

In this study, discussion of institutional processes attempts to bridge a gap in the literature characterized by limited research that has analyzed the need for change, the decisions to change and the reactions to e-learning implementation from the perspective of all those who are involved in the change process in higher educational contexts, i.e., faculty members, students and academic administrators. As many studies have been carried out to reveal some of the key factors to be considered when introducing e-learning (Volery & Lord, 2000; Soong, Chan, Chua, & Loh, 2001; Testa & de Freitas, 2004), to date, the majority of studies have focused on technological, design and delivery issues. A few studies have discussed institutional processes of e-learning implementation in higher educational contexts. This gap in the literature has been reported by Khan (2005). In addition, limited research into e-learning has examined institutional processes as an entire cycle involving analyses of the culture of the context,

177

the politics of leadership change and their degree of influence on the e-learning implementation process. The following sections will discuss e-learning implementation process at NDU according to the following order:

- The need for change;
- The decisions to change;
- The approaches used in the process of change to e-learning implementation.

7.3.1 The Need to Change at NDU

This section discusses reasons for change at NDU in the context of the literature. The research findings of the current study suggest that the need for change in teaching and learning facilitated by e-learning is determined and shaped by the way higher educational contexts react to external pressure and internal requests to adopt e-learning. Some of the external pressures experienced by NDU are similar to those experienced by other higher educational contexts world-wide while others are not. The decision for implementing e-learning at NDU was influenced by the changes taking place in higher education characterized by the penetration of technology into teaching and learning and the way it has changed the presentation of knowledge and the way learners access it (Snyder, 2001). This was similar to other educational contexts which became part of a global shift to a new way of creating and using knowledge (Divjak & Begicevic, 2006) facilitated by technology (Haddad & Draxler, 2002). NDU's decision to implementing e-learning was also part of what Owston (2000) described as jumping on the 'bandwagon of technology' due to external pressure and also in response to what (Pitinsky, 2003), described as the "dot-com boom".

Several concerns have emerged during the e-learning implementation process at NDU, representing the particular experience of the University. Financial constraints that may inhibit technology deployment for teaching and learning represented a concern at NDU such as lack of financial capabilities may slow down the deployment of technology and enhancing the infrastructure of e-learning. This financial constraint has resulted from the University's dependence on students' tuition fees (see figure 6-4 in Chapter 6) which are inadequate to invest in teaching resources and faculty development. This finding presents a sharp difference from other higher educational institutions which opt for e-learning as a solution to rising costs and budget cuts in higher education (Tucker & Gentry, 2009) since the number of students in higher educational institutions is increasing steadily while funding to educate these students has remained unchanged.

Rather than use e-learning as a solution to rising costs and budget cuts, NDU has recently set fund-raising plans to reach Catholic organizations affiliated with the dioceses to which NDU belongs and to establish links with Lebanese entrepreneurs in North America as potential donors.

The implementation of e-learning at NDU was in part shaped by higher education policy in Lebanon which to-date does not recognize virtual universities or degrees awarded by means of distance education and e-learning. As Hammond (2003) argued that higher education institutions exist within political, cultural and social contexts which shape policy and practice. Thus, the factor of opting for e-learning to compete with virtual higher educational institutions is inapplicable in Lebanese higher educational contexts as virtual universities are inexistent to start with because they are neither recognized nor licensed or even allowed operating in Lebanon. Since NDU is a traditional higher educational institution as expressed in the mission statement, the implementation of e-learning in the form of blended-learning was limited to enhancing teaching and learning to improve the quality of the student experience. In a way, NDU's decision to implement e-learning was to respond to reform and modernizing in terms of curricula, teaching methods, expanded learning outcomes, quality assurance, research and innovation rather than to specific economic or policy pressures as was the case of the Bologna reforms and the Lisbon Agenda (MacKeogh & Fox, 2009). These were clearly stated in the minutes of the University E-learning Center Committee (UECC) which mentioned during the early phases of planning that e-learning was not to replace traditional classroom teaching, but to complement the work of the educators and also to support NDU's commitment to excellence in higher education or assure quality education. NDU was among other higher educational institutions in the Arab region that have recently showed interest in quality education and evaluation (Badran, 1999) facilitated by e-learning (see Chapter 1).

Because students at NDU are expecting more flexibility in their studies choosing courses delivered at varying times and locations in order to balance their education with work and other responsibilities, NDU considered blended learning rather than a full-fledged e-learning implementation that would contradict the emphasis of the University's mission on face-to-face instruction or the policies and regulations stated by the Ministry of Education and Higher Education (MEHE).

The literature also suggests that many traditional higher education institutions have

179

included e-learning courses to compete with the growing number of virtual higher education institutions to remain competitive and maintain their market share (Huynh et al., 2003). Internally, a key factor for implementing e-learning at NDU was faculty members' request for training in technology for the purpose of teaching, learning, and research as identified in the needs assessment about faculty development priories carried out in 2007. Although it started as a grassroots movement; it morphed into a strategic objective as a result of a change in policy was formed and a more bottom-up approach. Part of NDU's internal decision for change in teaching and learning facilitated by e-learning was in response to goal 9, objective 1 and related action plans of the strategic planning report of 2007 presented in Chapter 4. The goal and objectives stated:

Goal 9: The University will accelerate its pace towards the full-fledged deployment of information technology at all levels of its activities.

Objective 1: Accelerate the introduction of up-to-date information technologies to support teaching and learning

Action Plans:

1. Develop policies for teaching and learning through technology (blended or full-fledged e-learning)
2. Work towards equipping all appropriate classrooms with high tech educational devices (computers, projectors, and large screens)
3. Organize workshops on the use of educational software packages such as Blackboard, Power Point, Microsoft Word, etc. for achieving pedagogical objectives

To summarize, both external and internal reasons for change to e-learning at NDU were determined by the following:

1. The changes taking place in higher education characterized by the penetration of technology into teaching and learning;
2. Ministerial regulations regarding e-learning and distance education;
3. The need to reform and modernize the curriculum;
4. Promote excellence in teaching and learning and address quality assurance standards;
5. Faculty members' development priorities;

180

6. Request from faculty members to capitalize on the 'information age'.

To respond to the external and internal reasons for the change to e-learning, NDU has taken certain decisions for e-learning implementation and followed an institutional approach to change. The nature of approaches and decisions used in the implementation process will be discussed in the section that follows.

7.3.2 Institutional Approaches to Change

As shown in Chapter 6, a formal strategic planning for implementing e-learning at NDU does not exist in its own right but exists as part of the university-wide strategic planning for institutional accreditation. Approaches to e-learning implementation at NDU which constituted ideas or actions formed an alternative to a formal straightforward e-learning strategic planning. The reason could be that strategic planning rarely exists during the infancy stage of e-learning implementation, particularly in traditional higher educational contexts such as the case of NDU. The e-learning implementation at NDU has started before the development of the university-wide strategic planning and was determined by approaches rather than written strategies that have specific dates for implementation. To the contrary of the case of NDU, Smith (2009) has argued that strategic planning is about who is involved, when the plans will be implemented, and how they will be implemented, whereas implementation of the strategic plan concerns budgeting and employee incentives, suggesting that implementation follows strategic planning.

At NDU, the approaches used to implement e-learning were useful being flexible and progressed naturally to deal with unpredictable problems and barriers during implementation rather than being structured and systematic. These approaches resembled a symbolic mode in implementation where the top-management creates a vision to the contrary of rational mode in which data collection and use of data are essential to the process of structured and systematic strategic planning (Hart, 1992). To reveal the difference between structured strategic planning and the flexible snow-ball development of e-learning development approach at NDU, it might be useful to illustrate this with reference to the Deming Cycle developed in 1986 which is considered one of the most common structured and systematic approaches to implementation and decision making in organizations based on the plan, do, check, act (PDCA) cycle (see figure 7-1).

181

Figure 7-1 Deming Cycle
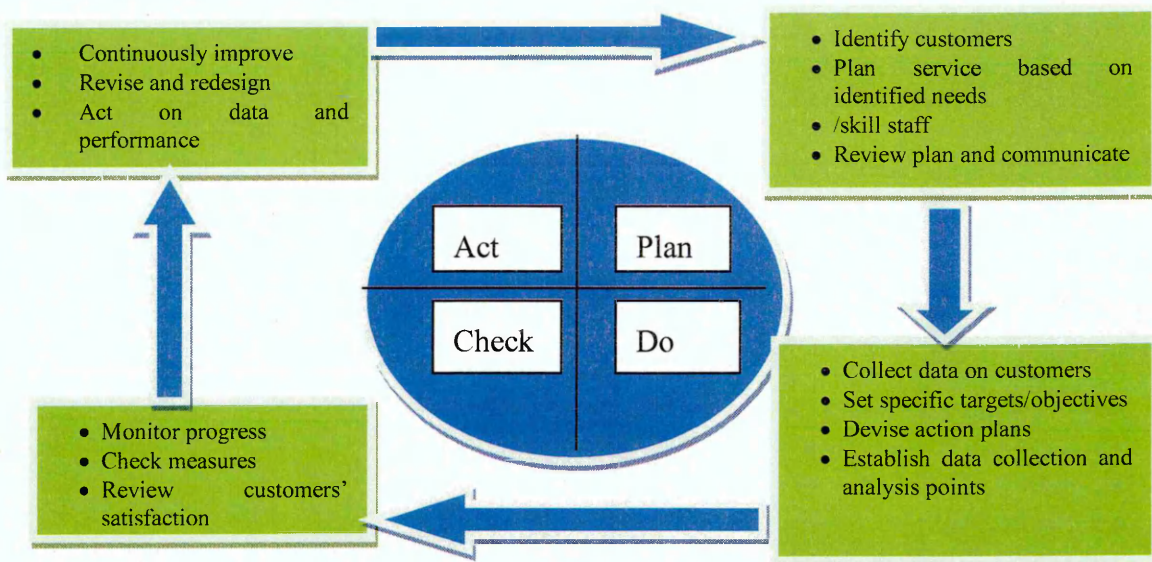
Source: Deming Cycle, 1986

While the Deming Cycle represents a structured approach to planning, traditional higher educational contexts attempting to implement e-learning such as NDU seem to opt for flexibility in the implementation process. The implementation process at NDU was constructed naturally as it was determined by institutional events and actions. The implementation process of e-learning and related decisions followed ripple effect approach as shown in figure 7-2.

Figure 7-2 The implementation process of e-learning at NDU

182
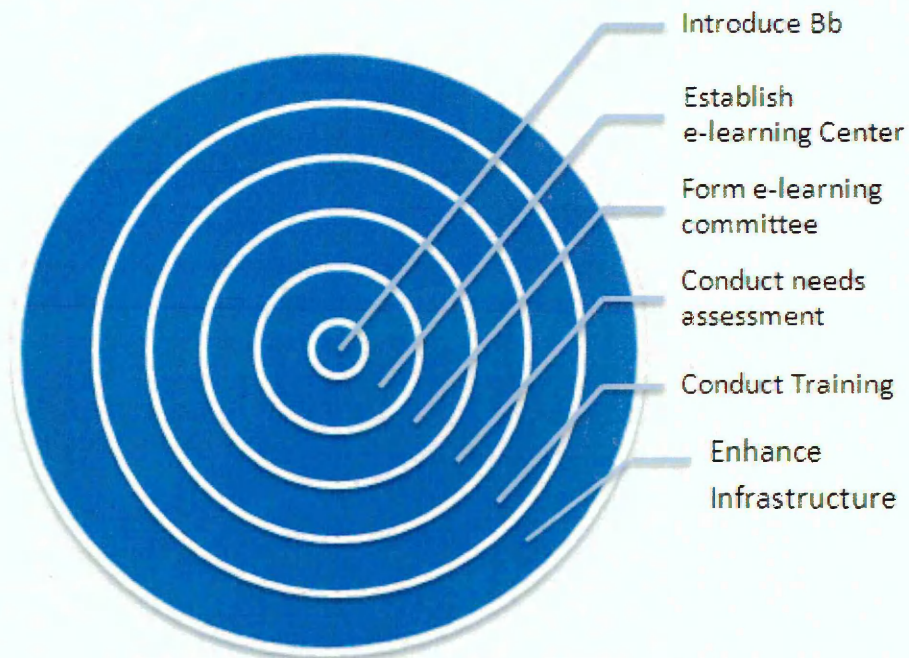
The ripple effect approach with centric rings was temporally related provides a proximate account of what happened at NDU overtime. This approach represents different phases of e-learning implementation where each phase was determined by a certain emerging priority addressed by an action or a decision. Actions and decisions were centralized and hierarchical in nature as they were made by the top-management leadership, particularly during the early phases of implementation from 2001 to 2005. These decisions and their influence on the implementation process are discussed in the next section.

7.3.3 The Nature of Decisions Taken

Decision to e-learning implementation at NDU concerned technological and pedagogical aspects of e-learning implementation. As mentioned in Chapter 6, Blackboard (Bb), which is the Virtual Learning Environment (*VLE*) at NDU, was introduced as a first step towards implementing e-learning in 2001. This introduction was preceded by a decision whether or not Bb was an appropriate tool to facilitate teaching and learning. NDU's decision to implement Bb was first technological and for a trial period, then it became an educational one at later stage, suggesting the University's interest in the functions of new technological tools instead of interest in its role in pedagogy itself (Cornu, 2000). At NDU, Bb was chosen after studying its technical specifications and effectiveness similarly to other institutions which examine elements if meaningful input to the system's effectiveness is going to be made (McCormack & Jones, 1998). Findings of the current study were in line with the results of a study that dealt with documenting institutional e-learning strategies in Australian universities which showed that during implementing e-learning somewhat greater attention was being paid to the technical aspect of implementation than to pedagogical issues (Inglis, 2007). It seems that the educational decision at NDU, i.e., interest in the role of technology in teaching and learning came at a later stage as result of the institutionalization of e-learning through the e-learning centre where a committee was formed by the President to define its educational role away from dealing with the technical specifications of e-learning which was performed earlier during the introduction of Bb in 2001.

In all phases, leadership at NDU played a major role in the implementation process. This was in line with the literature which emphasizes the important role of leadership in planning and implementing e-learning (Pearson, 2005). As mentioned in Chapter 6, the

183

decision to implement change facilitated by e-learning at NDU was initiated by the President to promote an environment that supports teaching and learning in line with previous research which argued that the responsibility of education leadership is to facilitate the learning activities and establish a supportive environment for knowledge and related activities. The findings of the current study indicate that NDU had leaders throughout the e-learning implementation process but the challenge was in the leadership roles which fluctuated over the years between a top-down approach and a bottom-up approach leading to numerous difficulties in the change process.

The research findings of the current study suggest that the decisions and strategies to change at NDU varied according to the phases of implementation and leadership approaches. In an environment of top-down approach for implementing change, resistance to change by faculty members is common (Bates, 2000). According to CERI (2005), there are barriers to overcome when implementing e-learning. Among these barriers is faculty members' resistance to adopt e-learning due to their inability to recognize the perceived benefits of implementing e-learning into their existing teaching and due to incompatibility with their own teaching philosophy (Trinidad, 2005) or because they believe that e-learning is inferior to face-to-face instruction (Huynh et al, 2003). In the current study, the approach of the President was to contain potential resistance that mostly came from those who felt they were not involved in handling the pedagogical aspect of technology at NDU mainly faculty members from the education department who expressed their concern that technical staff lack knowledge and experience in the pedagogical aspects of e-learning. The findings suggest that during the planning phase for implementing e-learning at NDU, resistance came as a result of lack of engagement of faculty members in planning rather than their rejection to engage with e-learning as a tool that would facilitate the teaching and learning process on campus.

There was also resistance from committee members who were requested by the President to define the role of the e-learning center. In fact, the work of the committee to define the role of the center has been repeatedly derailed by the management turnover at the University leading to institutional paralysis that has interrupted the implementation process for a periodically one year.

The conclusion drawn from this finding is that turn-over in leadership at NDU interrupts the implementation of change because the new President would have different plans and priorities for the University, particularly that he feels pressure to create new initiatives

rather than implement existing ones that are regarded by campus stakeholders and trustees as the sign of an effective and dynamic leader (Kezar, 2009). As shown in Chapter 6, in 2006, the new senior management leadership established a culture of participation and engagement of faculty members for the implementation of e-learning, representing a shift in culture at NDU. Thus, the decisions taken to change to e-learning were largely influenced by leadership turn-over, creating a lack of standardization of e-learning implementation across Faculties and Departments as shown in Chapter 6. This finding can be explained in light of the culture of the University which pronounces the lack of democracy in the administrative works of Lebanese institutions in general. For instance, the president of NDU is appointed by the monastic orders and appointments are not based on democratic standards.

7.4   Patterns and Practices of Faculty Members in the Change Process

Part of the literature that drove this study has shown that the success of e-learning in higher educational contexts depends on the degree of involvement of faculty members in decision-making as well as their practices in the implementation process. These practices involve their attitudes and views towards e-learning implementation into teaching and learning.

The results of this study emphasized the importance of exploring the views and attitudes of faculty members in the e-learning implementation process at NDU, involving understanding their roles in the planning process, cooperation, and aspects of policies and practices. In line with this, a significant number of studies have underlined the importance of understanding the attitudes and views of faculty members in the implementation process and consider them as a pre-requisite to implementation and part of the planning process. The literature (e.g., Amirian, 2003) also argues that pre-planning is one of the activities for successful teaching and learning with technology which involves assessment of teachers' attitudes towards technology. Cooperation of faculty members is also identified as an important factor for e-learning implementation (Holley, 2000). As stated by Bates (2000), because of the central role that faculty members play in the work of the universities and colleges, any change, especially in teaching is completely dependent on their support. The importance of understanding the views, attitudes and experiences of faculty members with regards to e-learning implementation was well-documented in the current study. Faculty members are effective in contributing to curricula change (McLaughlin, 1990); if there is no faculty

buy-in, there is no change; thus, faculty members represent a clear "guiding stick" in the planning procedure for e-learning (Tobin et al., 1994). In addition, the belief systems of faculty members play a major role in implementing e-learning (Schuttlofel, 1998). Because understanding faculty members' attitudes to e-learning was part of the e-learning implementation process at NDU, the next sections will discuss the following: faculty members' views and attitudes to e-learning; the role of training; self-reported benefits of e-learning; views on availability of technology facilities for teaching and learning; use of technology in teaching and learning; and the factors that encouraged the use of the Bb as the Virtual Learning Environment (*VLE*) at NDU.

7.4.1 Faculty Members' Views and Attitudes to E-learning

This section discusses faculty members' views and attitudes to e-learning in the context of its implementation at NDU. Although NDU has the basic technology infrastructure, instruction is traditional because it is carried out entirely face-to-face and students' physical attendance in their courses is obligatory in accordance with mission and policies of the University. Like other universities around the world the Internet was first introduced at NDU in the 1990s, which was a rapid change given that the University was only established in 1987. However, the introduction of Bb in 2001 was the beginning of change. The terms "e-learning" and "digital communication" quickly became part of faculty members' language representing a new way of thinking on campus.

Data obtained from faculty members in 2007 classified the change into two categories: a change in teaching and learning facilitated by the use of MS-office programs and another change characterized by using Bb. While increasing numbers of faculty members engaged their students with technology in classroom activities, particularly submitting course assignments using MS-office programs and communicating via email, a smaller number of them used Bb, which signified at that time a web presence at NDU. Unlike other settings in which Bb was introduced at a rapid pace, NDU's approach was slow. Lisewski (2004) reported that Salford University in the U.K. required that all modules should use Blackboard to establish a web presence. Browne and Jenkins (2003) reported that this was the most common type of target in implementation strategies. The gradual shift to Bb from being a web presence to a tool that potentially facilitates teaching and learning at NDU was carried out by training offered to faculty members upon their request leading to an increasing number of

faculty members to use Bb in their classes. Thus, during the early implementation of e-learning, training appeared as an important facilitator to achieving change in the mode of delivery of teaching and learning through Bb as a virtual learning environment (*VLE*). Despite the importance of training in the change process, it neglected the pedagogical aspect of technology. This issue will be discussed in the section below.

7.4.2 The Role of Training

After providing faculty members with training sessions on technology at NDU the majority self-reported proficiency in using PowerPoint, MS Word, MS outlook, and use of computers as an access tool for electronic resources at the University (the library and online databases and engaged more with Bb). Although training was received positively by faculty members because it helped them use technology in teaching in 2009, the real challenge was in the lack of training for change in pedagogy. This finding was in line with Salmon (2004) who argued that the real challenge is training for changes to pedagogy. According to Salmon (2004) focusing the training on the features of the e-learning system is the first step to success. It was reported in Chapter 6 that lack of faculty members' skills in using technology in teaching may have a negative impact on students' motivation and engagement with a technology learning environment (Barajas, Scheuermann, & Kikis, 2002). A study on e-learning implementation in Western Australian schools showed that teachers were satisfied with training they received before and during the implementation of the e-learning (Broadley, 2007). The lack of time among faculty members at NDU to implement pedagogical change and develop e-learning environments did not appear as a limitation as reported in previous research. The key challenge at NDU was to engage more in discussions among faculty members to explore the use of technology to achieve pedagogical objectives.

In the current study, 67% of faculty members interviewed (out of 24 faculty members) reported that it would be more effective if they have more ideas and more brainstorming sessions on how they are utilizing technology in their teaching because now they are using technology without pedagogical objectives or how these objectives can be best met by technology. Access to time to implement pedagogical change did not emerge as an issue among faculty members at NDU although this issue was reported in previous studies (e.g., Sharpe, Benfield, & Francis, 2006). The reason is due to the lack of a pedagogical framework at NDU of engaging faculty members with pedagogy via technology where issues of time constraints have not yet been experienced by faculty

members as limitations to e-learning implementation.

Interview data with faculty members revealed the concern that training workshops for faculty members take into consideration how to use technology in teaching as there are many faculty members who do not know how to use these tools for promoting learning. This finding was in line with literature in the area. According to Alanis (2004), faculty members' are not only required to become familiar with using technology, but also to gain the necessary skills to use technology in the most productive ways to promote learning. Jonassen (2000) argued that faculty members need to be educated through models that emphasize learning with technology, rather than learning from technology.

In a study on implementing e-learning strategies in a higher educational context in the U.K., Sharpe et al (2006) developed a pedagogic framework for e-learning that they called the 'modes of engagement' to support faculty members to engage with discussions about how best to make use of technology in teaching and learning focusing on pedagogy facilitated by technology and not the other way around.

7.4.3 Self-reported Benefits of E-learning

An important finding that emerged from the analyses of the self-reported benefits of e-learning among faculty members in 2007 and then in 2009 was their perception of increasing their teaching effectiveness in terms of providing better learning opportunities for students through Bb including posting course syllabus, increasing active learning opportunities, providing immediate feedback, and improving teaching. These were in line with findings reported by literature about the benefits of e-learning. However, in the two questionnaires and interviews with faculty members, there was reluctance to use the discussion forum and use Bb for giving exams online. In an examination of 700 online courses in Australian universities, less than one-half used discussions and less than one-third used formative assessments (Lee, 2004). This was similar at NDU but due to a number of reasons discussed in Chapter 6. Faculty members' reluctance to use Bb for giving online exams is due to their preference for proctoring the exams and answer students' questions. The limited use of the grade book on Bb is due to department policies which request each faculty member to present to the department chair a hard copy of the grade book that should have students' grades and attendance throughout the semester. Although many faculty members give their exams on-line, they are confronted by their department chairs to ensure consistency in examination procedures among faculty members since a large number of them do not

give on-line exams. The lack of computer labs to accommodate large numbers of students to take common exams of multi-section courses simultaneously was another impediment to change to online examination at NDU. As mentioned in Chapter 6, the lack of use of the discussion forum was due to policies at the University which evaluate faculty members' performance for promotion and renewal of contract partly based on their success in engaging their students in face-to-face discussions during class hours.

To summarize, faculty members at NDU recognized the importance of e-learning but did not provide sufficient evidence about its pedagogical effectiveness and outcomes. Thus, perceived benefits were limited to the facilitating role of e-learning in teaching and also its role in creating learning opportunities for students; thus accenting the difference between opportunities of learning and the pedagogical outcomes of e-learning. This is due to the fact that e-learning is still at its initial stages of implementation at the University which are limited to emphasizing the facilitating role of e-learning rather than its pedagogical outcomes which require sustained experience that has not been provided by training as mentioned earlier. The facilitating role of e-learning in teaching at NDU concerned faculty members' skills in technology together with availability of technology facilities which will be discussed in the next section.

7.4.4 Views on Availability of Technology Facilities

As part of analyzing the e-learning implementation process at NDU, this study has addressed faculty members' attitudes to the availability of technology facilities needed for their use in teaching and learning. This study agrees with the literature which refers to the availability of technology facilities as a fundamental factor in the development of e-learning, including infrastructure planning, hardware and software (Khan, 2003) and adequate technical support for e-learning implementation in educational contexts (Sife, Lwoga, & Sanga, 2007). The ability to gain reliable access to computers and the e-learning environment is a key issue cited in the literature (e.g., Gebhart, 2005; Salmon, 2004). In addition to the importance of availability of technology facilities in the e-learning implementation process, educational contexts implementing e-learning need to have financial resource allocations to buy equipment, replace old ones and enhance the infrastructure. One of the obstacles that slow down change to e-learning is the rising costs of updating technology infrastructure which cause a financial burden on educational institutions which are faced with the burden of replacing old equipment with new ones in light of

the shrinking financial resources and allocations in higher educational contexts (ESCWA, 2005). Although NDU has the basic technology infrastructure for teaching and learning as reported in Chapter 6, a primary concern that emerged from the questionnaire and interviews with faculty members was the lack of classrooms equipped with the technology needed to carry out e-learning activities. All faculty members interviewed asked for more computer labs and computers as the existing ones are not sufficient to accommodate for the growing number of faculty members and students. This concern voiced by faculty members at NDU was similar to those found in the literature where faculty members regard the lack of technology facilities a hindrance to the e-learning implementation process (Bates, 2000). However, this constraint is secondary compared with the pedagogical role of e-learning in teaching which potentially develops skills and competencies among students.

7.4.5 Use of Technology in Teaching and Learning

Although increasing number of faculty members are using Ms-Office tools and Bb in teaching and learning at NDU, measuring student learning outcomes is almost non-existent and little data in this study supported the effectiveness of learning from the perspective of student learning outcomes. E-learning at NDU is used as a supplementary tool in teaching and learning and it is optional for faculty members and students. Thus, the greatest change at NDU was in the move towards wider use of technology in teaching and learning as a facilitating tool, where changes in pedagogy in terms of learning outcomes are not yet achieved at the University. However, the contribution to the change in using technology at NDU to date should not be underestimated due to the progress made so far in this regard.

7.4.6 Factors that Encouraged Faculty Members' Use of Bb

In this study, questionnaire results showed that the majority of faculty members reported that their belief in the efficient role of Bb in facilitating teaching and learning was the main factor that encouraged their use of Bb, followed by their level of comfort with technology. In other words, the impetus of faculty to use Bb was their own perceptions of the benefits of Bb rather than directives, policies, incentives and rewards. The findings of the current study did not conform to previous studies which showed that monetary rewards, pressures from peers, administration and students were regarded as most positive motivating factors which make faculty members consider using technology (Osika, Johnson, & Buteau, 2009). In this study, the least influential factor

that has encouraged faculty members' use of Bb was the request made by the Faculty or Department to use Bb. In fact, all Faculties do not have policies that request faculty members to use Bb or technology in teaching as there are no policies for using this tool at NDU and there is no system in place to evaluate the performance of faculty members' and students' use of Bb or any other technology in the teaching and learning. Moreover, Faculties and Departments do not measure the learning outcomes achieved in courses that employ technology. Thus, at the Faculty and Department level the use of Bb is left at the discretion of the faculty member. According to faculty members at NDU, one of the factors that discouraged them from using Bb in teaching and learning was because their students' rarely requested to use Bb although they are equipped with technology skills.

7.5   Academic Administrators Views on E-learning Implementation

Part of the data collected for this study was to explore the perspectives of academic administrators at NDU with regards to the implementation process of e-learning. Academic administrators at NDU are identified as professional individuals who hold top-management positions like Vice Presidents, Deans and Directors. These directors have been involved in the process of e-learning implementation at the University. In this study, academic administrators who posses knowledge of e-learning expressed a favorable view of implementing e-learning at the University in the form of blended learning since NDU is a traditional higher educational context which follows the face-to-face format in teaching and learning. In the current study, academic administrators' views on e-learning implementation are connected to socio-cultural aspects of society, including the culture of education (Barajas, 2000). The culture of education in the context of change is an important aspect for understanding receptivity and or resistance to change in educational contexts. Diffusion of Innovations (Rogers, 1995) identifies leadership commitment to change and innovation as one of the most influential attributes of e-learning implementation.

Academic administrators interviewed said they motivate faculty members to use the appropriate tools and styles of pedagogy that would translate the mission of the University in achieving excellence in higher education. Research on the role of leaders with regards to e-learning implementation in higher educational contexts (e.g., Hirning, 2009; Tedeschi, 2009) has reported a set of recommendations by these leaders to draw strategic planning for e-learning implementation, provide training to faculty members

while neglecting one of the most important elements for success of e-learning implementation, i.e., training on how to use e-learning for promoting critical thinking and constructivist learning among students. In this study, the main focus of academic administrators with regards to e-learning implementation was budgetary constraints that slow down the process of buying more computers and equipments to accommodate for the emerging teaching and learning needs of faculty members and students. Training faculty members on e-learning for facilitating constructivist learning on campus was neglected.

Academic administrators emphasized the need to develop policies since there are increasing numbers of faculty members who are using technology in teaching. In a way, academic administrators seemed to favour detaching themselves from directly involving themselves in drawing e-learning policies. Rosenberg (2003) provides a strategy that helps understand the practice and culture of education in the wake of implementing e-learning. This strategy involves developing a receptive culture toward e-learning and technology, getting key players on board, communicating its value, and leading through the change. In this study, although academic administrators were involved in many stages with the e-learning implementation at NDU, they still play a limited role in leading the change through developing a receptive culture toward e-learning and technology through strategic planning for e-learning implementation that would include drawing policies and communicating them to faculty members in order to help them follow these policies in their teaching.

7.6   Learning Styles and Preferences with Respect to Teaching and Learning

Because students' learning styles has been considered as an important factor for e-learning development as mentioned earlier, this study analyzed students' learning styles and preferences as part of understanding the process of e-learning implementation process. In addition, students were asked to respond to questions on the type of activities and styles of pedagogy faculty members' use in class. In turn, faculty members were asked in the interview to reflect on how they teach in class through technology.

Almost half of students reported that their course instructor used technology in teaching and only 29% said their course instructor asked them to read material from the Internet. This contradicted faculty members' view that they engaged their students with technology. An interpretation of this contradiction is that students might not have been aware of what type of technology use in teaching the question referred to. According to faculty members interviewed, course instructions were posted on Bb and lack of Internet use reported by students is due to the fact that faculty members discouraged students from downloading information from the Internet for their assignments as some of these sources may not be reliable. Instead, faculty members asked their students to use the electronic library of NDU which contains refereed journal articles for students' assignments and term-papers. The contradiction between faculty members' views and those of students regarding the use of technology for teaching and learning has implications for the future examination of different expectations of technology use in the classroom between students and their instructors. This issue will be discussed in the conclusions and implications of the study in the next chapter.

This study did not show significant association between students' learning styles and preferences and how their teachers taught in class; that the teaching faculty members were completely insensitive to these proposed learning styles. This finding contradicted with previous findings which indicated that student learning styles is considered as an important factor for e-learning development, delivery and instruction, which have the potential to lead to improved student performance (Shih & Gamon, 2002). In line with this, Abrams (2005) provided evidence confirming the validity of Dunn and Dunn's model of learning style, concluding that "matching" students' learning styles and preferences with complementary instruction improved students' academic achievement and attitudes towards learning. In fact, the application of learning preferences and styles

has direct relevance for education and training in that it can assist in developing different teaching and learning techniques which may enhance learning performance among students (Burke & Sadler, 2006). According to Renzull's and Dai (2001) an understanding of students' learning styles and preferences would potentially enhance the design and delivery of learning in educational contexts and also might help to accelerate the acquisition of expertise among novice practitioners.

While constructivism emphasizes "the central role of the learner in his or her own education" (Brooks & Brooks, 1999, p. 18), and views that "learners control their learning" (Ibid., p. 21), understanding students' learning style by teachers as facilitators/mediators of learning might help them provide appropriate tools to students that would potentially encourage individual learning and knowledge construction based on their learning preferences. More criticism regarding the application of the learning style models in teaching is related to the inappropriate use of learning styles to label students and then to recommend teaching strategies that would match their profiles (e.g., Coffield, Moseley, Hall, & Ecclestone, 2004; Garner, 2000). In fact, role of the learning style profiling of a learner as a means to adapt or personalize a learning environment to match the needs of the learner is quite simplistic and certainly not supported by enough research evidence.

The data in this study did not find a clear relationship between students' learning styles and the e-learning development process as more students appeared neutral, i.e., not favoring any learning style dimension cited in the literature. This asserts that the concept of learning styles is not accepted in the NDU's context suggesting more research is needed in the area (Dunn et al., 1984). As far as e-learning is concerned, research on the connections of technology to teaching and learning- style preferences is not well developed (Grasha, 2000). Criticism has been leveled against the validity and reliability of learning style inventories, although ILS has been validated by dozens of studies conducted in many educational contexts. Coffield (2005) concluded that despite evolving research on the relationship between learning styles and students' performance, theoretical limitations and lack of independent research, claims of better learning through matching students' learning styles and preferences with content and design of pedagogy are questionable. Furthermore, it is argued that the concept of learning styles is not universally accepted and further research is needed (Dunn, Dunn, & Price, 1984).

7.7 Obstacles to E-Learning Implementation

Several obstacles to e-learning implementation at NDU were analyzed in Chapter 6 from the perspective of faculty members, academic administrators and document analysis. Some of these obstacles were reported by Kleimann and Wannemancher (2005), others were inapplicable to NDU. Findings of the current study do not conform to the following barriers reported by Kleimann and Wannemancher:

- The significant workload of lecturers;
- deficits with regard to the acceptance of digital teaching and learning applications;
- a shortcoming of transparent information on available products;
- deficiencies in well-defined user support responsibilities;
- a distinctive lack of approved business models for selling e-learning products and services in the continuing education market;
- A lack of demand-driven support structures for the operation and development of educational media;
- Inadequate incentives;
- Technical problems.

However, interview data obtained from faculty members and academic administrators revealed similar obstacles reported by Kleimann and Wannemancher:

- Insufficient support through the university management;
- The tense situation of university budgets;
- Insufficient skills in technology use among faculty members.

Other obstacles were reported in the current study. The obstacle that received the highest percentage by faculty members was the lack of classes equipped with technology followed by the lack of institutional planning for integrating technology into teaching and learning. The absence of communicating policies and practices on e-learning to faculty members was a significant obstacle which left faculty members' use of e-learning optional and without clear guidelines. This finding in the current study is in line with previous research (e.g., Osika, et al., 2009) which revealed that in many institutions the development of e-learning has been driven by initiatives taken at departmental or even individual level and not as a result of institutional policies.

Moreover, curricular changes, policies for implementing technology, or evaluating its

impact on the teaching and learning process are non-existent at NDU due to lack of written policies for technology use in teaching and intentions of the leadership are not communicated. Drawing on the Motivational Model (MM) discussed in Chapter 3, extrinsic motivation for teachers such as grants and monetary incentives might encourage them to experiment with technology in teaching and learning in the classroom. In the current study, the lack of incentives to faculty members who use innovative methodologies in teaching was not regarded as an obstacle. Other obstacles were identified from document analysis particularly the management turn-over at NDU and lack of structured strategic planning for e-learning implementation. As for academic administrators, the main obstacles to e-learning implementation at NDU were in the lack of finances for enhancing the technology infrastructure and updating existing technology facilities on campus.

7.8 Conclusion

This section presents an overview of the main findings of the study discussed in the context of the literature and emphasizes the complexities of the e-learning development process at NDU in order to prepare the ground for the next chapter that presents the conclusions and recommendations of the study.

This chapter has discussed the following factors synthesized from the research questions of the study:

- The need to change;
- Decisions and institutional strategies involved in the change process;
- The patterns and practices of faculty members in the change process;
- The views of academic administrators regarding e-learning implementation at the University;
- The learning preferences of students with respect to teaching at NDU;
- Obstacles to e-learning implementation at NDU.

Discussion of the above factors has generated a number of findings. Some of these findings were in line with the literature; others were not, suggesting the particular experiences of NDU in the e-learning implementation process.

Although discussion of the research findings avoided generalization due to the inherent limitations of single-case studies, this chapter has discussed important findings that cannot be neglected in understanding the e-learning implementation process in higher

educational contexts. In fact, there is no single agreed upon theory of e-learning implementation as this field is still growing. A number of studies which seek to cope with rapid technology change in education are immediately replaced by a new generation of studies. In Lebanon the field of e-learning is underdeveloped and the contribution of this study prepares the ground for more research in the area.

7.9 Summary

Discussion of the research findings of the current study went beyond looking into technological, design and delivery issues aspects of e-learning in higher educational contexts such as (Khan, 2005), or decision-making process that looks specifically into the leaders' perspectives. Analyses of the e-learning implementation process at NDU as an entire cycle involved the collection of a large amount of qualitative and quantitative data from faculty members, academic administrators, and students. This approach was driven by the need to gain in-depth knowledge of the dynamics of e-learning implementation process at NDU that required diving into the various steps that have been implemented, their reasons and trajectories over time. Had there been e-learning studies that account for the cultural reality of Lebanon and the nature of its higher educational contexts, it would have been useful then to approach the subject from a different perspective. One example of this lies in how the student learning styles and preferences adopted from Western literature was not applicable to the case of NDU. This does not mean that employing inventories and questionnaires developed in other countries are inapplicable to other cultures. However, the use of these inventories such as the learning styles and preferences inventory requires adaptation to fit in well in with the cultural reality of Lebanon which was not undertaken in the present study, thus presenting one of its limitations.

The findings of the current study suggest a different approach to the implementation of e-learning. Like other higher educational contexts worldwide, NDU has decided to adopt e-learning in teaching and learning due to external pressures and internal request by faculty members. Although NDU is not an atypical case in this regard, the picture changes when observing the policies of the Ministry of Education and Higher Education (MEHE) that do not recognize degrees awarded by means of e-learning or distance education. Thus, blended learning emerged as the sole available option in facilitating teaching and learning through technology.

From another perspective, the change in leadership in higher educational contexts in

some countries does not affect the implementation of projects and initiatives but rather contribute to their continuation. The picture that emerged from analyses of leadership change at NDU provides a different account; change in leadership at the University has resulted in change in the direction of e-learning implementation, indicating the role of the culture of the institution in the context of change.

Apart from the role of culture in leadership change at NDU, the decision to implement e-learning at NDU was not to reduce cost in education as is the case in many higher educational contexts. The main concern at NDU was in financial constraints that would slow down the e-learning implementation process. This concern was voiced by academic directors. These academic directors expressed their support for implementing e-learning but their actual role in the implementation process was limited as they did not engage in the process by mapping out e-learning strategies and related policies. Faculty members remained the basis of the process of change, or at least a factor in the internal pressure for e-learning implementation at the University.

Turning to training, consistent with the literature that emphasizes the role of training in facilitating the process of change and transition to e-learning, technology training at NDU was inadequate as it did not take into consideration the pedagogical aspect of e-learning although faculty members reported perceived benefits from e-learning in teaching and learning. Despite this, technology training remained an essential part in the change process to e-learning implementation, not just a temporary measure that aimed at enhancing technology skills among faculty members.

The discussion presented in this chapter forms a basis for the conclusions and recommendations of the study that will be presented in the chapter that follows.

Chapter 8

Conclusions and Recommendations

8.1   Introduction

This chapter presents the lessons learned from the current study and provides recommendations based on the analyses of research findings that arose from fieldwork. Moreover, I will present my personal experience gained from the research process and emphasize what I learned and what I did not learn and why. Perhaps, what I learned from this study emphasizes its strengths while what remains to be learned may be linked to the limitations of the methodology, and also due the limitations of this field characterized by the near absence of one agreed upon methodology and theory.

The chapter begins with summarizing the lessons learned from the review of the literature and the methodology of the study. Then, the chapter derives themes from Chapter 6 which presented and analyzed the research findings of the study and Chapter 7 which discussed these findings. In addition, this chapter documents the limitations of the study and provides two sets of recommendations: (1) recommendations for the implementation of e-learning in higher education contexts; (2) recommendations for researchers in the field of e-learning.

8.2   Lessons Learned from the Literature Review

As is the case in reading an academic article or book the reader learns about the topic which potentially enriches and expands knowledge. In general, the process is enjoyable but it then becomes close to solving a puzzle, particularly when multiple theories and methodologies are presented. In this case, the reader often becomes confused. It may become even more complicated and confusing when the reader compares what he/she reads with the reality of his/her society and its institutions. The positive outcome of this confusion is the reader's curiosity to examine further why they are different and in what aspects; this is what I have experienced when reading about e-learning in the literature review.

The context of the study was Notre Dame University-Louaize (NDU), a private higher educational institution in Lebanon. To understand the surrounding educational reality of NDU it was necessary to provide information about the educational situation in three sectors in Lebanon: general education, technical and vocational training and higher education, focusing on the use of technology in the teaching and learning process. In

this respect, Chapter 2 has shown that educational institutions taught about technology but did not use it as a tool that potentially facilitates teaching and learning. This fact indicated the need to study the reality of technology in teaching and learning in higher educational contexts in Lebanon. Moreover, because higher education in Arab countries, including Lebanon, suffer from many problems related to quality and face the challenge of how to deal with the impact of information revolution, it was necessary to discuss these issues as analytical background information for the study.

In reviewing the role and position of e-learning in higher education, this study came across too many terminologies and corresponding theories of which some affirm that technology improves teaching and learning while others contend the opposite. Amidst this controversy, a few studies have called for further studies to identify the actual role of e-learning in achieving desirable pedagogical outcomes. Chapter 1 and Chapter 3 of this study reviewed the controversial nature of e-learning and benefitted from the need to conduct further research in the area, taking Notre Dame University-Louaize (NDU) as a case study that potentially adds to the stock of knowledge on e-learning and makes specific contributions to the field.

The attempt to take advantage of recommendations to conduct further studies on e-learning implementation was not easy as it required systematic planning for the research conduct together with the need to further understand e-learning implementation in educational contexts that are similar to NDU; such studies are few in general and in Lebanon they are non-existent. This challenge brought many questions regarding the selection of the most appropriate methodology and research tools for gathering and analyzing data.

8.3   Lessons Learned from the Methodology and Fieldwork

Since this study has been concerned with how people from a variety of positions at NDU view the implementation of e-learning for pedagogical purposes, a case study was the best possible methodology because it provided a complete picture of the e-learning implementation process at NDU and why. Moreover, in order to provide a comprehensive picture of the e-learning implementation process at NDU, it was necessary to study institutional processes as an entire cycle, involving analyses of the culture of the context, the politics of leadership change and their degree of influence on the e-learning implementation process. The case study methodology was suitable to analyze the e-learning development process at NDU as an entire cycle.

The advantage of using a case study in the present research was in that it provided more detailed information than what is available through other methods, such as questionnaires. In fact, using a case study allowed me to present data collected from multiple methods discussed in Chapter 5 i.e., surveys, interviews, and document analysis. Thus, the current study did not select its methodology arbitrarily from a pre-arranged literature menu that includes different e-learning methodologies, rather the methodology evolved from the nature of the institution, the topic, objectives and research questions of the study that took the research design into the direction of case study methodology. Moreover, the results of the three pilot studies contributed to development of the methodology of the study. The case study methodology chosen for this study benefited from early piloting of the research instruments that were used later on in data collection. Specifically, the need to explore the development process of e-learning implementation at NDU required conducting document analysis of archive records, minutes of meetings and other documents relating to strategic planning besides conducting interviews and administering questionnaires.

One of the lessons learned from this study is that the implementation of e-learning in higher educational contexts requires the greatest possible in-depth analysis over time to trace the process of implementation together with identifying the problems encountered and the perceived benefits expressed by respondents. In other words, it was difficult to provide a complete picture of the e-learning implementation process without analyzing the various changes that occurred at administrative and leadership levels at the University.

Supported by the data of this study understanding the implementation process of e-learning was dependent on the following:

- Approaches to change and the decision-making process;
- The role of leadership in the change process;
- Faculty members views and attitudes;
- Technology facilities for faculty members;
- Support and training;
- Views of academic administrators;
- Students' perspectives on teaching and learning.

The above factors were not hierarchical in nature, but seemed to be all equally important in understanding the e-learning implementation process at the University.

201

Some of the findings of this study bridged a gap in the literature which analyzed specified aspects of e-learning development while this literature ignored analyses of the e-learning development process as an entire cycle.

Understanding these changes necessitated the collection of a large amount of data from different sources. The process of data collection was enjoyable as I surveyed individuals from different positions at NDU. However, it turned out to be strenuous after I saw the enormous amount of data collected which raised concerns regarding what to analyze and what to report. Because case studies provide detailed information about the case in narrative form, it may be difficult to hold a reader's interest being too lengthy. To overcome this inherent limitation in case study research, care was taken to provide the most relevant information needed to report in an understandable manner to readers. To do this, I had to constantly return to the objectives of the study and its research questions in order to control the appetite of analyzing everything that has been collected for the study. In fact, I voluntarily stopped analyzing information when a level of saturation was achieved, i.e., responses became often repetitive.

The second issue which I learned from the study's methodology is the question of positionality being a researcher and an administrator at the University at the same time. Although this study can be grouped under intrinsic case study (see Chapter 5) since the researcher has an interest in the research and the context, the issue of positionality was treated rather carefully. Merriam (1998) argued that an understanding of the position of the researcher and any potential bias or assumptions that could impact the research is necessary. It is noteworthy that I did not teach at NDU for the last three years that preceded data collection and had no dealings with faculty members interviewed in discussions related to the e-learning implementation process at the University, although I am the Director of the Division of Computing Services (DCS) at NDU. To avoid potential bias in data collection, I tried as much as possible not to ask leading questions or manipulate the interview with faculty members and academic administrators. This process has provided me with the opportunity to listen to others and look at things from more than one perspective in understanding a certain phenomenon.

8.3 Lessons Learned from the Research Findings

The sections that follow emphasize the lessons learned from the research findings derived from analyses of institutional processes, faculty members, academic administrators and students. The lessons learned prepare the ground for the discussion

of the limitations of the study and recommendations.

8.3.1 Institutional processes

Results of the current study were in agreement with some of previous studies on e-learning which referred to the susceptibility of higher educational contexts to what is happening in their environs, particularly the role of technology in teaching and learning. However, due to the policies of the Ministry of Education and Higher Education (MEHE) in Lebanon which do not recognize on-line degrees, NDU opted for blended-learning in compliance with Ministerial policies while at the same time responding to changes happening in society largely brought by information technology. This result refers to the flexibility of NDU in dealing with external factors for e-learning implementation. However, this flexibility was offset by institutional paralysis, especially in light of the change of leadership at the University. It can be mentioned here that flexibility does not mean that the implementation of e-learning process is easy and straightforward, particularly when such an implementation would account for different leadership strategies, diversity of attitudes among faculty members and academic administrators. Consequently, the terms flexibility, institutional paralysis, leadership and attitudes appeared as key words in the vocabulary of the e-learning implementation at NDU indicating the various factors involved in the e-learning implementation process and its various phases.

The most important element in the process of implementing e-learning was the transition from one phase to another through training and faculty members' participation suggesting the significance of these factors in the change process. Other key factors have facilitated the process of implementing e-learning such as personal initiative of faculty members and the president's directives. These initiatives, however, were partly offset by the lack of written policies that will determine the use of e-learning in the educational process, particularly in a growing higher educational context that would need to have a set of written guidelines that legitimize faculty members' use of e-learning in teaching and learning as is the case with on-line exams and discussion forum in Blackboard. Regarding on-line exams, there was a preference to supervise students directly during exam sessions while the use of the discussion forum was limited because of the need to promote face-to-face discussions in the classroom as part of evaluating faculty members' performance in teaching for personnel decisions. In both cases, the culture of control neutralized e-learning from on-line examinations and the

203

discussion forum although increasing numbers of faculty members are using these tools. On the one hand, this practice gives teachers freedom in the selection of what they see as appropriate in teaching, but on the other hand, it weakens the department's supervision of exam results across the different sections of the same course as many faculty members gave on-line exams while others did not. This indicates the need to establish uniform standards for assessing students which are to be written and communicated to all faculty members.

8.3.2 Faculty Members

This study analyzed the various attitudes and actions of faculty members in the process of implementing e-learning at NDU. During the early phases of implementation, faculty members were put in doubt with regards to their willingness to participate in the process of implementing e-learning at the University. At a later stage they exerted pressure to adopt e-learning often blaming the administration for delaying the implementation process. Then, when NDU started implementing e-learning in teaching, the majority of faculty members did not engage with e-learning until after training was offered. The bottom line is that faculty members formed the backbone of the e-learning implementation process which was relatively regular and fast when engaged with e-learning while it became slow at times of change in leadership at the University. This underlines the interdependence of all the elements of the University in the process of implementing e-learning including the leadership, faculty members, academic administrators and corollary attitudes and behaviors which ran parallel to the e-learning implementation process. These attitudes and behaviors reflected aspects of NDU's culture which was pronounced in the behavior of the leadership as well as in the tendency of some faculty members to preach to their colleagues about what should they do in terms of the need to acquire the necessary skills to use technology in order to achieve pedagogical outcomes. Faculty members' answers focused on the deficiencies of their colleagues, without directly specifying the necessary skills and knowledge they would personally need in teaching and learning facilitated by technology. Such attitudes reflected the culture of blame that pervades the behavioral structure of the Lebanese particularly in the near absence of a system that governs people's work in institutions.

The above findings cannot be generalized to all higher educational contexts implementing e-learning. However, it should be noted here the role of culture in higher educational contexts is defined based on particular situations. For example, the near

204

absence of a system seems to encourage the culture of blame which is an impediment to documenting an honest discourse regarding the e-learning implementation process in higher educational contexts. Although this argument might sound philosophical, it points to the various types of behaviors that accompany the e-learning implementation process whose understanding goes beyond traditional clichés documented in the literature (e.g., obtaining the willing participation of faculty members, positive attitudes, faculty motivators etc...) to what is deeper and more comprehensive. Similar patterns of these behaviors were observed in the responses and views of academic administrators that will be discussed in the section that follows.

8.3.3 Academic Administrators

Academic administrators appeared as supporters and spectators of e-learning implementation at the same time. Academic administrators provided recommendations for the e-learning implementation in the form of blended learning; they noted the importance of e-learning and the need to equip more classes with technology while expressing reservations about the availability of sufficient funds for the deployment of technology in terms of equipment and infrastructure. They also reported they were unaware of policies that would govern e-learning at the University. An observer would wonder about their actual role in the e-learning implementation being directors, deans and vice presidents who enjoy certain prerogatives that allow them to take decisions and implement accordingly. It can be concluded that academic administrators wait for directives and orders from the President prior to taking a decision, reflecting the top-down management culture at the University which limits initiatives and decision-making powers vested to academic administrators who tend to avoid undertaking initiatives because they are often criticized in case of failure and are not appreciated in case of success. This may be due to the near absence of an evaluation system for Deans and Vice-President with the exception of specific cases such as continuous flagrant breach of the by-laws and endangering the interests of the sponsoring society of NDU, the monastic orders.

Overall, interviewing academic administrators was part of the research process of this study and their opinions contributed to completing the puzzle of the e-learning implementation process at NDU. While this study looked into the implementation process of e-learning from the perspective of faculty members and academic administrators, it also focused on students who constitute the most important target

group in the teaching and learning process in educational contexts.

8.3.4 Students

Two hundred and fifty nine students at the University were surveyed about the learning styles and preferences and how they were taught in relation to these styles. Thus, it was deemed necessary to conduct additional interviews with a number of faculty members who taught these students to see how they respond to students' learning styles and preferences. Results showed that the methods of teaching and learning styles are two distant areas and drawing links between the two needs adaption and further inquiry. This distance became more obvious when controlling for the e-learning factor. In this respect, a generation gap appeared between students and faculty members regarding the role of technology in teaching and learning. For instance, while 29% of students said that their teachers did not use the Internet in teaching, faculty members reported that they encouraged their students to use electronic sources that contain reliable information yielded from refereed research articles instead of resorting to arbitrary sources on the Internet.

It seems that students sought to obtain information through short-cut and fast venues while faculty members preferred to help students gain knowledge and enhance their skills through critical reading of refereed journal articles instead of subscribing to pre-arranged bits and pieces of information available on the Internet. Herein lies an important issue regarding the perception of technology in the educational practice; is technology perceived as a means for fast access to information or a means for facilitating the process of constructivist learning? It seems that this issue has emerged in this study despite the absence of findings that would either accept it or reject it. This issue may open windows for future research on this topic.

8.4 Limitations

This section discusses the limitations of the study. At the onset, it should be clear that this study does not purport to generalize its findings in absolute terms; however, the significance of the research findings should not be overlooked. The single-case methodology used can be easily attacked on grounds of generalization. Thus, the study became exploratory in nature and came up with scientific data regarding the e-learning implementation process in higher educational contexts from a Lebanese perspective. Moreover, this study has collected information from multiple sources employing qualitative and quantitative data collection and analyses in an attempt to recover some

of the inherent limitations of single-case studies, without falling into the trap of generalization. Thus, discussion of the research findings should be taken for what they are and left to readers for their own judgment and evaluation.

A main concern relates to the time period examined. It is possible that the research findings are less generalizable since the implementation of e-learning at NDU is recent compared with other higher educational contexts which have a long history of e-learning implementation in teaching and learning. Another limitation concerns the penetration of new technologies for teaching and learning in higher educational contexts that may require more precise knowledge of how these contexts deal with them. One of the foci of this study was on the use of Blackboard and MS Office tools in teaching and learning raising questions as to how would the e-learning implementation process at the University look like if social software (e.g. YouTube, Facebook, Twitter...) and other emerging technologies were considered in teaching and learning.

Another limitation concerns the next steps to be taken in the e-learning implementation process at NDU in light of faculty members' request for on-going training on technology for pedagogical purposes and how to measure student learning outcomes in this regard. This study has faced the question regarding what is going to happen next at NDU amidst the structural changes taking place in higher education characterized by increasing reliance on technology in teaching and learning.

8.5   Recommendations

The themes derived from the research findings were combined into recommendations. These recommendations represent practical strategies to implement e-learning in higher education contexts. This section provides recommendations at two levels: (1) recommendations for the implementation of e-learning in higher educational contexts, (2) recommendations for researchers in the field of e-learning.

8.6   Recommendations Supported by Data in this Study

The subsequent sections provide recommendations for the e-learning implementation process. These recommendations focus on vision and planning, involvement and coordination, the development of policies, the use of technology, training, infrastructure and financing, student learning styles and preferences.

8.6.1 Vision and Planning

There is a need for the development of a vision for planning and implementation

of e-learning across all faculties and departments involving more stakeholders in the planning and implementation process. The E-leaning Center Committee (ELCC), formed by the University President consisted of eight members of whom, five were in the senior management and three faculty members was not representative of all stakeholders involved in higher education. First and more foremost, the higher educational context considering the implementation of e-learning in the educational practice should form a committee comprising in addition to faculty members and academic administrators, stakeholders, students and officials from the Minister of Education and Higher Education (MEHE) should be involved in the implementation process of e-learning. The role of the committee should focus on, but not be limited to, conduct feasibility reports and suggest to the University President and the University's community the outcomes of the study in order to come up with strategies for the e-learning implementation. Representatives from the Ministry of Education and those from the industry can play an important role in the planning process through identifying market needs and policies to fit the e-learning implementation with higher education policies and with the needs of the market place. In this way, the President will have greater assurance of University buy-in to adopt e-learning in such a way that it satisfies stakeholders and meets their needs. After deciding on implementing e-learning by the University, the exploratory committee should be dissolved and planning for e-learning implementation shifted to departments which should be given the responsibility to decide on what e-learning features should faculty members use in teaching and how.

8.6.2 Involvement and Coordination

Based on data collected from interviews with faculty members, there was an agreement that coordination among faculty members should be secured in order to exchange ideas and come up with plans for using technology for achieving pedagogical purposes. Giving emphases on departmental engagement with e-learning implementation at the University provides opportunities that would facilitate exchange of ideas and experience in technology use in teaching and learning in addition to awareness of best practice in teaching in e-learning environments.

A key theme that arose from the research findings of this study is the need to create a culture of engagement in the process of change, particularly among academic administrators who seem to be detached somehow from the e-learning implementation process often adopting the position of spectators rather than active participants. The

208

institution needs, therefore, to engage academic directors in the implementation process taking into consideration their roles as leaders being vice presidents and deans. These academic administrators can provide all aspects of university's e-learning implementation process from the adoption of e-learning and beyond and as they are in a position to make informed decisions according to the by-laws; therefore, allowing for greater success in changing the university's culture in its adoption of e-learning in teaching.

8.6.3 The Development of Policies

In light of the developed strategies for e-learning implementation at the University, policies should be developed and communicated to all faculty members for their input and comments. After receiving comments from faculty members, each department should make modifications to answer faculty members' needs and concerns and accordingly come up with written policies on e-learning to be adopted in each department. In addition, policies should focus, but not be limited to, on online examination and using the discussion forum.

8.6.4 The Use of Technology

The use of technology in teaching and learning should include benchmarks to allow faculty members monitor, evaluate and review the outcome of their teaching. These benchmarks should be developed by faculty members based on the learning outcomes they set to achieve.

8.6.5 Training

The role of faculty members in higher educational contexts is changing due to changes taking place in culture and society characterized by the rapid penetration of information technology and its increasing use in teaching and learning. This study has shown that part of adapting to change lies in training provided to faculty members. The importance of, and need for, continuing professional development for faculty members should be acknowledged (Vaughan, 2007), particularly ongoing technology training for achieving pedagogical objectives as requested by faculty members themselves, whose training was mainly focused on the use of technology. Technology training that would emphasize the pedagogy can sustain and develop innovation in teaching among faculty members. Professional ongoing training in using technology to support the teaching and learning process should be provided to faculty members. Securing trainers with

expertise in technology and pedagogy is extremely important for the development of skills and competencies of faculty members in their teaching using technology. The majority of faculty members interviewed in the study indicated to a great need for training on technology that takes into consideration pedagogy. In addition, departments should plan for training on the pedagogical use of e-learning in the educational practice.

8.6.6 Infrastructure and Financing

Successful implementation of e-learning within an institution requires not only a change in learning and teaching practice but also changes in infrastructure, support, and financing. Another recommendation is for the institution to develop sustainable support and funding for e-learning implementation at the university. One of the obstacles that received the highest percentage in the questionnaire was the lack of classes equipped with technology (57%). In the interviews, the majority of faculty members requested equipping classes with technology in order to increase their use of this tool in teaching and learning. It was observed during interviews with faculty members and academic administrators that the university does not have a funding base for e-learning implementation. In addition, academic administrators were not sure about the availability of finances for implementing e-learning in terms of upgrading existing infrastructure and equipping classes with technology. In this respect, the university should set long-term financial plans to support all aspects of e-learning implementation and not only rely on limited monies assigned to faculties and departments. It is therefore important that institutions seek to understand the costs of e-learning and recognize how it should be supported in order to secure a successful implementation.

8.6.7 Student Learning Styles and Preferences

As a final recommendation for the implementation of e-learning in higher educational contexts, students learning styles and preferences did not seem to be quite relevant to the e-learning implementation process at NDU as it might have required adaptation to fit within the cultural reality of Lebanon. Thus, future studies in the field need to re-consider the applicability of students' learning preferences and styles making appropriate adaptations specifically if such studies were conducted outside the culture where learning styles inventories were originally developed.

8.7   Recommendations for Researchers in the Field of E-learning

Recommendations for future research were not supported by the data of this

study but emerged as themes from interviews and questionnaire results that lend themselves for future research in the area.

Future research in the area should focus on the pedagogical part of training in higher educational contexts implementing e-learning. In addition, research should examine awareness of the potential pedagogical benefits and limitations of e-learning from the perspective of faculty members, educational leaders and students. In fact, much more work needs to be done with regards to the pedagogical outcomes of e-learning in higher educational contexts in the Arab region where such studies are rare. Moreover, the relationship between issues of quality in higher education and use of technology in teaching and learning should be explored further as their relationship between quality and technology is still vague in the literature.

In summary, based on the results of the present study, the research has identified a number of recommendations for the e-learning implementation in higher educational contexts as well for future research in the area. These recommendations can help assist in filling gaps in the implementation of e-learning, particularly the issue of engaging the entire community and stakeholders in the e-learning implementation process in higher education contexts.

8.8   Conclusion

This chapter concluded the study by discussing the lessons learned and providing recommendations for e-learning implementation in higher educational contexts and for future research in the area. Although this study is aware of the limitations of generalizing its findings and recommendations due to the inherent limitations of single-case study research, the study may encourage similar research in other higher educational contexts in considering the use of technology for educational purposes.

References

Abel, R. (1997). Creating the future of IT: Innovation, adoption and learning impact. *EDUCAUSE Review,* 42(2), 13-30.

Abou Mrad, M. (1985). *Educational inspection.* Beirut: Byryte Press.

Abou-Rjaili, K. (1999). State expenditure on education in Lebanon. In: M. Bashshur (Ed.), *The state and education in Lebanon* (pp. 185-241). Beirut: The Lebanese Association for Educational Studies.

Abrams, F. (2005). Cognitive conundrum. *Times Educational Supplement*, No.20 May, 2005.

Achacoso, M. (2003). *Evaluating Technology and Instruction: Literature Review and Recommendations.* Austin, TX: Division of Instructional Innovation and Assessment, The University of Texas.

Agostinho, S. (2005). Naturalistic inquiry in e-learning research. *International Journal of Qualitative Methods*, 4(1), 13-26.

Alanis, K. (2004). *Evaluating Technology and Instruction: Literature Review Update.* The University of Texas at Austin Division of Instructional Innovation and Assessment.

Alexander, S. & McKenzie, J. (1998). *An evaluation of information technology projects in university learning,* Department of Employment, Education and Training and Youth Affairs, Canberra: Australian Government Publishing Services.

Alexander, S., Kandlbinder, P., Howson, E., Lukito L, Francois, A. and Housego, S. (2002). SimAssessment: enhancing academics under-standing of assessment through computer simulation (pp. 47-55), In A. Williamson, C. Gunn, A. Young and T. Clear, (Eds.). New Zealand: UNITEC Institute of Technology.

Allen, A. & Slutsky, R. (2003). Can an electronic mailing list help build community and increase undergraduate cognition? *IEJLL: International Electronic Journal For Leadership In Learning, 7(1). 7.*

Amirian, S. (2003). *Pedagogy and videoconferencing: A review of recent literature.* Presented at the First NJEDge.NET Conference, Plainsboro, NJ, October 31, 2003.

Anderson, T. & Elloumi, F. (2004). *Theory and practice of online learning.* Canada: Athabasca University

Arab Advisors Group, 2005.

Åström, E. (2008). E-learning quality: Aspects and criteria for evaluation of e-learning in higher education. Sweden: Swedish National Agency for Higher Education.

Babic, S. & Jadric, M. (2010). Concepts and theoretical models of acceptance of e-learning technologies by academic teachers. *MIPRO, 2010 Proceedings of the 33rd International Convention,* pp.1068-1073.

Badran, A. (1999). *Education in the Arab world.* U.K.: Ithaca Press.

Bandura, A. (1975). *Social learning and personality development*: NJ: Holt, Rinehart & Winston, INC.

Barajas, M. (2000). Implementing virtual learning environments: Looking for holistic approach. *Educational Technology & Society,* 3 (3), 39-53.

Barajas, M. (2003). *Impact of ICT-supported Learning Innovations*, Briefing paper 39,

New Perspectives for Learning, European Commission, Brussels.

Barajas, M., Magli, R., Owen, M., Toccafondi, G., Molari, G., & Safin, S. (2006). "La Piazza" – Convivial spaces for inter-generational learning: Which role can learning technologies play? *Current Developments in Technology-Assisted Education,* 1, 217-222.

Barajas, M., Scheuermann, F. & Kikis, K. (2002). Critical indicators of innovative practices in ICT-supported learning. Comunicação apresentada na *Improving learning through technology: Opportunities for all* (PROMETEUS Conference), Setembro, Paris.

Barakat, H. (1977). *Lebanon in strife: student prelude to the civil war.* Texas: Austin University Press.

Barr, R. B. & Tagg, J. (1995). From teaching to learning: A new paradigm for undergraduate education. *Change,* 27(6), 12-25.

Bashshur, M. (1988). The role of education: A mirror of a fractured national image. In H. Barakat (Ed.), *Towards a Viable Lebanon* (pp. 42-67). London: Croom Helm.

Bashshur, M. (1997). Higher education in Lebanon: A historical review. In A. El-Amine (Ed.), *Higher education in Lebanon* (pp. 39-103). Beirut: The Lebanese Association for Educational Studies.

Bashshur, M. (2001). *Higher education in Lebanon.* Beirut: Lebanese Association for Educational Studies (LEAS).

Bates, A. W. (2000). *Managing technological change: Strategies for college and university leaders.* San Francisco: Jossey-Bass Publishers.

Baxter, P. & Jack, S. (2008). Qualitative case study methodology: Study design and implementation for novice researchers. *The Qualitative Report,* 13(4), 544-559.

Beer, S. (1985). *Diagnosing the system for organizations.* Chichester West Sussex, New York: Wiley.

Bell, J. (1993). *Doing your research project: a guide for first-time researchers in education and social science (2nd ed.).* Buckingham, Philadelphia: Open University Press.

Bennett, S. & Lockyer, L. (2008). A study of teachers' integration of interactive whiteboards into four Australian primary school classrooms. *Learning, Media & Technology,* 33(4), 289-300.

Billeh, V. (2001). Educational management and information systems and decision making. In V. Billeh & E. Abd-El Mawgood (eds.). *Education development through utilization of technology.* Beirut: UNESCO Regional Office & United Arab Emirates: Ministry of Education and Youth.

Billeh, V. (2005). A UNESCO computer literacy initiative: Bridging the digital divide in Lebanon. In I. Osta (Ed.), *Education and Information Technology in the Arab Countries: Issues and Trends-Yearbook IV* (pp.385-398). Beirut: The Lebanese Association for Educational Studies.

Bolhuis, S. (1996). Towards active and self-directed learning. Preparing for lifelong learning, with reference to Dutch secondary education. Paper presented at the annual meeting of the American Educational Research Association, New York.

Bose, K. (2003). An e-learning experience-a written analysis based on my experience in

213

an e-learning project. *Quality Assurance in Education*, 20(5), 193-199.

BouJaoude, S. (2003). Science and technology in schools of the twenty-first century. In E. Jenkins (Ed.), *Innovations in science and technology education, Volume VIII* ((pp. 43-68). Paris: UNESCO.

Broadley, T. (2007. Implementation of e-learning: A case study of three schools. Retrieved from http://www.aare.edu.au/07pap/bro07340.pdf

Brooks, J. G., & Brooks, M. G. (1999). In search of understanding: The case for constructivist classrooms. Alexandria, Virginia USA: ASCD - Association for Supervision and Curriculum Development.

Brooks, M.G., & Brooks, J.G. (1999). The courage to be constructivist. *Educational Leadership*, 57(3), 18-24.

Browne, T. & Jenkins, M. (2003). Longitudinal VLE study: 2001-3, higher education in UK. Paper presented at ALT-C 2003: Communities of Practice, Sheffield, UK.

Burgess, R. G. (1991). *In the field: an introduction to field research*. London: Routledge.

Burke, L., Sadler-Smith, E. (2006). Instructor intuition in the educational context. *Academy of Management Learning & Education*, 5(2), 169-81.

Byron G. M. & Jarrar, S. (1983). *Education in the Arab world*. New York: Praeger.

Carl, D. (1991). Electronic distance education: Positives outweigh negatives. *Technol. Horizons Edu.*, 18(10), 67-71.

Casanovas, I. (2010). Exploring the current theoretical background about adoption until institutionalization of online education in universities: Needs for further research. *Electronic Journal of e-Learning*, 8(2), 73-84.

Cashion, J. & Palmieri, P. (2002). *The secret is the teacher': the learner's view of online learning*. Adelaide: NCVER.

Cassidy, T. & Miller, M. (2002). Higher education in the Arab states: responding to the challenges of globalization, Harvard, Graduate School of Education, unpublished paper, Cambridge MA,

Center for Educational Research and Development (CERD) (1974). Annual Education Statistics, Lebanese Ministry of Education. Beirut: Lebanon.

Center for Educational Research and Development (CERD) (1980). Annual Education Statistics, Lebanese Ministry of Education. Beirut: Lebanon.

Center for Educational Research and Development (CERD) (1996). Annual Education Statistics, Lebanese Ministry of Education. Beirut: Lebanon.

Center for Educational Research and Development (CERD) (2006). Annual Education Statistics, Lebanese Ministry of Education and Higher Education. Beirut: Lebanon.

Center for Educational Research and Development (CERD) (2007). Annual Education Statistics, Lebanese Ministry of Education and Higher Education. Beirut: Lebanon.

Center for Educational Research and Development (CERD) (2010). Annual Education Statistics, Lebanese Ministry of Education and Higher Education. Beirut: Lebanon.

Centre for Educational Research and Innovation (2005). *E-learning in tertiary education: Where do we stand?* Paris: Organisation for Economic Co-operation and Development.

214

Chou, C. (2003). Interactivity and interactive functions in web-based learning systems: a technical framework for designers. *British Journal of Educational Technology*, 34 (3), 265-279.

Choudrie, J. & Weerakkody, V. (2007). Horizontal process integration in E-government: The perspective of a UK Local Authority. *IJEGR,* (3), 22-39.

Chuttur M.Y. (2009). *Overview of the Technology Acceptance Model: origins, developments and future directions*, Indiana University, USA . *Sprouts: Working Papers on Information Systems*, 9(37).

Clark, R. (1985). Evidence for confounding in computer-based instructional studies: Analyzing the meta-analyses. *Educational Communication and Technology Journal*, 33(4), 249-262.

Clark, R. E. (1994). Media will never influence learning. Educational Technology Research and Development, 42(2), 21-29.

Coffield, F. (2005). Looking back in amazement. Paper presented at Learning Styles: Help or Hindrance? Seminar, Institute of Education, University of London, London.

Coffield, F., Moseley, D., Hall, E., & Ecclestone, E. (2004). *Learning styles and pedagogy in post-16 learning. A systematic and critical review*. London: Learning and Skills Research Centre.

Cohen, L., & Manion L. (1994). *Research methods in education*. London: Routledge.

Cohen, L., Manion, L. & Morrison, K. (2002). *Research Methods in Education (5th ed.)*. London: Routledge.

Collis, B. & Monnen, J. (2001). *Flexible learning in a digital world: Experiences and expectations.* London: Kogan Page.

Collis, B., & Jung, I. S. (2003). Uses of information and communication technologies in teacher education. In B. Robinson & C. Latchem (Eds.) *Teacher education through open and distance learning* (pp. 171-192). London: RoutledgeFalmer.

Connolly, M., Jones, N. & O'Shea, J. (2005). Quality assurance and e-learning: Reflections from the front line. *Quality in Higher Education, 11* (1), 59-67.

Cornu, B. (2000). Didactics, information and communication technologies, and the teacher of the future. In H. Taylor and P. Hogenbrick (Eds.). *The Bookmark of the School of the Future* (pp. 51-79). Boston: Kluwer Academic Publishers.

Crabtree, B. & Miller W. (Eds.) (1999). *Doing qualitative research* (2nd edition). London: Sage.

Cuban, L. (2000). So much high-tech money invested, so little use and change in practice: How come? Paper prepared for the Council of Chief State School Officers' annual Technology Leadership Conference. Washington, D.C. (January).

Czerniak, C., Lumpe, A., Haney, J., & Beck, J. (1999). Teachers' beliefs about using educational technology in the science classroom. *International Journal of Educational Technology,* 1(2) http://www.outreach.uiuc.edu/ijet/v1n2/czerniak/index.html

Dale, R. (1998). *Evaluation Frameworks for Development Programmes and Projects*. New Delhi: Sage.

Daniel, J. (1997). *Mega-universities and knowledge media: Technology strategies for higher education.* Great Britain: Kogan Page.

Davis, F. D. (1986). A Technology Acceptance Model for empirically testing new end-user information systems: Theory and results. Doctoral Dissertation, Sloan School of Management, Massachusetts Institute of Technology.

Davis, F. D., Bagozzi, R. P., and Warshaw, P. R. (1992). Extrinsic and intrinsic motivation to use computers in the workplace. *Journal of Applied Social Psychology* (22:14), 1111-1132.

Debande, O. (2004). ICTs and the development of e-learning in Europe: The role of the public and private sectors. *European Journal of Education*, 39(2), 191-208.

Denzin, N. & Lincoln, Y. (2005). Epilogue: The eighth and ninth moments- Qualitative research in/and the fractured future. In N. Denzin and Y. Lincoln (Eds.), *The Sage Handbook of Qualitative Research (3rd Edition)*. Thousand Oaks, CA: Sage Publications.

Detweiler, R. (2004, July 9). At last, we can replace the lecture. *Chronicle of Higher Education,* 50(44), B8.

Divjak, B., & Begičević, N., (2006). Imaginative acquisition of knowledge-strategic planning of e-learning, 28th. Int. Conf. Information Technology Interfaces ITI, Cavtat, Croatia.

Downes, S. (2003). A conversation on the future of E-learning, http://www.downes.ca/files/oehlert.htm. Retrieved, retrieved, August 2006.

Duderstadt, J. J. (2000). A choice of transformations for the 21st-century university. The *Chronicle of Higher Education*, 46, Feb. 4, B6-B7.

Dunn, R., Dunn, K., & Price, G. E. (1989). *Learning style inventory manual*. Lawrence, KS, USA: Price Systems.

Dunn, R., Dunn, K., Price, G. (1984). *Learning Style Inventory*. Lawrence, KS: Price Systems.

Dwyer, D., Barbieri, K., & Helen, M. (1995). Creating a virtual class room for interactive education on the Web. *Computer Networks and ISDN Systems,* 27(6), 897-904.

Economic and Social Commission for Western Asia (ESCWA) (2005). Information Society Indicators, United Nations, New York, USA. Available on: http://www.escwa.org.lb/information/publications/edit/upload/ictd-05-1.pdf

Economic and Social Commission for Western Asia (ESCWA) (2005). Regional profile of the information society. New York: The United Nations.

Egbo, B. (2005). Emergent Paradigm: Critical Realism and Transformative Research in Educational Administration. *McGill Journal of Education,* 40 (2), 267-284.

Ehrmann, S.C. (1999). Access and/or quality? Redefining choices in the third revolution. *Educom Review*, 34(5), 1-7.

Eisner, E. W. (1981). On the differences between scientific and artistic approaches to qualitative research. *Educational Research,* 10(4), 5-9.

El- Amine, A. (1999). *The Lebanese University, issues and prospects for reform*. Beirut: Dar Annahar.

El-Amine, A. (2005). *Quality Assurance in Arab Universities*. Beirut: Lebanese Association for Educational Studies (LAES).

Ely, D. P. (1999). Conditions that facilitate the implementation of educational technology innovations. *Educational Technology, 39*, 23-27.

ETF (2005) The role of e-learning in Teachers and Trainers Training (TTT). MEDA-ETE regional project: E-learning for Teacher and trainer training in MEDA region.

Feagin, J., Orum, A. & Sjoberg, G. (Eds.). (1991). *A case for case study*. Chapel Hill, NC: University of North Carolina Press.

Felder, R. M. (1993). Reaching the second tier: Learning and teaching styles in college science education. *Journal of College Science Teaching*, 23(5), 286-290.

Felder, R.M. & Soloman, B.A. (1999). *Learning styles and strategies*. Retrieved from http://www.ncsu.edu/felder-pubic/ILSdir/styles.htm

Felder, R.M., & J. Spurlin. (2005). Reliability and validity of the Index of Learning Styles: A meta-analysis. *International Journal of Engineering Education, 21*(1), 103–112.

Fishbein, M. & Ajzen, I. (1975). *Belief, attitude, intention, and behavior: An introduction to theory and research*. Reading, MA: Addison – Wesley.

Flyvbjerg, B. (2006). Five misunderstandings about case-study research. *Qualitative Inquiry, 12*(2), 219-245.

Fontaine, M. (2001). Keeping communities of practice afloat: Understanding and fostering roles in communities. *Knowledge Management Review*, 4(4), 16-21.

Freire, P. (1985). *Pedagogy of the oppressed*. New York: Continuum.

Fullan, M. (1985). Change processes and strategies at the local level. *The Elementary School Journal*, 85(3), 391-422.

Fullan, M. (1999). *Change Forces: The sequel*. Philadelphia, PA: Falmer Press.

Fullan, M. (2001). *The new meaning of educational change* (3rd ed.). New York: Teachers College Press.

Gannon-Cook, R., (2003). Factors that motivate or inhibit faculty participation in distance education: An exploratory study. *UMI ProQuest Digital Dissertations*. Retrieved January 23, 2004 from http://wwwlib.umi.com/dissertations/fullcit/3094001.

Garner, I. (2000). Problems and inconsistencies with Kolb's learning styles. *Educational Psychology, 20*(3), 341-348.

Garrison, D. R. (1997). Self-directed learning: Toward a comprehensive model. *Adult Education Quarterly, 48*(1), 18-34.

Gebhart, G. (2005). Best practice in schools: A case study of Lowanna college. In S. Trinidad & J. Pearson (Eds.), Using *information and communication technologies in education* (pp. 87-99). Singapore: Prentice Hall.

Gephardt, R., & Rynes, S. (2004). Qualitative research and the academy of management journal. *Academy of Management Journal*, 47(4), 454-462.

Gifford, L. J. (1998). *Graduate students perceptions of time spent in taking a course by internet versus taking a course in a regular classroom*. Paper presented at the annual Mid-South Educational Research Association Conference, New Orleans.

Glaser, B. G., & Strauss, A. L. (1967). *The discovery of grounded theory: Strategies for qualitative research*. New York: Aldine Publishing Company.

217

Global Alliance for ICT Policy and Development, Kuala Lumpur, 2006.

Grabe, M. & Grabe, C. (2001). *Integrating technology for meaningful learning* (3 ed.). NY: Houghton Mifflin.

Grasha, A. F. (1996). *Teaching with style*. Pittsburgh, PA: Alliance.

Grasha, A. F. (2000). Integrating teaching styles and learning styles with instructional technology. *College Teaching*, 48, 2-11.

Green, D. (1994). What is quality in higher education? Concepts, policy and practice. In D. Green (Ed.), *What is quality in higher education* (168-177). Buckingham: SRHE/OU Press.

Greenberg, M. (2004). A university is not a business (and other fantasies). *EDUCAUSE Review,*39(2), 10-16.

Guba, E. G & Lincoln, Y. S. (2005). Competing paradigms in qualitative research. In N. K. Denzin & Y. S. Lincoln (Eds.), *The Sage handbook of qualitative research (3rd Edition)*. Thousand Oaks, CA: Sage.

Guri-Rosenblit, S. (2005). Eight paradoxes in the implementation process of eLearning in higher education. *Higher Education Policy*, 18(1), 5–29.

Haddad, W.D. and Draxler, A. (2002). The Dynamics of Technologies for Education. In Haddad, W.D. and Draxler, A. (Eds.) (pp. 3-17). *Technologies for Education: Potentials, Parameters, and Prospects*. Paris/Washington: UNESCO and the Academy for Educational Development.

Hammersley, M. (1993). On the Teacher as researcher. In M. Hammersley (Ed), *Educational Research: Current Issues*. London: Paul Chapman.

Hammersley, M. (1999). Sociology, what's it for? A critique of the grand conception. *Sociological Research Online*, 4(3). http://www.leeds.ac.uk/educol/documents/00001818.htm

Hammond, N. (2003) Learning technology in higher education in the UK: Trends, drivers and strategies. In M. Van der Wende and M. van der Ven (eds), *The use of ICT in Higher Education: A mirror of Europe* (pp 109-122). Utrecht: Lemma Publishers.

Hannan, A. (2005). Innovating in higher education: contexts for change in learning technology. *British Journal of Educational Technology*, 36, 975–985.

Hart, S. L. (1992). An integrative framework for strategy-making processes. *Academy of Management Review*, 17(2), 237–351.

Harvey, B. & Beards, D. (2004). E-learning in Scottish further and higher education. *Education & Training*, 46, 353-360.

Hemsley, C. (2002). Jones international university's focus on quality eLearning opens doors for students worldwide. *Business Media*, 39(9), 26-29.

Heppell, S. (2000, November). Plenary keynote. 14th Conference of Commonwealth Education Ministers, Halifax, Nova Scotia, Canada.

Hirning, B. (2009). Leadership strategies for implementing online education in traditional academia: A phenomenological study. Unpublished PhD dissertation, Capella University.

Hiro, D. (1993). *Lebanon: Fire and embers: A history of the Lebanese civil war*. New York: St. Martin's.

Hitti, P. (1957). *Lebanon in history-from the earliest times to the present.* U.S.A.: Macmillan and Co Ltd.

Hofman, D. W. (2002). Internet-based distance education learning in higher education. *TechDirections,* 62(1), 28-32.

Holley, D. (2002). Which room is the virtual seminar in please?. *Education and Training,* 44(3), 112-121.

Horton, W. (2001). *Evaluating e-learning.* Alexandria, VA: American Society for Training & Development.

Horton, W. (2001). *Leading e-learning.* USA: American Society for Training and Development.

Hudson, M. (1968). *The precarious republic: Political modernization in Lebanon.* New York: Random House.

Hunt, D. E. (1975). Person-environment interaction: A challenge found wanting before it was tried. *Review of Educational Psychology,* 45(2), 209-230.

Huynh, M.Q., Umesh, U.N., & Valachich, J. (2003). E-Learning as an emerging entrepreneurial enterprise in universities and firms. *Communications of the AIS,* 12, 48-68.

Inglis, A. (2007). Approaches taken by Australian universities to documenting institutional elearning strategies. In *ICT: Providing choices for learners and learning. Proceedings ascilite Singapore2007.* http://www.ascilite.org.au/conferences/singapore07/procs/inglis.pdf

Jacobson, D. M. (1998). Adoption patterns of faculty who integrate computer technology for teaching and learning in higher education. Proceedings of the ED-MEDIA AND ED-TELECOM 98: World Conference on Educational Multimedia and Hypermedia & World Conference on Educational Telecommunications, Freiburg, Germany, June 20-25., 668-675.

Jonassen, D. H. (2000). Transforming learning with technology: Beyond modernism and post-modernism or whoever controls the technology creates the reality. *Educational Technology,* 40 (2), 21 - 25.

Jung, I. (2005). ICT-pedagogy integration in teacher training: Application cases worldwide. *Educational Technology & Society,* 8 (2), 94-101.

Jung, M.L., Loria, K. Mostaghel, R. & Saha, P. (2008). E-Learning: Investigating university student's acceptance of technology. *European Journal of Open, Distance and e-learning* [online], http://www.eurodl.org/materials/contrib/2008/Jung_Loria_Mostaghel_Saha.htm

Kaufman, R. (2006). *Change, choices, and consequences: A Guide to mega thinking and planning.* Amherst, MA: HRD Press Inc.

Keller, C. Hrastinski, S. & Carlsson, S.A. (2008). Students' acceptance of e-Learning environments: A comparative study in Sweden and Lithuania, [online] In Proceedings of the Fifteenth European Conference on Information Systems (Österle H, Schelp J & Winter R. Eds.), pp. 395-406, http://is2.lse.ac.uk/asp/aspecis/20070083.pdf

Kezar, A. (2009) Change in higher education: Not enough, or too much? *Change,* 18-23.

Khalil, M. (1962). *The Arab States and the Arab League: A Documentary: Record No.1.*

Constitutional Developments. Beirut: Khayat Press.

Khan, B. H. (2001). A framework for Web-based learning. In B. H. Khan (Ed.), *Web-based training*, Englewood Cliffs, NJ: Educational Technology Publications.

Khan, B. H. (2005). *Managing e-learning: Design, delivery, implementation, and evaluation*. Hershey, PA: Information Science Publishing.

Khan, B.H. (2003). The global e-learning framework. *The Technology Source by Michigan Virtual University*. May/June issue.

Kincannon, J. (2002, April). *From the classroom to the Web: A study of faculty change*. Paper presented at the annual meeting of the American Educational Research Association, New Orleans, LA.

Kleimann, B. & Wannemacher, K. (2005). *E-Learning at German universities. From project development to sustainable implementation (Vol. 165)*. Hannover: HIS 2004 (HIS-Hochschulplanung,).

Kozma, R. B. (1994). Will media influence learning? Reframing the debate. *Educational Technology Research and Development*, 42(2), 7-19.

Kramer, B.J. (2000). Forming a federated virtual university through course broker middleware, in: *Proceedings: LearnTec 2000*. Heidelberg.

Labuschagne, A. (2003). Qualitative research - Airy fairy or fundamental? *The Qualitative Report*, 8 (1). Retrieved from http://www.nova.edu/ssss/QR/QR8-1/labuschagne.html.

Lagrosen, S., Seyyed-Hashemi, R. & Leitner, M. (2004). Examination of the dimensions of quality in higher education. *Quality Assurance in Education*, 12(2), 61-69.

Lather, P. (1992). Critical frames in educational research: Feminist and post structural perspectives. *Theory into Practice*, 31(2), 87-99.

Laurillard, D. (2002). *Rethinking university teaching (2nd Edition)*. London: Routledge/Falmer, London.

Lee, A. (2004) Institutional approaches to e-learning: UNSW and the ITET fellowship. *HERSDA News*, April 2004.

Legris, P., Ingham, J. & Collerette, P. (2003). Why do people use information technology? A critical review of the Technology Acceptance Model. *Information & Management*, 40 (3), 191-204.

Lincoln, Y. & Guba, E. (1985). *Naturalistic inquiry*. Thousand Oaks, CA: Sage Publications.

Lisewski, B. (2004). Implementing a learning technology strategy: top-down strategy meets bottom-up culture, *ALT-J*, 12(2), 175–188.

Löfström, E. & Nevgi, A. (2007). University teaching staff as learners of the pedagogical use of ICT. *International Journal of Media, Technology and Lifelong Learning*, 3(1), 1-18.

López, J.I., Minguela, B., Rodrígues, A. & Sandulli, F. (2003). Internet usage and the productivity paradox: the case of Spanish firms. Spain: ACEDE Congress.

MacKeogh, K. & Fox, S. (2009). Strategies for embedding e-learning in traditional universities: Drivers and barriers. *Electronic Journal of e-Learning*, 7(2), pp. 147-152.

Majdalani, R., Stockman, M., & Osta, I. (2005). Wireless local area network WLAN: The "wireless campus project" at the Lebanese American University. In I. Osta (ed.), *Education and information technology in the Arab countries: Issues and trends* (pp. 463-478). Beirut: Lebanese Association for Educational Studies.

Maslow, A.H. (1943). A Theory of human motivation. *Psychological Review,* 50(4), 370-96.

Masrom, M. (2007). Technology Acceptance Model and E-learning, 12th International Conference on Education, Sultan Hassanal Bolkiah Institute of Education, Brunei Darussalam, pp 21-24.

Mathews, D. (1999). The origins of distance education and its use in the United States. *The Journal Technological Horizons in Education*, 27(2), 54-68.

Matthews, R. & Akrawi, M. (1949). *Education in the Arab Countries of the Near East.* Washington, D.C.: American Council on Education.

McCormack, C., & Jones, D. (1998). *Building a web-based education system.* New York: John Wiley.

McLaughlin, M. W. (1990). Rand change agent study Revisited: Macro Perspectives and Micro Realities. *Educational Researcher*, 19(9), 11-16.

McMahon, J., Gardner, J., Gray, C., & Mulhem, G. (1999). Barriers to computer usage: Staff and student perceptions. *Journal of Computer Assisted Learning*, 15(4), 302-311.

Medlin, B.D. (2001). The factors that may influence a faculty member's decision to adopt electronic technologies in instruction. Doctoral dissertation, Virginia Polytechnic Institute and State University, 2001). *ProQuest Digital Dissertations.* (UMI No. AAT 3095210).

Meir, Z. (1985). *The formation of modern Lebanon.* London: Croom Helm.

Merriam, S. B. (1998). *Qualitative research and case study applications in education.* San Francisco: Jossey-Bass Publishers.

Miles, M. B. (1990). New methods for qualitative data collection and analysis: vignettes and pre-structured cases. *Qualitative Studies in Education*, 3(1), 37-51.

Miller, J.B. (2002). Examining the interplay between constructivism and different learning styles. *ICOTS6: The Sixth International Conference on Teaching Statistics,* Cape South Africa. July 7-12, 2002. http://www.stat.auckland.ac.nz/~iase/publications/1/8a4_mill.pdf

Moore, M. G., & Thompson, M. M. (1990). *The effects of distance learning: A summary of literature* (Research Monograph No. 2). Athens: Southeastern Ohio Telecommunications Consortium. (ERIC Document Reproduction Service No. ED 330 321).

Najib, I. (2000). *Higher education and the labor market in Lebanon. Beirut: ESCWA.*

Nanayakkara, C. (2007). A model of user acceptance of learning management systems: a study within tertiary institutions in New Zealand, [online] presented at EduCause Australasia, http://www.caudit.edu.au/educauseaustralasia07/authors_papers/Nanayakkara-361.pdf

Nasser, R. & Abouchedid, K. (2001). Problems and epistemology of publishing in the Arab world: The case of Lebanon. *First Monday*, 6(10), 1-12.

Newman, D. R., Webb, B. & Cochrane, C. (1996). A content analysis method to

measure critical thinking in face-to-face and computer supported group learning. Retrieved June 28, 2006, from http://www.qub.ac.uk/mgt/papers/methods/contpap.html.

Newton, B. & Rospigliosi, A. (2002). Improving large group participation for business students in an eLearning environment using sustained role play in a virtual business. The 9th Annual EDINEB International Conference, Breaking Boundaries for Global Learning, Monterrey Institute of Technology and Higher Education, Guadalajara, Mexico.

Newton, J. (2003). Implementing an institution-wide learning and teaching strategy: lessons in managing change. *Studies in Higher Education,* 28(4), 427-441.

O'Neill, K., Singh, G. & O'Donoghue, J. (2004). Implementing eLearning programmes for higher education: A review of the literature. *Journal of Information Technology Education*, 3, 313-323.

O'Donoghue, J. & Maguire, T. (2005). The individual learner, employability and the workplace: A reappraisal of relationships and prophecies. *Journal of European Industrial Training,* 29(6), 436-446.

O'Donoghue, J. & Singh, G. (2001). A study of social-learning networks of students studying an on-line programme. International Conference on advanced learning technologies (ICALT). Madison, Wisconsin, USA.

OECD (2001). E-learning in tertiary education: where do we stand? Centre for Educational Research and Innovation.

Olcott, M. (2005). *Central Asia's second chance.* Washington: Carnegie Endowment for International Peace.

Osika, E., Johnson, R. & Buteau, R. (2009). Factors influencing faculty use of technology in online instruction: A case study. *Online Journal of Distance Learning Administration*, XII(1). Retrieved from http://www.westga.edu/~distance/ojdla/spring121/osika121.html.

Owen, P. S., & Demb, A. (2004). Change dynamics and leadership in technology implementation. *The Journal of Higher Education,* 75(6), 636-666.

Owston, R. D. (2000). Evaluating web-based learning environments: Strategies and insights. *CyberPsychology and Behavior*, 3(1), 79-87.

Papert S. A. (1990). *Constructionist learning.* Cambridge, MA: MIT Media Laboratory.

Parisot, A.H. (1995). Technology and teaching: The adoption and diffusion of technological innovations by a community college faculty (Doctoral dissertation, Montana State University, 1995). *ProQuest DigitalDissertations.* (UMI No. AAT 9542260).

Patton, M.Q. (1990). *Qualitative evaluation and research methods (2nd ed.).* Newbury Park, CA: Sage Publications.

Pearson, J. (2005). Current policy priorities in ICT in education. In S. Trinidad & J. Pearson (Eds.), *Using information and communication technologies in education* (pp. 134-147). Singapore: Prentice Hall.

Peters, M. (2001). National education policy constructions of the 'knowledge economy': towards a critique. *Journal of Educational Enquiry,* 2(1), 1-22.

Pfeffer, J. & Salancik, G. R. (1978). *The external control of organizations: A resource dependence perspective.* New York: Harper & Row.

Phares, W. (1995). *Lebanese Christian nationalism: The rise and fall of an ethnic resistance*. Boulder, Colo: Lynne Rienner.

Pittenger, D. (1993). The utility of the Myers-Briggs type indicator. *Review of Educational Research, 63*, 467-486.

Pittinsky, M. S. (2003). Transformation through evolution. In M. S. Pittinsky (Ed.), *The wired tower: Perspectives on the impact of the Internet on higher education* (pp. 1-11). Upper Saddle River, NJ: Prentice Hall.

Polit, D.F. & Hungler, B.P. (1999). *Nursing Research: Principles and Methods (6th Eidtion)*. Philadelphia. Lippincott.

Polit, D.F., & Beck, C.T. (2004). *Essentials of nursing research: Methods, appraisal, and utilization (6th ed.)*. Philadelphia: Lippincott, Williams, & Wilkins.

Powell, P. C. & Weenk, W. (2003). *Project-led engineering education*. Utrecht: Lemma.

Powney, J. & Watts, M. (1987). *Interviewing in educational research*. London: Routledge & Kegan Paul.

Pyecha, J. (1988). *A case study of the application of noncategorical special education in two states*. Chapel Hill, NC: Research Triangle Institute.

Raaij, E.M. and Schepers, J. J.L. (2008). The acceptance and use of a Virtual Learning Environment in China. *Computers & Education, 50*, 838–852.

Ravenscroft, A., (2001). Designing E-learning Interactions in the 21st Century: revisiting and rethinking the role of theory. *European Journal of Education, 36* (2), 133-156.

Redding, T., & Rotzien, J. (2001). Comparative analysis of online learning versus classroom learning. *Journal of Interactive Instruction Development, 13*, 3-12.

Reigeluth, C. M., & Garfinkel, R.J. (1994). *Systemic change in education*. Englewood Cliffs, N.J.: Educational Technology Publications.

Renzulli, J. S., & Dai, D. Y. (2001). Abilities, interests, and styles as aptitudes for learning: A person-situation interaction perspective. In R. J. Sternberg & L-F. Zhang (Eds.), *Perspectives on thinking, learning, and cognitive styles* (pp. 23-46). Mahwah, NJ: Erlbaum.

Riley, P. & Gallo, L. (2000). Electronic learning environments: Design considerations. *Technological Horizons in Education Journal, 27*(6), 50-53.

Robottom, I. & Hart, P. (1993). *Research in Environmental Education: Engaging the debate*. Geelong, Victoria: Deakin University Press.

Rogers, E. M. (1995). *Diffusion of innovations (4th ed.)*. New York: The Free Press.

Rogers, E. M. (2003). *Diffusion of innovations (5th ed.)*. New York: The Free Press.

Ropp, M. M. (1999). Exploring individual characteristics associated with learning to use computers in pre-service teacher preparation. *Journal of Research on Computing in Education, 31*(4), 402-425.

Rosenberg, M.J. (2003). Building successful e-learning strategy. Paper presented at the ASTD Annual Conference, San Diego.

Rothery, A. (2004). *VLEs and blended learning: a discussion paper based on TLIG meetings held during 2004*. Oxford: UCISA-TLIG.

Rugh, W. (2002). Arab education: tradition, growth and reform. *The Middle East Journal*, 56(3), 396-413.

Russell, T. (1999). *The no significant difference phenomenon: A comparative research annotated Bibliography on technology for distance education*. North Carolina State University: Raleigh.

Salibi, K. (1965). *The modern history of Lebanon*. London: Wiedenfeld and Nicolson.

Salmon, G. (2000). *E-moderating: the key to teaching and learning online*. London: Kogan-Page.

Salmon, G. (2004). *E-moderating: The key to teaching and learning online* (2nd ed.). Oxfordshire: Taylor & Francis Books Ltd.

Schmeck, R.R. (1988). *Learning Strategies and Learning Styles. Review of Educational Psychology*, 45, 209-230.

Schultz, C. (2001). Surveys of distance learning in the Virginia Community College. *System, Inquiry*, 6(2), 34-38.

Schuttloffel, M. (1998). Reflections on the dilemma of distance learning. *International Journal of Educational Telecommunications*, 4 (1), 45-58.

Sharpe, R., Benfield, G. & Francis, R. (2006) Implementing a university e-learning strategy: Levers for change within academic schools. *ALT-J*, 14 (2), 135 -151.

Shih, C. & Gamon, J. (2002). Relationships among learning strategies, patterns, styles,and achievement in web-based courses. *Journal of Agricultural Education*, 43(2).Retrieved March 30th, 2004, from http://pubs.aged.tamu.edu/jae/pdf/Vol43/43-04-01.pdf

Shirley, A. (2001). E-learning developments and experiences. *Education and Training*, 43(4/5), 240-248.

Shrivastava, P., (2008). Sustainable organizational technology. *International Journal of Sustainable Strategic Management*,1(1), 98-111.

Siegel, M. (2004). Designing for Deep Conversation in a Scenarios-based e-Learning Environment, *Proceeding of the 37th Hawaii International Conference on System Sciences*

Sife, A., Lwoga, E., & Sanga, C. (2007). New technologies for teaching and learning: Challenges for higher learning institutions in developing countries. *International Journal of Education and Development using ICT* [Online], 3(2). Retrieved from http://ijedict.dec.uwi.edu/viewarticle.php?id=246.

Skinner, B. F. (1968). *The technology of teaching*. New York: Appleton-Century-Crofts.

Skinner, B. F. (1972). *Beyond freedom and dignity*. New York: Knopf. Stanford Encyclopedia of Philosophy.

Sloman, M. (2001). *The E-learning revolution*. London: Chartered Institute of Personnel and Development.

Smith, R.E. (2009). *Human resources administration: A school-based perspective (4th Edition)*. Larchmont, NY: Eye on Education.

Snow, D. A. & Anderson, L. (1993). *Down on their luck: A study of homeless street people*. Berkeley: University of California Press.

Snyder, I. (2001). A new communicative order: researching literacy practices in the networked society. *Language and Education*, 16(2/3), 117–131.

Solomon, B. A. & Felder, R. M. (1999). Index of Learning Styles, Available from http://www.ncsu.edu/felder-public/ILSpage.html, accessed 15 March 2007.

Soong, M.H.B., Chan H.C., Chua, B.C. & Loh, K.F. (2001). Critical success factors for on-line course resources. *Computers and Education*, 36 (2), 101-120.

Souto-Silva, R. (2005). E-learning: The AUB experience. *A Selection of presentations given at LMA Premises, pp. 35-49.*

Spagnolo, J. P. (1977). *France and Ottoman Lebanon: 1861-1914.* London: Ithaca Press.

Spradley, J.P. (1980). *Participant observation.* New York: Hol, Renihart and Winston.

Stake, R. (1995). *The art of case research.* Thousand Oaks, CA: Sage.

Stake, R. (2005). Qualitative case studies. In N. K. Denzin & Y. S. Lincoln (Eds.), *The Sage handbook of qualitative research* (3rd ed). Thousand Oaks, CA: Sage.

Strauss, A. & Corbin, J. (1990). *Basics of qualitative research: Grounded theory procedures and techniques.* Newbury Park, CA: Sage.

Strauss, A., & Corbin, J. (1998). *Basics of qualitative research: Techniques and procedures for developing grounded theory (2nd ed.).* Thousand Oaks, CA: Sage.

Stufflebeam, D.L. (2000). The CIPP model for evaluation. In D.L. Stufflebeam, G. F. Madaus, & T. Kellaghan, (Eds.), *Evaluation models (2nd ed.). (Chapter 16).* Boston: Kluwer Academic Publishers.

Szyliowcz, J. (1973). *Education and modernization in the Middle East.* London: Carnel University Press.

Tam, S. (1999). Developing countries and the future of distance education and open learning in the twenty-first century. *Journal of Instructional Science and Technology*, 3 (1), 1-9.

Tedeschi, R. (2009). Implementation of electronic learning within campus institutions of higher education: Faculty motivators and inhibitors. Unpublished PhD dissertation, Capella University.

Testa, M.G., de Freitas, H.M.R. (2004). Critical success factors of e-learning programmes: an exploratory study in the Brazilian context. In Proceeding of the 8th Association of Information and Management Conference on New e-usage? Their integration in companies and the society, May 21st - 23rd 2003, Grenoble, France.

The Lebanese Ministry of Education and Higher Education, MEHE, 2007.

Tobin, K., Tippins, D., & Gallard, A. (1994). Research on instructional strategies for teaching science. In D. L. Gabel (Ed.), *Handbook of research on science teaching and learning* (pp. 45-93). New York: Macmillan.

Trinidad, S. (2005). Taking the next step in using technology. In S. Trinidad & J. Pearson (Eds.), *Using information and communication technologies in education* (pp. 1-15). Singapore: Prentice Hall.

Tucker, J. & Gentry, G. (2009). Developing an e-learning strategy in higher education. *Foresight*, 11(2), 43-49.

Umrani-Khan, F. & Iyer, S. (2009). ELAM: A Model for Acceptance and Use of E-

learning by Teachers and Students. International Conference on e-learning (ICEL), Toronto, Canada.

UNESCO (2003). Developing and using indicators of ICT use in education. UNESCO Asia and Pacific Regional Bureau for Education, Bangkok. http://unesdoc.unesco.org/images/0013/001311/131124e.pdf

UNESCO (2009). Arab Regional Conference on Higher Education (ARCHE 10+), Cairo, Egypt.

United Nations Development Programme (UNDP) (2001). Human Development Report 2001, New York: Oxford University Press.

United Nations Development Programme (UNDP) (2002). Arab Human Development Report: Creating Opportunities for Future Generations. New York: The United Nations.

United Nations, Digital Solidarity Fund (2005), *From the Digital Divide to the need for a worldwide solidarity movement*, United Nations, New York, September.

United Nations, Digital Solidarity Fund (2005). From the Digital Divide to the need for a worldwide solidarity movement. New York: United Nations.

Vallerand, R. J. (1997). Toward a hierarchical model of intrinsic and extrinsic motivation. In M. P. Zanna (Ed.), *Advances in experimental social psychology* (pp. 271-360). New York: Academic Press.

Van der Spek, R. & Spijkervet A. (1997). Knowledge management: Dealing intelligently with knowledge. In J. Liebowitz and L. Wilcox. (Eds.), *Knowledge management and its integrative elements* (pp. 69-87). New York: CRC Press.

Vaughan, N. (2007). Perspectives on blended Learning in higher education. *International Journal on E-Learning*, 6(1), 81-94.

Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. *MIS Quarterly*, 27(3), 425-478.

Vision Document (2007). The Lebanese Association for Educational Studies (LAES), Beirut, Lebanon.

Volery, T. & Lord, D. (2000). Critical success factors in online education. *The International Journal of Educational Management*, 14(5), 216-233.

Voogt, J. (2008). *International handbook of information technology in primary and secondary schools*. USA: Springer.

Walker, R. (1985). *Applying qualitative research*. Grower: Aldershot.

Watson, D. M. (2001). Pedagogy before technology: re-thinking the relationship between ICT and teaching. *Education and Information Technologies,* 6 (4), 251-66.

Whitlock, Q. (2000). Tutor support in online learning: a report on a literature search. *Guides for Managers, Practitioners and Researchers*. Sheffield: DfEE.

Williams, H. (2009). Redefining teacher education programs for the 21st century. *Diverse: Issues in Higher Education*, 26(3), 25.

Williamson M.F. and Watson R.L. (2007). Learning styles research: Understanding how teaching should be impacted by the way learners learn. Part III understanding how learners personality styles impact learning. *Christian Education Journal,* 4 (1), 62-76.

Willis, J., & Cifuentes, L. (2005). Training teachers to integrate technology into the classroom curriculum: Online versus face-to-face course delivery. *Journal of*

Technology and Teacher Education, 13(1), 43-63.

Wong, D. (2006). Full-time students' and working adults' perceptions of e-learning in Malaysia. *Asian Journal of Distance Education*, 4 (1), 67-84.

Woods, P. (1985). *Inside schools: Ethnography in educational research.* Routledge: Education Books.

Yaghi, H. (1999). *About the informatics curriculum. The new educational curricula in Lebanon:* An evaluative view. Beirut: CERD.

Yin, R. (1993). *Applications of case study research.* London: Sage Publications.

Yin, R. (2002). *Case study research.* London: Sage Publications.

Yin, R. (2003). *Case study research: Design and methods (3rd ed.).* Thousand Oaks, CA: Sage.

Yin, R.K. (2002). *Case Study research - design and methods (3th ed.).* Sage: Thousand Oaks.

Yousafzai, S. Y., Foxall, G. R. & Pallister, J. G. (2007). Technology acceptance: A meta-analysis of the TAM (Part 1). *Journal of Modeling in Management,* 2(3), 251-280.

Yuen, H.K.A. & Ma, W.W.K. (2008). Exploring teacher acceptance of e-learning technology. *Asia-Pacific Journal of Teacher Education*, 36(3), 229–243.

Zaltman, G. & Duncan, R. (1977). *Strategies for planned change.* New York, NY: John Wiley and Sons.

Zemsky, R. & Massy, W. (2004). *Thwarted Innovation: What Happened to elearning and Why.* A Final Report for The Weatherstation Project of The Learning Alliance at the University of Pennsylvania in cooperation with the Thomson Corporation, Available: http://www.irhe.upenn.edu/Docs/Jun2004/ThwartedInnovation.pdf.

Appendix 1

The Pilot Study Results

1- Students

GENDER

	Frequency	Valid Percent
Male	20	69.0
Female	9	31.0
Total	29	100.0

AGE

	Frequency	Valid Percent
19-less	1	3.4
20-29	28	96.6
Total	29	100.0

Frequency of taking college courses through Blackboard.

	Frequency	Valid Percent
always	2	6.9
sometimes	15	51.7
not often	12	41.4
Total	29	100.0

Course taken through Bb

	Frequency	Valid Percent
Hard	13	44.8
Soft	16	55.2
Total	29	100.0

Frequency   of connecting online

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1-5	13	44.8	44.8	44.8
	5-10	10	34.5	34.5	79.3
	10-20	3	10.3	10.3	89.7
	20-30	3	10.3	10.3	100.0
	Total	29	100.0	100.0	

The documentation given to me by the university for accessing Bb. was suitable for the course requirements

		Frequency	Valid Percent
	very high	15	57.7
	high	6	23.1
	moderately high	1	3.8
	neutral	4	15.4
	Total	26	100.0
Missing	System	3	
Total		29	

The course instructor was available via Bb.

		Frequency	Valid Percent
	very high	12	42.9
	high	5	17.9
	moderately high	4	14.3
	neutral	4	14.3
	low	2	7.1
	very low	1	3.6
	Total	28	100.0
Missing	System	1	
Total		29	

2

The instructor showed skill and competence in helping me with Bb.

	Frequency	Valid Percent
very high	18	62.1
high	7	24.1
moderately high	2	6.9
neutral	2	6.9
Total	29	100.0

The university provided me with support in cases of unexpected Bb. technical problems

		Frequency	Valid Percent
	very high	6	22.2
	high	3	11.1
	moderately high	4	14.8
	neutral	11	40.7
	low	1	3.7
	moderately low	2	7.4
	Total	27	100.0
Missing	System	2	
Total		29	

The course instructor provided timely feedback of my assignments

		Frequency	Valid Percent
	very high	11	39.3
	high	6	21.4
	moderately high	4	14.3
	neutral	6	21.4
	moderately low	1	3.6
	Total	28	100.0
Missing	System	1	
Total		29	

3

Bb. helps me manage and have control over my own learning development

		Frequency	Valid Percent
	very high	8	28.6
	high	10	35.7
	moderately high	5	17.9
	neutral	3	10.7
	low	1	3.6
	very low	1	3.6
	Total	28	100.0
Missing	System	1	
Total		29	

Bb. helped fulfil the course objectives

	Frequency	Valid Percent
very high	7	24.1
high	14	48.3
moderately high	3	10.3
neutral	4	13.8
very low	1	3.4
Total	29	100.0

Through Bb the course was helpful in meeting my learning needs

		Frequency	Valid Percent
	very high	7	25.0
	high	8	28.6
	moderately high	7	25.0
	neutral	5	17.9
	very low	1	3.6
	Total	28	100.0
Missing	System	1	
Total		29	

The information I required for my study was available

		Frequency	Valid Percent
	very high	11	39.3
	high	6	21.4
	moderately high	7	25.0
	neutral	3	10.7
	very low	1	3.6
	Total	28	100.0
Missing	System	1	
Total		29	

4

The information I required for my study was easily accessible through Bb.

	Frequency	Valid Percent
very high	14	48.3
high	10	34.5
neutral	5	17.2
Total	29	100.0

I was satisfied with the way Bb covered the course content

	Frequency	Valid Percent
very high	11	37.9
high	6	20.7
moderately high	5	17.2
neutral	5	17.2
low	1	3.4
very low	1	3.4
Total	29	100.0

I was satisfied with the way the course was delivered through Bb

	Frequency	Valid Percent
very high	8	27.6
high	11	37.9
moderately high	5	17.2
neutral	2	6.9
low	2	6.9
moderately low	1	3.4
Total	29	100.0

Bb provided a constructive learning environment

	Frequency	Valid Percent
very high	6	20.7
high	12	41.4
moderately high	7	24.1
neutral	4	13.8
Total	29	100.0

Bb. facilitated learning activities (throey, practical, group work)

	Frequency	Valid Percent
very high	8	27.6
high	3	10.3
moderately high	8	27.6
neutral	8	27.6
moderately low	2	6.9
Total	29	100.0

Bb. facilitated my communication with classmates

	Frequency	Valid Percent
very high	6	20.7
high	2	6.9
moderately high	7	24.1
neutral	9	31.0
low	2	6.9
very low	3	10.3
Total	29	100.0

Bb. helped me communicate with the course instructor

	Frequency	Valid Percent
very high	11	37.9
high	6	20.7
moderately high	5	17.2
neutral	2	6.9
low	3	10.3
very low	2	6.9
Total	29	100.0

I would recommend other students to use Bb. courses

	Frequency	Valid Percent
very high	13	44.8
high	9	31.0
moderately high	4	13.8
neutral	2	6.9
very low	1	3.4
Total	29	100.0

2- Academic Administrators

Have you been previously involved in any e-learning initiative?

		Frequency	Valid Percent
	yes	4	33.3
	no	8	66.7
	Total	12	100.0
Missing	System	2	
Total		14	

Does NDU have a formal written e-learning strategy?

		Frequency	Valid Percent
	yes	2	15.4
	no	8	61.5
	unaware	3	23.1
	Total	13	100.0
Missing	System	1	
Total		14	

ICT/Technology

	Frequency	Valid Percent
Very favorable	12	85.7
Neutral	2	14.3
Total	14	100.0

Technology in teaching/learning

		Frequency	Valid Percent
	Very favorable	12	92.3
	Very unfavorable	1	7.7
	Total	13	100.0
Missing	System	1	
Total		14	

To what extent do your faculty memebers use technology in teaching/learning?

	Frequency	Valid Percent
Always	9	64.3
Neutral	3	21.4
Never	2	14.3
Total	14	100.0

To what extent are you satisfied with the technical support provided by the Division of Computing Services?

	Frequency	Valid Percent
Very satisfied	12	85.7
Neutral	1	7.1
Very unsatisfied	1	7.1
Total	14	100.0

Unreliable network

		Frequency	Valid Percent
	Agreat deal of	5	38.5
	Neutral	2	15.4
	Not at all	6	46.2
	Total	13	100.0
Missing	System	1	
Total		14	

Lack of equipment

		Frequency	Valid Percent
	Agreat deal of	6	46.2
	Neutral	1	7.7
	Not at all	6	46.2
	Total	13	100.0
Missing	System	1	
Total		14	

Students' reluctance to use ICT

		Frequency	Valid Percent
	Agreat deal of	4	30.8
	Neutral	2	15.4
	Not at all	7	53.8
	Total	13	100.0
Missing	System	1	
Total		14	

Insufficient equipped classes

		Frequency	Valid Percent
	Agreat deal of	8	61.5
	Neutral	2	15.4
	Not at all	3	23.1
	Total	13	100.0
Missing	System	1	
Total		14	

Lack of administrative support

		Frequency	Valid Percent
	Agreat deal of	6	42.9
	Neutral	1	7.1
	Not at all	7	50.0
	Total	14	100.0

Resistance to change

		Frequency	Valid Percent
	Agreat deal of	7	53.8
	Neutral	2	15.4
	Not at all	4	30.8
	Total	13	100.0
Missing	System	1	
Total		14	

Lack of students' ICT skills

		Frequency	Valid Percent
	Agreat deal of	5	38.5
	Neutral	4	30.8
	Not at all	4	30.8
	Total	13	100.0
Missing	System	1	
Total		14	

Lack of trained faculty members in ICT

		Frequency	Valid Percent
	Agreat deal of	6	46.2
	Neutral	4	30.8
	Not at all	3	23.1
	Total	13	100.0
Missing	System	1	
Total		14	

9

P.O.BOX: 72 ZOUK MIKHAEL
TEL:+961 9 218950
FAX:+ 961 9 218771
ZOUK MOSBEH, LEBANON
www.ndu.edu.lb

NOTRE DAME UNIVERSITY LOUAIZE

Appendix 2
Letter of Access

Notre Dame University-Louaize

TITLE OF PROJECT: The development of e-learning in a Lebanese higher educational context

INVESTIGATOR: Fawzi Baroud

UNIVERSITY: Sheffield Hallam University, UK

DATES OF PROPOSED PROJECT: From 2006 to 2010

PURPOSE OF THE INVESTIGATION:

As part of data collection for my Ph.D thesis at Sheffield Hallam University in order to study the development process of e-learning implementation at NDU.

DESCRIBE THE RESEARCH METHODOLOGY IN NON-TECHNICAL LANGUAGE:

I will administer questionnaires to faculty members and students. I will also interview faculty members and academic administrators for the study.

POTENTIAL BENEFITS AND ANTICIPATED RISK:

There is no risk of physical, psychological or economic harm to the participants. Also, the benefits of this study will allow the NDU's community to better understand issues associated with e-learning implementation in teaching and learning.

INFORMED CONSENT

Participants will be informed before the research that it is voluntary and that they can stop at any time. They will also be told that they do not have to answer any question that they do not want to answer. Participants will be informed that their responses will be kept confidential.

Investigator's Signature

I approve this protocol submitted to the office of the Vice President for Academic Affairs:

Dr. Ameen Rihani, VPAA
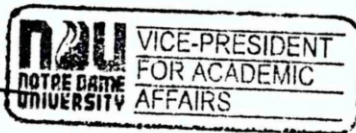
Appendix 3

Interview Schedule

Academic Administrators

A. Academic Background

A.1. Type of Degree_____

A.2. Area(s) of specialty_____

B. Administrative Profile

B.1. Current position held_____

B. 2. How long have you been in your current position?_____

C. Technology Dimension

Please circle the number as appropriate **(Very favorable being 1 and very unfavorable being 7).**

C.1. How would you characterize your attitude to technology in terms of:

C. 2. ICT/Technology in general   1   2   3   4   5   6   7

C.3. Technology in teaching/learning 1   2   3   4   5   6   7

C.4. Please, list four areas of work in your unit/faculty that can be supported by the use of technology.

1._____

2._____

3._____

4._____

C.5. If applicable to what extent d o your faculty members use technology in teaching/learning? **(1 being always and 7 being never).**

       1   2   3   4   5   6   7

C.6. To what extent are you satisfied with the technical support provided by the Division of Computing Services? **(1 being very satisfied and 7 very dissatisfied).**

       1   2   3   4   5   6   7

D. The e-learning Dimension

D.1. How would you define e-learning?

_____

_____

_____

_____

_____

_____

_____

D.2. Have you been previously involved in any e-learning development initiative?

Yes ☐   No ☐

Please explain further:

_____

_____

_____

_____

_____

_____

_____

_____

_____

D. 3. In your opinion, to what extent can technology enhance teaching and learning at NDU?

_____

_____

_____

_____

_____

_____

_____

_____

D.4. In your experience, which subject areas, types/ levels of programmes, and learning activities are best suited to e-learning?

_____

_____

_____

_____

_____

_____

_____

_____

E. Administrative/Cultural Dimension

E. 1. In your opinion, does NDU have a formal, written e-learning strategy?

YES ☐   NO ☐   Under development ☐   Unaware of any strategy ☐

E.2. In your opinion, who should be in charge of implementing e-learning at NDU?

_____

_____

_____

_____

_____

_____

_____

_____

E. 3. To what extent does NDU have a 'centralized' approach to e-learning pedagogy?

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

E.4. How often do you find the following factors as obstacles that hinder greater use of technology at NDU (1 being a great deal of and 7 being not at all).

Unreliable network	1	2	3	4	5	6	7
Lack of equipment	1	2	3	4	5	6	7
Students' reluctance to use ICT	1	2	3	4	5	6	7
Insufficient equipped classes	1	2	3	4	5	6	7
Lack of technical support	1	2	3	4	5	6	7
Resistance to change	1	2	3	4	5	6	7
Lack of students' ICT skills	1	2	3	4	5	6	7
Lack of trained faculty in ICT	1	2	3	4	5	6	7

E.5. In your opinion, what are viewed as major barriers to further technological development at NDU?

_____

_____

_____

_____

_____

_____

_____

_____

14

E.6. In your opinion, how can these limitations be reduced?

_____

_____

_____

_____

_____

_____

_____

_____

E.7. Please give an overview of possible future scenarios for your unit/faculty in terms of implementing e-learning.

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

F. Closing comments (if any)

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Interview Schedule

Faculty Members

I. General Information

1. Gender: _____

2. Faculty affiliation: _____

3. Department: _____

4. Position of the interviewee: _____

II. Interview Questions (Individual Factors)

Faculty perceptions of ICT use in teaching and learning

A. In your view, what is the utility and effectiveness of ICT use for teaching and learning at NDU?

B. In your view, what skills and knowledge are considered necessary for the pedagogical use and exploitation of ICT in teaching and learning at NDU?

C. How does ICT influence your teaching in class?

D. To what extent do you use ICT in curriculum related projects in class (engaging students? Do you think it should be used more or less in teaching and learning in your classes? Why?

E. In your opinion, do you see a relation of ICT use in teaching and learning and your own professional development? Please explain reasons and provide examples.

F. In you view, what is your teaching philosophy underlying the pedagogical use of ICT in teaching and learning?

III. Interview Questions (Contextual Factors)

Faculty perceptions of contextual factors related to ICT use

A. Please, describe the level of ICT technical support provided by DCS staff.

B. To what extent you believe NDU has ICT equipment and technology infrastructure available for supporting teaching and learning?

C. Are you aware of University policies for ICT use in teaching?

D. Does your Faculty have a strategic plan for ICT use in teaching and learning? Please explain reasons.

E. Are you aware of monetary and/or moral incentives given by NDU to those who use or experiment with ICT use in teaching?

F. Does the university have a strategic planning of ICT deployment and use in the curriculum? Please explain.

IV. Interview Questions (Training Factors)

Factors related to training and education

A. Are you personally involved in research projects concerning the use of ICT in teaching and learning?

B. Are you aware of any research involvement of faculty members in your Faculty/department on ICT use in teaching and learning? Please explain reasons.

C. Did you or your Faculty/department receive training from DCS on ICT use? Please explain objectives of training, content and duration.

D. Have you received other training for ICT use in teaching and learning? Please explain.

Faculty Members Questionnaires

Questionnaire 1 Faculty Technology Survey

1. Gender

( ) Male
( ) Female

2. Age

_____

3. Faculty

Faculty of primary teaching responsibilities:

( ) Natural & Applied Sciences
( ) Engineering
( ) Business
( ) Humanities
( ) Architecture
( ) Political Science

4. Teaching status

( ) Full Time
( ) Part Time

5. Location of courses you teach (Check all that apply):

( ) Main
( ) North
( ) Shouf

6. Course level taught (Check all that apply):

( ) Undergraduate
( ) Graduate

7. Please give your opinion on each of the followings:

Strongly agree   Agree   Neutral Disagree   Strongly disagree   Don't use/Does not apply

( )   I would like assistance in moving my traditional teaching activities towards the Virtual

( )   Learning Environment (VLE), i.e., Blackboard (Bb).

( )   I would like to receive training using Blackboard (Bb).

( )   I would like instruction in the use of scanners and digital cameras.

( )   I would like to learn more about podcasting devices to support teaching/learning process.

( )   I am interested in receiving technical support to enhance my technology skills.

( )   I would like training in developing web pages.

( )   I have received adequate technical support for using technology in teaching.

8. If you have not received adequate support for using technology in your teaching, please explain reasons.

_____

_____

_____

_____

_____

9. What type of technology do you feel most pressed to master at this time?

_____

_____

_____

_____

_____

10.   In my classes, I make assignments requiring the use of a word processing program (e.g. Word).

( ) Undergraduate

( ) Graduate

( ) Not applicable

11. In my classes, I make assignments requiring the use of a spreadsheet program (e.g. Excel).

( ) Undergraduate

( ) Graduate

( ) Not applicable

12. In my classes, I make assignments requiring the use of a statistical package.

( ) Undergraduate
( ) Graduate
( ) Not applicable

13. In my classes, I make assignments requiring the use of discipline-specific software.

( ) Undergraduate
( ) Graduate
( ) Not applicable

14. In my classes, I make assignments requiring the use of a presentation package (e.g. PowerPoint).

( ) Undergraduate
( ) Graduate
( ) Not applicable

15. In my classes, I make assignments requiring the use of a database program (e.g. Access).

( ) Undergraduate
( ) Graduate
( ) Not applicable

16. In my classes, I use email to communicate with students.

( ) Undergraduate
( ) Graduate
( ) Not applicable

17. In my classes, I require students to build a web page.

( ) Undergraduate
( ) Graduate
( ) Not applicable

18. In my classes, I require students to access internet.

( ) Undergraduate
( ) Graduate
( ) Not applicable

19. In my classes, I use wireless technology.

( ) Undergraduate

( ) Graduate

( ) Not applicable

20. The single greatest barrier to my using on-line or internet web-based technology is:

_____

_____

_____

_____

_____

21. How many courses are you teaching this semester?

1 ( )　2 ( )　3 ( )　4 ( )　5 ( )　6 ( )　7 ( )　( ) None

22. How many of your courses have web sites?

1 ( )　2 ( )　3 ( )　4 ( )　5 ( )　6 ( )　7 ( )　( ) None

23. Please indicate whether you use Blackboard to do the followings in your courses:

	Never	Occasionally	Frequently
Post course syllabus	( )	( )	( )
Post lecture notes	( )	( )	( )
Post assignments	( )	( )	( )
Provide examples of assigned projects	( )	( )	( )
Provide links to on-line resources	( )	( )	( )
Give online exams or quizzes	( )	( )	( )
Use chat rooms	( )	( )	( )
Help manage class content and instruction	( )	( )	( )
Conduct discussion forum	( )	( )	( )

24. If applicable, evaluate the impact of technology on each of the following areas:

	Increased	No Effect	Decreased	Do not use	No answer
Interaction between me and my students	( )	( )	( )	( )	( )
Interaction among students	( )	( )	( )	( )	( )
Active learning opportunities for students	( )	( )	( )	( )	( )
My students' time-on-task	( )	( )	( )	( )	( )
My ability to provide rapid feedback	( )	( )	( )	( )	( )
My expectations of my students	( )	( )	( )	( )	( )
My respect for different talents and learning preferences among students	( )	( )	( )	( )	( )
My teaching effectiveness	( )	( )	( )	( )	( )

25. I would use the following technology in the classroom if I had free copies of the following software:

	Yes	No	No Opinion
Dreamweaver, Flash, Photoshop, Pagemaker	( )	( )	( )
Microsoft (MS Word, Excel, PowerPoint etc...)	( )	( )	( )

26. I would use these instructional tools if they were made available:

	Yes	No	No Opinion
Exam/Test Creator software	( )	( )	( )
Electronic Gradebook software	( )	( )	( )
Online survey software	( )	( )	( )

27. Other Comments, if any:

_____

_____

_____

_____

Questionnaire 2 Faculty Members Technology Questionnaire

1. Current Employment at NDU

( ) Full-time
( ) Part-time

2. Age Range

( ) Below 30
( ) 30 - 34
( ) 35 - 39
( ) 40 - 44
( ) 45 - 49
( ) 50 - 54
( ) 55 - 59
( ) 60 - 64
( ) 65+

3. Faculty Affiliation

( ) Faculty of Natural & Applied Sciences
( ) Faculty of Humanities
( ) Faculty of Political Sciences, Public Administration & Diplomacy
( ) Faculty of Architecture, Arts & Design
( ) Faculty of Engineering
( ) Faculty of Business Administration & Economics
( ) Faculty of Nursing

4. Current academic/administrative position (if any)?

( ) Vice President
( ) Dean
( ) Acting Dean
( ) Chairperson
( ) Director
( ) Associate Director
( ) Coordinator
( ) Head
( ) Others
( ) Not applicable

5. Gender

( ) Female
( ) Male

6. Highest degree earned

( ) BA/BS
( ) Master
( ) Ph.D./Ed.D./Doctorate
( ) Others

7. Level of students you currently teach

( ) Undergraduate
( ) Graduate
( ) Both
( ) Not applicable

8. Approximately, how many hours do you spend per week working on the computer excluding internet surfing?

( ) Less than one hour
( ) One hour
( ) Tow hours
( ) Three hours
( ) Four hours
( ) Above four hours
( ) Not applicable

9. Approximately, how many hours do you spend per week surfing the internet?

( ) Less than one hour
( ) One hour
( ) Tow hours
( ) Three hours
( ) Four hours
( ) Above four hours
( ) Not applicable

10. How much do you feel you are dependent on using technology in teaching?

( ) Highly dependent
( ) Dependent

( ) Fairly dependent

( ) Not dependent

( ) Not sure

11. How much do you feel you are dependent on using technology in your research?

( ) Highly dependent

( ) Dependent

( ) Fairly dependent

( ) Not dependent

( ) Not sure

12. How would you characterize your use of MS Word?

( ) Novice

( ) Intermediate

( ) Proficient

( ) Expert

( ) Not applicable

13. How would you characterize your use of MS Excel?

( ) Novice

( ) Intermediate

( ) Proficient

( ) Expert

( ) Not applicable

14. How would you characterize your use of MS PowerPoint?

( ) Novice

( ) Intermediate

( ) Proficient

( ) Expert

( ) Not applicable

15. How would you characterize your use of MS outlook (e.g., email, contacts, tasks)?

( ) Novice

( ) Intermediate

( ) Proficient

( ) Expert

( ) Not applicable

16. How would you characterize your familiarity with social software (e.g., RSS, Wikis, Blogs...)?

( ) Very familiar

( ) Somewhat familiar

( ) Not very familiar

( ) Not at all familiar

( ) Not applicable

17. How would you characterize your use of computers as an access tool to electronic resources (library, online databases, etc...)?

( ) Novice

( ) Intermediate

( ) Proficient

( ) Expert

( ) Not applicable

18. How often do you use Excel or any other statistical software to grade your students' work and analyze quantitatively their progress throughout the course?

( ) Very often

( ) Occasionally

( ) Rarely

( ) Not at all

( ) Not applicable

19. How often do you use PowerPoint as a support tool in your classroom lectures?

( ) Very often

( ) Occasionally

( ) Rarely

( ) Not at all

( ) Not applicable

20. In your view, how much impact does the use of technology have on students' learning?

( ) Very high
( ) High
( ) Neutral
( ) Low
( ) Very low

21. In your view, how much does the use of technology make the management of a course easier?

( ) Very high
( ) High
( ) Neutral
( ) Low
( ) Very low

22. In your view, how much does the use of technology support your teaching?

( ) Very high
( ) High
( ) Neutral
( ) Low
( ) Very low

23. In my classes, I give my students assignments that require the use of Microsoft Office (Excel, PowerPoint, MS Word)?

( ) Yes
( ) No
( ) Not applicable for the course(s) I teach

24. I my classes, I ask my students to communicate with me and among each other on course issues via e-mail

( ) Yes
( ) No

25. In my classes, I require my students to access the NDU electronic library resources for their course readings and assignments

( ) Yes

( ) No

26. In my classes, I require my students to conduct internet search (desktop research) for downloading information related to their course readings and assignments

( ) Yes

( ) No

27. In your view, how influential is the use of technology in facilitating access to a variety of learning resources?

( ) Very influential

( ) Somewhat influential

( ) Not Very influential

( ) Not at all influential

( ) Do not know

28. In your view, how influential is the use of technology in creating flexibility of time and location?

( ) Very influential

( ) Somewhat influential

( ) Not Very influential

( ) Not at all influential

( ) Do not know

29. Please rate your satisfaction with access to software needed for your teaching at NDU?

( ) Very satisfied

( ) Somewhat satisfied

( ) Not very satisfied

( ) Not at all satisfied

( ) Not applicable

30. Please rate your satisfaction with the support services provided by the Division of Computing Services (DCS)

( ) Very satisfied
( ) Somewhat satisfied
( ) Not very satisfied
( ) Not at all satisfied
( ) Not sure

31. Would you be more likely to use technology in teaching at NDU if you received training on the use of technology in education?

( ) Yes
( ) No
( ) Not sure

32. Would you be more likely to use technology in teaching at NDU if more classrooms were equipped with technology (i.e., smart classrooms)?

( ) Yes
( ) No
( ) Not sure

33. Would you be more likely to use technology in teaching if NDU rewarded innovation in teaching facilitated by technology?

( ) Yes
( ) No
( ) Not sure

34. Would you be more likely to use technology in teaching if NDU gave you monetary incentives?

( ) Yes
( ) No
( ) Not sure

35. Would you be more likely to use technology in teaching if NDU considered that for your promotion?

( ) Yes
( ) No
( ) Not sure

36. Which of the following factors prevent you from making greater use of technology in teaching at NDU? (You may tick more than one option)

( ) Student reluctance to use technology

( ) Lack of training for faculty members on the use of technology

( ) Lack of incentives to faculty members who use innovative methodologies in teaching

( ) Lack of personal confidence in using technology

( ) Lack of motivation

( ) Lack of institutional planning for integrating technology into teaching and learning

( ) Lack of classes equipped with technology

( ) Lack of policies at NDU that adopt using technology in teaching and learning

37. Do you use Blackboard? (If Yes, please answer the questions that follow, if No, please go to the end of the questionnaire and <u>submit</u>)

( ) Yes

( ) No

38. What factors encouraged you to use Blackboard?

( ) My level of comfort with technology

( ) My Department or Faculty requested that I use Blackboard in my teaching

( ) The training I received from the Division of Computing Services (DCS)

( ) My students' request to use Blackboard in the courses I teach them

( ) My personal belief in the efficient role of Blackboard in facilitating teaching and learning

39. What Blackboard features do you use in your teaching? (You can select more than one option)

( ) Announcements

( ) Course syllabus

( ) Course documents or contents

( ) Quizzes

( ) Grade book

( ) Digital drop box (i.e., a place for students to submit their assignments)

( ) Email

( ) Discussion forum

( ) Calendar

40. How useful do you find Blackboard in meeting the teaching goals you are trying to achieve in your course(s)?

( ) Very useful

( ) Useful

( ) Little useful

( ) Not useful at all

( ) Not sure

41. How useful do you find Blackboard in increasing contact with your students?

( ) Very useful

( ) Useful

( ) Little useful

( ) Not useful at all

( ) Not sure

42. How useful do you find Blackboard in providing more prompt feedback to your students?

( ) very useful

( ) Useful

( ) Little useful

( ) Not useful at all

( ) Not sure

43. How useful do you find Blackboard in increasing time on task for your students?

( ) Very useful

( ) Useful

( ) Little useful

( ) Not useful at all

( ) Not sure

44. How useful do you find Blackboard in providing a convenient online testing for your students?

( ) Very useful
( ) Useful
( ) Little useful
( ) Not useful
( ) Not sure

45. How useful do you find Blackboard in facilitating more communication among your students?

( ) Very useful
( ) Useful
( ) Little useful
( ) Not useful at all
( ) Not sure

46. How useful do you find Blackboard in facilitating students' wider access to course materials?

( ) Very useful
( ) Useful
( ) Little useful
( ) Not useful at all
( ) Not sure

47. How useful do you find Blackboard in facilitating more interactivity between your students and the course teaching materials?

( ) Very useful
( ) Useful
( ) Little useful
( ) Not useful at all
( ) Not sure

Learning Styles Questionnaire (LSQ)

SECTION I

1. What is your age (in years)?_____

2. What is your sex? (check √ in the box)

Male	
Female	

3. Write in the box your major

4. Please write in the box your current course title and number

5. Type of last school attended

Private ☐   Public ☐

6. Main foreign language of instruction in the last school you attended

English ☐   French ☐   Bilingual ☐

SECTION II

For each of the 44 questions below select either "a" or "b" to indicate your answer. Please choose only one answer for each question. If both "a" and "b" seem to apply to you, choose the one that applies more frequently.

1)   I understand something better after I

　　○   **(a)** try it out.

　　○   **(b)** think it through.

2)   I would rather be considered

　　○   **(a)** realistic.

　　○   **(b)** innovative.

3)   When I think about what I did yesterday, I am most likely to get

　　○   **(a)** a picture.

　　○   **(b)** words.

4)   I tend to

      (a) understand details of a subject but may be fuzzy about its overall structure.

      (b) understand the overall structure but may be fuzzy about details.

5)   When I am learning something new, it helps me to

      (a) talk about it.

      (b) think about it.

6)   If I were a teacher, I would rather teach a course

      (a) that deals with facts and real life situations.

      (b) that deals with ideas and theories.

7)   I prefer to get new information in

      (a) pictures, diagrams, graphs, or maps.

      (b) written directions or verbal information.

8)   Once I understand

      (a) all the parts, I understand the whole thing.

      (b) the whole thing, I see how the parts fit.

9)   In a study group working on difficult material, I am more likely to

      (a) jump in and contribute ideas.

      (b) sit back and listen.

10)   I find it easier

      (a) to learn facts.

      (b) to learn concepts.

11)   In a book with lots of pictures and charts, I am likely to

      (a) look over the pictures and charts carefully.

      (b) focus on the written text.

12)   When I solve math problems

      (a) I usually work my way to the solutions one step at a time.

      (b) I often just see the solutions but then have to struggle to figure out the steps

to get to them.

13) In classes I have taken

○ (a) I have usually gotten to know many of the students.

○ (b) I have rarely gotten to know many of the students.

14) In reading nonfiction, I prefer

○ (a) something that teaches me new facts or tells me how to do something.

○ (b) something that gives me new ideas to think about.

15) I like teachers

○ (a) who put a lot of diagrams on the board.

○ (b) who spend a lot of time explaining.

16) When I'm analyzing a story or a novel

○ (a) I think of the incidents and try to put them together to figure out the themes.

○ (b) I just know what the themes are when I finish reading and then I have to go back and find the incidents that demonstrate them.

17) When I start a homework problem, I am more likely to

○ (a) start working on the solution immediately.

○ (b) try to fully understand the problem first.

18) I prefer the idea of

○ (a) certainty.

○ (b) theory.

19) I remember best

○ (a) what I see.

○ (b) what I hear.

20) It is more important to me that an instructor

○ (a) lay out the material in clear sequential steps.

○ (b) give me an overall picture and relate the material to other subjects.

21) I prefer to study

○ **(a)** in a study group.

○ **(b)** alone.

22) I am more likely to be considered

○ **(a)** careful about the details of my work.

○ **(b)** creative about how to do my work.

23) When I get directions to a new place, I prefer

○ **(a)** a map.

○ **(b)** written instructions.

24) I learn

○ **(a)** at a fairly regular pace. If I study hard, I'll "get it."

○ **(b)** in fits and starts. I'll be totally confused and then suddenly it all "clicks."

25) I would rather first

○ **(a)** try things out.

○ **(b)** think about how I'm going to do it.

26) When I am reading for enjoyment, I like writers to

○ **(a)** clearly say what they mean.

○ **(b)** say things in creative, interesting ways.

27) When I see a diagram or sketch in class, I am most likely to remember

○ **(a)** the picture.

○ **(b)** what the instructor said about it.

28) When considering a body of information, I am more likely to

○ **(a)** focus on details and miss the big picture.

○ **(b)** try to understand the big picture before getting into the details.

29) I more easily remember

○ **(a)** something I have done.

○ **(b)** something I have thought a lot about.

30) When I have to perform a task, I prefer to

○ **(a)** master one way of doing it.

○ **(b)** come up with new ways of doing it.

31) When someone is showing me data, I prefer

○ **(a)** charts or graphs.

○ **(b)** text summarizing the results.

32) When writing a paper, I am more likely to

○ **(a)** work on (think about or write) the beginning of the paper and progress forward.

○ **(b)** work on (think about or write) different parts of the paper and then order them.

33) When I have to work on a group project, I first want to

○ **(a)** have "group brainstorming" where everyone contributes ideas.

○ **(b)** brainstorm individually and then come together as a group to compare ideas.

34) I consider it higher praise to call someone

○ **(a)** sensible.

○ **(b)** imaginative.

35) When I meet people at a party, I am more likely to remember

○ **(a)** what they looked like.

○ **(b)** what they said about themselves.

36) When I am learning a new subject, I prefer to

○ **(a)** stay focused on that subject, learning as much about it as I can.

○ **(b)** try to make connections between that subject and related subjects.

37) I am more likely to be considered

○ **(a)** outgoing.

○ **(b)** reserved.

38) I prefer courses that emphasize

○ (a) concrete material (facts, data).

○ (b) abstract material (concepts, theories).

39) For entertainment, I would rather

○ (a) watch television.

○ (b) read a book.

40) Some teachers start their lectures with an outline of what they will cover. Such outlines are

○ (a) somewhat helpful to me.

○ (b) very helpful to me.

41) The idea of doing homework in groups, with one grade for the entire group,

○ (a) appeals to me.

○ (b) does not appeal to me.

42) When I am doing long calculations,

○ (a) I tend to repeat all my steps and check my work carefully.

○ (b) I find checking my work tiresome and have to force myself to do it.

43) I tend to picture places I have been to

○ (a) easily and fairly accurately.

○ (b) with difficulty and without much detail.

44) When solving problems in a group, I would be more likely to

○ (a) think of the steps in the solution process.

○ (b) think of possible consequences or applications of the solution in a wide range of areas.

SECTION III

Please answer each question by ticking the answer which is the closest to your own personal opinion. 1 = Strongly Agree; 2 = Agree; 3 = Neutral; 4 = Disagree; 5 = Strongly Disagree.

	1	2	3	4	5
1. The instructor of this course uses technology in teaching.					
2. The instructor of this course requests us to work in groups.					
3. The instructor of this course encourages us to work individually.					
4. The instructor of this course teaches us outdoors from time to time.					
5. The instructor of this course relies mainly on lectures.					
6. The instructor of this course requests us to do projects.					
7. The instructor of this course tells us what to do in class step-by-step.					
8. The instructor of this course encourages us to read instructions related to the lesson.					
9. The instructor of this course encourages us to perform role playing.					
10. The instructor of this course requests us to do my assignments with one or two classmates.					
11. The instructor of this course relies heavily on the textbook when explaining lesson.					
12. The instructor of this course asks us to read material from the Internet.					

Thank you for completing the questionnaire.

Appendix 7

Designing and Evaluating eLearning courses Based on

Students' Learning Preferences and Styles

e-Learning Excellence in the Middle East 2008:
Define. Design. Deliver.

Jumeirah Beach Hotel, Dubai, UAE
January 14-17, 2008

Forum Proceedings
ISBN 978-9948-03-637-1

Designing and Evaluating eLearning Courses Based on Students' Learning Preferences and Styles

Fawzi Baroud
Notre Dame University, Lebanon

Abstract

This paper considers the implications of students' learning styles and preferences for the design and evaluation of e-learning courses. The study involves the examinations of students' learning styles and preferences currently taking courses via the Virtual Learning Environment (VLE). First, the study employs the most commonly used classifications of learning styles as identified by Kolb (1976) and developed by Soloman and Felder (1999). Second, analyses of students' discussion board postings in their respective courses were analyzed and categorized thematically in order to examine their compatibility with students' learning preferences and styles. The study documented students' learning styles and preferences which were comparable to students in different educational contexts. In addition, content analyses of students' posting corresponded to their learning styles and preferences. The study concluded with recommendations on how to deliver courses via the Virtual Learning Environment (VLE) that potentially helps achieve desirable learning performance among university students.

Introduction

Over the last two decades, systematic educational research has documented different learning styles and preferences among students (Renzulli & Dai, 2001) and formulated a conception of learning styles (e.g., William, 2000) for the categorization of how students prefer to learn. These dimensions have been classified along four dimensions: abstract versus concrete (Kolb, 1971), sensory versus modality (Renzulli, 1978), visual versus auditory learning preferences (Barbe & Swassing, 1979), and physical versus social characteristics of the learning environment (Dunn, Dunn, & Price, 1984). The use of these dimensions has gained momentum in the fields of education and cognitive psychology (Hunt, 1975). Understanding students' learning preferences and styles help instructors design e-learning courses that would potentially enhance their learning and achievement since students are likely to have different learning-style preferences as well as other characteristic differences that teachers need to assess in order to design and implement instruction accordingly (Grasha, 2000).

More recently, attention has been paid to new pedagogies and non-traditional learning paradigms built on notions of constructivism and learning by doing (e.g., Dunn et al., 1989). This new focus has prompted a shift in classroom pedagogy from one that is centered on providing instruction, to one that focuses on active, collaborative, and cooperative tasks which seek to engage students in their own education (Barr & Tagg, 1995). If e-learning seeks to respond to students' learning needs as many have argued (e.g., Worthington & Higgs, 2004), then systematic research into students' learning preferences and styles in e-learning contexts is warranted. In addition, e-learning research in Western countries (e.g., Braio, 2000) has started to realize the importance of understanding students'

learning preferences and styles. Such an interest is currently limited in Arab higher educational contexts that started gradually to implement e-learning. The key question concerns the extent to which students' learning preferences and styles are met in both the design and delivery of their e-learning courses.

Since students' academic performance in relation to harmonizing their preferred learning styles with content and techniques of pedagogy is not yet well developed, the literature is still debatable. One of the most widely-known theories assessed by Coffield (2004; 2005) was the learning styles model of Dunn, Dunn and Price (1984) which argued that students would perform better if course materials presented to them were matched with their learning preferences and styles. This model has been widely employed in schools in the US, particularly in traditional classrooms. Coffield et al. (2005) concluded that despite evolving research on the relationship between learning styles and students' performance, theoretical limitations and lack of independent research, claims of better learning through matching students' learning styles and preferences with content and design of pedagogy are questionable.

Furthermore, the concept of learning styles is not universally accepted and further research is needed (Dunn, Dunn, and Price, 1984). Additionally, criticism has been lodged against the validity and reliability of learning style inventories, although ILS has been validated by dozens of studies conducted in many educational contexts. As far as e-learning is concerned, research on the connections of technology to teaching and learning- style preferences is not well developed (Grasha, 2000).

In contrast, Abrams (2005) provided evidence confirming the validity of Dunn and Dunn's

model of learning style, concluding that "matching" students' learning styles and preferences with complementary instruction improved students' academic achievement and attitudes towards learning. The application of learning preferences and styles has direct relevance for education and training in that it can assist in developing different teaching and learning techniques which may enhance learning performance among students (Burke & Sadler, 2005). A better understanding of students' learning styles and preferences would potentially enhance the design and delivery of learning in educational contexts and also might help to accelerate the acquisition of expertise among novice practitioners (Renzull & Dai, 2001). Moreover, using styles as a means of self-reflection and inquiry for teachers and students is an avenue worthy of exploration (Ibid.).

As part of the ongoing assessment of the development of e-learning in a private higher educational context in Lebanon, the present study seeks to provide information concerning students' learning styles and preferences in relation to e-learning content and styles of pedagogy used. This question reflects the objectives of study which looks into: (i) the learning-style preferences of a sample of students taking courses delivered in a blended way at a higher educational context in Lebanon; (ii) the extent to which the content and method of delivery of these courses match students' learning-style preferences as measured by the *Index of Learning Styles* (ILS) (Soloman & Felder, 1999); and (iii) ways for the future design and delivery of e-learning courses.

The objectives of the present are rooted in the followings: (i) educational research has focused on the efficacy of matching learning styles with instruction in order to assure better learning among students (Schmeck, 1988);

(ii) studies have shown that greater learning, as measured by students' achievement, may occur when teaching styles match students' learning styles and preferences than when they are mismatched (Pittenger, 1993; Wallace & Oxford, 1992).

Conceptual framework of learning preferences and styles

Learning styles are general tendencies to prefer to process information in different ways (Kolb, 1984; Johnson et al., 1991). Concrete experience, reflective observation, abstract conceptualization and active experimentation are learning characteristics that form the nexus of learning-style preferences (Chong Toh & Wan Ismail, 2005). The learning style model proposed by Richard Felder and Linda Silverman in 1988 captures and integrates many of the different views and dimensions of learning style currently in the literature. Felder and Silverman (1988) classify students as having preferences for one category or the other along four dimensions (Felder & Spurlin, 2005). The four dimensions being: (1) sensing/intuitive, (2) visual/verbal, (3) active/reflective, and (4) sequential/global (See table 1).

Active learners are those who prefer group work and physical activity, whereas *Reflective* learners prefer to work alone and are introspective learners. The second dimension of learning style is a personality trait measure and is measured by a Myers-Briggs Type Indicator (Myers, 1978), where the *Sensory* learners prefer to use external queues as sounds and physical sensations and the *Intuitive* are those who try to discover possibilities, hunches, and relationships. The third dimension is based on Paivio's (1971) dual coding theory which suggests that *Visual* and *Verbal* information are processed by different cognitive subsystems. The visuals prefer to learning through pictures, diagrams, graphs, and flowcharts; while, the verbal are more attuned for auditory sounds and words. The fourth dimension is based on work on individual differences (Dyk and Witkin, 1965; Witkin, Dyk, Faterson, Goodenough, & Karp, 1962) specifically driven by cognitively-based styles. This fourth dimension defines whether one is *Global* or *Analytical*. The analytical accommodates and perceives material in small connected chunks, while the global tends to grasp information in seemingly unconnected chunks. Other sub-dimensions of these four major dimensions also play important roles in determining how a student receives and processes information (Felder & Spurlin, 2005).

Table 1: Dimensions of Learning Styles

Type of Learners	Characteristics
Active Learners	Like to be involved in new experiences; Open minded and enthusiastic about new ideas; Enjoy doing things and tend to act first and consider the implications afterwards; Like to work with others.
Reflectors	Like to collect data and think about it carefully before coming to any conclusions; Enjoy observing others and will listen to their views before offering their own.
Sensing	Practical; Oriented towards facts and procedures; Favor information arriving around their senses.
Intuitive	Conceptual; Innovative; Favor information that arrives from memory.
Visual	Prefer pictures and diagrams, flow charts and experiential explanations.
Verbal	1. Prefer written or spoken explanations and formulae.
Sequential	Linear; Orderly learn in sequence and step-by-step process.
Global	Holistic; Learn in leap steps; Seek information from variety of resources.

Method

Sample

A total of 79 undergraduate students were purposively selected for the study. Eighteen students were taking Advanced Software Packages; 5 students were taking Introduction to Education and another 56 were enrolled in Introduction to Astro Physics. About forty percent of students were in their Junior level, 37% were seniors 20% Sophomore and 2 were enrolled in a Teaching Diploma program. In terms of gender, 56(71%) were males and 23(29%) females.

Inventory

There are numerous instruments for assessing learning styles, e.g., *Learning Style Inventory* (Kolb, 1984), and Soloman and Felder, *Index of Learning Styles. Index of Learning Styles* by Soloman & Felder (1999) is well known, and used within education theory (Montgomery, 1995). Despite the controversy surrounding learning styles alluded to earlier, *Index of Learning Style* (ILS), (Soloman & Felder, 1999) is well known, and accepted within education theory (Montgomery, 1995). Therefore, this study employed Soloman's and Fedler (1999) inventory. The identification of any learning style associated with e-learning mode of delivery and content of pedagogy will serve as a formal screening tool for understanding students' learning preferences prior to on-line course design.

The Inventory consisted of 44 bi-polar (a,b) statements to identify students' learning-style preferences as follows: Active/Reflective; Sensing/Intuitive; Visual/ Verbal and Sequential/ Global (See Inventory in Appendix I). This inventory is a 44 bi-polar item questionnaire designed to assess learning style preferences along four dimensions (Felder & Spurlin, 2005). Each learning dimension has 11 items. Each item has a forced response choice (a or b), each defines a

specific attribute of the learner in that dimension. For instance, on the active/reflective dimension responses, each attribute (active/reflective) can have a score from 0 to 11. Thus, the a response on the scale represents the active learner preferences and b responses connote reflective preferences. Since preferences can be thought of as degrees, a respondent who makes 6 or more a responses, he/she is above average of the active-reflective level. If the respondent makes 8 to 10-a responses then the respondent is a highly active learner. For each dimension, one of the two attributes is inversely related to the other. Thus, the higher the active learning style, the lower the reflective learning style for the respondent.

Scoring

The scoring sheet had four dimensions, each consisting of 11-items. An arithmetic mean score of each dimension was obtained by adding the number of items on that particular dimension and dividing them by 11: a) was coded as (1) and (b) as (2). The mean score ranged from 1-3 $(1 + 2 = 3)/2 = 1.5$. The mean for each item was 1.5. In the Active/reflective dimension, for example, ≤ 1.55 is considered active and ≥ 1.56 is reflective.

Reliability

Spearman Brown Split-half reliability was used to ensure the internal consistency of the questionnaire. Spearman Brown was .82, indicating a very good level of internal consistency. In addition, Cronbach alpha was .69. This result is comparable with Kuri & Truzzi's (2002) validating ILS study which yielded Cronbach .65. Overall, the reliability of ILS in this study is comparable with many studies conducted in different cultures.

Procedure

The questionnaire was administered to students in four classes after making appropriate arrangements with respective instructors. Students were informed about the content of the questionnaire and its importance in assessing their learning preferences. The response rate of this study was comparable to Felder's and Spurin (2005) study which yielded 98% return rates of their respondents involved in the study.

Content analyses

In addition to ILS, content analyses of threaded discussion fora were conducted. The aim was to explore possible matches between students' ILS and their postings in the discussion board. The main question posted to students was: "To what extent does Blackboard the way it is used in this course match the way you prefer to learn? Discuss". Discussion threads were coded thematically in light of the ILS four categories.

Findings and Discussion

Prima facie evidence from descriptive statistics characterizes the learning style preferences of Notre Dame University students involved in the present study (See Appendix 2). Most individuals have preferred styles of learning that relate to how they receive, process, and integrate information. Some individuals mentioned that they learn better through listening, some through reading or watching, and still others by doing. Although NDU sample shared ILS characteristics with students from other countries, they appeared to be highly visual compared to other samples and were less active than samples from other countries (See table 2), probably due to the prevalence of accumulated teacher-centered approaches in Lebanese educational system (Al-Ameen, 2005). Additionally, these results indicate that the Inventory of Learning Styles (ILS) was reliable and comparable to international results as shown in table 2.

Table 2. Comparison between NDU students and other Samples

Higher Educational Context	State	N	Active	Sensing	Visual	Sequential
Iowa State University	USA	129	63%	67%	85%	58%
Ryerson University	Canada	87	53%	66%	86%	72%
Tulane University	USA	245	62%	60%	88%	48%
Sao Paulo University	Brazil	214	65%	81%	79%	67%
University of Technology	Jamaica	858	55%	60%	70%	55%
Notre Dame University	Lebanon	79	52%	68%	91%	49%

Content Analysis results

The chart below exemplifies students' postings and their link with their learning styles and preferences.
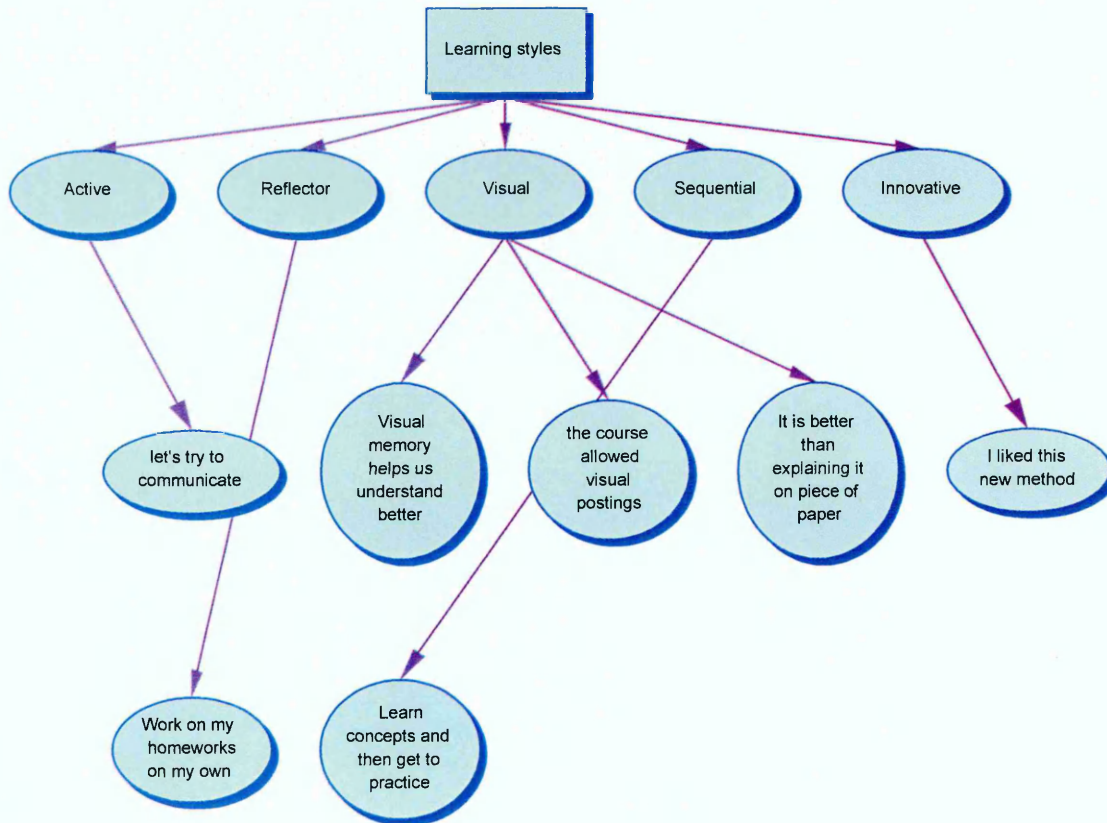
Content analysis of on-line material was conducted. Analyses looked into students' postings that reflected their learning preferences and styles such as preferring to have the content material posted by the instructor in an interactive way such as having links to resources and documents or viewing charts and exhibitions. This preference has been posted by students identified as visuals. In addition, "sensing" were interested in practical work in the VLE such as analyzing topics through collecting data on the topic rather than reflecting on it theoretically. Students who identified themselves as "sensing" were interested in case studies rather than answering direct questions posted by their instructor in the discussion forum. In addition, it was observed that students who were "globals" reported the need to have links as well as well documented procedure for data collection in their assignments. Students' postings went beyond documenting their learning styles to the documentation of the benefits of e-learning and content material and instructional design of courses spurred up discussions on how students prefer to learn.

In a related vein, recent studies in the field have shown that understanding and attending to differences in learning styles among students are important to their educational improvement (Renzull & Dai, 2001). Mismatches between learning styles and adoption of pedagogical content and styles in e-learning could have several serious consequences on academic performance. Studies (e.g., Godleski, 1984) have shown that students who experience mismatches may feel as though they are vulnerable and in an unfamiliar domain which in turn may have negative effects on their academic progress and achievements..

In reviewing the educational Bibliography of Pedagogical Studies assembled designed by the Lebanese Association for Educational Studies (LAES) by the author of the present study, this inquiry is unique because it is an "a priori" study done in a higher educational context in Lebanon where measures of learning styles were taken in relation to e-learning courses. The pedagogical approaches that facilitate learning can do much to foster students' positive attitude in learning and the quality of outcomes. The biological development of students' auditory, visual, tactual, and kinesthetic senses is a key factor in their way of acquiring information. Many students develop one of the senses before the others, and consequently it becomes their preferred modality (Dunn, Beaudry & Klavas, 1989). A positive relationship between attitude and e-learning has been found in prior research (Johnson, 1996). Thus, the need to assimilate learning styles within student-centered pedagogical approaches as a basis for good teaching in on-line courses is a goal worth considering in the development process of pedagogies in higher educational contexts. In addition, diagnostic assessment of students' learning preferences is worth considering before starting an on-line course in order to design the course and its delivery in a way that it corresponds to a certain degree with students' learning preferences and styles.

Finally, this study was not without limitations. In fact, the ILS was robust in that it had categorical data (a,b) rather than continuous data that may allow for the greatest variance in the data. In addition, categorical data limited correlations and explanation of variance. Furthermore, the sample was relatively small, and skewed since it included more males than females. Despite these design limitations, the study results have important implications for the future study of learning style preferences in relation to styles and content of pedagogy in on-line courses.

Future research should focus on matching learning styles with e-learning course content and instructional designs. Understanding the relationships between learning preferences and e-learning is worth considering for exploring avenues that potentially enhance students' learning and success.

References

Al-Ameen, A. (2005). *Quality assurance in Arab universities*. Beirut: Lebanese Association for Educational Studies (LAES).

Abrams, F. (2005), "Cognitive conundrum", *Times Educational Supplement*, No.20 May, 2005.

Barbe, W. B., & Swassing, R. H. (1979). *Teaching through modality strengths: Concept and practices* Ohio: Zenr-Bloser.

Barr, R. B., & Tagg, J. (1995). From teaching to learning: A new paradigm for undergraduate education, *Change, 27*(6), 12-25.

Burke, L., Sadler-Smith, E. (2006), "Instructor intuition in the educational context", *Academy of Management Learning & Education*, (in press), Vol. 5.

Braio, A. (2000). "Learning Styles and College Teaching: My Experiences with Education Majors", in Rita Dunn, Rita & Shirley A. Griggs, (Eds.). *Practical Approaches to Using Learning Styles in Higher Education*. (ERIC Document Reproduction Service No. ED444419).

Chong Toh, S and Ismail, M.F (2005). Are learning styles relevant to virtual reality? *Journal of Research on Computing in Education*, Vol. 38 (2).

Coffield, F. (2004), "Revealing figures behind the styles", *Times Higher Educational Supplement*, No.2.

Coffield, F. (2005), "Looking back in amazement", paper presented at Learning Styles: Help or Hindrance? Seminar, Institute of Education, University of London, London.

Dunn, R., Dunn, K., & Price, G. E. (1984). *Learning style inventory*. Lawrence, KS, USA: Price Systems.

Dunn, R., Beaudry, J. A., & Klavas, A. (1989). Survey of research on learning styles, *Educational Leadership, 46*(6), 50-57.

Dunn, R., Dunn, K., & Price, G. E. (1975, 2000). *Learning style inventory*. Lawrence, KS.

Felder, R.M., and J. Spurlin. (2005). Reliability and validity of the index of learning styles: a meta-analysis, *International Journal of Engineering Education, 21*(1), 103–112.

Godleski, ES. (1984). "Learning Style Compatibility of Engineering Students and Faculty". *Proceedings, Annual Frontiers in Education Conference*. ASEE/IEEE, Philadelphia.

Grasha, A. (2000). Integrating teaching styles and learning styles with instructional technology, *College Teaching*, 48(1):2-9.

Hunt, (1975). Person-environment interaction. A challenge found wanting before it was *International Journal of Social Economics, 31*(5/6), 593-613.

Johnson, D.W., R.T. Johnson and K.A. Smith (2000). Constructive controversy: the power of intellectual conflict, *Change* 32, no.1, pp. 28-37.

Kolb, D.A. (1984). *Experiential learning: experience as the source of learning and development*. Prentice-Hall, Englewood Cliffs, N.J.,

Kuri N. P., Truzzi O. M. S. (2002). *Learning Styles of Freshman Engineering Students*. USA: Lawrence Erlbaum Associates.

Montgomery, Martin (1995). *An introduction to language and society.* 2nd edition. New York: Routledge.

Paivio, A. (1971). *Imagery and verbal processes.* New York: Rinehart and Winston.

Pittenger, D. J. (1993). The utility of the Myers-Briggs Type Indicator, *Review of Educational Research*, 63, 467-488.

Rayner, S. & Riding, R. (1997). Towards a categorization of cognitive styles and learning styles. *Educational Psychology*, 17, 5-27.

Renzulli, J. S. (1978). What makes giftedness? Re-examining a definition. *Phi Delta Kappan, 60*, 180-184, 26 1.

Renzulli, J. S., & Dai, D. Y. (2001). Abilities, interests, and styles as aptitudes for learning: A person-situation interaction perspective. In R. J. Sternberg & L-F. Zhang (Eds.), Perspectives on thinking, learning, and cognitive styles (pp. 23-46). Mahwah, NJ: Erlbaum.

Schmeck, R.R. (1988). *Learning Strategies and Learning Styles.* New York: Plenum.

Wallace, B., and Oxford, R.L. (1992). Disparity in Learning Styles and Teaching Styles in the ESL Classroom: Does This Mean War? *AMTESOL Journal* 1: 45-68.

William, D., A. (2000). *An investigation of methods of instruction and student learning styles in internet-based community college courses.* Ph.D. Dissertation, University of Nevada, Reno.

Worthington, A. & Higgs, H. (2004). Factors explaining the choice of an economics major: the role of student characteristics and perceptions of the profession, *International Journal of Social Economics*, (31 (5/6/), 593-613

Inventory

The questions on this form aim to understand your learning preference. By identifying your learning preference, your course instructor may better design the course in such a way that it fits into the mold of your learning preference and style. For each of the 44 questions below select either "a" or "b" to indicate your answer. Please choose only one answer for each question. If both "a" and "b" seem to apply to you, choose the one that applies more frequently.

Thank you for your participation in the study.

I – Background Information

Gender   Male ☐   Female ☐

Class   Sophomore ☐   Junior ☐   Senior ☐

Name of Course   _____

Your Name and ID #   _____

II – Learning Preference Index

Please select either "a" or "b" to indicate your answer.

1. I understand something better after I
    a. try it out
    b. think it through
2. I would rather be considered
    a. Realistic
    b. Innovative
3. When I think about what I did yesterday, I am most likely to get
    a. a picture
    b. words
4. I tend to
    a. understand details of a subject but may be fuzzy about its overall structure
    b. understand the overall structure but may be fuzzy about details
5. When I am learning something new, it helps me to
    a. talk about it
    b. think about it
6. If I were a teacher, I would rather teach a course

    a.   that deals with facts and real life situations

    b.   that deals with ideas and theories

7. I prefer to get new information in
   a. pictures, diagrams, graphs, or maps
   b. written directions or verbal information

8. Once I understand
   a. all the parts, I understand the whole thing
   b. the whole thing, I see how the parts fit

9. In a study group working on difficult material, I am more likely to
   a. jump in and contribute ideas
   b. sit back and listen

10. I find it easier
   a. to learn facts
   b. to learn concepts

11. In a book with lots of pictures and charts, I am likely to
   a. look over the pictures and charts carefully
   b. focus on the written text

12. When I solve math problems
   a. I usually work my way to the solutions one step at a time
   b. I often just see the solutions but then have to struggle to figure out the steps to get to them

13. In classes I have taken
   a. I have usually gotten to know many of the students
   b. I have rarely gotten to know many of the students

14. In reading nonfiction, I prefer
   a. something that teaches me new facts or tells me how to do something
   b. something that gives me new ideas to think about

15. I like teachers
   a. who put a lot of diagrams on the board
   b. who spend a lot of time explaining

16. When I'm analyzing a story or a novel
   a. I think of the incidents and try to put them together to figure out the themes
   b. I just know what the themes are when I finish reading and then I have to go back and find the incidents that demonstrate them

17. When I start a homework problem, I am more likely to
   a. start working on the solution immediately
   b. try to fully understand the problem first

18. I prefer the idea of
   a. certainty
   b. theory

19. I remember best
   a. what I see
   b. what I hear

20. It is more important to me that an instructor
   a. lay out the material in clear sequential steps

    b.   give me an overall picture and relate the material to other subjects

21. I prefer to study
    a.   in a study group
    b.   alone

22. I am more likely to be considered
    a.   careful about the details of my work
    b.   creative about how to do my work

23. When I get directions to a new place, I prefer
    a.   a map
    b.   written instructions

24. I learn
    a.   at a fairly regular pace. If I study hard, I'll "get it."
    b.   in fits and starts. I'll be totally confused and then suddenly it all "clicks."

25. I would rather first
    a.   try things out
    b.   think about how I'm going to do it

26. When I am reading for enjoyment, I like writers to
    a.   clearly say what they mean
    b.   say things in creative, interesting ways

27. When I see a diagram or sketch in class, I am most likely to remember
    a.   the picture
    b.   what the instructor said about it

28. When considering a body of information, I am more likely to
    a.   focus on details and miss the big picture
    b.   try to understand the big picture before getting into the details

29. I more easily remember
    a.   something I have done
    b.   something I have thought a lot about

30. When I have to perform a task, I prefer to
    a.   master one way of doing it
    b.   come up with new ways of doing it

31. When someone is showing me data, I prefer
    a.   charts or graphs
    b.   text summarizing the results

32. When writing a paper, I am more likely to
    a.   work on (think about or write) the beginning of the paper and progress forward
    b.   work on (think about or write) different parts of the paper and then order them

33. When I have to work on a group project, I first want to
    a.   have "group brainstorming" where everyone contributes ideas
    b.   brainstorm individually and then come together as a group to compare ideas

34. I consider it higher praise to call someone
    a.   Sensible
    b.   imaginative

35. When I meet people at a party, I am more likely to remember

a. what they looked like

b. what they said about themselves

36. When I am learning a new subject, I prefer to

    a. stay focused on that subject, learning as much about it as I can

    b. try to make connections between that subject and related subjects

37. I am more likely to be considered

    a. outgoing

    b. reserved

38. I prefer courses that emphasize

    a. concrete material (facts, data)

    b. abstract material (concepts, theories)

39. For entertainment, I would rather

    a. watch television

    b. read a book

40. Some teachers start their lectures with an outline of what they will cover. Such outlines are

    a. somewhat helpful to me

    b. very helpful to me

41. The idea of doing homework in groups, with one grade for the entire group,

    a. appeals to me

    b. does not appeal to me

42. When I am doing long calculations,

    a. I tend to repeat all my steps and check my work carefully

    b. I find checking my work tiresome and have to force myself to do it

43. I tend to picture places I have been

    a. easily and fairly accurately

    b. with difficulty and without much detail

44. When solving problems in a group, I would be more likely to

    a. think of the steps in the solution process

    b. think of possible consequences or applications of the solution in a wide range of areas

Results

Actrive/Reflective

		Frequency	Percent
	active	36	52.2
	reflective	33	47.8
	Total	69	100.0
Missing		10	
Total		79	

Sensing/Intiuitive

		Frequency	Percent
	sensing	50	68.5
	intuitive	23	31.5
	Total	73	100.0
Missing		6	
Total		79	

Visual/Verbal

		Frequency	Percent
	visual	64	91.4
	verbal	6	8.6
	Total	70	100.0
Missing		9	
Total		79	

Sequential/Global

		Frequency	Percent
	global	35	50.7
	sequential	34	49.3
	Total	69	100.0
Missing		10	
Total		79	