**CHAPTER 2**

**LITERATURE REVIEW**

**2.0 INTRODUCTION**

Technology integration into teaching and learning is currently a topic of interest at many instructional and administrative levels of education. The vast amount of computing infrastructure placed in educational facilities over recent years has drawn attention to the fact that educators who are expected to optimally use this equipment in the classroom must be provided professional development regarding what encompasses effective technology integration and how it is accomplished. Effective technology integration involves the interaction of the knowledge areas of technology, pedagogy, and content on the part of the teacher (Pierson, 2001). Paradigm shifts that have occurred in the field of instructional technology indicate a growing emphasis on curriculum integration of technology (Hargrave & Hsu, 2000). Massey (2001) states that “it is the promise and anticipation of what technology can do in the future that is now affecting attitudes and ideas about how we can teach and learn”. The growing and increasingly pervasive thrust toward curricular, technological, and pedagogical changes has created a body of literature focused upon those changes and the human factor required to make them occur. This review of relevant literature will center upon several interrelated topics providing the framework and background for this study. These topics, when perceived as parts of a whole, blend to inform how historical and current research guided this study into revealing the oft-overlooked voice of the majority: those faculty members who adopt innovations within their own extended timeframes and in response to their own perceived needs rather than those prescribed by others. 14 The theoretical framework guiding this study provides a multi-dimensional foundation for investigating the ‘how and why’ of technology adoption by those faculty making up the mainstream. Pertinent research is presented that supports the theories and their relation to the foci of this study. Everett Rogers’ Theory of Diffusion of Innovations, social network models, communities of practice, and the relevant learning theories of situated learning, constructivism, and andragogy all formed an interrelated undergirding of this study. Topical considerations include the historical perspectives of educational technology which provide a segue into the current drive for effective technology integration at the university level. Varied influences upon this emphasis, such as the university culture, traditional academia beliefs, and presently changing teaching strategies, are included in the review. Furthermore, studies are reviewed emphasizing the responsibility of academics at the tertiary level in influencing future teachers, administrators, and counsellors in their budding knowledge areas of technology, pedagogy, and content. This section concludes with literature reviews regarding proposed optimal professional development strategies. Gaps in the literature, as related to this investigation, are discussed and interspersed throughout this chapter, thus, providing added rationale for this study. A diverse variety of resources were used to locate the reviewed literature.

### **2.1 The concept of educational technology**

Integration of technology in education relates to the use of technology to enhance teaching and learning and can be best understood in the context of the following six scenarios of learning: face-to-face, self-learning, asynchronous, synchronous, and blended learning (Negash et al. [2014](https://link.springer.com/article/10.1007/s10639-019-10093-3#ref-CR26)). From these learning scenarios, it can therefore be observed that the ubiquitous nature of technology provides students with a multiplicity of options to access learning by allowing learning to occur anywhere and anytime and at their own pace (Gábor and Peter [2015](https://link.springer.com/article/10.1007/s10639-019-10093-3#ref-CR14)).

### **2.2 Levels of technology integration in higher education**

According to Hertz ([2011](https://link.springer.com/article/10.1007/s10639-019-10093-3#ref-CR17)), levels of technology integration in higher education ranges from sparse, basic, comfortable to seamless. Sparse integration represents rare use or rare availability of technology. Technology is rarely integrated into education. At the basic level, the usage or availability of technology is mostly in the lab, other than in the classroom. At the comfortable level, there is regular use of technology in the classroom. At this level, learners are conformable with various educational technology tools for learning and to create classroom projects. With regard to the seamless level, technology is employed daily in and outside the classroom for learning and for creation of projects as well as completion of assignments.

**2.3 Approaches to effective technology integration in higher education**

Adequate goals, expectations and effective criteria need to be developed for effective integration of technology in the teaching and learning process (Adbullah [2016](https://link.springer.com/article/10.1007/s10639-019-10093-3#ref-CR1)). Internationally, there has been an increased recognition on the importance of integrating technology in the teaching and learning process. However, ‘specific use models of integrating technology in education remain broad and ill-defined” (Price [2015](https://link.springer.com/article/10.1007/s10639-019-10093-3#ref-CR29)). However, among some of the approaches that can facilitate effective integration of technology in higher education include the systematic, top-down, bottom-up, inside-out, and supportive approaches.

**Systematic approach**

According to Ayotola and Abiodun ([2010](https://link.springer.com/article/10.1007/s10639-019-10093-3#ref-CR7)), for effective integration of technology in the traditional classroom environment, a systematic approach should be considered which is a combination of top-down, bottom-up and inside-out processes (approaches).

**The top down approach**

This approach targets the management of the organization. Institutional management comes up with strategic plans and policies about acquisition, use and management of information technology facilities in the organisation. This also includes staff development of staff responsible for the use of the technology.

**The bottom up approach**

This approach includes implementing staff identifying areas of their technical competencies needing improvement and proposing staff development options. It also includes implementing staff proposing strategies for effective integration of technology in their departments.

**The inside-out strategy**

This strategy recognises the fact that “it is not the effectiveness of technology that determines if the technology will be used but the teacher’s perception of its efficiency” (Etmer (2005) cited in Ayotola and Abiodun ([2010](https://link.springer.com/article/10.1007/s10639-019-10093-3#ref-CR7))). In this context, the attitudes, perception and behavior of students and lecturers should be considered as an important element in the effective integration of technology in higher education institutions. The above approaches resonate with factors which Bitner and Bitner ([2002](https://link.springer.com/article/10.1007/s10639-019-10093-3#ref-CR9)) proposed as being critical for effective integration of technology into higher education. These factors include: i) educators being encouraged to overcome fears of transformation, ii) educators must be trained on basic computer skills usage, iii) educators have to attain time management skills for efficiency and productivity as this will enable sufficient time for curriculum planning, iv) a pedagogical model for computer usage in the classroom has to be availed, v) a learning model for students to utilize in their search for information and knowledge acquisition has to be available, vi a supportive environment which encourages experimentation, vii) Presence of on-site technical support in the institution.

**2.4 What are the challenges being faced by students?**

Although e-learning is proving slow in terms of its adoption in universities, it is clear that all universities feel that they should be offering it to all their students. Universities in Zimbabwe are now interested in improving in their teaching and student learning through the use of e-learning, although the results of this study show that this is being done at a slow pace. Although e-learning has not yet revolutionised university teaching and learning, it has changed how some businesses are carried out in the universities as well as providing easier access to administrative information, an achievement that should not be downplayed. E-learning has had some impact on administration services such as admissions, registration and fee payment. However, it is clear that this is a limited approach to the adoption of e-learning, since e-learning is supposed to benefit the student in the teaching and learning process. This administrative emphasis is marginalizing its academic use hence making academics shun adopting the innovation. A university cannot successfully implement e-learning without proper attributes of its infrastructure. It turns out, in this study, that only 20% of the lecturers have access to computers together with their students in the lecture room. The computer-student ratio is very low at all the universities. As Cuban (2001) observes, limited computer access results in limited computer aided learning application. Furthermore, the scarcity of bandwidth impacts negatively on the access to network resources which include access to online journals, databases and other e-resources to which a university subscribes. Given the average bandwidth size available to Catholic university of Zimbabwe, access to these resources is rendered ineffective, with the result that the investment is not used as efficiently as it should. The slow take up of e-learning by lecturers may partly be due to their lack of awareness of e-learning facilities and their reported lack of preparedness. This can be a result of poor coordination of stakeholders in the university during the launch and implementation of e-learning programmes. It can also be explained by lack of training as evidenced by the lecturers’ expression for the need for professional development. The results indicate that no university in Zimbabwe is offering training and continuing professional development for learning and teaching 12 IJEDICT staff to enhance their skills, knowledge and competencies for the provision of high quality e-learning. Results show that e-learning is being implemented haphazardly. Although there is no fixed recipe for successful implementation of e-learning, innovative strategies provide useful guidelines that can assist in the creation of an effective e-learning strategy. A centralized policy-making, or administrative structure, in Universities is critical to implementing an e-learning program in a consistent, effective, and efficient manner. Although almost all the universities have some form of a central strategy for e-learning or are in the process of developing one, there is lack of guidance for lecturers as to how they could implement the strategies. It is clear that universities should align their strategies to incorporate e-learning infrastructure. The results of the study show that the adoption of information technology adoption programmes at Catholic university of Zimbabwe is characterized by a lack of vision, leadership and sound management of the numerous variables that form a part of change within this context. This observation was made by Green (1996) who noted that less than half (43.4%) of American colleges and universities have a strategic plan “identifying institutional goals, objectives, or implementation priorities for the role of information technology in instruction and scholarship”, which could prove fatal to future success of educational institutions. In Zimbabwe, although all the universities strategic plans have room for the adoption of technology in their teaching programmes to improve academic processes, they do not have strategies in terms of who is responsible for what during implementation.

Lack of Focus is also a challenge that is faced by most of university student’s .SMS or text messaging has become a favourite pastime of many students. Students are seen playing with their cell phone, iPhones day and night or driving and very often even between lectures. Being ever-connected to the online world has resulted in lack of focus and concentration in academics and to some extent, even in sports and extracurricular activities

**2.4 How can technology be used to improve academic processes.**

The role of technology in the field of academic processes and education is four-fold: it is included as a part of the curriculum, as an instructional delivery system, as a means of aiding instructions and also as a tool to enhance the entire learning process. Thanks to technology; education has gone from passive and reactive to interactive and aggressive. Education is essential in corporate and academic settings. In the former, education or training is used to help workers do things differently than they did before. In the latter; education is geared towards creating curiosity in the minds of students. In either case, the use of technology can help students understand and retain concepts better.

Together in groups, hence help students to enhance their communicative skills as well as their global awareness. Researchers have found that typically the use of ICT leads to more cooperation among learners within and beyond school and there exists a more interactive relationship between students and teachers (Grégoire et al., 1996). "Collaboration is a philosophy of interaction and personal lifestyle where individuals are responsible for their actions, including learning and respect the abilities and contributions of their peers." (Panitz, 1996). Creative Learning: ICT promotes the manipulation of existing information and to create one's own knowledge to produce a tangible product or a given instructional purpose. Integrative learning: ICT promotes an integrative approach to teaching and learning, by eliminating the synthetic separation between theory and practice unlike in the traditional classroom where emphasis encloses just a particular aspect. Evaluative learning: Use of ICT for learning is student-centred and provides useful feedback through various interactive features. ICT allow students to discover and learn through new ways of teaching and learning which are sustained by constructivist theories of learning rather than students do memorization and rote learning. Positive impact

1. Enhanced Teaching and Learning: Technological developments like digital cameras, projectors, mind training software, computers, Power point presentations, 3D visualization tools; all these have become great sources for teachers to help students grasp a concept easily. It has to be understood that visual explanation of concepts makes learning fun and enjoyable for students. They’re able to participate more in the classroom and even teachers get a chance to make their classes more interactive and interesting.

2. Globalization: When school in different parts of the state, students can “meet” their counterparts through video conferencing without leaving the classroom. Some sites, such as www.glovico.com are used to help students learn foreign languages online by pairing a group of students with a teacher from another country.

3. No Geographical Limitations: With the introduction of online degree programs there is hardly any need of being present physically in the classroom. Even several foreign universities have started online degree courses that student can join. Distance learning and online education have become very important part of the education system now a day

If the provision of technology is to become a key element of University education, authorities will need to provide a major program for staff development and training (Copeland, 2001). As Inglis et al (1999) observe, academic staff is appointed on the basis of their subject expertise rather than any proficiency in the areas of pedagogical design and Information Communications Technology (ICT). As has been argued in this paper, the introduction of e-learning technologies should always be driven by pedagogical considerations, not by the demands of the technologies themselves. Considering the results of this research, it seems unnecessary to argue for specific computer skills for lecturers, as a solution to the problem experienced by lecturers in the implementation of e-learning in university education. Although ICT skills are necessary for implementation of technology, the move towards e-learning delivery should put special emphasis on pedagogical techniques. This calls for a well prepared professional development program to be established to support lecturers in the effective implementation of e-learning (Ellis & Phelps, 2000).

The professional development training required is one that facilitates and ensures that e-learning technology is successfully integrated into the daily routines as well as ensuring that its use will be efficient and effective (Wilson, 2001). Professional development, as Taylor (2003:75) describes it, is “the catalyst which allows the evolutionary process to move forward less catastrophically…”. Indeed, if a move towards online learning is to be seen as strategically important, then policies and practices regarding professional development have to be a leading area of concern (Taylor, 2003; Maguire, 2005) and one that should be coordinated at university top management levels. Given the discipline-based needs of e-learning development and the need to root these pedagogical requirements into the particular Faculty’s teaching and learning activities , link-staff should be hired to work in each Faculty to facilitate the adoption of e-learning. Lecturers should be offered training and support through their Faculties alongside that for ICT skills.

The current state of e-learning at universities in Zimbabwe .University development seems to work best when supported by a range of strategies (Bates, 2000). An institutional strategic plan is essential as the first step in the development of technology in all areas of academic from proper handling of students/ lecturers/teachers, professional material development and reproduction, and careful and thorough administration of examinations. To enable the University to manage all these developments, it is recommended that an strategy has to be developed with wide consultation. The strategic plan should seek, among other things, to:

Identify the university curricular areas where e-learning methods could be employed to best effect, and promote use of e-learning in these areas; establish mechanisms to support academic staff in using e-learning facilities and tools to best effect in the development and delivery of courses , ensure that the quality of course delivery is maximised by using a blended approach that uses the best of traditional and e-learning methods, and review the types of support needed by students, and ensure that these are provided in a timely and effective manner. It is recommended that an e-learning development and support team including IT members, Faculty and/or department based staff be established. The e-learning support strategy should emphasise the importance of partnership between Faculties and Universities’ ITS department in providing e-learning infrastructure and support to lecturers and students. Resistance to change is therefore likely to be overcome if academic staff is fully involved or have full ownership in the design, development and implementation of these changes. Academic staff has to have an understanding of their new roles and the results eventually produced are truly ascertainable (Welsh & Metcalf, 2003; Rockwell et al., 2000; Lewis, 1998).

The e-learning development and support team would have the mandate to establish an e-learning strategy, which would facilitate the provision of an e-learning infrastructure and a range of e-learning tools that have high quality specifications, collaboration among faculties and departments in the provision of information, training and support required by lecturers and students in the use of e-learning tools and facilities, establishment and use of appropriate standards and specifications in e-learning development, including conformance with accessibility guidelines and standards and, provision of support to lecturers in their evaluations of e-learning developments and where appropriate, carry out such evaluations, especially at institutional level. Establish collaboration with other universities and outsource expertise. It is further recommended that partnerships and networks be established across the universities as a possible way forward for the development and diffusion of e-learning in university education in Zimbabwe. Partnership and network building are useful for allowing access to new knowledge, to learn from others experience and exchange of information about the latest developments in e-learning. Such partnerships can also provide a channel for sharing material, joint technology and software development, joint research and development, joint training and connectivity among other things.

**2.5 Technology acceptance model.**

Academic sectors implement e-learning in order to attain greater competitive advantage than its competitors, however their implementation is not always that easy as students might have different views on the particular system. The successful implementation of an e-learning system relies on the issues listed below:

In a proposal that was proposed by (Davis, 1985) he suggested that the attitude of a user was the major determinant of whether the user would actually use or reject the system. The user’s attitude was said to be influenced by the following points:

**Perceived Usefulness**- was defined by Fred Davis as the degree to which the potential user expects the target system to be effortless. The assumption was that if a user perceived the system as being effortless/ easy to use they are more willing to use the system for example a more user-friendly graphical interface.

**Perceived ease of use-** was defined by Fred Davis as the degree to which a person is willing to use a particular system only if they believe it will enhance their job performance. The assumption is that a person is only willing to use a particular system if they believe that it provides a form of advantage in relation to their job performance.

**Attitude towards using the system** – according to Fred Davis perceived ease of use and perceived usefulness will determine a person’s attitude towards how they accept a particular system. Therefore, he proposed that this was the major determinant of a systems acceptance which was influenced by the two factors the researcher has mentioned above.

The TAM has been continuously studied and expanded-the two major upgrades being the TAM 2 (Venkatesh& Davis, 2000) Perceived ease-of-use (PEOU) - Davis defined this as "the degree to which a person believes that using a particular system would be free from effort" (Davis, 1989).

Perceived ease of use

Actual system usage

Attitude towards use

Perceived usefulness

*Figure 2.0: TAM proposed by Fred Davis (Source: Davis et al, 1989)*

Although this model suggested the basic factors there are other factors that influence the success of a system hence the researcher has also used other theories to criticize the technology acceptance model. TAM replaces many of TRA’s attitude measures with the two technology acceptance measures— ease of use, and usefulness. TRA and TAM, both of which have strong behavioral elements, assume that when someone forms an intention to act, that they will be free to act without limitation. In the real world there will be many constraints, such as limited freedom to act (Bagozzi et al, 1992)

**2.5.1 CRITICISM OF THE TECHNOLOGY ACCEPTANCE MODEL**

**Theory of reasonable action**

The Theory of Reasonable Action (Fishbein et al, 1975) is one of the most popular theories used and is about one factor that determines behavioral intention of the person’s attitudes toward that behavior as shown in Figure 2.1. (Fishbien et al, 1975) defined “attitude” as the individual’s evaluation of an object and defined “belief” as a link between an object and some attribute, and defined “behavior” as a result or intention. Attitudes are affective and based upon a set of beliefs about the object of behavior for example Credit card is convenient. A second factor is the person’s subjective norms of what they perceive their immediate community’s attitude to certain behavior for example my peers are using credit card and it’s a status to have one. Unlike the technology acceptance model this theorem does not only focus on a person’s attitude but it also focuses on behaviors, subjective norms and the beliefs.

*Figure2.1. The Theory of Reasonable Action (Fishbein and Ajzen, 1975)*

(Ajzen, 1991) developed Theory of Planned Behavior which is about one factor that determines behavioral intention of the person’s attitudes toward that behavior as shown in Figure 2.2. The first two factors are the same as Theory of Reasonable Action (Fishbein and Ajzen, 1975). The third factor that is known as the perceived control behavior is the control which users perceive which limit their behavior for example can I apply for the credit card and what are the requirements?

*Figure 2.2****.*** *The Theory of Planned Behavior (Ajzen, 1991)*

**Comparing technology acceptance models (TAM), theory of reasoned action (TRA) and theory of planned behavior (TPB)**

Davis, (Bagozzi et al,1989) study compared the Technology Acceptance Model (TAM) with Theory of Reasoned Action (TRA) and resulted in the convergence of TAM and TRA. This led to a model based on the three theoretical determinants which are the perceived usefulness, perceived ease of use and behaviour intention. The study found social norms (SN) as an important determinant of behavior intention to be weak. TAM does not include social norms (SN) as a determinant of behavior intention (BI), which is an important determinant, theorized by Theory of Reasoned Action TRA and Theory of Planned Behavior (TPB). (Mathieson, 1991) and (Yi et al, 2006) argued that human and social factors could play a role in the adoption of technology using TPB model. Therefore, the TAM could be extended with constructs from the TPB to incorporate the social factors that could explain technology adoption. Nevertheless, the TPB in (Chau and Hu, 2002) noted that social norm and behavior intention to use finding was negative and did not support that social norm would influence behavior intention. (Shih and Fang, 2004) also examined the adoption of internet banking by means of the TPB as well as Decomposed TPB and found that it was in line with the findings of (Venkatesh and Davis, 2000) that subjective norm was likely to have a significant influence on behavioral intention to use in a mandatory environment, whilst the effect could be insignificant in a voluntary environment. (Davis et al, 1989) explained that social norms scales had a very poor psychometric standpoint, and might not exert any influence on consumers’ behavior intention, especially when the information system application like single platform E-payment System was fairly personal while individual usage was voluntary. TAM was also specifically designed to address the factors of users’ system technology acceptance (Chau, 2002). Thus, the comparisons of the study confirmed that Technology Acceptance Model was easy to apply across different research settings. (Han, 2003) as well as (Lai and Zainal, 2014; 2015) noted that using TAM capability was favorable compared with TRA and TPB.

**2.6 Challenges that faces institutions in implementing E-Learning practices**

The following are said to be challenges faced by many of the institutions whilst implementing E-Learning Systems. They are classified into the following main categories namely; getting management sponsorship and proper support, non-presence of intelligent reports which will assist in decision making, dissemination of information throughout all the levels within the organization, presence of a proper system containing all the day to month statistics of all the student data, quality of student data, alignment of people and processes, lack of skilled people, using student and system data more intelligently, incorporating student data and preferences to the institution database, using right technologies, and real time data across all student channels.

**2.7 E-Learning Technology Effectiveness and Academic Process Improvement.**

Competent lecturers and processes are both key to effective firm performances; however, in the fast-paced, changing market place, access to timely and accurate information can make the difference between a successful student and a failed student. Insightful, specific and credible information detailing students is one of the best supports for sustained institution performance, when one considers that processes can be easily replicated. This suggests that the effective use of E-Learning technology may be a particularly important antecedent of institutional performance. E-Learning has a positive influence on an organization’s profitability. It makes it easy to grasp the content and digest it.

E-Learning also helps in retaining information for a longer time, the data that has been stored in the database will be recycled and reused whenever needed even after the students graduated. This proves that data has become a very important feature in our lives.

Very fortunate enough the pass rate for institutions using e-learning technology has been increasingly high. This shows again how students seem to prefer e-learning over the conventional class system. This is mainly due to the fact that students now have an opportunity to learn from the comfort of their homes. Whereby cutting the expense of waking up early and traveling to school. Thus resulting in improved scores on certifications, tests, or other types of evaluation.

**2.8 Student Retention and institutional performance**

Student retention is the propensity of the customer to stay with their service provider. It is very important for the institution to maintain the old customers and attract the new customers. That is to say old student may want to further their own education or may want to enrol their families also with the school. This is a very difficult job for the institutions. Student retention increases profits, for the success of the institution may prove to be very tough. The institution staff members need to present a positive business image in order for them to maintain or gain loyal customers. The retention of customers now depends on the image and reputation of the School. Student retention in institutions is a major factor to be considered because when there is higher student turnover, this will lead to lower sales thus closing up of the establishment (Schulz et al, 2012).

Student retention is therefore sustaining the institution customers and through this, customer loyalty is experienced. It is paramount for the success of the academic industry on increased profitability and goodwill; also, in institutions it is a major factor to be considered because lack of students in the schools will lead to lower profits thus closing up of the establishment (Khan, 2013). To increase student retention at authorized workshops, continuous evaluation of the provision of services to customers (students), must be put in place by the institution (Kumar, 2017). Monitoring student retention is the main focus for the school or institution managers. Restructuring marketing strategies could be essential and existing customer could be a priority in surviving a competitive academic industry. It’s easier and cheaper to keep a customer than find a new one (Syaqirah et al, 2013). Customer churn is not easily observed, which presents difficulty for estimating customer retention (Chang et al, 2016).

Long term student retention is based on student attitudes toward the institution (Chang et al. 2014). Increasingly, the institutions are now using e-learning to help boost sales and student performances by focusing on student retention and customer loyalty (Chadha, 2015). In order to enhance the retention of the institution customers, it is essential for management to understand the relationship between student satisfaction and student retention (Sim, et al., 2008).

(Abhamid et al, 2011) illustrated that there are 14 salient factors which affect consumer retention of e-learning web sites that would attract consumers to return. Among the factors that institutions should be concerned about is the use of social media. Institutions should have processes in place to be able to measure their student retention rates and then develop strategies to improve their student retention rates.

**2.9 Institution Performance**

E-Learning dimensions’, evaluation can be assessed in a number of ways, including student satisfaction (Abdulateef et al., 2010), market effectiveness and financial performance (Sin et al., 2005), customer performance and financial performance (Akroush et al., 2011), and student retention and sales growth (Yim et al., 2005). The use of other dimensions of performance is beneficial as suggested by previous studies (Sin et al., 2005). Therefore, this study will use the Balance Scorecard (BSC) dimensions to evaluate the impact of E-Learning on the institutions performance. The present study uses a Balance Score Card (BSC) dimension to evaluate the institutions performance because financial figures cannot provide a full understanding of the impact of E-Learning, the total performance perspective should be employed in the evaluation of E-Learning results (Wu and Hung, 2007). In addition, existing literature reveals that the use of balance score card (BSC) to evaluate the impact of E-Learning on the institutions performance is critical because it is a useful tool to provide an in depth understanding of enterprise’s total operation performance (Wu and Lu, 2012; Wu and Hung, 2007)

**2.9 Student Orientation Processes**

The marketing literature suggests that customer orientation is a cornerstone in the theory and practice of marketing management (Saxe and Weitz, 1982; Jaworski and Kohli, 1993). Ruekert (1992) defines this orientation as the “degree to which the organization obtains and uses information from students. It develops a strategy which will meet customer needs, and implements that strategy by being responsive to their student needs and wants”. Different processes relate to student orientation: student satisfaction, after-sales services, personalized services to key students, and commitment to deliver high value to the student. Researchers argue that student orientation is not only a set of processes, but a culture that stresses the student as the centre of strategic planning and execution of academic processes. This is important to create superior value for the institution. Institutions with higher student orientation are better at and able to respond to their customers’ demand with quality services. Researchers found that increased student orientation within an organization results in improved academic process performance

Thus, student-oriented processes involve many facets, including understanding student needs and sharing and aligning information to create a value proposition that satisfies the institutions customer.

Past research on the relationship between technology and performance has been well documented and supported (Stoddard, Clopton, and Avila, 2006; Hunter and Perreault, 2007; Rodriguez and Honeycutt, 2011). Due to the increased use of technology from the academic perspective, the current research has focused on the relationship between technology and student academic performance. E-Learning technology improves the lecturer’s ability to communicate clearly with the students and establish new business.

However, other researchers found that the link to performance is not always direct, and can depend on environmental settings (Hartline and McKee, 2000). There is still a need in the literature to better understand the impact of customer orientation on firm’s benefits (Brady and Cronin, 2001). In this paper, we attempt to understand the direct influence of e-learning management systems on the improvement of academic processes, whilst considering the impact of the E-Learning system.

**2.9 Conceptual framework**

**Variables and their measurements**

As it has been pointed out in the first chapter of this dissertation, the first aim of this study was to determine the impact of e-learning management systems to solve the problem being faced by students in completing academic processes. In this end, student performance is considered as dependent variable which is explained by e-learning management systems and other factors. In order to be able to specify the impact of e-E-Learning systems on improved academic processes performance, first the researcher should find variables relevant for each model. The sections that follow provide the explanation of the variables.

**2.9.1 Dependent Variables**

The dependent variable is that factor which is observed and measured to determine the effect of the independent variables. It is the variable that will change as a result of variations in the independent variable. It is considered dependent because its value depends upon the value of the independent variable. It represents the consequence of change in the person or situation studied. In this particular study, student performance at Catholic University of Zimbabwe, is referred to as the dependent variable. In large companies, there is a separation between ownership and management, and in such companies, growth seems to be the most plausible goal of managers while owners are most interested in profit maximization (Baumol, 1997; Penrose, 1999).

**2.9.2 Mediating variable**

This is the variable that connects the relationship between E-Learning technology and the institutions performance. In this particular study the mediating variable the researcher chose is student satisfaction and student retention

**2.9.3 Student Retention Rate**

It costs significantly more to acquire a new student than it does to retain an existing one. This makes it important to measure how successful you are at maintaining relationships with existing students. To do this, subtract the number of new students acquired for a given time period from the total number of students obtained at the end of the period. Divide this number by the total number of students you had at the start of the period. Therefore, you have your student retention rate.

**2.9.4 Independent Variables**

Independent variable is a stimulus variable or input which operates either within a person or within the environment to affect his/ her behaviour. It is that factor which is measured, manipulated or selected by the researcher to determine its relationship to an observed phenomenon. The following are characteristics of independent variables namely; they cause for change in other variables and they are always interested only when they affect another variable. In this particular study, the independent variable is E-Learning Technology.

**2.10 Chapter Summary**

This chapter gave a synopsis of both the conceptual and the theoretical literature review giving full insight of the research being undertaken by the researcher. This chapter fulfilled all the answers that were asked within the research questions in chapter one hence fulfilling the objectives set by the researcher.

Although e-learning is proving slow in terms of its adoption in universities, it is clear that all

universities feel that they should be offering it to all their students. Universities in Zimbabwe are

now interested in improving in their teaching and student learning through the use of e-learning,

although the results of this study show that this is being done at a slow pace. Although e-learning

has not yet revolutionalised university teaching and learning, it has changed how some

businesses are carried out in the universities as well as providing easier access to administrative

information, an achievement that should not be downplayed. E-learning has had some impact on

administration services such as admissions, registration and fee payment. However, it is clear

that this is a limited approach to the adoption of e-learning, since e-learning is supposed to

benefit the student in the teaching and learning process. This administrative emphasis is

marginalizing its academic use hence making academics shun adopting the innovation.

A university cannot successfully implement e-learning without proper attributes of its

infrastructure. It turns out, in this study, that only 20% of the lecturers have access to computers

together with their students in the lecture room. The computer-student ratio is very low at all the

universities. As Cuban (2001) observes, limited computer access results in limited computer

aided learning application. Furthermore, the scarcity of bandwidth impacts negatively on the

access to network resources which include access to online journals, databases and other e-

resources to which a university subscribes. Given the average bandwidth size available to

universities in Zimbabwe, access to these resources is rendered ineffective, with the result that

the investment is not used as efficiently as it should.

The slow take up of e-learning by lecturers may partly be due to their lack of awareness of e-

learning facilities and their reported lack of preparedness. This can be a result of poor

coordination of stakeholders in the universities during the launch and implementation of e-

learning programmes. It can also be explained by lack of training as evidenced by the lecturers’

expression for the need for professional development. The results indicate that no university in

Zimbabwe is offering training and continuing professional development for learning and teaching

12 IJEDICT

staff to enhance their skills, knowledge and competencies for the provision of high quality e-

learning.

Results show that e-learning is being implemented haphazardly. Although there is no fixed recipe

for successful implementation of e-learning, innovative strategies provide useful guidelines that

can assist in the creation of an effective e-learning strategy. A centralized policy-making, or

administrative structure, in Universities is critical to implementing an e-learning program in a

consistent, effective, and efficient manner. Although almost all the universities have some form of

a central strategy for e-learning or are in the process of developing one, there is lack of guidance

for lecturers as to how they could implement the strategies. It is clear that universities should

align their strategies to incorporate e-learning infrastructure. The results of the study show that

the adoption of e-learning programmes in Zimbabwean universities is characterized by a lack of

vision, leadership and sound management of the numerous variables that form a part of change

within this context. This observation was made by Green (1996) who noted that less than half

(43.4%) of American colleges and universities have a strategic plan “identifying institutional goals,

objectives, or implementation priorities for the role of information technology in instruction and

scholarship”, which could prove fatal to future success of educational institutions. In Zimbabwe,

although all the universities strategic plans have room for the adoption of e- learning in their

teaching programmes, they do not have strategies in terms of who is responsible for what during

implementatio