e-learning: Academia's Approach To The CRM Challange

Karen Neville*
Ciara Heavin**

Business Information Systems
University College Cork
Cork, Ireland
*Email: kneville@afis.ucc.ie
**Email: c.heavin@ucc.ie

Abstract

The CRM silver bullet solution has made its way from the boardroom into the classroom as organizations and universities alike continue to become more and more customer/student centric. Both are currently implementing successful support systems in order to meet their end-users needs. As early as 1995, University College Cork (a Third-level Irish university) introduced online support to provide learning material for students ranging from full / part-time undergraduates and postgraduates to distance-learners. However, students identified a need for more support, the type that only a more interactive system can provide. This research study is focused on the use of an interactive e-learning management system (eLMS) to enhance and manage the relationship between the students (customers) and the educators. The case study indicates a strong requirement for the utilization of such an environment. This type of system has the potential to eliminate the barriers imposed by the traditional classroom and increasingly focus on the needs of the student. Through the adoption of the CRM philosophy the system presented here strengthened its link between the different actors and additionally provided the university with a more in-depth view of its target audience.

Keywords

e-learning, Customer Relationship Management (CRM), Learning Management Systems (LMS).

1. INTRODUCTION

Organizational change in today's competitive landscape is no longer just an option, but a fundamental strategy for success. One of the foremost challenges occurring in business and education today is the adoption of a customer / student focused approach (Neville *et al*., 2002). This refocus resides in the belief that the development of a close relationship with the customer or student will enable the university and instructor to determine, fulfil and even predict the needs of the learner. This will in turn increase student satisfaction, retention and loyalty, placing the university in a strategically better position. Learning systems are based on a number of learning models. These approaches aim to construct a process of learning to support both the educator and the learner (Harasim *et al.,* 1990). The learning models do not, however, focus on the educators and the students as the central figures in the learning process but emphasise the interaction between all the participants and access to the resources needed (Walsh, 2003). Available models include: mentorship, access to experts, access to key information and collaborative projects. Learning systems are regarded as strategic tools that enhance student or employee skills and the implications of inefficient systems for learning are numerous (Phillips, 1993); the primary being that the university may not support learners to their full potential, nor would it effectively compete with other universities. Students or customers, if not satisfied with their service, be it educational or product based will *'go else where'*. Therefore, the quality of the support provided to students (learners) has a profound impact on the performance of a university in both attracting and retaining its customer base.

This paper focuses on the evolution of e-learning and LMS in considering e-learning as the academic equivalent to the CRM strategy. The research outlines the different characteristics necessary for the successful management of the learning process and the support needed by students, through the investigation of current research and the analysis of the case environment. It also highlights the potential of the system to overcome the physical barriers of the traditional classroom aligning the critical success factors (CSF) necessary for e-learning with those of CRM. Learning management systems (LMS) can, when properly structured and maintained, facilitate learning, increase support and avail of all of the benefits that technology can provide (Johnson and Johnson, 1990). Therefore eLMS can be viewed as CRM tools in providing a customised approach to supporting both student and academic / instructor needs. The paper outlines the problems associated with

traditional learning, the different learning support tools and finally an interesting finding that the CRM model can strengthen the student-instructor relationship.

2. THEORETICAL FOUNDATION

Traditionally, organizations were structured around their products and services (Peppard, 2000; Shanks and Tay, 2001). However, many are now beginning to transform themselves through the adoption of a more customer-focused orientation (Christopher *et al.,* 1991; Ryals and Knox, 2001). Organizations have grown to realize that customers are their real assets and in a sense have become the product (Shanks and Tay, 2001; Firth, 2002; Magic Software Enterprises, 2000). The CRM philosophy places the customer rather than the product or process, at the center of the organization in the belief that the development of a close relationship with the customer will enable the organization to determine, fulfil and even predict the needs of the customer (Beckett and Camarata *et al,* 1998). In order to develop a close relationship and embrace CRM fully, it is essential to have a unified view of the target audience across all departments (Chase, 2000). Integration is the key to creating this *'unified view'* of the customer, and CRM is essentially the integration of the departments within an organization (Ryals and Knox, 2001). The information gathered through customer interaction channels of each department can then be shared throughout the organization. To facilitate this, systems and applications must be fully integrated so that the organization can have a complete view of each customer (Swallow, 2000). The increased knowledge of the customer's desires and needs allows the organization to foresee opportunities that enhance the provision of a better service to their customer base. The most important customers are identified through the CRM system and become the focus of the organization. These customers are retained, by enhancing satisfaction as a result of higher responsiveness (Christopher *et al.,* 1991; Magic Software Enterprises, 2000). This high responsiveness is due to the more efficient post integration performance of the departments combined (Galbrearh, 1998). The increased retention of valuable customers leads to increased revenue (Reicheld and Sasser, 1990). Universities face the same challenge in supporting their customer base and providing the most informed view of their target audiences (courses) through evaluating learning itself for both government funding and quality review strategies. Admittedly education institutions, in comparison to multinational customer and product strategies, do not utilize student selection procedures (demographic etc marketing strategies) other than qualifications or strive for maximum revenue. However, the learning process has essentially evolved due to increased student numbers, as has the heightened competition of Third level Irish education institutions and the expectations that advances in technology have created to enable a student centric approach to learning.

2.1. Traditional Learning

Learning has always incurred criticism (Cuban, 1993; McCormack, 1997; Neville, 2002). It is felt that despite huge advantages in technology, the classroom will always remain the same, that is, dysfunctional (Banathy, 1994; Reigeluth, 1994). The approach that most traditional educators follow is that of the '*pedagogical*' model, which is seen to describe '*traditional*' learning environments, as opposed to Knowles' '*andragogical*' model (1973) (Holmes and Abington-Cooper, 2000). This model emphasises the importance of student-centered, self-directed, problem-solving based learning, which many researchers argue to be important in adult learning, all of which are lacking in the '*traditional*' learning environments (Knowles, 1973; Cuban 1993; Relan and Gillani, 1997). The '*pedagogical*' model is very much concerned with teacher-centered instruction, or teacher-directed learning, where the teacher assumes a dominant role in the learning environment, and thus controls the information that is to be '*transmitted*' to the students, usually in the form of lectures, presentations, or demonstrations (Huddleston and Unwin, 1997; Holmes and Abington-Cooper, 2000), therefore it largely ignores the requirements of its customer base. It could be argued that advances in technology, such as multimedia and virtual simulations, have left the traditional classroom trailing behind with learners expecting more and more. The widely accepted criticism of the teacher centered model is that the *'what'* rather than the *'how'* of the instruction is delivered (Goodlad, 1984). However, it is also argued that problem-solving and other intellectual skills are difficult to incorporate into the traditional environment due to the very nature of the educational system. Factors such as space, the grouping of students according to grades, the duration and size of classes all hinder the desired environment. E-learning is regarded, by many, as the solution to the problem allowing the attributes of online learning to enable the instructor or the teacher to redesign the classroom incorporating what the traditional classroom lacks.

2.2. E-learning & Support Tools

Organizations are increasingly investing in the use of Web technology (Eduventures, 2000; Cummings, 2001; Werry, 2001), to the extent that Web-based applications now form a platform that can aid all aspects of organizational work from group work to individual teaching and learning (Isakowitz, *et al.*, 1998; Carstensen

and Vogelsang, 2001). Learning is Web-based to incorporate the new direction as advocated by the '*Learning Organization*' and therefore benefits not only universities but organizations as well. E-learning involves anything from watching a video, loading a tutorial from a CD-ROM, to enrolling in a virtual classroom (Harassim, 1990; Harris, 1994). However, each type of online learning has three factors in common: (1) distance between the instructor and the student; (2) opportunities offered by technology for different delivery techniques (3) and expectations on the student to work largely independently (Harasim, 1990; Teles and Duxbury, 1992). The goal of a learning environment is to create a community of learners (Davie and Wells, 1991; Harasim et al. 1995) co-operating to achieve a common objective (Johnson and Johnson, 1990). E-learning can support the needs of universities, academics and publishers, by increasing the reach of the learning environment to include those separated by time and space (McCormack and Jones, 1997). As a result, it attracts increasing student numbers and makes learning materials more accessible (Louvieris and Lockwood, 2001; Sulcic and Lesjak, 2001). It supports both the learner and the educator in a number of ways, for example, differing learning styles can be catered for, which help educators reach more students in varied ways, and enable more students to learn the course material (O'Connor, 1997; Sulcic and Lesjak, 2001). The traditional classroom environment emphasizes the interaction between the educator and the learner (James, 1958; Laurillard, 1993), however collaboration is not as emphasized as it is in e-learning (Kaye, 1991; Dede, 1996). Learners are given the resources, through technology, to share knowledge pertaining to the material researched. The Web is an appropriate medium to support such learning communities. The ability of the Web to reach remote areas provides a significant contribution to the advancement of, for example e-learning (Luetkehans *et al.,* 1996) and learning management systems. Providers of e-learning applications can increase profits through new business models that incorporate teaching and learning components, forcing universities to enter the marketplace to defend against these new entrants. If an organization does undertake an e-learning initiative they must develop an effective solution that recognizes the need for good learning practices, which incorporates good design and development guidelines (O'Connor, 1997; Sulcic and Lesjak, 2001; Valentine, 2002). Organizations and universities are faced with the increasing challenge of providing adequate learning to equip graduates with the necessary skills for the workplace. New material requires new methods of learning, therefore academics / instructors must adapt their methods of delivery (Driscoll, 1998). Skills required in, for example, information communication technology (ICT) are constantly changing with each new package; therefore universities are facing the constant dilemma of supporting the learning requirements of their students as are organizations in training employees and updating product information. E-learning environments provide learners with access to the system when and wherever they like. Lecture and tutorial material is up to date and is enhanced with graphics, multimedia and audio. McCormack et al., (1997) also identified a number of benefits to the creation of a learning management system (LMS): (1) increased participation; (2) increased flexibility; (3) increased variety; (4) increased expectations; (5) changing nature of knowledge; (6) increased competition; (7) increased learner control for the customer or student.

2.3. E-learning: Another CRM Service

Customer relationship management (CRM) is a customer-focused business philosophy that requires an alignment of organizational strategy, culture, technology and customer information in order to manage transactions to the mutual benefit of the customer and the enterprise (McKnight, 2001). The hypothesis evolved from the 'local corner shop' where the grocer knew the needs and expectations of each of his customers (Base Consulting, 2000). Recently, organizations have been using this information to manage customer relationships effectively and help the organization to win (acquire), grow (enhance), and keep (retain) the right customers (Kalakota and Robinson, 1999). The concept of customer service has changed from a purely after sales activity to a process that starts before the sale and is inherent in every interaction a customer has with the company. The area of service is probably the most crucial when it comes to CRM. The customer service that an enterprise provides is key to its ability to maintain satisfied and loyal customers. With the advancements in information technology (IT), customer service has been improved in a number of areas including reliability, efficiency and communications, as well as quality control and service monitoring (Berkley and Gupta, 1994). The call center has become the main customer service front of the organization. It is evolving from strictly a telephony service to a comprehensive customer interaction center that can accommodate the numerous communication channels that customers use (E-share Communications 1, 2001). The customer call center (or interaction center as it is sometimes known) is the primary means of communication between the customer and the enterprise. The data gathered from each of the customer touch points is fed into the enterprise data repository, which holds every detail of each customer's interaction. It is therefore the customer call center with its combination of front-end CRM solutions and back office components that plays a major role in the building of a customer-centric enterprise. In this paper we argue that in an academic environment a similar strategy is deployed in the form of e-learning tools/services where universities offer a 'one-stop learning point' to support their customers, the students. This academic approach is comparable to the CRM acquire (increased participation), enhance

(learning) and retain (quality) strategy employed by organizations, additionally this phenomena validates the seven characteristics of e-learning outlined in section 2.2 as critical success factors of a CRM tool (see Table 1).

3. RESEARCH OBJECTIVE & APPROACH

This research study outlines the adoption of a blended approach to learning by a department within a university setting. The department facilitates its learning strategy of teaching, supporting and attracting learners through the combination of both e-learning / learning models, technology (eLMS) and student centric support to meet the changes in the environment in which it operates (increases in learner expectations and decreases in budgetary support). The study investigates the use of the system as a CRM tool in acquiring (increased participation and support), enhancing (providing a flexible, varied and competitive environment) and retaining (meeting expectations) for both the educators and the learners experiences. The research approach adopted for the study was based on a two-tiered research design involving an in-depth investigation of the factors necessary for the successful acceptance of a eLMS and to probe the unintentional overlap of two theoretical fields. The case study selected for this research study was the Business Information Systems (BIS) department within University College Cork (UCC). The BIS department was selected because it is the primary group within the university to develop, customize and blend its strategy of student support and learning with the aid of a management system.

The researchers examined the development and implementation of the group's e-learning management system (eLMS) to support the educational needs of its learners and managerial requirements of its educators. The authors investigated the degree to which the benefits of the system met the learning needs of the actors. The analysis also expanded the ongoing design of the LMS to continue to provide an innovative approach to learner support that is more akin to the true essence of e-learning. Figure 1 illustrates the LMS that has been created to support the learners' requirements, as determined through ongoing discussions and postal surveys. Initially, the objective of this study was solely to examine the factors necessary for both effective design and the changing role of the instructor. However, the findings of the case drew an interesting correlation between the factors for successful acceptance and the benefits of the eLMS on one level to the characteristics of CRM outlined in literature on the other level (see Table 1). This interesting conclusion will be discussed in the findings and discussion sections of this paper. Finally the authors propose that LMS have the potential, when properly designed, to enhance, adapt and motivate the learner (or possibly customer) of a university. To meet increased student expectations the eLMS in this case supports every function (administrative and teaching) of the learning environment to manage and improve the relationship between the learners and the educators. In order to provide the data necessary to achieve the objective of the study, informal interviews were conducted with the facilitators of the system. The interview findings that emerged from the interviews (of *seventeen* academics) conducted are presented in the following sections. The following sections provide a description of the status of e-learning support within the site

4. BACKGROUND TO THE CASE – BIS

University College Cork (UCC) uses a number of learning support tools from in-house developments to off-the-shelf packages. The origin and type of tool varies from one department to another. Blackboard ^{TM} is available to the different actors (departments: academics / students) throughout the university as a support tool and as a supplement to the traditional lecturing environment. However individual departments, such as Business Information Systems (BIS), have developed customized e-learning management systems (eLMS) which are more in line with the conceptual understanding of E-learning and therefore the facilitation of active learning. In fact the eLMS, developed within BIS, utilizes a mixed learning approach combining E-learning design factors with technology. However, the researchers also discovered, after the implementation of the system, that CRM characteristics are a component contributing to the degree of value provided by the system. Previous systems were used mainly as course management systems to aid in the organization of lecture notes and to provide additional resources to the students, such as links to relevant Web sites or links to information presented in different formats, such as multimedia, slides and text. The initial developments were only the first steps in the group's drive and commitment to all aspects of teaching, learning and support. However, rapid increase in student numbers (the course had *thirty-five* places when it started in 1993 and increased to a *hundred and thirty-two* in 1998), decrease in available demonstrators (university wide budget cuts) and the need to improve efficiency of processing records to meet standards for quality assurance/ assessment and more importantly a sustained quality of learning have resulted in the eLMS becoming more central to the operation of e-learning / learning. BIS with this in mind introduced Argus, to effectively support the learners within the group and any additional service teaching. Argus, as the researchers discovered, enhances the learning process, enables students to collaborate in supporting each other and test their knowledge of topics covered in class.

4.1. Argus – The CRM Tool

Argus was constructed to support all of the actors within BIS and to aid in the management of learning within the site. Figure 1 illustrates the opportunities available to the participants of the case. Argus is designed or customized for the requirements of the individual learner, the instructor and the department by providing an integrated view of the learning process within the research itself. The learning abilities of students vary as the traditional classroom is restricted by the size of the group. The educator instructs a class, but the level of both collaboration and the development of problem-solving skills can be directly correlated to class sizes. The greater the size of the group the less attention individual learners gain or the more intimidated a student is to participate in discussions thus reducing collaboration. An eLMS, when adequately designed (as with Argus), enables end users to work at their own pace in an environment that provides structured support for both the educators and the other learners. The following are some of the features that Argus offers to the participants:

- Submitter - students can submit assignments through the web, the system automatically deducts marks if assignments are late.
- Corrections - demonstrators correct assignments and add comments to assignments; these are then released to students.
- Tutor marker - marking scheme for each assignment built- into the marking program, demonstrators select marks and comments which are then added to students submission.
- Archives - assignments are archived, students can see past assignments.
- Quiz - lecturers create quizzes, students do quizzes (at given time, for fixed time) on a self-assessment/ marks awarded basis.
- Reporting tool - lecturers can examine: average grade for class on assignment, average overall grades and individual grades for students.

Course material is also available online, but in addition, a discussion forum enabling both instructors and students to exchange ideas and add to the eLMS. This allowed the learners to provide feedback (anonymously, if desired) to the instructors. It also enabled them to pose queries, which other participants or the instructors could answer. All of the participants can see the initial queries and the discussion stream of answers from other participants including the instructors. The facility allows learners to voice their satisfaction regarding the different elements of the environment. This provides the end-users with the opportunity to take part in the ongoing design of the LMS, these components have therefore heightened user acceptance of the system. Additionally the system interacts with simulated add-on packages, for example an operating systems (OS) environment, which allows students to assume roles such as XP Administrators. Argus to administrate every aspect of learning (laboratory practicals and theoretical concepts) can upload reports from add-on packages and therefore provide a *'full view'* of the progress of the learner.

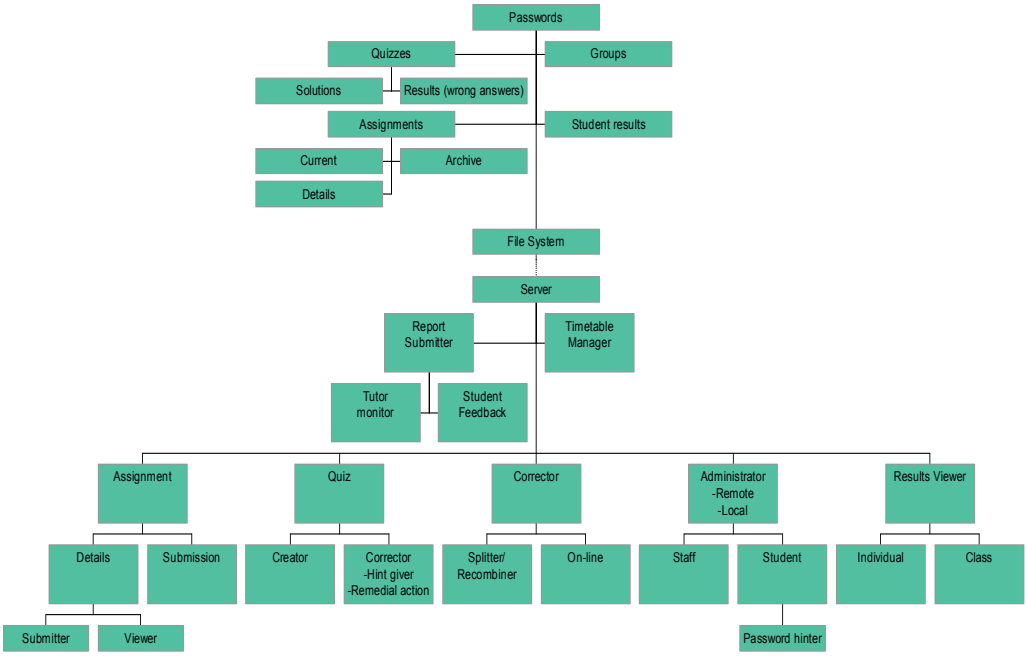

Figure 1: Argus

4.2. Analysis

The research identified through the interviews of *seventeen* academics teaching principles, such as pedagogical dimensions, instructional models, and instructional design principles, as important considerations that need to be incorporated into the eLMS design and development process. It emerged from the study that all *seventeen* interviewees (academics) believe that *pedagogy* is a key consideration. The academics interviewed all believe that pedagogy must be considered first and foremost, and that it is the root from which the environment will stem. Therefore the *purpose* of the learning, the *learning objectives*, the *assessment tools* and techniques, the *learning strategy*, and the development of the course *content* must be considered first, and then the eLMS to *support* the *pedagogy* is considered. The result is that the pedagogy and technology are integrated to provide a holistic learning experience for the student, rather than the eLMS being utilized just as an add-on. Additionally, *eleven* of the interviewees believe that *engaging the student* with the material and encouraging them to get involved is important. They believe that the student needs to be committed, needs to make a genuine effort, and needs to take *responsibility* for their own learning. The development of the eLMS should also facilitate *active learning* and include the adoption of *constructivist learning principles*, *problem-centered approaches*, *exploratory learning approaches*, and *student collaboration* and *interaction*. A number of interviewees agree that commercially available packages are good at the '*facts and figures*' type learning but are limited when higher level, professional education is required, such as that in a third level institution. Therefore, engaging the students through active learning can reduce the limitations that commercial environments impose on teachers who are trying to develop students' higher level, critical thinking skills. Another key consideration which emerged from the study was that the audience, the students, must be considered and understood in terms of their characteristics, and how they learn. It is also important to *motivate* the students by showing them how the environment is relevant, helpful, practical, and beneficial, and how it will help them to achieve their learning goals. Motivation should be built into the pedagogy, and can be achieved by using the same mechanisms used in a traditional learning environment, such as making the material interesting, by setting challenges and assessments, by making it convenient for the students, and by utilizing a mix of media. Another key consideration is *assessment* and *feedback*. However, in an eLMS collaborative work, peer evaluation, and assessment based on contributions to discussions were also considered to be useful mechanisms for assessment and feedback. In the absence of face-to-face interaction, the facilitation of feedback from the students was considered to be important. The reason for this was because in a traditional classroom learning environment the teacher can easily receive signals from the students, which inform the teacher of the student's progress and they can then identify if the student is having any problems meeting the learning objectives. When that face-to-face interaction is removed, the signals that the students give are removed, and therefore it is more difficult for the teacher to evaluate how the students are progressing. As a result an eLMS must facilitate the acquisition of feedback. The environment should therefore enable *flexibility* and *adaptability*. It also emerged from the research that the eLMS environment should incorporate good aesthetic design, and the best practices with regard to *human computer interaction*. The environment should have a *standard, consistent layout* for a consistent student experience, and the design should be kept simple. It also emerged that the environment should not be distracting, and should seek to reduce the possibility of cognitive overload on the part of the student. The course content must also be valuable to the students. It also emerged that students will usually print the material rather than read it on-screen therefore the content must be structured and printable.

4.2.1. The Role of the Instructor

The role of the teacher using a eLMS is that of a *facilitator* as opposed to an instructor. It emerged from the study that the majority of those interviewed regard the role of the teacher as being that of a facilitator and moderator, to guide students through a course, and that they need to be able to devise meaningful and relevant tasks, designed to lead the student to learn the material. The teacher's role also includes *motivating*, *interesting*, and *inspiring* students, and thereby encouraging them to think about the learning materials and put more *responsibility* on the student by using, for example, a co-operative learning approach, or a problem-based learning approach. The teacher also needs to encourage communication, facilitate group work, motivate students to participate, and make them feel comfortable with an alternative method of communicating. The lecturer also needs to make the *learning outcomes* very structured, organized, and clear for the student. They agree that the literature dictates that the teacher's role changes from an instructor, with knowledge to pass onto the students, to that of a facilitator, resulting in the students having more responsibility for their own learning. Therefore, the way the lecturer's role changes is dependent on the pedagogical model that was followed in the first course and the pedagogical model that will be followed in the next course. This is similar to a number of points made in the previous section where the design and development considerations are dependent on the pedagogy that is chosen for a specific course. Additionally, it is important that the pedagogical model chosen will enable the lecturer to *engage* the student more with the material and thereby utilise such things as

discussion, group learning, problem-based learning, case studies, simulations, and a mixture of asynchronous and synchronous delivery.

4.2.2. Factors for effective eLMS Design

It emerged from the research study that there are a number of important factors that influence the level of effectiveness of an eLMS. The most important of these was that the environment should be *simple*, straightforward and *easy*-to-*use*. Therefore ease-of-use is considered to have a significant significance on the effectiveness of the environment. The eLMS should also be *attractive* and *interesting*, and to *encourage* students to use it through such mechanisms as *rewarding* the students who use it, and by making it a core part of the course. These include *good design, aesthetics*, and human computer *interaction*, as well as a *consistent look* and *feel*. A *robust, reliable, supported technology* was identified by *four* interviewees, the *active engagement of students* was identified and the *enthusiasm* and *motivation of the teacher* to put the effort required into teaching in an eLMS. It also has emerged from the research that the effectiveness of eLMS varies and therefore the environments need to be assessed on a case-by-case basis. Student *feedback* provides information on key issues such as the students' use of the eLMS, what the students learn through their use of the environment, as well as their results in exams and assignments, and statistical analysis can all contribute to an evaluation of the effectiveness of a eLMS. An *evaluation* of the effectiveness can also be obtained through *quality* reviews, assessments, and can also be based on a qualitative judgement made by the lecturer. But these do have their limitations and can be hard to achieve unless a study using a control group of students is used. A finding that emerged from the research study was that the level of *effectiveness* of the eLMS is not directly related to the *technical complexity* of the technology. The effectiveness of the environment is influenced more by the *context* in which the environment is utilized and in particular it is more to do with the pedagogy than with the technology. Therefore, the *technology* that is used should serve a specific *educational* or *pedagogical purpose*, and that the bells and whistles should not be added just because they are there, but because they serve a pedagogical purpose. A final key consideration that emerged from the field work was that there needs to be *support* from the educational organization with regard to the provision of teaching and learning policies, financial and technical support, and also administrative support and resources. Teaching needs to be *rewarded*, and there is a need for a specific individual, or group of individuals to champion the development of LMS initiatives in any particular educational organization as in the adoption of a CRM strategy. Therefore, it has emerged from the study, that in developing an eLMS from scratch it is important to have an individual with the technical expertise to develop the technology that will support the pedagogy. The pedagogical choices should be made in consultation with a teacher, a learning content and pedagogy expert.

5. DISCUSSION

This collaborative learning environment (see Figure 1) offers a '*one stop'* learning support service that may be comparable with CRM systems particularly call center services deployed by organizations to support customers. Table 1 outlines both the CRM and E-learning characteristics identified in literature and indicates a strong comparison through the analysis of the case presented of the two fields. The benefit of eLMS emanates from its potential to provide structure to the human communication process within learning. An eLMS, using for example discussion forums where a communication structure is not specifically designed and imposed on the learners' will, to be successful, need to be structured. Increases in student numbers necessitate structuring in both the virtual and the traditional classrooms. Learning management systems provide both the educator and learner with the following advantages: (1) access to expertise without conforming to the opinion of the group; (2) anonymity of the participants through the medium of distance (Hardy, 1957; Allen, 1965); (3) opportunity to participate in a large group; (4) feedback mechanisms between the teacher and the student; (5) a mediator to assure the flow and value of the discussion; (6) rules to govern the communication process and (7) some type of motivation, either academic or for promotion purposes (8) testing (9) administration capabilities (10) an integrated view of the learners across a wide spectrum of courses. If this system is incorporated into any learning or communications network the system will succeed in supporting the learner or the customer and provide the instructors a full picture of the learning process, in addition to supporting the needs of the individual actors within the case. It is the opinion of the authors that LMS, when properly designed, can manage student relationships effectively and help the university to acquire (see Table 1a), enhance (see Table 1b), and retain (see Table 1c) quality in the service it provides.

CRM Strategy and E-learning Characteristics	***CRM***	***eLMS (Argus) BIS Case***	***E-learning***
Acquire (Kalaksta & Robinson, 1999) • Increased Participation (Driscoll, 1998)	Through the integration of customer channels, new queries can be answered efficiently, creating a positive impression for the organization.	• Pedagogy models • Support • Motivation • Reward • Engaging • Interesting	Enhanced student support through dynamic e-learning systems creates a positive reputation for the institution & supports large student numbers.

Table 1a: Acquire

CRM Strategy and E-learning Characteristics	***CRM***	***eLMS (Argus) BIS Case***	***E-learning***
Enhance (Christopher *et al.,* 1991) Increased Flexibility Increased Variety Increased Competition • Increased Learner/ Customer Control (McCormack & Jones, 1997)	*'Cross selling'* and *'up selling'* are employed to increase knowledge regarding customer's desires and needs allowing the organization to foresee opportunities for increasing their revenue.	• Facilitate • Active learning • Interaction • Adaptability • Collaboration • Assessment • Responsibility • Feedback • Ease-of-use	Provides a dynamic, interactive learning system in an environment that enables instructors to learn more about student needs. Customisation through feedback, course material and assignments enrich the student's interaction with the system. (Provides a *'one stop-shop'* for learning)

Table 1b: Enhance

CRM Strategy and E-learning Characteristics	***CRM***	***eLMS (Argus) BIS Case***	***E-learning***
Retain (Reicheld & Sasser, 1990) Increased Expectations Changing Nature of Knowledge • Increased Learner/ Customer Control • Quality (Neville *et al.* 2002)	The most profitable customer groups are identified through the CRM system and become the focus of an organizations targeting strategy. The increased retention of valuable customers leads to increased revenue.	• Integrated view • Structured • Standard • Consistency • Dynamic • Students experiences • Active engagement	eLMS function to facilitate student learning and enhancement of the learning process with the objective of retaining student numbers and the reduction of '*drop out*' numbers.

Table 1c: Retain

Table 1: The Alignment of CRM and E-learning

6. CONCLUSIONS

A number of important conclusions can be drawn from this research, which used an analogy with CRM systems to describe the very characteristics of an eLMS environment (see Table 1). E-learning management systems are needed to provide structure to e-learning and benefits not only to the learner, but to the educator in expanding their role from that of a mere facilitator of student expectations to an evaluator of the learning process. The development of an eLMS presents enormous challenges to both academics and management in

determining learners support requirements and eventually benefiting from the integrated view that it provides. The case presented here is a prime example of a successful system that can and will ensure ongoing success. An effective eLMS can provide a university with a strategic advantage in the learning market. It supports every actor within the learning process and therefore maintains a customer base consisting of undergraduates, postgraduates and distance-learners. It provides a unified view of the students learning abilities through test banks and self-evaluating scenarios for every subject taught in the case environment. Therefore e-learning and eLMS facilitate the management of student learning when traditional approaches are hindered by increased student numbers, information overload (from the Internet), and the expectations of students/customers in the provision of ongoing support. CRM tools essentially provide organizations with the ability to deal with the same issues faced in academia, that is increased customer numbers, the provision of valuable information and continuous support in order to retain existing and attract new customers. The quality of the service dictates the retention of an organization's or a university's customer base.

This paper focuses on the use of e-learning and effective eLMS to support learners and enable educators to evaluate, through testing, the different learning approaches and technologies used to both aid and facilitate students. The research outlines the overlap between e-learning and CRM through an eLMS by mapping the critical success factors of e-learning to the typical CRM strategy (of acquire, enhance and retain). Evidently, the current environment and the availability of technology have heightened customer expectations across the board forcing both organizations and educational institutions to maintain a dynamic interactive customer (student) support environment regardless of the product or service on offer.

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