

## Chapter 5:

# REFLECTIONS AND RECOMMENDATIONS

## 5.1 Introduction

The topic of the study is:

**Learner perspectives on the use of a learning management system in first-year Economics.**

In Chapter 5, I will reflect on the study and the findings according to the three sub questions. I will consider the use of technology to foster interaction between students and lecturers, I will discuss the relationship between using Learning Management systems and peer interaction and I will deliberate the possibilities of using technology to encourage student-content interaction. I will ask the question whether the intervention changed the way in which students experienced Economics learning, and if so, in what ways?

I will also refer to recommendations that can I make for institutions and other lecturers as well as follow-up research can be done in the field of blended learning.

## 5.2 Research question

The research question was the following:

**What value does a Learning Management System add in promoting interaction in large classes?**

Within this question, reference must be made to the value that is added to cognitive, affective and psychomotor learning.

In order to address the research question, three sub-questions were asked:

### **5.3 Sub Questions**

- How do students use technology to interact with the lecturer when classes become too large for effective interaction in class to take place?
- What is the relationship between LMS use and students' experiences of peer interaction?
- What possibilities exist to encourage students to interact with content by making use of an LMS?

In Chapter 1, the outline of the study was presented. The research questions were introduced as well as the sub-questions.

In Chapter 2, the relevant literature pertaining to this study was discussed. The key issues of this study were higher education, sound and effective teaching and learning, the problem of large classes; and electronic learning (e-learning). Therefore, the searches that were done focused on these topics using them as key words, as well as others such as Constructivism, Behaviourism, Social Constructivism and blended learning.

A conceptual framework was developed in order to answer the research questions. In this framework, the following theories were included:

Engagement Theory (Kearsley and Shneiderman, 1999), which emphasises the interaction that needs to take place for effective learning to happen;

Conversation Theory (Boyd), which supports the notion that conversation between two parties is essential for the construction of knowledge;

Contingency Theory (Jones, George and Hill, 2000) which explains decisions made by students and lecturers on the basis of information present; and

Grounded Theory (Glaser and Strauss, 1967), which allows the researcher to understand the theory as it is without a priori decisions.

A schematic integration of the conceptual framework was developed and presented in Chapter 2.

Chapter 3 discusses the research design and methodology. This study falls within the Interpretivist paradigm, because of the subjectivity of students' own experiences. This paradigm allowed me to observe students in action, whilst they were participating in the blended environment. The research strategy was a case study, with the Ekn 124 class being the case under observation.

In Chapter 4, the different responses to the different data-collection instruments are discussed. Answers to the questionnaires, as completed by the students, as well as responses from the focus group meetings are examined. This information will be analysed and compared to the literature, as reviewed in Chapter 2.

## **5.4 Answers to the sub-questions**

In this study, contact between students and students, students and lecturers and students and content, was central to the course design. Chickering and Ehrman's, 1996, online) revised seven principles, as discussed in Chapter 2, state that "...time-delayed (asynchronous) communication" allows for "...total communication [to] increase" (1996). This is in complete agreement with the findings of the study. Contact between students and faculty was encouraged and this led to a more effective learning environment. Kennewell (2005, World Conference on Computers in Education) claims that high quality interaction between teachers and learners is an important element of effective teaching – a statement that is in support of the findings in this research.

### **5.4.1 Sub-question one: Student-lecturer interaction**

The first sub-question addresses the way in which students interact and converse with a lecturer or a tutor (as representative of the lecturer). The question asks the following:

**How do students use technology to interact with the lecturer when classes become extremely large?**

Within this sub-question, three categories were identified, namely understanding (academic issues), convenience (practical issues) and motivation (emotional issues).

#### **5.4.1.1 Category 1: Understanding: academic issues**

The first category concentrated on the content and on the academic issues. Students find economics a hard-to-grasp subject and need to have the opportunity for reflection. Often they think that they understand the work during a lecture, only to find that when they are working on their own, difficulties arise. Based on the work of Pask's (1975) theories on conversation, two cognitive systems should engage and interact, leading to some form of debate and hence an improved understanding in both parties. In online forums, such as the discussion board used in this course, Pask's model is especially useful because several agents may interact and engage in conversation.

The effect of the intervention on students' perceived understanding of the content was clear. Comments related to this category included words such as 'help', 'explain', 'feedback' and 'understand'. Students felt that they were able to go back to the tutors and ask for additional explanations. They were given help on issues that they found difficult and the feedback that was given to them was most valuable. Some students commented that their marks improved and that they believed it was because of the additional assistance received. The experience of students is in agreement with one of Race's (2001) factors that underpins effective learning, namely digesting. Students need to gain ownership of what has been learnt and by discussing the content; they are able to make sense of the material.

#### 5.4.1.2 Category 2: Convenience: practical issues

The second category concentrated on practical issues. Using a Learning Management System to communicate with the lecturer/tutor was clearly something that the students enjoyed and appreciated. They were able to ask questions without having to wait and were able to post a question to the lecturer and receive an answer at their convenience. Concepts such as speed, time-saving and convenience were used to describe their experiences. Chickering and Ehrman's fifth principle emphasises time on task: "Time plus energy equals learning" (1996, online). The less time spent on non-learning tasks, such as making appointments, finding the lecturer and going to the office, the more time is available for effective learning.

Consistent with the work of Heffner and Cohen (2005), students commented on the fact that it was an easy way of accessing information and that the system was simple to use. Their comments also tally with the results from Cochrane and Robinson's (2004) study where time independency (through asynchronous learning) was highlighted. Not being tied down to learning at specific times is one of the key areas where students felt the benefits of the intervention.

Something that was mentioned by several students is the fact that many students did not enjoy the classroom situation; that it was too big and impersonal. For them, the interaction in the online environment compensated for missing classes. Different learning styles were thus catered for by incorporating WebCT into the course, as well as allowing students the freedom of managing their own learning and deciding upon their course of action, given their specific circumstances.

Students also started seeing the LMS as an added lecturer and attributed anthropomorphic qualities to it, by for instance, referring to 'talking' to the computer. Herselman and Hay (2005, 395) call it the "extension of the classroom". It does not seem a problem to the students that they have to use a 'machine' when they need to communicate with their lecturer. The advantages in terms of time and effort saved seem to outweigh the so-called loss of a physical presence.

Many students also made use of emails to communicate with the tutors or lecturers. Email as a learning tool is not within the scope of this study and needs to be researched separately.

#### 5.4.1.3 Category 3: Motivation: emotional issues

The last category identified under sub-question one relates to motivational aspects of learning. In this section, issues relating to emotional matters are discussed. Students' lack of self-confidence and shyness to speak in class, were issues that were mentioned very often. Students do not like to answer questions or make comments in class. They feel vulnerable; they are fearful that they might be embarrassed and will therefore not volunteer to answer a question or clarify something in front of the rest of the students. Chickering and Ehrman's principles (1996, online) refer to the use of electronic communication as "... more thoughtful and 'safe' than when confronting one another in a classroom or faculty office ... and, for many students, the result seems more intimate, protected, and convenient than the more intimidating demands of face-to-face communication with faculty."

Frequently mentioned with regard to the interaction with the facilitators, was the matter of care and relationship-building. Race's (2001) factors of success in learning include motivation, interest and enthusiasm and he notes that the absence thereof will impact negatively on learning. Students remarked that they got to know their tutor, that their tutor seemed to care about their progress and that they were inspired to work harder because of that. Kelsy and D'souza (2004) agree that a personal relationship between the instructor and student must exist so that study pleasure and motivation may be promoted. The tutors, in particular, responded to the enjoyment that they themselves derived from these personal relationships. They felt that had they had the same opportunities as these first-years to talk to someone and have a dedicated person who was responsible for communication, they would have been better prepared for their further studies.

Students, however, did not feel that lectures should be done away with. They commented that they still enjoyed the face-to-face sessions and some mentioned that they missed interacting with the lecturer. They wanted the presence of the teacher/lecturer to still foster some measure of the human element. Robson and Hide (2002, AusWeb2002) support this finding, stating that "...teaching is a vehicle for learning .... Many other factors are also involved, not least of which is a teacher."

#### 5.4.2 Sub-question two: Peer interaction

Neo (2005, online) highlights the importance of generic skills, such as problem-solving and analysis when referring to modern educational theory, which should go beyond mere regurgitation of facts. Students need to be prepared for life beyond the university, when they become part of the workplace. The second sub-question deriving from the research question, relates to peer (student-student) interaction.

<p style="text-align: center;"><b>What is the relationship between LMS use and students' experiences of peer interaction?</b></p>
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Sub-categories identified under the second sub-question include learning (pedagogical issues), application (academic issues) and confidence building (social issues).

##### 5.4.2.1 Category 1: Learning: Pedagogical Issues

According to Race (2001), when students receive feedback in terms of other people's reaction and seeing the results - in other words, effective interaction - more improved learning will take place. Interaction, as indicated by Anderson (2002, online) is essential for good learning to take place, but given the large number of students enrolled for some courses, this cannot happen effectively in the classroom. Nevertheless, students need to work together in order to make meaning of the content, to foster a better understanding of the material and to learn how to work together in groups.

Engagement Theory builds on the premise that students need interaction with others and with meaningful tasks in order to enhance effective and meaningful learning. Students thus need to interact with one another in order to give meaning to concepts. Students accepted that if they share, help and participate, they would learn more and understand the work better. They need to explain the work to somebody in order to internalise the information and move from a shallow learning, where information is merely regurgitated, to a deeper learning. According to Chickering & Ehrmann (1996, online), good teaching and learning develops reciprocity and cooperation among students.

Students referred to the interaction as talking to one another, hence indicating that the approach was similar to a traditional conversation. They also referred to the value

of debates, where they could test their own understanding on one another. This type of interaction would not be possible in a face-to-face class consisting of 300 students. It was also noted by the students that they themselves were not able to organise themselves into groups or initiate the discussions, but that they realised the value thereof. Gabriel's (2004, online) study on group interaction online came to a similar conclusion – that students interacting in an electronic environment did learn from one another.

Using the discussion space in the online environment was thus a good way of fostering discussions amongst the students. Apart from being effective in terms of pedagogy, it seems that the students enjoyed the experience – an aspect that is essential but often ignored in teaching.

Although all of the discussions were not of the same standard and in some weeks the discussion board was much more active than others, at the very least, there was some discussion taking place – something that in previous years never happened. Pena-Shaff and Nichol's (2004) analysis of student interaction came to the same conclusion, adding that "...students could not interrupt one another as they would in a face-to-face class." In the case of Ekn 124, interruption in a classroom never took place, since students simply did not speak in class.

Webb, Jones, Barker and van Schaik (2004) found that students who participated in online dialogue improved their learning outcomes. Although this was not one of the areas of research, it is worth noting that some students believed that by contributing to the discussions, their marks also improved. However, it is clear from the comments that students learnt more and understood concepts better because of the small-group interaction (see Marburger, 2005).

#### **5.4.2.2 Category 2: Application: Academic Issues**

The second category of comments refers to the value of peer-interaction when having to apply the knowledge learned, thus, academic issues were discussed. In response to the value of peer-interaction, students were adamant that this was a positive experience and that they were able to learn from one another's opinions. Students included the peer-discussion aspect as a necessity when designing a course, since they felt that they were comfortable with the fact that they needed to learn from one another and share ideas on the South African economy. Deeper levels of discussion and debate were fostered, as supported by Smith and Ferguson

(2002), whose arguments for online delivery not only emphasise the fact that students can think about their answers before attempting them (something that advantages especially the second-language students as also found by Kehoe, Tennent & Becker, 2005), but also decreases the feeling of intimidation that students experience from lecturers and classmates.

Practical application of the content is necessary for effective learning and peers assist one another because they tend to think in similar ways. "Learning is enhanced when it is more like a team effort than a solo race. Good learning, like good work, is collaborative and social, not competitive and isolated. Sharing one's ideas and responding to others' improves thinking and deepens understanding" (Chickering and Ehrman, 1996, online).

#### **5.4.2.3 Category 3: Confidence building: Social Issues**

The last category defined in the section on peer-interaction is relevant to social issues, and specifically to confidence building. The value of smaller groups, where students were able to get to know one another on a more personal and informal level, added to their ability to argue a point and to state their own ideas without being intimidated. According to Schweizer, Paechter and Weidenmann (2003), group work fosters better individual knowledge, the development of social skills and gains in motivation. Students learnt to say what they wanted to and to state their own opinion, in the process becoming more effective communicators. One of the shortcomings of students is that they are not able to communicate (Mehta, 2004), hence the need to incorporate this skill into the learning environment.

The facelessness of the discussion board also added to their growing confidence in their own abilities and understanding of the subject matter. They pointed out that they did not feel alienated in a huge crowd, but that they were noticed, without the intimidation of people looking at them, and that they were able to state their own point of view and be heard. Apart from enhancing learning, learning in groups may also affect the way in which students interact with one another. Intergroup relations and more specifically, cross-cultural relations, may be fostered through cooperative learning (McConnell, 1994: 25). In this study, students of different races and cultures were randomly grouped together and they had to interact, regardless of their own backgrounds and belief systems.

Salmon (2002) asserts that in online learning, there could be a lack of group learning, co-presence and learning communities. On the other hand, in direct contrast, Macdonald and McAteer (2003) came to the conclusion that this methodology may achieve the opposite – it supports communication and thus allows active participation by all. In this study, it was found that students, who participated fully, built strong communities, were able to air their views with confidence and were more at ease in the VC than in the TC. The presence of a tutor certainly made a positive contribution to the atmosphere that was created and could also be identified as a factor that contributed to the success of this project.

It may appear to be a contradiction – developing social skills in a faceless environment. However, when one considers the Social Constructivist/Social-cultural Transformatory Approach which integrates the learner, the group, the social context in which the learning takes place and the action learning process (Askew and Carnell, 1998: 8, Ask and Haugen, 2005), it is does not matter in which area or space (virtual or traditional) the interaction takes place. It is more important to ensure that interaction takes place within the cognitive framework of the learning and to build on that (Robson and Hide: 2002, AusWeb2002), than to consider the platform from where it takes place.

#### **5.4.3 Sub-question 3: Interaction with content**

**What possibilities exist to encourage students to interact with content by making use of an LMS?**

The last sub-question in this study investigates how subject content was utilised and how, by making use of ICT, students could make better use of materials. Six categories were identified, namely preparation, note taking, continuous learning, deeper learning, additional information and generic skills.

#### **5.4.3.1 Category 1: Preparation**

In the pre-study questionnaire, students admitted to not preparing for class. One of the defining aspects of tertiary education is the fact that lectures should be there to highlight specific important aspects of the content and to clarify particularly challenging areas of the subject matter. A lecturer cannot cover all the work, but is only there to explain the more complex issues. This therefore necessitates that students should come to class prepared. Students commented on the fact that, because the class-notes were online before the scheduled lecture, they were able to be better prepared for class. They were able to download and print these notes and go through them so that they had a basic idea of the content of the lecture. This links up with the ideas of preparation as stated by Race (2001). According to the author, in order for students to succeed in larger classes, students need to "...take ownership of their ownership of their own particular learning needs" (Race, 2001, p. 116). One way of achieving this, is to clarify the targets (or outcomes) enabling students to know in advance what is expected of them; thus, making for better preparation from the students themselves (Race, 2001).

#### **5.4.3.2 Category 2: Notes/note taking**

Note-taking is an essential skill for a university student, but is often lacking (Grabe, 2005). This skill is very often neglected and little research is available about how to solve the problem. Race (2001, p.108) remarks that students copy down from the screen and from remarks made by the lecturer, whilst Bligh (1990, p. 117) questions the quality of their writings. Neither of these authors indicates how to solve the problem with large numbers of students enrolled in one class. Race (2001, p. 108) furthermore states that students worry because they cannot understand what is being discussed and this is exacerbated by the fact that there is not always enough time to write down notes and concentrate in class (Bligh, 1990, p. 120).

These problems have also been experienced in the Ekn 124 class in previous years. When a large amount of information is covered in a single period, students do not pay attention and are not able to listen to the actual explanation, since they are too busy copying down the information. Now that notes are made available before class, students are able to note-take more effectively, concentrate, listen and follow in

class. The findings of Couch (1997), who found that all of the students in a particular study who favoured access to the lecture notes and 95% of the students who felt that other instructors should develop similar course Web sites, support the comments made by the students in Ekn 124.

Having access to the notes helps students to make proper summaries, highlight the essentials and identify core information in a specific section of the work. It lessens their workload and teaches them valuable skills. It allows them to concentrate more in class, thus assisting them in the classroom situation, to consider the content of the work in context, not just to regurgitate mere facts.

#### **5.4.3.3 Category 3: Continuous learning**

In the pre-study questionnaire, students admitted that they seldom revisit the work after a class and only interact again with the content when studying for a test or the exams. The third category refers to the need for learning on a continuous basis, not in surges of activity just before a test or an examination. In this regard, students referred to three distinct sections:

##### **Additional material**

Because students have access to much more information than in the past, by means of additional online resources and internet, they are able to solve many problems by merely doing a search. They commented on the fact that they do need to go back to the notes, textbook and lectures, before they are able to participate meaningfully in the discussions. They also noted that they are forced to do extra work and take responsibility for their own learning.

##### **Discussions**

One of the biggest shortcomings in economics education is the fact that students are not able to apply what they have heard and learnt to the environment in which they live (Fourie, 2001). Discussion topics are set to include a theoretical issue that is discussed in class, as well as an economic event that has taken place. Students are asked to read articles relating to the events and to interpret or comment on these events. Students stated that discussions help them to a better understanding of the economy and that they are able to apply their knowledge to the real world around

them. They also commented on the fact that they have to do some research before they are able to contribute, which again forces them to do some additional studying and reading.

### Quizzes

The tutorials (also referred to as quizzes by the students) are a method of formative assessment, since the students may access these as often as they need to and may make use of any method they choose to find the answers. This allows them to spend as much time as they require, (within the framework of two weeks), to read up and discuss the possible solutions. It therefore forces them to spend additional time on the content of the work covered. The students commented on this aspect of the intervention as something that saves the lazy student, forcing him/her to work throughout the semester. Comments also referred to the fact that they themselves would not spend so much time on the study material and textbook, if the tutorials were not compulsory for entrance to the examination.

Although they readily admitted that it means extra time and extra effort, the majority of the students react positively to the tutorials, discussions and additional readings. The students' appreciation of the additional material and supplements is clear. The number of times where gratitude was expressed, underlines the fact that students do not take the inclusion of ICT as a given. It may be because they are not very computer literate and do not take it for granted. This is in direct contrast with the work of Haywood et al, (2004), where the researchers found that students in Higher Education take ICT for granted since they use ICT daily and seamlessly for studies. Students in this particular class were necessarily from schools where computers are part of the curriculum.

#### **5.4.3.4 Category 4: Deeper learning**

The fourth category refers to the fact that more intensive learning takes place after students have made use of the LMS tools. Students agree that, because they have to apply their knowledge, they are more interested in the subject itself and are able to make more sense of the content. They are also able to apply knowledge to other, related issues. This is particularly noticed by the tutors, who only a few years ago, were first- years themselves. They are impressed by the level of argumentation and

integration that the first-year students are now able to display. The first-years themselves also realise that they are indeed able to make more sense of the subject matter. Race (2001) refers to this as the conscious competencies which students need to possess - including thinking, originality and problem-solving.

#### **5.4.6.5 Category 5: Additional Information**

Not all the benefits refer to subject-specific learning. In categories 5 and 6 references are made to general advantages gained by using the LMS. The first of these two categories refers to the fact that general information may be communicated more easily and much more effectively. The calendar and general notices keep the students informed about important dates, events and venues and are available whenever they have access to the internet. Students are appreciative of the fact that they can check on information, make sure of venues and be reminded of specific deadlines, other than in class.

#### **5.4.3.5 Category 6: Generic Skills**

Students also referred to some of the generic skills that they are forced to learn. If one keeps in mind that the majority of the students in the English speaking class are from previously disadvantaged communities and schools, then their statements of not having had much experience in terms of computer use, is understandable. Many of the respondents indicated that, initially, they find the use of a computer very frightening, but that it has become an exciting part of learning. They also concurred that had they not been forced to do so through the economics course, they probably would not have been able to use a computer. As for other skills, such as research and writing skills, students need to read up on the topics and have to formulate their answers very carefully, since they are allowed only four lines for any one posting. This makes them reflect thoroughly on what they actually want to say, before contributing.

Students are also aware of the fact that late tutorial submission will not be accepted by the computer; therefore, they have to make sure that they have planned properly. They know that the computer laboratories are always exceptionally busy at peak times, thus their time management skills have to be developed.

The greatest benefit of the Web for educational use is the profound and multifaceted increase in communication and interaction capability that it provides (Ally, 2004, online). This statement rings true especially in this study. What also came out strongly in this study is that it enhances generic skills, social skills, learning skills and communication skills.

#### **5.4.4 Negative experiences**

Not all students experienced the intervention in a positive light. Two categories emerged; one refers to time spent and the other to problems of a technological nature. Students referred to aspects such as the time that it takes to do the discussions and tutorials as something that they really dislike. If one considers the credits of the course (16) and the notional learning hours attached to that (160), this appears to be an unfounded complaint, since this averages out to 10 hours per week/two hours per weekday. It could simply be a case that in the past, students worked much less than the expected notional learning hours and needed to get used to the new system. However, the effect of e-learning on workloads – both of staff and of students – is a hotly debated issue. Quinsee and Hurts (2005, online), for instance, state that one of the biggest misnomers of e-learning is that it will decrease the workload of both the student and the instructor. The initial belief was that it would lighten the loads of both parties; however, conclusive evidence does not exist to support or refute this claim. In this research study, the bias is towards increasing the workload of the student, but not to the extent that it is more than the notional learning hours allocated. It would seem rather, that in the past and in other subjects, students do not work hard enough, hence the perception that it takes too much time.

The second category included technological matters. Students sometimes battle to log in, forget their passwords, or the system is off-line. Students who do not have access to the Internet from home or at work, find that they have to make the extra effort to be on campus especially, but even they agree that it is worth the effort. Students become extremely irritated when notes are posted late or comments are not forthcoming, indicating that they are becoming used to the system and are starting to rely on it.

## 5.4 Summary of findings

The Ekn 124 students really enjoyed making use of the LMS and indicated that it added value to their learning experiences. They felt that they were able to make more sense of the content and were able to apply the theoretical knowledge to the real world. They also indicated that they liked sharing their insights with one another and that the feedback that they received, both from tutors as well as from peers, was valuable and helped them understand the content better. Tools used to encourage continuous learning, such as the quizzes and the class notes, were also effective methods used in the intervention.

### The effect of the intervention on learning

The question remains – has the LMS affected learning and if so, how? In chapter two, learning was defined in terms of three domains: cognitive, affective and psychomotor. In tables ... presented in section ... (see p. ), each the three domains of learning were related to the sub questions. In terms of the findings presented in this chapter, the following table clarifies the relationship between each of the major findings and the relevant domain(s) of learning in each case.

<b>Findings from this study: Categories and keywords</b>	<b>Domain of learning</b>	<b>Taxonomic level</b>
<b>Sub-question one:</b>		
Category 1: Understanding : Help/Explain	Cognitive Affective	Comprehension Responding
Category 1: Understanding: Feedback	Cognitive Affective	Comprehension Responding
Category 1: Understanding: Understand	Cognitive	Application
Category 1: Understanding Satisfaction	Affective	Responding
Category 2: Convenience: Quick	Psychomotor	Skilled movements
Category 2: Convenience: Convenient	Cognitive Affective	Application Responding

Category 3: Motivation and Encouragement: Lack of self-confidence	Affective Psychomotor	Valuing Skilled movements
Category 3: Motivation and Encouragement: Motivation and Encouragement	Affective	Characterisation/ Internalisation
Category 3: Motivation and Encouragement: Care	Affective	Receiving/attending
<b>Sub-question two: What is the relationship between LMS use and students' experiences of peer interaction?</b>		
Category 1: Learning: Interaction	Cognitive Affective	Comprehension Receiving/attending
Category 1: Learning: Understand	Cognitive	Application
Category 2: Confidence building: Small groups	Affective	Responding
Category 3: Application:	Cognitive	Synthesis
<b>Sub-question three: What possibilities exist to encourage students to interact with content by making use of an LMS?</b>		
Category 1: Preparation: Prepare	Cognitive Affective	Knowledge Receiving/ attending
Category 2: Notes/ note-taking: Concentrate	Cognitive Affective Psychomotor	Knowledge Receiving/ attending Skilled movements
Category 3: Continuous learning: Understanding	Cognitive	Application
Category 3: Continuous learning: Self-study/study	Cognitive Affective	Comprehension Characterisation/ Internalisation
Category 3: Continuous learning: Practical/South African Economy	Cognitive	Evaluation
Category 3: Continuous learning: Tutorials/Quizzes	Cognitive Affective	Comprehension Characterisation/ Internalisation

Category 4: Deeper learning: Application	Cognitive	Synthesis
Category 4: Deeper learning: Interest	Affective	Characterisation/ Internalisation
Category 5: Additional Information	Affective	Creates awareness
Category 6: Generic Skills	Psychomotor	Skilled movements
Category 6: Generic Skills: Learning/life skills	Affective	Characterisation/ Internalisation

**Table 19: Learning Domains within the scope of this study.**

Thus, within each of the domains, and at different levels of the taxonomies as discussed in chapter 2, learning took place through the use of the LMS.

## **5.5 Reflection**

In this section, reflections on methodological, substantive and scientific will be presented. Methodological reflection considers the chosen research method and research design. In substantive reflection, the findings of this study will be compared to the findings of similar studies. Scientific reflection deliberates on the findings and contributions of this study.

### **5.5.1 Methodological reflection**

This research took the form of a case study. What made the case study relevant and effective was the fact that this group of students could be observed continuously, that they were able to express their opinions which reflected their own interpretation of their experiences and that I, as the researcher, had access to this information.

Several data collection instruments were used. From the questionnaires, rich and detailed descriptions of what the students thought of the LMS were gathered. What made this method extremely valuable was that I had access to the students on a regular basis, and if I wanted to explore some comments made by them, I had the opportunity to do so. I was also able to structure my data collection around the information that I received.

The second data collection instrument was by means of focus group discussions. Two groups were involved – the tutors and the students. All the tutors were invited to these groups and although the information gained from these discussions was not necessarily directly related to the questions, it gave me valuable background information about the first-years and allowed me to gain a deeper insight into the way that they learned. The first-years shared their thoughts with the tutors and I was then able to have access to this information. The tutors' interpretation was also a way for me to make sure that I was not interpreting the data in a certain way; it was, therefore, a method of ensuring that my findings were not biased. This is vital in qualitative research where validity and reliability are often difficult to demonstrate, but remain necessary to support the validity of the findings.

The focus group meeting with the students was held on the day after the examinations. The meeting was thus at the end of the semester, after they had completed the course and used all the different tools of the LMS. The rationale for having it then, was that all the students were on campus and did not have to travel in; hence, I hoped that more students would attend the meeting. Although the students were invited in several ways, not many attended. In retrospect, I think that the tutor had a significant effect on the way that they felt towards the electronic section. They were very positive about what she had done and how she had reacted to them and their questions. If another group whose tutor had not been as effective as this one had been selected, the outcomes of the focus group meeting might have been different. However, the ones that did attend made useful comments about the way in which they had progressed from, initially, not having had any computer experience to being completely at ease with the system.

I also made use of the course evaluations as data for the research. Initially, I did not plan to do so, because the evaluations are done through the management of the faculty and I did not think that the questions asked would impact on this study. However, when I did read the comments made, especially those to the open-ended questions, I made the decision to include these, as a number of comments referred to the use of the LMS. A common thread throughout these evaluations was that using the blended learning system was effective, should continue to be used and that other lecturers should also include it in their courses.

I kept a journal for personal observations and informal communications. Perhaps I should have made more use of these comments and entries. However, what I did find was that the comments confirmed my findings from the other resources.

I based my research on Grounded Theory. I made no a priori decisions about what I would find and I was able to theorise as I went along. Scrutiny of the data allowed me to proceed in a certain direction, which I had not planned in advance. Contingency Theory also allowed me to manage my data collection as I saw fit; I could read the data and then only decide on the next course of action.

One of the shortcomings of this study is the size of the groups; they were too big. Groups consisted of between 30 and 35 members. In a group of approximately 30 students, it was still possible for the students to 'get lost' in the crowd. This number could be brought down to groups of 10 without incurring additional costs. It would be more beneficial to work with a smaller group, as it allows the group members to get to know one another much better. Additionally, when contributions of only 10 members are made, students would be able to read with more insight all the contributions, and make more pertinent comments.

### **5.5.2 Substantive reflections**

There can be no denying that interaction - be it with peers, lecturers, content or interface - plays an essential role in learning and education as a whole. (Laurillard, 1997; Vygotsky, 1978; Schweizer, Paechter and Weidenmann, 2003) Several authors have commented on the use of electronic media to enhance learning. Chickering and Ehrman's (1996) revised seven principles states that "...time-delayed (asynchronous) communication" allows for "total communication [to] increase".

This particular study's findings correlates with findings from McLean and Murrell (2002) where communication and information access, interaction with other students in the virtual workplace and, most importantly, the uploading of resources, were stated as the most valuable aspect of technology's use in education. Felder's (1997) criticism of lectures also rings true for this particular class; students sit, watch and listen, but it is very difficult to convince them to voice their opinions.

Table 7 was used in Chapter 2 and summarised what current literature says on technology's impact on learning. The interventions used in this study are mapped against the different identified ways in which technology is used.

Visualisation was achieved through the quizzes, notes and additional material, and allowed learner-content interaction. Peer interaction as well as learner-teacher interaction took place in the discussion board, general questions section and emails. Reflections on learning experiences were fostered in the chill café, while authenticity and engagement opportunities for real-life activities were presented in the discussion board. Lastly, opportunities to practice, hence quality and quantity, were available in the compulsory quiz as well as the additional quizzes.

It is evident, therefore, that technology already plays a significant role in establishing more effective teaching and learning environments. However, many other problems have been identified, particularly where large classes are present. Technology may also be used in addressing these problems.

### 5.5.3 Scientific reflections

Johnson (2002) identified “Three Big Issues” which hinder the effectiveness of teaching and learning in a large enrolment course. Table 20 integrates these three issues with the intervention used in this particular study and links it to the results achieved.

<b>Three Big Issues</b>	<b>This study</b>	<b>Result</b>
Accessibility to course content.	LMS available via Web access Notes placed on the LMS.	Accessible wherever internet is available.
Effectiveness of large class lecture instruction.	TC lectures still took place. Interaction via discussion board, Quizzes.	Additional exercises done and posted on WebCT. Additional quizzes done.
Low level of connectivity.	Asynchronous interactivity. Tutors.	Personal relationships with tutor. Tutors acted as agent of the lecturer.

**Table 19: Large enrolment and ways to overcome the “Three Big Issues”**

Although lively discussions no longer take place in the TC, as noted by Naber and Kohle (2002, AusWeb2002), these do happen in the VC and are based on the latest economic issues. Students are therefore exposed to contemporary issues and are encouraged to read articles from the financial and economic press.

Osgurthorpe and Graham (2003) have identified six goals for educators when designing the blended environments. Four of these goals were addressed in this study. These goals, the results from the research, as well as the conceptual framework used for the research, are summarised in Table 21.

<b>Goals</b>	<b>Learning Management System Tools</b>	<b>Results from the study</b>	<b>Conceptual Framework</b>
Pedagogical richness.	Discussion board, quizzes, Additional content.	Students interacted, Explained to one another.	Learning Theories (eg. Social Constructivism) Conversation Theory.
Access to knowledge.	Internet searches, articles.	Students were more informed, Could use different sources.	Engagement Theory, Contingency Theory.
Social interaction.	Discussion Board, Chill café.	Number of postings, quality of contributions, Social discussions. Could meet FTF as well.	Engagement Theory, Conversation theory.
Person, Agency.	Additional material, Asynchronous discussions.	Choices on how to approach studies, What additional material to use, When to contribute, When to do the quiz.	Contingency Theory.

**Table 20: Goals for educators integrated with Ekn 124**

The use of technology and its benefits are very well documented, but not much has been written about the way in which students respond to making use of blended learning. In this study, it may be concluded that even when the students are not digital natives, but indeed, are strangers to technology, they adapt very well to the digital world, enjoy using it, find that it assists them in learning and even insist that it is used in other courses as well.

## 5.6 Recommendations

### 5.6.1 Recommendations for policy and practice

By far the majority of students preferred the blended or mixed mode of teaching, which combined traditional face-to-face classes with some kind of technology. The variety in learning opportunities, as well as in teaching methodology, enhances the learning experiences of the students and makes allowances for different learning styles.

Interaction is a necessity and a prerequisite for effective learning to take place. The absence of interaction was noticeable in this specific case study. By far the majority of students did not interact with the lecturer, one another or the course material. If interaction does not take place in the traditional sense of the word – i.e. in a face-to-face manner, then other means or channels of interaction need to be implemented.

In this research project, a Learning Management System was used with great success to fulfil the need for interaction. In terms of lecturer-student interaction, the use of the notice board or discussion board was positively experienced by students. However, when the number of students becomes so large that it is impossible for the lecturer(s) to foster a personal relationship with the students, it is recommended that tutors be appointed and trained to take the place of the lecturer. In this way, the lecturer becomes the main course manager and the tutors, in effect, the first point of communication for the students.

Peer or student-student interaction may also be managed very successfully when students are registered in smaller groups. Students should be divided randomly, so that they are able to get to know one another in the online environment. They will then also be in diverse groups which include different genders, races, ages etc. Not only would this benefit their learning experiences, but they would also be subjected to interaction with people they might not necessarily meet in normal circumstances. Apart from enhancing their academic experience, it would also prepare them better for a life outside the protective environment of the university.

It is highly recommended that the notes which will be discussed in the lecture, are made available to students well in advance. This allows for students to prepare for class, to listen in class and not just to sit and concentrate on writing down what is

said; it assists with note-taking as a skill and allows for better summaries of the work. This would also assist students who cannot attend a class, so that they are at least informed of the main issues which were discussed.

A further recommendation is that some form of automated assessment is included. The average course at the UFS has two tests and an examination. In some cases, students have to hand in an assignment as well. This is not in line with formative assessment or continuous assessment policies. By making use of regular quizzes, students are obliged to keep up to date with the material; it allows for students to test themselves against the outcomes and it is an ideal method of formative assessment, since students are able to refer to other sources when they are not sure of the questions.

By making use of regular discussions, which are graded, students are aided in integrating the theory with practical applications. This would produce graduates who can argue, integrate, apply and reason; the type of graduates that are needed. This is yet another method of formative assessment, since the students would be given guidance as to whether their arguments are correct or not. It would then produce students who are much more advanced in the way that they think and argue when they reach their final year or post-graduate level.

Another advantage, which comes with grading discussions and online assessment, is that it considers other learning styles. Too often, the only way in which a student can contribute to a semester and therefore a final mark, is through formal tests. Although this is a tried and tested method, it does not make allowances for different learning styles and is not always suitable for all students. One has to accept that in one group of students, one will find several types of learner and all should be accommodated.

The one golden thread that is seen running throughout other research and also in this particular study is that students need to be actively involved for more effective learning to take place (Webb, Jones, Barker and van Schaik, 2004). Add to this the possibilities of technology and some of the problems associated with large classes could very well be something of the past.

### 5.6.2 Recommendations for further research

Most of what has been written on the use of technology in education is based on studies done by researchers in developed countries. Whilst it is necessary for educators in developing countries to take note of these developments, it is not necessarily applicable to them. Whereas the developed world has only 15% of the population, it has 88% of the internet connectivity, leaving 85% of the population in the developing world with only 12% of connectivity with internet (Mehta, 2004, p. 109). The reality is that in South Africa, approximately 30% of the population does not have access to electricity in their houses and only 24% of the population has a landline telephone in their homes (Botes and Pelsler, 2004, online). Thus, the proportion of the population that has access to the internet in their homes is minimal. Prensky's "Digital Natives, Digital Immigrants" (2001, p.1) therefore needs to be redefined and refined for the specific context of the developing world.

Another complicating factor is that specifically within the South African environment, students from vastly different backgrounds are found in one class. There are Digital Natives who have grown up with the internet in their homes and then there are the Digital Foreigners, who do not have access to any computers at all, neither at home or at school. Their knowledge of internet capabilities is virtually non-existent and their use of the LMS must be monitored much more carefully. How to effectively integrate these two vastly different groups needs urgent attention.

Another aspect that is imperative to research is "technology's fitness for use" (Fahy 2000). Some courses may be more appropriate for a synchronous discussion, whilst others for an asynchronous one. There is not a one-size-fits-all combination of teaching tools, but the suitability of one tool above another for different disciplines, needs to be analysed. Can, for instance, the chemistry laboratory be replaced by online experiments or is it necessary for students to become intimately involved with the materials? However, in a country where there is a shortage of funding for schools, is this not perhaps a solution? There is also a need to investigate the possibilities of different tools being more suited to different types of students. The question one needs to ask is rather:

<p style="text-align: center;"><b>What combination of possibilities is the most appropriate for each discipline?</b></p>
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Another aspect which needs to be investigated relates to the institution itself. If students are ready for the introduction of technology but the institution is not, it will be a futile exercise, since technological, financial and other support will not be present. Thus, the question that needs to be researched is: to what extent does a university's ICT maturity contribute to the success of the introduction of a blended learning system? If the institution is not ready for the responsibility to support technology in education, then the viability of the projects is in serious danger (Fahy, 2000).

Based on previous personal experience, students in a traditional course tend to achieve mostly in the 40% – 55% range with very few students falling on either side of this range. In a purely e-learning class (in other words, only distance) the performance range is much wider and the drop-out rate is much higher, even though more students achieve higher marks. The blended model could thus effectively be used to combine the “best of both worlds” – lower drop outs, higher individual achievements and a better through-put rate. This hypothesis, it would seem, is an important area for further research.

## **5.7 Conclusion**

Current students come from a very different world to their lecturers. In the past, students were vessels to fill with knowledge, sitting at the feet of the master and learning from, not learning with. On the one hand, digital natives have grown up in a world where linearity has been replaced by multiple stimuli. The students have become familiar with technology impacting on their everyday lives – cell phones, online banking, play-station games and computers to name but a few. In comparison, students from previously disadvantaged communities' experiences with technology are seriously lacking and, in order to be competitive in a working environment, need to play 'catch-up' with their peers. Furthermore, lecturers cannot afford to make use of old tried and tested methods of teaching if they want to be effective and inspiring educators; they will have to address the specific needs of their students. Lastly, with classes increasing and communication and interaction not taking place, lecturers

cannot ignore the fact that interaction is vital for effective learning and should investigate other options available to them.

This study investigated alternative options and students' responses to these options in an Economics first-year English speaking group. Students found that they were able to interact with one another, with lecturers and with content, in an enjoyable, effective manner by making use of WebCT, the LMS of choice. Lecturers need to experiment with different technological tools to establish which of these tools would be useful in their teaching environment. There is not a one-size-fits-all approach in the use of technology, with regard to subject matter, as well as the personal teaching style of each lecturer.

Although several problems have been identified concerning effective teaching and learning, by making use of technology, and particularly an LMS, these problems may be overcome. Initially, it may take up much of the lecturer's time and students need to be trained to be able to make use of the technology. If it is, however, experienced in a positive way, it would add a great deal of value to teaching and learning.