A comparative study on the quality of learning experience between traditional campus and online distance learning at a Masters level

Author: Jonathan Hayes
790326-7859
Semester: Spring 2013
Course code: 4IK00E
ABSTRACT

A COMPARATIVE CASE STUDY OF THE QUALITY OF LEARNING EXPERIENCE BETWEEN TRADITIONAL CAMPUS AND ON-LINE DISTANCE LEARNING AT A MASTERS LEVEL.

This study compares the quality of learning experiences of traditional campus students to those of distance on-line students studying at a Masters level. Using an adapted version of “The theory of on-line learning quality” five dimensions of interaction were compared to determine if there was a significant statistical difference between both learning methods. The study took place within a Masters level program, in Linnaeus University, Sweden. The five dimensions of interaction included in the study are Instructor-Learner, Learner-Learner, Learner-Content, Learner-Interface, and Social Interaction. Using these dimensions of interaction to determine the quality of learning experience a questionnaire survey was designed for the students enrolled in the program. Answers to the survey questions used a Likert-scale schema for responses. A Mann-Whitney U-Test was performed on the response results. The results of the study found that there was little statistical difference between the quality of learning experience of traditional campus students to that of on-line distance students. The two survey questions which did show a statistical difference were related to the Instructor-Learner and Social dimensions of interaction. In a dual learning program of this type recommendations are made to include a teaching assistant with responsibilities for monitoring on-line participation during live lectures.
ACKNOWLEDGEMENTS

I would firstly like to acknowledge my fellow students for giving me their time and allowing me to get the research data I needed. With a special thanks to Patrick McCarthy and Melissa Choo. My tutor Behrooz Golshan who has helped me along the way and was always ready to give advice. Thank you also to Alastair Creelman for sharing his expert knowledge on eLearning with me and to the lecturers and teaching staff who have shown me such great encouragement since beginning my Masters. Lastly but most importantly to Karin, thanks for all the support and early morning cups of tea. What would life be like without a cup of tea?
# TABLE OF CONTENTS

1 Introduction
   1.1 Introduction ________________________ 7
   1.2 Literature Review____________________ 8
      1.2.1 Online Learning__________________ 8
      1.2.2 Online Pedagogical Models__________ 9
      1.2.3 Online Design Strategy______________ 9
      1.2.4 Quality of Online Learning__________ 10
      1.2.5 Student Perspective of Quality Learning Experience___ 14
      1.2.6 Trends in Online Learning___________ 14
   1.3 Statement of the Problem________________ 15
   1.4 Purpose and Research Questions__________ 16
   1.5 Delimitations / Limitations______________ 17
   1.6 Target Audience_______________________ 18
   1.7 Disposition___________________________ 18
   1.8 Definition of Key Terms_________________ 19

2 Background / Theory
   2.1 Prospective Theory and Use______________ 20
      2.1.1 Rational for Choosing Theory________ 20
      2.1.2 Use of Theory______________________ 22
   2.2 Definitions of Interactions_______________ 22
      2.2.1 Instructor-Learner Interactions_______ 22
      2.2.2 Learner-Learner Interactions_________ 23
      2.2.3 Learner-Content Interactions__________ 24
      2.2.4 Learner-Interface Interactions_______ 24
      2.2.5 Social Interactions_________________ 25

3 Methods
   3.1 Research Design and strategy of inquiry____ 26
      3.1.1 Comparative Study__________________ 26
      3.1.2 Rational for Comparative Design______ 26
   3.2 Data Collection________________________ 26
      3.2.1 Evaluation Questionnaire____________ 27
      3.2.2 Question Design____________________ 28
      3.2.3 Nature of Survey___________________ 28
   3.3 Data Analysis__________________________ 29
   3.4 Role of the Researcher__________________ 30
   3.5 Ethical Considerations__________________ 31

4 Results
   4.1 Introduction___________________________ 32
   4.2 Participant Demographics________________ 32
   4.3 Survey Questions, Results and Analysis______ 33
      4.3.1 Results of Survey Q. 2_______________ 33
4.3.2 Results of Survey Q. 3 34
4.3.3 Results of Survey Q. 4 35
4.3.4 Results of Survey Q. 5 36
4.3.5 Results of Survey Q. 6 37
4.3.6 Results of Survey Q. 7 38
4.3.7 Results of Survey Q. 8 39
4.3.8 Results of Survey Q. 9 40
4.3.9 Results of Survey Q. 10 41
4.3.10 Results of Survey Q. 11 42
4.3.11 Results of Survey Q. 12 43
4.3.12 Results of Survey Q. 13 44
4.3.13 Results of Survey Q. 14 45
4.3.14 Results of Survey Q. 15 46
4.3.15 Results of Survey Q. 16 47
4.3.16 Results of Survey Q. 17 48
4.3.17 Results of Survey Q. 18 49
4.3.18 Results of Survey Q. 19 50
4.3.19 Results of Survey Q. 20 51
4.3.20 Results of Survey Q. 21 52
4.4 Results Summary 53
4.5 Analysis of Results 55

5 Discussion and Recommendations
  5.1 Discussion 58
  5.2 Recommendations 60

6 Conclusions 61

7 References 62

8 Appendix
  8.1 Appendix A: Distance Education Opportunities in Sweden 65
  8.2 Appendix B: Questionnaire Survey 66
  8.3 Appendix C: Pie Charts Detailing Survey Results 73
LIST OF FIGURES & TABLES

FIGURES

Fig.1 The UNIQUe quality criteria break down 12
Fig.2 A Theory of online learning quality 21

TABLES

Table 1: Survey Responses 28
Table 2: Results of Survey Question 2 33
Table 3: Results of Survey Question 3 34
Table 4: Results of Survey Question 4 35
Table 5: Results of Survey Question 5 36
Table 6: Results of Survey Question 6 37
Table 7: Results of Survey Question 7 38
Table 8: Results of Survey Question 8 39
Table 9: Results of Survey Question 9 40
Table 10: Results of Survey Question 10 41
Table 11: Results of Survey Question 11 42
Table 12: Results of Survey Question 12 43
Table 13: Results of Survey Question 13 44
Table 14: Results of Survey Question 14 45
Table 15: Results of Survey Question 15 46
Table 16: Results of Survey Question 16 47
Table 17: Results of Survey Question 17 48
Table 18: Results of Survey Question 18 49
Table 19: Results of Survey Question 19 50
Table 20: Results of Survey Question 20 51
Table 21: Results of Survey Question 21 52
Table 22: Results Summary 53
1 Introduction

Online learning has developed significantly in the last decade. The proliferation of ICT's in education has shown a steady rise. Results from personal research on course offerings beginning in the fall of 2013 in Swedish universities show that 93% of higher educational institutes are now offering distance education opportunities. This research also shows that of the 16,189 courses on offer, 3217 of them or just under 20% are available through distance (Appendix A). It is believed that demand for online distance based education will rise as the next generation of “Digital natives” progress into higher education (Prensky, 2006). To compliment this development and expansion, each year more and more internet based tools are being developed to provide educators with new ways of engaging their students. These new tools have provided educators with the means to readdress pedagogical models and there seems to be a movement away from traditional objectivist principles to include more constructivist approaches (Murphy et al, 2005).

These developments in educational strategies affect a range of stakeholders including institutional administrators, faculty educators and students. Each of these stakeholder groups will have different expectations of what can be achieved by online education and what opportunities and benefits it can provide for them. Hathaway (2009) lists a number of perceived benefits at an institutional level which include increased growth in continuing and professional education, improved student retention and enhancement of reputation. For faculty, online education is providing new tools which can be used to improve instructional strategies and review existing pedagogical models. For instance the use of asynchronous communication through pre-recorded video and discussion boards is becoming prevalent in most online courses and seems to be the standard system of delivery for MOOCs (Massive Open Online Courses). The biggest benefit identified for online education for students by Li & Irby (2008) is accessibility Online resources are available to students 24 hours a day 7 days a week, this level of access is not feasible with the traditional classroom education.

Furthermore institutions are seeing an increase in the number of non-traditional students enrolling in online courses. These non-traditional students would have in the past been unable to access traditional classrooms but online education has removed barriers such as time, geography, financial considerations, family and work constraints and provided these people with a viable educational option (Moloney and Oakley, 2010).

Considering all of these perceived benefits that can be attributed to online learning we get to the crux of the question, can online learning provide the quality of learning we have come to expect from traditional education?
1.2 Literature Review

1.2.1 Online Learning

Distance education has been in existence for well over 100 years, with the first courses being offered via postal correspondents. The technologies utilised, such as written correspondents, audio and video recordings where limited in the interactions they could facilitate between student and educator. As technologies have developed so to have the means of delivery for distance education. With the advent of the internet these limitations have been eroded and a new more interactive environment is available within the field of distance education.

To get a better understanding of what is meant by the term online learning we can look at the work of Dabbagh and Bannan-Ritlands (2005, p.16) which outline the following characteristics:

1. Globalization and learning as a social process are inherent and enabled through telecommunications technology.
2. The concept of learning group is fundamental to achieving and sustaining learning.
3. The concept of distance is relatively unimportant or blurred and is not limited to the physical separation of the learner and the instructor.
4. Teaching and learning events (or course events) are distributed across time and place, occurring synchronously and/or asynchronously through different media.
5. Learners are engaged in multiple forms of interaction: Learner-Learner, learner-group, learner-content, and learner-instructors.
6. Internet and/or Web-based technologies are used to support the teaching and learning process and to facilitate learning and knowledge building through meaningful action and interaction.

These characteristics highlight a number of interesting points, online learning is a global phenomenon that has been facilitated through the use of ICTs. The online classroom is no longer restricted to participants having to be located in the same physical space and access to resources are not restricted by time. From a pedagogical perspective an emphasis on the learning group shows a distinct move towards a more constructivist approach and the need to address multiple forms of interaction highlights an understanding of students needs with regards to gaining a quality learning experience.
1.2.2 Online Pedagogical Models

The developments in ICTs have provided educational institutes with the tools to create course content that can provide students with a more interactive learning environment than was possible before the advent of the internet. This has facilitated constructivist pedagogical approaches to distance learning. Constructivist or learner-centered approaches to education provide a more meaningful learning experience than objectivist or teacher-centered approaches (Jonassen, 1995). While meaningful learning is a very important factor in education it is not the sole factor to consider. Objectivist or teacher centred learning can produce what has been termed effective learning (Jonassen, 1995) and has the advantage of having been the traditional method of delivering education in most institutions.

The development and delivery of an online constructivist designed strategy is very time consuming and costly (Hughes et al, 2002) and can be seen as a radical change to institutional thinking. In order to address these issues Chen (2005) proposes the development of online courses which use a blended approach combining constructivist and objectivist instructional design strategies. This blended approach has the advantage that it takes “into consideration the constraints of instructional time as well as the characteristics of the online learning environment”. (Chen, 2005, p.72).

1.2.3 Online Design Strategy

The design strategy of online offerings are influenced by many factors, one must consider the pedagogical appropriateness, social sensitivity and cost effectiveness (UNIQUe, 2011). These three factors need to be considered when developing an online course offering and choosing which available tools will be used by the institution, faculty and students alike in order to provide a meaningful learning experience.

Hendricks (2012) details some of the cultural issues experienced by students involved in an online Masters program. Students from certain geographical regions who participated in the study felt that due to different cultural values and use of language they were unable to participate fully in certain activities (Hendricks, 2012). Another issue raised by the study was the effects caused by students living in different time zones. Deadlines and live discussion times had an adverse effect in certain situations due to local time differences (Hendricks, 2012). These issues seem to highlight the global nature of on-line learning and raise interesting questions on how to create courses which are designed for a global audience.

A study carried out by Swan (2010) investigated correlations between 22 course design factors and student perceptions of satisfaction. The results
highlighted three factors which were significantly related to student perceptions:

1. Clarity and consistency in course design
2. Contact with and feedback from course instructors
3. Active and valued discussion.

These results underlined the importance of creating opportunities for interaction in on-line learning environments.

On-line education has been able to address the traditional needs of distance students by overcoming the geographic distances but it has also brought a new dimension to distance education by overcoming some of the time issues which has restricted different categories of people from access to learning opportunities (Moloney and Oakley, 2010). Some of the software tools being utilised by educational institutes have given students the ability to participate while on the go. For instance the Adobe Connect software which is utilised by the program studied in this research has a smart phone app which can allow students to participate in course activities from virtually any location which has access to WiFi or 3G/4G connectivity. This ability to engage in synchronous learning without the need to be located in a predesignated location has tremendous advantages over traditional campus education.

It is evident from the work of Moloney and Oakley (2010), that the use of CSMs are becoming more common place by teaching institutions as learning platforms for both on-campus and on-line students. The use of CSMs provide students and teaching professionals the ability to interact more outside the confines of the classroom. They provide course participants with access to asynchronous learning tools such as discussion boards, recordings of lectures and extra course material using a variety of available media (Moloney and Oakley, 2010).

The combination of these synchronous and asynchronous learning methods are characteristics highlighted by Dabbagh and Bannan-Ritlands (2005) definition of on-line learning and are essential to the quality of the learning experience.

1.2.4 Quality of On-line Learning

Studies on the quality of on-line learning (Hathaway, 2009; Ward et al, 2010) have shown an increase in the quality of learning experience. But according to one of the studies (Ward et al, 2010), there is still a reluctance by faculty members to adopt the on-line model over concerns for quality of instruction, learning, and participant interaction. Some of these concerns were attributed to faculty members who were very traditional in their views on teaching and not inclined to learn new teaching methods. While others had
genuine concerns about the quality of the learning experience that could be gained from on-line education. While both these studies focused on the quality aspect of on-line learning they failed to make a direct comparison between on-line learning and on-campus learning. Hay et al (2004 p.1) ask the question, have universities taken a ‘convenience store’ approach to education, offering courses with flexibility and convenience as opposed to quality?

Hathaway (2009) has done some very comprehensive work on the quality of learning experience for on-line education. The setting for the research was a University in the US with students from six different departments taking part in the research. Hathaway (2009) identified six dimensions of interaction which formed the framework of her research. The work justifies the inclusion of each dimension through an in-depth review of literature pertaining to the quality of learning experiences. The results of the research “show positive student perceptions regarding overall on-line course quality at the University level” (Hathaway, 2009, p. 167).

Moloney and Oakley (2010) highlight a number of factors which have contributed to the success of on-line education at a University in the US.

1. Emphasis on programs, not just courses.
2. High quality courses—the on-line courses are taught by the same professors who teach on the campus.
3. Comparable student services for on-line and on-campus students.
4. Individualized attention to the needs (and complaints) of on-line students.
5. High-quality faculty training and support.

When we look at a number of these factors we can see a correlation with work by Simonson et al (2009) which suggests that a successful distance learning program should be based on creating as much commonality between both learning methods to achieve a more equivalent learning experience. These two studies reinforce the need to create on-line content and context that is comparable to that of campus students.

From a European perspective on eLearning the organisation at the forefront of quality assessment is EFQUEL (European Foundation for Quality in eLearning), which is a membership organisation based in Brussels (efquel.org, 2013). EFQUEL have designed the UNIQuE standard for the implementation of eLearning in higher educational institutes. The standard requires Institutions to maintain continuous iterative innovation in all aspects of pedagogical design and course provision (UNIQuE, 2011). The standard analyses three quality criteria for eLearning within an organisation. These
Quality areas are then broken down into a number of sub-criteria as shown in the following diagram.

![Diagram of UNIQUe quality criteria](image)

Fig. 1 The UNIQUe quality criteria break down (UNIQUE, 2011). Reproduced with permission.

The following is a brief explanation of what each sub-criteria entails and highlights what is required of an institute to implement a quality eLearning environment.

Strategy and eLearning

Evidence must be shown that eLearning/TEL (Technology Enhanced Learning) is an integral part of the institutional strategy. Pedagogical and technological innovation should be a key institutional priority. Quality metrics and transparency of individual course offerings should be available to prospective students and the wider academic community alike.

What this shows is that a solid commitment is required by the institution to eLearning and not just a marketing ploy to attract more students.
Commitment to Innovation

Course delivery methods should be chosen based on pedagogical appropriateness, social sensitivity and cost effectiveness. The factors which influence online course delivery mode need to be clearly outlined and procedures for internal decision making clearly outlined.

Openness to the Community

A commitment by staff working within the eLearning environment to work collaboratively with peers within the institution and in the wider community. A commitment by the institution to actively promote and encourage sharing of knowledge by staff with programmes and incentives.

Resources for Learning

Technology resources need to be tested to industry standards and appropriate for intended use. This includes use for the pedagogical models chosen and ensuring that appropriate resources are available for training and support. Availability of full-text electronic resources or an efficient library-loan system are also a requirement.

Students

All students should have access to the institutes web-portal, which should be used to deliver communications and allow access to administrative procedures. Administrative procedures could include signing up for courses, submitting course work, receiving course results etc. Course details should provide a clear explanation of learning goals, technical requirements and pedagogical delivery method. A system needs to be in-place to collect and evaluate students experiences with eLearning in order to improve future offerings. There is also a need to outline support services available to students, detailing, contact channels, availability, response times and performance targets.

University Staff

Guidelines regarding course design and delivery must be available to all relevant staff. Suggested guidelines might include peer-review, exam layouts, course structures. Resources should be available to provide the necessary technical skills required to provide eLearning and other internet based communications such as web-conferencing, blogs, discussion forums etc. Staff should also be provided with access to intellectual property rights policies in-order to better understand use of 3rd party materials and publication of their own work.
The list of criteria outlined in the UNIQUe standard is necessary in order to create the best environment for quality eLearning to take place. It requires the institutes to develop a focused approach to eLearning as opposed to a piece meal approach that has been synonymous with a lot of eLearning initiatives in the past. It also requires the institute to understand and contribute to the development of open on-line learning.

1.2.5 Student Perspective of Quality Learning Experience

Student perspectives and course evaluation surveys are used by Universities to gain a better understanding of the needs of their students. The use of such methods to determine the quality of learning experience from a student perspective can guide the evolution of course offerings by using the feedback for continual improvement (Fisher & Miller, 2008). While it is true that all students have a different perspective based on previous experience the use of the student perspective is still a reliable tool to determine the quality of learning experience in higher education (Hathaway, 2009). Students have the ability to determine the quality of the learning space, teacher skills, instructional design and strategy, institutional resources and support and relevant and timely feedback. According to Young & Norgard (2006) it is essential in fact that the institute and faculty pay close attention to student perceptions in order to maintain a quality learning environment.

1.2.6 Trends in On-line Learning

The latest incarnation of on-line learning are the Massive Open on-line Courses (MOOCs) which seem to have taken a 'convenience store' approach to on-line education (Hay et al, 2004 p.1). There is a large selection of courses to choose from and they are being provided by a multitude of different institutions. Some of these courses can contain thousands of students which means individual assistance can be hard to provide. From my own personal experience with MOOCs I have found that discussion forums provide a much needed source of interaction to better understand and follow the course being taken. The courses provide material for the students to engage with but seem to lack a number of the dimensions of interaction previously mentioned that contribute to the quality of the learning experience. An ongoing study into the completion rates of MOOCs by Jordan (2013) shows that of the MOOCs where data was available a completion rate of close to 20% was the highest recorded and that a lot of the MOOCs had completion rates of less than 10%. The results of one MOOC I participated in “Introduction to Databases” which was offered by Stanford University had a completion rate of only 7.5% (Stanford.edu, 2013).
Hay et al (2004) shows the importance of interaction in determining the quality of learning experience. One of the key types of interaction identified was that of Instructor-Learner. So, one can only assume that by removing this type of interaction from the learning process, you reduce the quality of the learning experience. This may account for the comparatively low completion rates of MOOCs.

1.3 Statement of the Problem

With the rapidly increasing number of on-line educational opportunities there comes the question, is the quality of on-line learning, providing the same quality of learning experience as the traditional classroom? A lot of comparative research has been conducted into the results achieved by traditional campus and distance students. These studies, some of which have compared results over many years have found that there is no significant difference between overall grades achieved (Kessler, 2007; Russell, 1999).

This research poses the question, is there a perceived difference in the quality of learning experience? According to Hathaway (2009 p.14) some “students are not entirely convinced that on-line environments provide the same quality learning experiences as their face to face counterparts”. Research conducted by Hay et al (2004) found that on-line students scored higher in terms of interaction and that there was a direct link between results achieved and levels of interaction.

If on-line learning is to succeed then it is imperative that the perspective of students and (future) employers are confident that the quality of learning provided, is to the same high standard as that of the traditional classroom.

This study was designed to compare the learning experiences of on-line students to that of traditional on-campus students using the quality elements identified from research.

The study will add to the existing literature on the quality of on-line distance learning and will provide evidence of how it compares directly to traditional on-campus face-to-face education. It will be of benefit to educational institutions which provide distance based learning opportunities by focusing on the quality aspect of learning experiences over an ICT infrastructure.
1.4 Purpose and Research Questions

The purpose of this research is to compare the quality of learning experience for on-line distance students with that of traditional campus students. Both learning methods are supported by the same Course Management System (CMS). The program is provided through English, which has resulted in a diverse selection of students from different countries studying both on-campus and distance.

Using the theory of online learning, five dimensions of interaction were identified which guided the research: Instructor-Learner, Learner-Learner, Learner-Content, Learner-Interface and Social.

Five research questions focus this study:
1. How does the quality of the learning experience compare between distance and on-campus learning methods based on Instructor-Learner interaction?
2. How does the quality of the learning experience compare between distance and on-campus learning methods based on Learner-Learner interaction?
3. How does the quality of the learning experience compare between distance and on-campus learning methods based on Learner-Content interaction?
4. How does the quality of the learning experience compare between distance and on-campus learning methods based on Learner-Interface interaction?
5. How does the quality of the learning experience compare between distance and on-campus learning methods based on Social interaction?

The method of inquiry comprised of an on-line survey questionnaire with the initial question used to determine whether the individual was a campus or distance student. The remainder of the survey consisted of twenty additional questions each of which was related to one of the five dimensions of interaction.

Through a comparison of the results we can directly compare the learning experiences of both on-line and traditional students within the limits of this research.

While there is much previous research into the quality of on-line learning this study focuses on a direct comparison of both learning methods in order to more fully understand the quality of learning experiences and highlight any perceived differences from the perspective of the students.
1.5 Delimitations / Limitations

The study is limited to the students who were enrolled in the Masters of Information Systems program, offered by Linnaeus University, beginning in autumn 2012. This number corresponded to 58 students. Of this number 21 responses were received, this represented 12 campus students and 9 distance students. This provides a valid distribution of 57.1% to 42.9% from responses. While the study would have benefited from a higher response rate the relative homogenous nature of the population (Masters students) reduces the amount of variation and allows for a smaller sample to provide a valid result (Bryman, 2012).

The opinions of the students who did not respond to the survey while important, their omission should not detract from the overall results since it was possible to perform a comparison on the responses received.

Since previous research had shown that no discernible difference can be found in grade performance between distance and on-campus students (McPhee & Söderströms, 2012; Russell, 1999), grades performance were not taken into consideration for this study.

The interactions for campus students will consist of traditional classroom interactions, such as lectures, seminars and meetings with tutors. As well as these traditional modes of interactions, campus students will also interact with the CMS which in this study is BlackBoard.

The interactions for distance students will consist of ICT enabled interactions using a variety of software and hardware. The software applications include but are not limited to Blackboard, Adobe Connect, VoiceThread, Dropbox and Skype. A description of these applications are available in the next section. The choice of hardware devices used by students such as PC, Laptop, Notepad, Tablet, Smart Phones or any combination of these is not under examination. But it is presumed that the students had the necessary hardware to interact in a meaningful way, since this was a prerequisite to enrollment in the program.

For this study, social interactions will consist of all interactions (face-to-face & on-line) with fellow students, outside the course domain.

There is an assumption that the quality of learning provided to the students in this study is of a standard expected from an accredited University and a good representation of quality learning within Linnaeus University.
1.6 Target Audience

This research is intended for individuals and institutions within the field of on-line education. Since the research is European based and focused on the quality of on-line learning it should be of interest to EFQUEL as it falls under the scope of their organisation. In particular it should also be of benefit to Linnaeus University by exploring this issue within their course offerings.

1.7 Disposition

Chapter 1 provides an introduction to the field of on-line education. The literature review focuses on a number of sub topics within the field such as design, instructional strategies and the elements needed for a quality learning experience. The review of the UNIQUe standard is intended to give the reader a view of the bigger picture and to highlight the challenges which need to be addressed by an institution as a whole in order to provide a quality eLearning environment. Mentioned briefly is the theory of on-line learning which will be used as a framework for this research and the five quality elements which will be used to compare both learning methods.

Chapter 2 provides insight into the Theory of On-Line Learning and includes a diagram outlining the theory. The reasons as to why this theory was used as the conceptual framework for this research are outlined. The chapter then details which elements of the theory have been adapted to better suit this research.

Chapter 3 outlines the methods used to conduct this comparative research. It explains both how the methods work in theory and gives the rational for choosing them. The end of the chapter deals with the ethical considerations concerning the research.

Chapter 4 details the results of each survey question, giving responses and the statistical data used in the comparative analysis. A summary of the results is then provided along with a brief description of the questions which showed a statistical difference.

Chapter 5 discusses the findings in relation to the topic of research and provides recommendations for future practice, as well as identify possible areas for future research.
1.7 Definition of key terms

Information Communication Technologies (ICTs) “refers to technologies that provide access to information through telecommunications. It is similar to Information Technology (IT), but focuses primarily on communication technologies. This includes the Internet, wireless networks, cell phones, and other communication mediums” (TechTerms.com, 2013).

Course Management System (CMS): “A CMS provides an instructor with a set of tools and a framework that allows the relatively easy creation of on-line course content and the subsequent teaching and management of that course including various interactions with students taking the course.” (EDUCAUSE Evolving Technologies Committee, 2003, p. 1).

Distance learning: Simonson et al (2009, p.10) define distance education as institution-based formal education where the learning group is separated and when interactive telecommunications systems are used to connect learners, resources, and instructors.

EFQUEL : European Foundation for Quality in eLearning.

The Sloan Consortium (Sloan-C) is a “non-profit on-line learning society devoted to advancing quality e-Education learning into the mainstream of education through its community” (sloanconsortium.org, 2013).

Blackboard Is a CMS which facilitates asynchronous course interactions and provides access to course content.

Adobe Connect is a web conferencing platform for web meetings, eLearning, and webinars.

VoiceThread is an asynchronous communication technology which facilitates audio/visual discussion on a continuous thread.

Dropbox is a Cloud facilitated file sharing tool, which allows users to share files in a common folder type structure.

Skype provides both synchronous and asynchronous communication technologies via Instant messaging, audio/visual conferencing and file sharing.

SPSS is a software package used for statistical analysis.
2 Background / Theory

2.1 Prospective Theory and Use

The research will use an adapted version of Hathaway’s (2009) “Theory of on-line Quality” which provides a framework for analysis of learning quality experience. The theory uses an Online Learning Quality Inventory (OLQI) which “is a researcher-created instrument designed to collect data on students perceptions about how online learning is implemented” (Hathaway, 2009, p.104). To determine the quality elements that need to be considered when assessing online learning experiences, the researcher conducted a comprehensive literature review. The review focused on the quality of teaching and learning in online environments (Hathaway, 2009).

The quality elements which were identified were categorised using six dimensions of interaction (Hathaway, 2009). The six dimensions of interaction provide a comprehensive framework for analysis of the learning experience:

1. Instructor-Learner
2. Learner-Learner
3. Learner-Content
4. Learner-Interface
5. Learner-Instructional Strategies
6. Social

The diagram on the next page gives a graphical representation of the theory and displays the elements used to determine quality learning experiences. The OLQI (Online Learning Quality Inventory) utilizes evaluation surveys to gather participant responses for analysis.

2.1.1 Rational for choosing theory

The reasons for choosing the theory of on-line learning as the framework for this study were influenced firstly by the subject matter which relates directly to the area of my research concerning quality learning experiences. Secondly it utilizes quantitative methods to gather the data needed for analysis, which have been identified through an in-depth literature review. Finally, it was possible to adapt the theory for use in a comparative study.
Fig. 2 A theory of online learning quality (Hathaway, 2009, p.89)
Reproduced with permission
2.1.2 Use of Theory

This study will cover five of the six dimensions of interaction, the Learner-Instructional strategies have been removed from the study. While it has been highlighted in the literature the importance of the instructional strategies on the quality of the learning experience, it has not been included in this study due to the fact that the instructional strategies are identical for both learning methods and hence a comparison was deemed redundant. Both campus and distance students are subject to the same pedagogical approaches utilized by faculty and since this was the case a comparison would be based solely on individual perceptions as opposed to group perceptions which is the focus of this study. The five dimensions to be included in this study relate to interactions and their contributions to the quality of the learning experience.

The theory which has been informed through research into the field of online learning outlines how through the on-line learning environment meaningful learning is achieved. The quality value of the learning is determined by the six dimensions of interaction. By comparing these dimensions for both learning methods we can determine whether the quality of the learning experience is consistent.

Since this study is a comparative analysis of two distinct groups it is necessary to define the interaction types for each group. This has been done for the five dimensions of the framework and includes a comprehensive but not exhaustive list of interaction methods: It is assumed that distance students means of interaction for all the dimensions is through the use of ICTs.

2.2 Definitions of Interactions

2.2.1 Instructor-Learner interactions

There are a number of individual Instructors involved in the program but the research has tried to generate results for general interactions with instructors as a group.

Seok (2008) makes an interesting point when discussing the roll of the instructor in on-line learning. He states that the roll of the instructor has changed to one of facilitator. This view is similar to that of Creelman (2013) that suggests that the roll of educators is changing from one that provides content to one that provides context. Both of these views highlight the changing strategies required for a new type of learning and reinforce the notion that pedagogical trends are moving more towards a constructivist approach.


Campus & Distance: Both groups of students share a number of means by which they can interact with the instructors. E-mail would be the most utilised means of direct communication with instructors but there is also the ability to interact using the discussion boards in the CMS (BlackBoard). Students also have the ability to contact instructors by telephone or some other audio/visual communication means (Skype, etc.).

Campus: The main differentiating factor for Instructor-Learner interactions for campus students is the face-to-face time during lectures and seminars. Campus students generally have the ability to discuss issues with instructors on individual terms before and after these times. Contributions by campus students are also encouraged during these times and can lead to open debate and greater understanding.

Distance: Lecture and seminar interactions for distance students are facilitated through the use of the Adobe Connect software platform. The platform is a web conferencing tool designed for meetings which allows the host to provide a live video and audio stream, share documents and give video and audio rights to participants allowing them to stream live video and audio as well. To compliment this there is a text chat area where participants can leave comments or ask questions. The research of McCarthy (2013) found that Adobe Connect was deemed a good learning tool but had its limitations, he also highlighted the need for training to gain the most benefits from using the technology.

2.2.2 Learner-Learner interactions

Learner-Learner interactions, include interactions in which learners “collaborate with peers on projects, assignments, discussions, exchange ideas, and interact on topics related to the course”. (Vrasidas, 2000, p. 2., cited in Hathaway (2009, p. 58))

Campus: Campus students have a wide range of means at their disposal to conduct Learner-Learner interactions. As with the Instructor-Learner dimension of interaction discussed previously the main differentiating factor for Learner-Learner interactions for campus students is the chance to meet face-to-face. All the interaction means listed in the following description of distance students are also available to campus students.

Distance: A variety of collaboration tools are available for distance students to interact with each other. Through a lot of trial and error you find the right
tool the for task at hand. It must be noted that not all distance students use the same tools to collaborate and this could be an influencing factor on the outcome of this research. I will list some of the collaboration tools I have personally used throughout this course. For communication purposes the main tool I have used is Skype, this application can provide multi-member chat rooms and teleconferencing. For sharing documents and files a combination of Skype, DropBox and Google Docs was used. For asynchronous communication the discussion board in BlackBoard and the video/audio application VoiceThread were used.

2.2.3 Learner-Content Interactions
Moore (1989, p. 1) states that “the process of intellectually interacting with content results in changes in the learner's understanding, the learner's perspective, or the cognitive structures of the learner's mind”. This shows the importance of the learner-content interactions on the quality of the learning experience.

Campus & Distance: Both methods of learning gained accessed to the course content through the use of the CMS (BlackBoard). The tools provided by BlackBoard allowed students to access course material such as video recordings of lectures and other course documentation. It was also used to access course dicussion boards and to submit course assignments. A number of books required as course literature were available from the ever expanding catalogue of eBooks available from the University library.

2.2.4 Learner-interface interactions
Learner – interface interactions for this study focus on the Adobe Connect platform which has been previously discussed. For learner – interface interactions to occur they must be facilitated by the Instructor. This reinforces the notion that instructors are being required to become facilitators as well. This also leads to the issue of instructor ability to use the interface application and its functions.

Campus: For campus students interface – interactions take on a more passive roll. During lectures and seminars the interface is projected onto a screen but they do not have the ability to interact with it.

Distance: For distance students interface – interactions take on a more active roll. They have the ability to communicate with the instructor and other on-line students by means of text chat and when given the rights to communicate
through audio/visual means. For presentation of individual and group work the interface software is paramount for communication.

2.2.5 Social interactions

Research has shown the importance of social interactions on the quality of learning experience (Richard & Swan, 2003). From my own personal experience, social interactions within the course have created a more pleasant learning environment. The need for people to feel apart of a group leads to interactions outside of the confines of the course and can help develop closer ties between participants. This can build trust and mutual respect and an environment where people feel more free to exchange ideas.

Campus: Social interactions for campus students tend to involve a more organised model than those for distance students. In the past, as a campus student I have encountered the situation where classes organise activities which take place in social settings. Campus students are also in the position to discuss social issues before, during and after lectures (Usually over a cup of coffee).

Distance: Due to the nature of distance learning students are usually separated by considerable distances and the idea of meeting up for social situations is usually out of the question. There is also the issue of time differences to be taken into account, since on-line education can be available globally it is possible that some distance students will be living in different time zones and this could affect the ability to engage outside the confines of the program.
3 Methods

3.1 Research Design and Strategy of Inquiry

3.1.1 Comparative Study

This comparative study was designed to compare the perceived quality of learning experiences of traditional and on-line students of a Masters program in a Swedish university. The study design was chosen in order to seek similarities and differences and to gain a better understanding of the social reality in both contexts. The study incorporates five dimensions of interaction which have been identified from previous studies on the quality of learning to compare both learning methods (Hathaway, 2009; Hay et al, 2004). The study focuses on the perceived quality of learning experiences of the students and compares the results using quantitative methods to reach the conclusions.

3.1.2 Rational for Comparative Design

The rational for choosing a comparative design approach was determined due to the fact that it facilitates the study of two contrasting cases using quantitative methods (Bryman, 2012). “The main aim of comparative design is to seek explanations for similarities and differences or to gain a greater awareness and a deeper understanding of social reality in different contexts” (Bryman, 2012, p. 72). A prerequisite of the comparative design is that the contrasting cases be studied at a similar point in time, which in the case of this study occurred in spring 2013.

3.2 Data Collection

A Masters program providing both traditional and on-line learning at Linnaeus University in Sweden will be the focus of the research. Students of the masters courses enroll as either campus or distance students but are not excluded from utilizing either participation method in the course of their studies. So it is possible that a distance student has participated on campus and vice versa. For the purpose of this study students will be regarded as either a campus or distance student depending on their enrollment criteria. Both learning methods have the same overall structure and number of exams. It is possible that certain exams may differ depending on the individual course design. Classroom participation for distance students is achieved...
through the use of web based meeting software (Adobe Connect) which simulates a virtual classroom. The software provides live audio and video streaming from the classroom and allows for synchronous communication via text and audio/visual tools.

Both campus and distance students use a web based course management system (BlackBoard). Through this software students can access course material which includes announcements, course information, assignment information, course schedule, discussion boards and course results. The discussion boards provide an asynchronous communication tool for all students to interact with each other.

Some of the course work has been designed to create the need for interaction between students. For the campus students these interactions occur in traditional classroom format. While for distance students there is no prescribed way to conduct these interactions, this has lead to a variety of technologies being used including but not limited to discussion boards, e-mail, Skype, VoiceThread, DropBox and Instant Messenger tools.

3.2.1 Evaluation Questionnaire

The instrument used to illicit student perceptions and responses was an evaluation questionnaire. The purpose of the questionnaire was to gather quantitative data on the attitude to the quality of learning experiences for distance on-line students and traditional campus students. The rational for choosing a self-completion questionnaire were twofold, firstly due to the geographical dispersion of the online students face-to-face meetings were not possible and secondly due to time restraints the efficiency of the questionnaire was deemed to be the best choice.

By using a survey design which incorporated a Likert-type scale it was possible to directly compare attitudes and in-turn make generalisations on the attitudes to the quality of learning experiences. A copy of the survey is available in (Appendix B).

The survey software used in the research was SurveyMonkey which is a web based survey software application. The software provided tools which helped with the overall design, collection and analysis of results. By using this tried and tested survey platform it is my belief that considerations regarding security and reliability of data have been handled with integrity.
3.2.2 Question Design

The survey questions were designed around the five dimensions of interaction identified which influence the quality of the learning experience. Key issues regarding each dimension were identified in past research (Hathaway, 2009; Hay et al, 2004). Once these key issues had been identified, the questions were formulated in such a way as to provide the means to illicit meaningful answers through the use of Likert-scale responses. The initial questions were tested on a pilot group of volunteers with knowledge of the research topic. Two revisions of the questions were conducted before the final version of the survey was deemed appropriate for the study.

3.2.3 Nature of Survey

The population size of participants invited to complete the questionnaire was 58. This number corresponds to the number of students who were enrolled in the Masters program. Participants were sent invitations via e-mail inviting them to take part in the survey. The list of e-mail addresses was provided by the Academic Administrator for the Faculty of Technology.

A link to the survey was embedded within the e-mail and an opt out option was provided for those who did not wish to participate. Participants were given one week in which to fill out the survey, participants who had not filled out the survey after three days were sent a reminder and a final reminder was sent 1 day before the survey closed. The break down of responses was as follows:

<table>
<thead>
<tr>
<th>Table 1: Survey Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Survey</td>
</tr>
<tr>
<td>--------------------------</td>
</tr>
<tr>
<td>Initial Survey</td>
</tr>
<tr>
<td>First Reminder</td>
</tr>
<tr>
<td>Final Reminder</td>
</tr>
<tr>
<td>Totals</td>
</tr>
</tbody>
</table>

The survey design was based on an existing template provided by SurveyMonkey (2013) “University Student Satisfaction Template”.

Participants were informed of their rights and ethical considerations of data use were outlined. Participants were informed that by filling out the
survey and submitting it they were giving their consent for the data to be used in accordance with the outlined data use (Appendix B).

The first question of the survey was used to determine whether a participant was a distance or campus student.

3.3 Data Analysis

The research provides an analysis of both on-line distance learning and on-campus learning as its units of analysis. Both of which have been analysed and compared using the five dimensions of interaction.

The statistical analysis of the results was done by means of the Mann-Whitney U test, using SPSS software. The Mann-Whitney U Test is a non-parametric test of the null hypothesis, which is designed to use the data from two separate samples to evaluate the difference between two populations (Gravetter & Wallnau, 2007). It was chosen as the appropriate statistical analysis method due to its ability to determine whether there is a statistically significant difference between the distributions of two independent groups.

In order to run a Mann-Whitney U test, the following attributes are required:

» One independent variable that is **dichotomous** (e.g., campus/distance).

» One dependent variable that is **ordinal** (e.g., quality rating on Likert-scale).

There are five stages to perform with the Mann-Whitney U test:

1. Define Null and Alternative Hypotheses:

   H0: There is **no** difference between online and distance students

   H1: There is **a** difference between online and distance students

2. State Alpha:

   Under the alternative hypothesis, the probability of an observation from one population \((X)\) exceeding an observation from the second population \((Y)\) is not equal to 0.05
3. State Decision Rule:

Look up the critical value in the z-Table and find a critical value of plus/minus.

4. Calculate Test Statistic:

By calculating the test statistic we get the value of \( P \).

5. State Results:

If \( P \) is greater than \( A \) which in this research is = 0.05 then there is no statistical difference and hence the Null Hypotheses is true.

If \( P \) is less than \( A \) which in this research is = 0.05 then there is a statistical difference and hence the Null Hypotheses is false.

The SPSS software tool provided the ability to populate a table with the results from the survey and perform the necessary calculations in order to determine whether the Null Hypotheses was true or false.

In total (20) independent variables were tested and the break down of variables to dimension were as follows:

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Instructor-Learner</td>
<td>7</td>
</tr>
<tr>
<td>2. Learner-Learner</td>
<td>3</td>
</tr>
<tr>
<td>3. Learner-content</td>
<td>4</td>
</tr>
<tr>
<td>4. Learner-interface</td>
<td>4</td>
</tr>
<tr>
<td>5. Social</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total:</strong></td>
<td><strong>20</strong></td>
</tr>
</tbody>
</table>

3.4 Role of the researcher

As a distance on-line student myself I have found the learning methods to be somewhat different to a traditional classroom. Having had some initial skepticism about the learning quality which could be achieved from on-line learning, I have found no basis to indicate that this is the case. But since I cannot divine the thoughts of others I decided to conduct this study in order to discover if the quality of learning experience was shared by my fellow classmates.
I believe the research is necessary to ensure that the quality of learning experience is not determined by the choice of learning method. As a student of the masters program to be studied in this research, I have a working knowledge of the courses, students and teaching staff involved.

3.5 Ethical Considerations

There were a number of ethical considerations to be taken into account when conducting this research. Consent was required from participants to use the results of the data as outlined in the statement of use. Assurances were given that the data collected would be used only for the purposes outlined. No personal data would be used to identify any individual. Participants were informed that involvement in the survey was voluntary and that they could withdraw from participation at any time without the need to give a reason. A copy of the survey with statement of purpose and consent form are available in (Appendix B).

To avoid issues related to individual instructors merits, participants were instructed to provide their results in general terms for the program as a whole and to weigh up their overall experiences.

Privacy: The privacy of all participants has been kept and no data has been included in the research which can be used to identify any individual.

Security: The security of the data has been maintain and access to the results has been restricted to myself.
4 Results

4.1 Introduction

There is overwhelming evidence that the field of on-line learning in higher education is growing at a very fast rate. Each year Universities are creating new course offerings and expanding and updating existing ones. Due to this ever changing nature of the field it is extremely important that the quality of the learning experience is continually monitored as well. Work by institutes such as the Sloan Consortium in the US and EFQUEL in Europe are engaged in work to develop implementation frameworks for institutes of higher education to ensure quality learning experiences for on-line education. But it is the sole responsibility of each institute to ensure that students can be guaranteed a quality learning experience whether they choose to study on-campus or on-line.

This study was designed to analyze and compare the quality of learning experiences for students of a Masters program. The program is offered to both traditional campus students and distance on-line students. The study has identified and used five dimensions of interaction that contribute to the quality of learning experiences for students. The results provide general student attitudes to the courses they have completed within the Masters program and are not the results from attitudes towards individual courses.

4.2 Participant Demographics

The empirical data for the research consists of survey results from a questionnaire sent out to both campus and distance students in April of 2013. In total (58) students were sent the survey. The number of completed surveys was (21) or a response rate of 36%. This figure consists of (12) campus students and (9) distance students. While the study would have benefited from a higher response rate the relative homogenous nature of the population (Masters students) reduces the amount of variation and allows for a smaller sample to provide a valid result (Bryman, 2012).

The first question of the survey was used to determine learning method. The reason there was a need for this was due to the fact that the only information I had concerning the recipients was their e-mail addresses and the fact that they were enrolled in the masters program. Due to the fact that I did not know the total numbers of students taking each learning method, it was impossible to calculate the response rate by learning method.

The percentile distribution of respondents was 57.1% campus students to 42.9% distance students.
4.3 Survey Questions, Results and Analysis

4.3.1 Results of Survey Q. 2

How effective is the teaching for this Masters Course?

This question was part of the dimension Instructor-Learner interactions. The results of the survey were as follows.

Table 2: Results of Survey Q.2

<table>
<thead>
<tr>
<th>Likert-scale</th>
<th>Campus</th>
<th>Distance</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Extremely effective</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>(2) Very effective</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>(3) Moderately effective</td>
<td>7</td>
<td>4</td>
</tr>
<tr>
<td>(4) Slightly effective</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>(5) Not at all effective</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

A pie chart detailing responses for question 2 is available in Appendix C.

A Mann-Whitney test was run to determine if there were differences in the perceived effectiveness of teaching between traditional campus and on-line distance students.

The results showed that there was no statistically significant difference in scores between between Campus students ($M = 9.92$) and Distance students ($M = 12.44$),

$$U = 67, z = 1.020, p = 0.308.$$

$(P = 0.308) > (A = 0.05) => Null(0)$ Hypotheses is true

Additional comments from the surveys indicated that the teaching effectiveness varied from course to course. Variations between courses had been anticipated which is why participants were asked to answer with regards to their perceptions of the program as a whole.
4.3.2 Results of Survey Q. 3

How helpful is the instructor feedback?

This question was part of the dimension Instructor-Learner interactions. The results of the survey were as follows.

Table 3: Results of Survey Q.3

<table>
<thead>
<tr>
<th>Likert-scale</th>
<th>Campus</th>
<th>Distance</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Extremely helpful</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>(2) Very helpful</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>(3) Moderately helpful</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>(4) Slightly helpful</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>(5) Not at all helpful</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

A pie chart detailing responses for question 3 is available in Appendix C.

A Mann-Whitney test was run to determine if there were differences in perceived helpfulness between traditional campus and on-line distance students.

The results showed that there was no statistically significant difference in scores between between Campus students ($M = 10.17$) and Distance students ($M = 12.11$),

$$U = 64, z = 0.752, p = 0.452.$$  

$(P = 0.452) > (A = 0.05) = \text{Null(0) Hypotheses is true}$

Additional comments from the surveys indicated that the feedback received was usually good but that there wasn't enough. Three of the distance students believed that there needed to be more feedback while only one campus student expressed this opinion.
4.3.3 Results of Survey Q. 4

Q. 4 How would you rate instructor participation in class discussions?
(Campus Students)
How would you rate instructor participation in on-line discussions?
(Distance Students)

This question was part of the dimension Instructor-Learner interactions. The results of the survey were as follows.

Table 4: Results of Survey Q.4

<table>
<thead>
<tr>
<th>Likert-scale</th>
<th>Campus</th>
<th>Distance</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Extremely good</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>(2) Very good</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>(3) Moderately good</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>(4) Slightly good</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>(5) Not at all good</td>
<td>0</td>
<td>2</td>
</tr>
</tbody>
</table>

A pie chart detailing responses for question 4 is available in Appendix C.

A Mann-Whitney test was run to determine if there were differences in perceived participation by instructors in class discussions between traditional campus and on-line distance students.

The results show that there was a statistically significant difference in engagement scores between between Campus students (M = 8.75) and Distance students (M = 14.0),

\[ U = 81, z = 2.017, p = 0.044. \]

\((P = 0.044) < (A = 0.05) \Rightarrow \text{Null(0) Hypotheses is false}
=> \text{Alternative(1) Hypotheses is true}\)

Additional comments from the surveys indicated a number of distance students thought that the instructor didn't allocate enough time for distance students, one comment suggested that a teaching assistant with responsibility for monitoring on-line students could improve the interaction quality.
4.3.4 Results of Survey Q. 5

Q. 5 How effective are the instructors at motivating students?

This question was part of the dimension Instructor-Learner interactions. The results of the survey were as follows.

Table 5: Results of Survey Q.5

<table>
<thead>
<tr>
<th>Likert-scale</th>
<th>Campus</th>
<th>Distance</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Extremely effective</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>(2) Very effective</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>(3) Moderately effective</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>(4) Slightly effective</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>(5) Not at all effective</td>
<td>0</td>
<td>2</td>
</tr>
</tbody>
</table>

A pie chart detailing responses for question 5 is available in Appendix C.

A Mann-Whitney test was run to determine if there were differences in perceived effectiveness by instructors to motivate between traditional campus and on-line distance students.

The results showed that there was no statistically significant difference in engagement scores between between Campus students \((M = 9.38)\) and Distance students \((M = 13.17)\),

\[ U = 73.5, \ z = 1.459, \ p = 0.145. \]

\((P = 0.145) > (A = 0.05) \Rightarrow \text{Null(0) Hypotheses is true}\)

There were no additional comments supplied for this question by participants.
4.3.5 Results of Survey Q. 6

Q. 6 How effective are the instructors at delivering valuable course content?

This question was part of the dimension Instructor-Learner interactions. The results of the survey were as follows.

Table 6: Results of Survey Q.6

<table>
<thead>
<tr>
<th>Likert-scale</th>
<th>Campus</th>
<th>Distance</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Extremely effective</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>(2) Very effective</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>(3) Moderately effective</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>(4) Slightly effective</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>(5) Not at all effective</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

A pie chart detailing responses for question 6 is available in Appendix C.

A Mann-Whitney test was run to determine if there were differences in perceived effectiveness of instructors at delivering valuable course content between traditional campus and on-line distance students.

The results show that there was no statistically significant difference in engagement scores between between Campus students (M = 10.17) and Distance students (M = 12.11),

\[ U = 64, \ z = 0.764, \ p = 0.445. \]

\((P= 0.445)>(A=0.05)\Rightarrow\text{Null(0) Hypotheses is true}\)

Additional comments for this question highlighted the fact that it depended very much on the instructor.
4.3.6 Results of Survey Q. 7

Q. 7 How much does your interactions with the instructors influence the quality of learning?

This question was part of the dimension Instructor-Learner interactions. The results of the survey were as follows.

Table 7: Results of Survey Q.7

<table>
<thead>
<tr>
<th>Likert-scale</th>
<th>Campus</th>
<th>Distance</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Influences to a very large extent</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>(2) Influences to a large extent</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>(3) Influences moderately</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>(4) Influences slightly</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>(5) Does not influence at all</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

A pie chart detailing responses for question 7 is available in Appendix C.

A Mann-Whitney test was run to determine if there were differences in the influence of instructor interactions on the quality of learning between traditional campus and on-line distance students.

There was no statistically significant difference in engagement scores between between Campus students (M = 10.08) and Distance students (M = 12.22),

\[ U = 65, z = 0.828, p = 0.408. \]

\[ (P = 0.408)>(A=0.05)\Rightarrow\text{Null(0) Hypotheses is true} \]

There were no additional comments supplied for this question by participants.
4.3.7 Results of Survey Q. 8

Q. 8 How much interaction do you have with other students?

This question was part of the dimension Learner-Learner interactions. The results of the survey were as follows.

Table 8: Results of Survey Q.8

<table>
<thead>
<tr>
<th>Likert-scale</th>
<th>Campus</th>
<th>Distance</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) &gt;20 hours per month</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>(2) 15-20 hours per month</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>(3) 10-15 hours per month</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>(4) 5-10 hours per month</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>(5) &lt; 5 hours per month</td>
<td>1</td>
<td>4</td>
</tr>
</tbody>
</table>

A pie chart detailing responses for question 8 is available in Appendix C.

A Mann-Whitney test was run to determine if there were differences in the amount of Learner-Learner interaction between traditional campus and online distance students.

The results show there was no statistically significant difference in engagement scores between between Campus students (M = 9.21) and Distance students (M = 13.39),

\[ U = 75.5, \ z = 1.569, \ p = 0.117. \]

\( (P= 0.117) > (A=0.05) \Rightarrow Null(0) \) Hypotheses is true

Additional comments from one distance student stated that they believed that both Adobe connect and BlackBoard seemed to isolate them.
4.3.8 Results of Survey Q. 9

Q. 9 How relevant and meaningful to the course are your interactions with other students?

This question was part of the dimension Learner-Learner interactions. The results of the survey were as follows.

Table 9: Results of Survey Q.9

<table>
<thead>
<tr>
<th>Likert-scale</th>
<th>Campus</th>
<th>Distance</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Extremely relevant</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>(2) Very relevant</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>(3) Moderately relevant</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>(4) Slightly relevant</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>(5) Not at all relevant</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

A pie chart detailing responses for question 9 is available in Appendix C.

A Mann-Whitney test was run to determine if there were differences in the perceived relevance of Learner-Learner interaction between traditional campus and on-line distance students.

The results show that there was no statistically significant difference in engagement scores between between Campus students (M = 11.79) and Distance students (M = 9.94),

\[ U = 44.5, z = -0.705, p = 0.481. \]

\((P = 0.481) > (A = 0.05) \Rightarrow \text{Null(0) Hypotheses is true}\)

There were no additional comments supplied for this question by participants.
4.3.9 Results of Survey Q. 10

Q. 10 How much does your interaction with other students influence the quality of learning?

This question was part of the dimension Learner-Learner interactions. The results of the survey were as follows.

Table 10: Results of Survey Q.10

<table>
<thead>
<tr>
<th>Likert-scale</th>
<th>Campus</th>
<th>Distance</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Influences to a very large extent</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>(2) Influences to a large extent</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>(3) Influences moderately</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>(4) Influences slightly</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>(5) Does not influence at all</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

A pie chart detailing responses for question 10 is available in Appendix C.

A Mann-Whitney test was run to determine if there were differences in the perceived influence of Learner-Learner interactions on the quality of learning between traditional campus and on-line distance students.

The results show that there was no statistically significant difference in engagement scores between between Campus students (M = 11.75) and Distance students (M = 10.00),

\[ U = 45, z = -0.668, p = 0.504. \]

\( (P= 0.504) > (A=0.05) \Rightarrow \text{Null(0) Hypotheses is true} \)

There were no additional comments supplied for this question by participants.
4.3.10 Results of Survey Q. 11

Q. 11 How explicit were course objectives stated (Expected learning outcomes)?

This question was part of the dimension Learner-Content interactions. The results of the survey were as follows.

Table 11: Results of Survey Q.11

<table>
<thead>
<tr>
<th>Likert-scale</th>
<th>Campus</th>
<th>Distance</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Extremely explicit</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>(2) Very explicit</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>(3) Moderately explicit</td>
<td>7</td>
<td>3</td>
</tr>
<tr>
<td>(4) Slightly explicit</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>(5) Not at all explicit</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

A pie chart detailing responses for question 11 is available in Appendix C.

A Mann-Whitney test was run to determine if there were differences in expected learning outcomes between traditional campus and on-line distance students.

The results show that there was no statistically significant difference in engagement scores between between Campus students \( (M = 11.58) \) and Distance students \( (M = 10.22) \),

\[
U = 47, \ z = -0.534, \ p = 0.593. 
\]

\( (P = 0.593) > (A = 0.05) => \text{Null(0) Hypotheses is true} \)

There were no additional comments supplied for this question by participants.
4.3.11 Results of Survey Q. 12

Q. 12 How well structured was course content to encourage participation?

This question was part of the dimension Learner-Content interactions. The results of the survey were as follows.

<table>
<thead>
<tr>
<th>Likert-scale</th>
<th>Campus</th>
<th>Distance</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Extremely structured</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>(2) Very structured</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>(3) Moderately structured</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>(4) Slightly structured</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>(5) Not at all structured</td>
<td>0</td>
<td>2</td>
</tr>
</tbody>
</table>

A pie chart detailing responses for question 12 is available in Appendix C.

A Mann-Whitney test was run to determine if there were differences in course content structure design to encourage participation, between traditional campus and on-line distance students.

The results show that there was no statistically significant difference in engagement scores between between Campus students (M = 9.29) and Distance students (M = 13.28),

\[ U = 74.5, z = 1.523, p = 0.128. \]

\( (P= 0.128)>(A=0.05) => \text{Null}(0) \text{ Hypotheses is true} \)

Additional comments for this question highlighted the fact that it depended very much on the course in question.
4.3.12 Results of Survey Q. 13

Q. 13 How would you rate instructor created outlines and summaries of course content?

This question was part of the dimension Learner-Content interactions. The results of the survey were as follows.

<table>
<thead>
<tr>
<th>Likert-scale</th>
<th>Campus</th>
<th>Distance</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Extremely good</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>(2) Good</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>(3) Average</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>(4) Poor</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>(5) Extremely poor</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

A pie chart detailing responses for question 13 is available in Appendix C.

A Mann-Whitney test was run to determine if there were differences in perceived instructor created outlines and summaries of course content between traditional campus and on-line distance students.

The results show that there was no statistically significant difference in engagement scores between between Campus students (M = 10.83) and Distance students (M = 11.22),

\[
U = 56, z = 0.150, p = 0.881. 
\]

\( (P = 0.881) > (A = 0.05) \Rightarrow \text{Null(0) Hypotheses is true} \)

There were no additional comments supplied for this question by participants.
4.3.13 Results of Survey Q. 14

Q. 14 How important to learning quality is the structure of course content to you?

This question was part of the dimension Learner-Content interactions. The results of the survey were as follows.

Table 14: Results of Survey Q.14

<table>
<thead>
<tr>
<th>Likert-scale</th>
<th>Campus</th>
<th>Distance</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Extremely important</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>(2) Very important</td>
<td>10</td>
<td>4</td>
</tr>
<tr>
<td>(3) Moderately important</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>(4) Slightly important</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>(5) Not at all important</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

A pie chart detailing responses for question 14 is available in Appendix C.

A Mann-Whitney test was run to determine if there were differences in the importance to learning quality based on the structure of course content between traditional campus and on-line distance students.

The results show that there was no statistically significant difference in engagement scores between between Campus students (M = 10.17) and Distance students (M = 12.11),

\[ U = 64, \ z = 0.861, \ p = 0.389. \]

\( (P= 0.389)>(A=0.05)=Null(0) \) Hypotheses is true

Additional comments from one distance student indicated that improvements should be made to the structure of course content. Unfortunately there were no suggestions as to what aspects of the course content needed improvement.
4.3.14 Results of Survey Q. 15

Q. 15 How easy was it to find course information in the course web-portal (BlackBoard, Moodle)?

This question was part of the dimension Learner-Interface interactions. The results of the survey were as follows.

<table>
<thead>
<tr>
<th>Likert-scale</th>
<th>Campus</th>
<th>Distance</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Extremely easy</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>(2) Very easy</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>(3) Moderately easy</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>(4) Slightly easy</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>(5) Not at all easy</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

A pie chart detailing responses for question 15 is available in Appendix C.

A Mann-Whitney test was run to determine if there were differences in the perceived difficulty of finding course information in the CMS between traditional campus and on-line distance students.

The results show that there was no statistically significant difference in engagement scores between between Campus students (M = 10.83) and Distance students (M = 11.22),

\[ U = 56, z = 0.147, p = 0.883. \]

\( (P = 0.883) > (A = 0.05) \Rightarrow \text{Null(0) Hypotheses is true} \)

Additional comments by one distance student stated that “The web-platform is complicated and unmanageable”.
4.3.15 Results of Survey Q. 16

Q. 16 How easy was it to navigate through the different pages of the web-portal (BlackBoard, Moodle)?

This question was part of the dimension Learner-Interface interactions. The results of the survey were as follows.

*Table 16: Results of Survey Q.16*

<table>
<thead>
<tr>
<th>Likert-scale</th>
<th>Campus</th>
<th>Distance</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Extremely easy</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>(2) Very easy</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>(3) Moderately easy</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>(4) Slightly easy</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>(5) Not at all easy</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

A pie chart detailing responses for question 16 is available in Appendix C.

A Mann-Whitney test was run to determine if there were differences in the ability to navigate through the CMS between traditional campus and on-line distance students.

The results show that there was no statistically significant difference in engagement scores between between Campus students (M = 10.38) and Distance students (M = 11.83),

\[ U = 61.5, z = 0.556, p = 0.578. \]

\[(P= 0.578)>(A=0.05)\Rightarrow Null(0) Hypotheses is true\]

There were no additional comments supplied for this question by participants.
4.3.16 Results of Survey Q. 17

Q. 17 How well do the classrooms / virtual classrooms meet the learning needs of students?

This question was part of the dimension Learner-Interface interactions. The results of the survey were as follows.

<table>
<thead>
<tr>
<th>Likert-scale</th>
<th>Campus</th>
<th>Distance</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Extremely well</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>(2) Very well</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>(3) Moderately well</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>(4) Slightly well</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>(5) Not at all well</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

A pie chart detailing responses for question 17 is available in Appendix C.

A Mann-Whitney test was run to determine if there were differences in how well the classrooms/virtual classroom met the needs of students, between traditional campus and on-line distance students.

The results show that there was no statistically significant difference in engagement scores between between Campus students (M = 8.88) and Distance students (M = 13.83),

\[ U = 79.5, z = 1.904, p = 0.57. \]

(P = 0.57) >(A=0.05)=> Null(0) Hypotheses is true

Additional comments suggested that a teaching assistant with responsibility for on-line students could improve the overall classroom interactions.
4.3.17 Results of Survey Q. 18

Q. 18 How important to your learning experience is the classroom interface software Adobe Connect (Hardware problems not to be considered)?

This question was part of the dimension Learner-Interface interactions. The results of the survey were as follows.

Table 18: Results of Survey Q.18

<table>
<thead>
<tr>
<th>Likert-scale</th>
<th>Campus</th>
<th>Distance</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Extremely important</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>(2) Very important</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>(3) Moderately important</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>(4) Slightly important</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>(5) Not at all important</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

A pie chart detailing responses for question 18 is available in Appendix C.

A Mann-Whitney test was run to determine if there were differences in the importance to learning experience of the classroom interface software Adobe Connect between traditional campus and on-line distance students.

The results show that there was no statistically significant difference in engagement scores between between Campus students ($M = 10.21$) and Distance students ($M = 12.06$),

\[ U = 63.5, \, z = 0.709, \, p = 0.479. \]

\[ (P = 0.479) > (A = 0.05) \Rightarrow \text{Null(0) Hypotheses is true} \]

There were no additional comments supplied for this question by participants.
4.3.18 Results of Survey Q. 19

Q. 19 How much social interaction do you have with other students that is not course related?

This question was part of the dimension Social interactions. The results of the survey were as follows.

Table 19: Results of Survey Q.19

<table>
<thead>
<tr>
<th>Likert-scale</th>
<th>Campus</th>
<th>Distance</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Constant</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>(2) A lot</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>(3) Moderate amount</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>(4) A little</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>(5) None at all</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

A pie chart detailing responses for question 19 is available in Appendix C.

A Mann-Whitney test was run to determine if there were differences in Learner-Learner social interaction outside of the course setting, for traditional campus and on-line distance students.

The results show that there was a statistically significant difference in engagement scores between between Campus students (M = 8.54) and Distance students (M = 14.22),

\[ U = 83, z = 2.181, p = 0.029. \]

(P = 0.029 < (A = 0.05) => Null(0) Hypotheses is false => Alternative(1) Hypotheses is true

No additional comments were supplied by participants for this question.
4.3.19 Results of Survey Q. 20

Q. 20 How much did the course design influence your interactions with other students?

This question was part of the dimension **Social** interactions. The results of the survey were as follows.

<table>
<thead>
<tr>
<th>Likert-scale</th>
<th>Campus</th>
<th>Distance</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Influenced to a very large extent</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>(2) Influenced to a large extent</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>(3) Influenced moderately</td>
<td>9</td>
<td>3</td>
</tr>
<tr>
<td>(4) Influenced slightly</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>(5) Does not influence at all</td>
<td>1</td>
<td>3</td>
</tr>
</tbody>
</table>

A pie chart detailing responses for question 20 is available in Appendix C.

A Mann-Whitney test was run to determine if there were differences in how much course design influenced Learner-Learner interactions, between traditional campus and on-line distance students. The results show that there was no statistically significant difference in engagement scores between between Campus students  (M = 10.29) and Distance students  (M = 11.94),

\[ U = 62.5, z = 0.673, p = 0.501. \]

\((P = 0.501) > (A = 0.05) \Rightarrow \text{Null(0) Hypotheses is true}\)

No additional comments were supplied by participants for this question.
4.3.20 Results of Survey Q. 21

Q. 21 How important to learning quality is social interaction to you?

This question was part of the dimension Social interactions. The results of the survey were as follows.

Table 21: Results of Survey Q. 21

<table>
<thead>
<tr>
<th>Likert-scale</th>
<th>Campus</th>
<th>Distance</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Extremely important</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>(2) Very important</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>(3) Average importance</td>
<td>9</td>
<td>3</td>
</tr>
<tr>
<td>(4) Slightly important</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>(5) Not at all important</td>
<td>1</td>
<td>3</td>
</tr>
</tbody>
</table>

A pie chart detailing responses for question 21 is available in Appendix C.

A Mann-Whitney test was run to determine if there were differences in the importance of social interactions to the quality of learning, between traditional campus and on-line distance students.

The results show that there was no statistically significant difference in engagement scores between Campus students (M = 12.12) and Distance students (M = 9.5),

\[ U = 40.5, z = -1.103, p = 0.270. \]

\( (P = 0.270) > (A = 0.05) = \text{Null(0)} \text{ Hypotheses is true} \)

One additional comment stated that it was through interaction we learn and that is why it is so important.
4.4 Results Summary

<table>
<thead>
<tr>
<th>Dimension: Instructor – Learner</th>
<th>Campus Mean Rank</th>
<th>Distance Mean Rank</th>
<th>Mann-Whitney U</th>
<th>Test Statistic Z</th>
<th>2-Sided Test P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q2</td>
<td>9.92</td>
<td>12.44</td>
<td>67</td>
<td>1.020</td>
<td>0.308</td>
</tr>
<tr>
<td>Q3</td>
<td>10.17</td>
<td>12.11</td>
<td>64</td>
<td>0.752</td>
<td>0.452</td>
</tr>
<tr>
<td>Q4</td>
<td>8.75</td>
<td>14.00</td>
<td>81</td>
<td>2.017</td>
<td>0.044</td>
</tr>
<tr>
<td>Q5</td>
<td>9.38</td>
<td>13.17</td>
<td>73.5</td>
<td>1.459</td>
<td>0.145</td>
</tr>
<tr>
<td>Q6</td>
<td>10.17</td>
<td>12.11</td>
<td>64</td>
<td>0.764</td>
<td>0.445</td>
</tr>
<tr>
<td>Q7</td>
<td>10.08</td>
<td>12.22</td>
<td>65</td>
<td>0.828</td>
<td>0.408</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dimension: Learner – Learner</th>
<th>Campus Mean Rank</th>
<th>Distance Mean Rank</th>
<th>Mann-Whitney U</th>
<th>Test Statistic Z</th>
<th>2-Sided Test P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q8</td>
<td>9.21</td>
<td>13.39</td>
<td>75.5</td>
<td>1.569</td>
<td>0.117</td>
</tr>
<tr>
<td>Q9</td>
<td>11.79</td>
<td>9.94</td>
<td>44.5</td>
<td>-0.705</td>
<td>0.481</td>
</tr>
<tr>
<td>Q10</td>
<td>11.75</td>
<td>10.00</td>
<td>45</td>
<td>-0.668</td>
<td>0.504</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dimension: Learner – Content</th>
<th>Campus Mean Rank</th>
<th>Distance Mean Rank</th>
<th>Mann-Whitney U</th>
<th>Test Statistic Z</th>
<th>2-Sided Test P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q11</td>
<td>11.58</td>
<td>10.22</td>
<td>47</td>
<td>-0.534</td>
<td>0.593</td>
</tr>
<tr>
<td>Q12</td>
<td>9.29</td>
<td>13.28</td>
<td>74.5</td>
<td>1.523</td>
<td>0.128</td>
</tr>
<tr>
<td>Q13</td>
<td>10.83</td>
<td>11.22</td>
<td>56</td>
<td>0.150</td>
<td>0.881</td>
</tr>
<tr>
<td>Q14</td>
<td>10.17</td>
<td>12.11</td>
<td>64</td>
<td>0.861</td>
<td>0.389</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dimension: Learner – Interface</th>
<th>Campus Mean Rank</th>
<th>Distance Mean Rank</th>
<th>Mann-Whitney U</th>
<th>Test Statistic Z</th>
<th>2-Sided Test P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q15</td>
<td>10.83</td>
<td>11.22</td>
<td>56</td>
<td>0.147</td>
<td>0.883</td>
</tr>
<tr>
<td>Q16</td>
<td>10.38</td>
<td>11.83</td>
<td>61.5</td>
<td>0.556</td>
<td>0.578</td>
</tr>
<tr>
<td>Q17</td>
<td>8.88</td>
<td>13.83</td>
<td>79.5</td>
<td>1.904</td>
<td>0.057</td>
</tr>
<tr>
<td>Q18</td>
<td>10.21</td>
<td>12.06</td>
<td>63.5</td>
<td>0.709</td>
<td>0.479</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dimension: Social interaction</th>
<th>Campus Mean Rank</th>
<th>Distance Mean Rank</th>
<th>Mann-Whitney U</th>
<th>Test Statistic Z</th>
<th>2-Sided Test P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q19</td>
<td>8.58</td>
<td>14.22</td>
<td>83</td>
<td>2.182</td>
<td>0.029</td>
</tr>
<tr>
<td>Q20</td>
<td>10.29</td>
<td>11.94</td>
<td>62.5</td>
<td>0.673</td>
<td>0.501</td>
</tr>
<tr>
<td>Q21</td>
<td>12.12</td>
<td>9.50</td>
<td>40.5</td>
<td>-1.103</td>
<td>0.270</td>
</tr>
</tbody>
</table>

Table #
As can be seen from the summary of the results, two questions asked as part of the survey showed a significant statistical difference when compared to both campus and distance students.

1. Question 4: “How would you rate instructor participation in class discussions? (Campus Students)
How would you rate instructor participation in on-line discussions? (Distance Students)”
This question related to the dimension for Instructor-Learner interactions.

2. Question 19: “How much social interaction do you have with other students that is not course related?”
This question related to the dimension of Social interaction.
4.5 Results of Research Questions:

1. **Instructor-Learner:** How does the quality of the learning experience compare between distance and on-campus learning methods based on Instructor-Learner interaction?

   **Result:** There was a significant statistical difference for one of the questions relating to quality of learning experience between distance and on-campus learning methods based on Instructor-Learner interaction.

   Analysis of the results regarding Instructor-Learner dimension of interaction show that there was a high degree to which these interactions influenced the students quality of learning. This seems to be consistent with previous research. The additional comments relating to the question which showed a statistical difference highlighted the fact that additional teaching aides needed to be in-place to provide a more meaningful interaction within the teaching space. Suggestions included a teaching assistant with responsibility for monitoring on-line participants.

2. **Learner-Learner:** How does the quality of the learning experience compare between distance and on-campus learning methods based on Learner-Learner interaction?

   **Result:** There was no significant difference between the quality of learning experience between distance and on-campus learning methods based on Learner-Learner interaction.

   Analysis of the results show that time spent on Learner-Learner interactions tended to be quite low for distance students when compared directly to campus students. The results also show that the influence this dimension of interaction has on the quality of learning for distance students was quite high. What this suggests is the importance of Learner-Learner interactions to both learning methods but possible time restrictions placed on distance students outside the influence of the program.
3. **Learner-Content**: How does the quality of the learning experience compare between distance and on-campus learning methods based on learner-content interaction?

   **Result**: There was no statistically significant difference between the quality of learning experience between distance and on-campus learning methods based on learner-content interactions.

   Both learning methods found Learner-Content interactions to be of above average importance to the quality of the learning experience. But additional comments suggested that the design of content was only moderately structured to encourage participation. This highlights the value of Learner-Content interactions and the need to create more engaging content in order to motivate greater participation.

4. **Learner-interface**: How does the quality of the learning experience compare between distance and on-campus learning methods based on Learner-interface interaction?

   **Result**: No significant difference between the quality of learning experience between distance and on-campus learning methods based on Learner-Interface interactions.

   Analysis of the Learner-Interface dimension of interaction found that while there was no statistical difference to be found there were difficulties with Learner-Interface interactions for both groups. Finding of information was of average ease to both learning methods but navigation of the interface was considered slightly difficult. Distance students also showed less satisfaction with the classroom interface. The results also show a These findings suggest that more training is needed for both distance and campus students with the interface systems they need to use.
5. **Social interaction:** How does the quality of the learning experience compare between distance and on-campus learning methods based on social interaction?

**Result:** There was a significant statistical difference for one of the questions relating to quality of learning experience between distance and on-campus learning methods based on social interaction.

Social interaction shows very similar results to that of Learner-Learner interactions. Time spent on social interactions with other students was quite low but the importance of social interaction on the quality of learning was deemed to be quite high.

The results show that overall there is little statistical difference between the quality of learning experience for traditional campus students to that of on-line distance students. But the results do highlight a number of interesting issues. The two questions which showed a difference were related to the Instructor-Learner and Social dimensions of interaction. Research has shown the importance of Instructor-Learner interactions and the additional comments provided by distance students highlight the need for them to be able to participate more in live discussions with the instructor. Other comments suggested the use of a teaching assistant to monitor on-line discussions during live classes and facilitate their inclusion into the classroom.

The question relating to the Social dimension of interaction which showed a statistical difference maybe explained by a greater social bond that is created between people in real life situations as opposed to the social bond created through on-line interactions. These type of social bonds if they exist fall outside the scope of this research field.

Another interesting point to note was the considerably low time spent by students on Learner-Learner and Social interactions, yet the perceivably high importance that was placed on these interactions on the quality of their learning experience.
5 Discussion and Recommendations

5.1 Discussion

This study has compared the quality of learning experiences for distance on-line students to that of traditional campus students of a masters program in Linnaeus University, Sweden. Using an adaptation of “The Theory of on-line Quality” five dimensions of interaction were identified as critical to the learning experience. The study has found that there was little statistical difference between the quality of learning experience for traditional campus students to that of on-line distance students. While two questions did show a statistical difference, the overall results showed that the quality learning experience of the on-line students was very comparable to that of their campus counterparts. The adapted theory used to conduct this study was very well suited to the research. It was able to use the dimensions of interaction that contribute to the quality of the learning experience which have been identified from previous research and make a direct comparison between both learning methods.

From a view of the results there seems to be a larger percentage of strongly negative responses from distance students and a larger percentage of strongly positive responses from campus students. While this would indicate a higher level of quality learning experience for campus students the statistical analysis shows that there isn't a statistically significant difference in the overall results with the exception of two questions.

Previous research has shown the importance of Instructor-Learner interactions and while only one of the questions relating to this dimension showed a difference it is important to look at the underlying factors. The additional comments from distance students highlighted a number of issues which need to be addressed.

While the research was designed to study the quality of the masters program as a whole, the inconsistency of teaching effectiveness between courses was mentioned by a number of students in their additional comments. This issue raises the question as to how can teaching effectiveness be made more consistent across the different courses. Are special guidelines needed for instructors when teaching through the on-line medium. It is my belief that the quality measures advocated by the UNIQUe standard which require university staff to be supplied with such guidelines would help to create a more consistent learning experience between courses.

The Instructor-Learner dimension of interaction survey question which showed a difference between learning methods was in relation to instructor participation in discussions. It is understandable that instructors would find it
difficult to be involved in both a class and on-line discussion at the same time which is why the additional comment that suggested having a teaching assistant monitor on-line chat makes a lot of sense. This would give the instructor the chance to concentrate on the class and be advised by the teaching assistant when an on-line comment needs their attention.

Other comments relating to instructor feedback believed that the quality of the feedback was good but that there wasn't enough. A different pedagogical approach according to Creelman (2013) advocates the concept of feed-forward as opposed to feedback. This viewpoint highlights the fact that students can accomplish tasks more fully if the ability to guide them forward is in place. While the usual case of feedback occurs after the task is finished and can prove insightful to students who have failed the task but is of little concern to those who have passed.

Some of the research questions showed very interesting results, a comparison of Question (7) and Question (21) shows that distance students find Social interaction with other students to be more important to the quality of learning experience than interactions with instructors. While results from campus students are identical when compared. This highlights the huge importance that Social interaction plays in the quality of learning experience for on-line students.

Another Question which produced an unexpected result was Question (18), this question concerned the importance of the classroom interface software Adobe Connect on the quality of learning experience. The results showed that campus students found this interaction element to be of more importance than distance students. The reason this result is unexpected is the fact that campus students rely a lot less on this interface due to the fact that they attend lectures in person and their only need for this interface would be to watch recorded lectures. While distance students rely solely on this Interface to connect with lectures and I would have thought that this would have been reflected in the results.
5.2 Recommendations

As a result of the findings from this comparative case study into the quality of learning experiences for distance on-line learning students at a Masters level, a number of recommendations have been formulated. These recommendations address issues that were identified following analysis of the quantitative survey results and the additional qualitative comments made by respondents as part of the survey. I have also included in the recommendations areas identified which would merit further research.

Following this research I would recommend that higher learning institutes that wish to advance their on-line education offerings put in-place quality measures to ensure the learning experiences for on-line students is consistently monitored and up-dated as needed. This may include the use of teaching assistants with the sole responsibility for distance students during live lectures. Having a representative in the classroom would allow for them to interact more readily and give them a voice. The results also highlighted the importance placed by students on interactions with other students both in the confines of the course and also in a social context on the quality of learning experience. I would recommend that future on-line courses take this into account when designing course content. The review of literature described in brief the UNIQUe standard for quality in eLearning. I would recommend adoption of this standard for all European institutes of higher education which intend to further the development of on-line distance education.

I believe that there is merit in conducting more comprehensive research in the area of learning experience in on-line education. Further research should try to encompass a broader range of University faculties and all levels of higher education from pre-graduate to doctorate level. A better understanding of the thoughts and opinions of faculty would add greatly to the field of research. This further research need not only focus on instructors and teaching staff but also on the many other levels of University staff who may be affected by this emerging field of on-line education.

In addition, the emergence of new learning technologies opens up huge scope for research into their suitability, functionality and effects on the quality of learning experiences for on-line learning. With the seemingly endless development of these technologies there is plenty of future scope for research in the field.
6 Conclusions

It seems obvious to me that the future of on-line education is secure, while still in its infancy when compared to traditional education it seems that given the correct resources it can provide the same quality of learning experience. More and more learning opportunities are being made available as a result of developments in technologies. Each day advancements in these technologies enable further migration from the traditional class to the virtual one. Technologies such as 3D virtual reality will enable the educators of the future to create learning environments that may surpass those of the present.

As exciting as these advancements may sound the most important aspect of education will always be the quality of the learning. Technologies and tools should be used to enhance the quality of the learning experience and not over shadow it.

This study which used an adapted version of “The Theory of on-line education” has compared the quality of learning experiences for students in a traditional campus setting to those of distance on-line students. The results which were compared using five dimensions of interaction have shown that the quality of learning experiences for both learning methods are comparable. This in turn validates the ICTs used by Linnaeus University to provide a quality learning experience for the distance students of this program. I am happy to say that I am very pleased with the result, having personally witnessed the hard work carried out by all the teaching staff. But the hard work does not stop here, as outlined in the UNIQUe standard the development of eLearning is a continuous task which needs to be monitored and updated as newer and better technologies emerge. Educators around the world need to understand that education is no longer just about providing content but more importantly about providing context.

What this study has attempted to do, is heighten awareness of the learning experience. To insure that the quality of the learning experience is a core principle to be incorporated into on-line learning environments. There are many different strategies and tools available for the many aspects of the learning experience. No one tool or strategy can do it all but the right combination can make it as easy as A B C. Through the use of open-source material and a sharing of design strategies the future of on-line education looks bright.
References


Creelman, A., 2013. *Interview on state of eLearning*. Interviewed by Hayes, J., [Face to Face meeting] Date: 2013-04-10


McPhee, I., Söderström, T., 2012, Distance, on-line and campus higher education: reflections on learning outcomes, *Campus-Wide Information Systems*, Vol. 29 Iss: 3 pp. 144 - 155


UNIQe, 2011, *Information Pack*, EFQUEL, Brussels, Belgium


8. Appendix

8.1 Appendix A: Research into distance education opportunities in Sweden.

The online database provided by Antagning provides a search facility for higher learning opportunities within Sweden. Each institute in the list below was searched for total number of courses and then a filter was used to search for distance learning opportunities within that institute. These numbers were then used to calculate % of distance courses.

Source: <https://www.antagning.se> [Accessed 13 April 2013]

<table>
<thead>
<tr>
<th>Swedish University Courses</th>
<th>Provide Distance Courses</th>
<th>Total # of Courses</th>
<th>% of Distance Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>University / Institute of Higher Education</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 Blickinge Institute of Technology</td>
<td>Yes</td>
<td>48</td>
<td>3</td>
</tr>
<tr>
<td>2 Chalmers University of Technology</td>
<td>No</td>
<td>132</td>
<td>0</td>
</tr>
<tr>
<td>3 Dalarna University</td>
<td>Yes</td>
<td>530</td>
<td>355</td>
</tr>
<tr>
<td>4 Ersta Sköndal University College</td>
<td>No</td>
<td>21</td>
<td>0</td>
</tr>
<tr>
<td>5 Göteborg University of Sport and Health Sci</td>
<td>No</td>
<td>20</td>
<td>0</td>
</tr>
<tr>
<td>6 Göteborg University</td>
<td>Yes</td>
<td>150</td>
<td>70</td>
</tr>
<tr>
<td>7 Halmstad University</td>
<td>Yes</td>
<td>275</td>
<td>59</td>
</tr>
<tr>
<td>8 Jönköping University</td>
<td>Yes</td>
<td>193</td>
<td>46</td>
</tr>
<tr>
<td>9 Karlstad University</td>
<td>Yes</td>
<td>791</td>
<td>254</td>
</tr>
<tr>
<td>10 Karlstads Institut</td>
<td>No</td>
<td>73</td>
<td>20</td>
</tr>
<tr>
<td>11 Konstfack</td>
<td>No</td>
<td>46</td>
<td>3</td>
</tr>
<tr>
<td>12 Kristianstad University</td>
<td>No</td>
<td>274</td>
<td>147</td>
</tr>
<tr>
<td>13 KTH Royal Institute of Technology</td>
<td>Yes</td>
<td>217</td>
<td>24</td>
</tr>
<tr>
<td>14 Linköping University</td>
<td>No</td>
<td>482</td>
<td>65</td>
</tr>
<tr>
<td>15 Linköping University</td>
<td>Yes</td>
<td>1114</td>
<td>396</td>
</tr>
<tr>
<td>16 Luleå University of Technology</td>
<td>Yes</td>
<td>707</td>
<td>175</td>
</tr>
<tr>
<td>17 Lund University</td>
<td>No</td>
<td>1680</td>
<td>229</td>
</tr>
<tr>
<td>18 Malmö University</td>
<td>No</td>
<td>434</td>
<td>103</td>
</tr>
<tr>
<td>19 Mid Sweden University</td>
<td>No</td>
<td>514</td>
<td>270</td>
</tr>
<tr>
<td>20 Munka University</td>
<td>Yes</td>
<td>454</td>
<td>32</td>
</tr>
<tr>
<td>21 SLU – Swedish University of Agricultural Sci</td>
<td>Yes</td>
<td>360</td>
<td>12</td>
</tr>
<tr>
<td>22 Södertörn University</td>
<td>Yes</td>
<td>1733</td>
<td>138</td>
</tr>
<tr>
<td>23 Södertörn University</td>
<td>Yes</td>
<td>270</td>
<td>23</td>
</tr>
<tr>
<td>24 Umeå University</td>
<td>Yes</td>
<td>1574</td>
<td>544</td>
</tr>
<tr>
<td>25 University of Borås</td>
<td>Yes</td>
<td>141</td>
<td>45</td>
</tr>
<tr>
<td>26 University of Gothenburg</td>
<td>Yes</td>
<td>1745</td>
<td>139</td>
</tr>
<tr>
<td>27 University of Göteborg</td>
<td>Yes</td>
<td>396</td>
<td>172</td>
</tr>
<tr>
<td>28 University of Skövde</td>
<td>Yes</td>
<td>288</td>
<td>80</td>
</tr>
<tr>
<td>29 University West</td>
<td>Yes</td>
<td>198</td>
<td>28</td>
</tr>
<tr>
<td>30 Uppsala University</td>
<td>Yes</td>
<td>1733</td>
<td>282</td>
</tr>
<tr>
<td>31 Örebro University</td>
<td>Yes</td>
<td>354</td>
<td>54</td>
</tr>
</tbody>
</table>

93.55% 16189 3217 19.87%

Fig. # Higher education opportunities in Sweden.
### 8.2 Appendix B: Questionnaire Survey

This survey will be used in research into the quality of learning for campus and distance Masters students at Linnaeus University. The results will be used for the purposes of my Masters thesis. The additional comments boxes after each question are provided in case there is something you would like to add and which you believe maybe relevant to my research.

Participation in the survey is voluntary and you may withdraw from participation at anytime without reason. All data will be treated as confidential and will be stored securely.

By completing and submitting the survey you are agreeing to the above statement.

Thank you for your time.
Jonathan Hayes

<table>
<thead>
<tr>
<th>1. Are you a campus or distance student?</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐ Campus</td>
</tr>
<tr>
<td>☐ Distance</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2. How effective is the teaching for this Masters program?</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐ Extremely effective</td>
</tr>
<tr>
<td>☐ Very effective</td>
</tr>
<tr>
<td>☐ Moderately effective</td>
</tr>
<tr>
<td>☐ Slightly effective</td>
</tr>
<tr>
<td>☐ Not at all effective</td>
</tr>
</tbody>
</table>

Any additional comments

<table>
<thead>
<tr>
<th>3. How helpful is the instructor feedback?</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐ Extremely helpful</td>
</tr>
<tr>
<td>☐ Very helpful</td>
</tr>
<tr>
<td>☐ Moderately helpful</td>
</tr>
<tr>
<td>☐ Slightly helpful</td>
</tr>
<tr>
<td>☐ Not at all helpful</td>
</tr>
</tbody>
</table>

Any additional comments
4. How would you rate instructor participation in class discussions? (Campus students)

How would you rate instructor participation in online discussions? (Distance students)

- Extremely good
- Very good
- Moderately good
- Slightly good
- Not at all good

Any additional comments

5. How effective are the instructors at motivating students?

- Extremely effective
- Very effective
- Moderately effective
- Slightly effective
- Not at all effective

Any additional comments

6. How effective are the instructors at delivering valuable course content?

- Extremely effective
- Very effective
- Moderately effective
- Slightly effective
- Not at all effective

Any additional comments
7. How much does your interactions with the instructors influence the quality of learning?
- Influences to a very large extent
- Influences to a large extent
- Influences moderately
- Influences slightly
- Does not influence at all

Any additional comments

8. How much interaction do you have with other students?
- > 20 hours per month
- 15 - 20 hours per month
- 10 - 15 hours per month
- 5 - 10 hours per month
- < 5 hours per month

Any additional comments

9. How relevant and meaningful to the course are your interactions with other students?
- Extremely relevant
- Very relevant
- Moderately relevant
- Slightly relevant
- Not at all relevant

Any additional comments
10. How much does your interactions with other students influence the quality of learning?
- Influences to a very large extent
- Influences to a large extent
- Influences moderately
- Influences slightly
- Does not influence at all

Any additional comments

11. How explicit were course objectives stated (Expected learning outcomes)?
- Extremely explicit
- Very explicit
- Moderately explicit
- Slightly explicit
- Not at all explicit

Any additional comments

12. How well structured was course content to encourage participation?
- Extremely structured
- Very structured
- Moderately structured
- Slightly structured
- Not at all structured

Any additional comments
13. How would you rate instructor created outlines and summaries of course content?
- Extremely good
- Good
- Average
- Poor
- Extremely poor

Any additional comments:

14. How important to learning quality is the structure of course content to you?
- Extremely important
- Very important
- Average importance
- Slightly important
- Not at all important

Any additional comments:

15. How easy was it to find course information in the course web-portal (BlackBoard, Moodle)?
- Extremely easy
- Very easy
- Average easy
- Slightly easy
- Not at all easy

Any additional comments:
16. How easy was it to navigate through the different pages of the course web-portal (BlackBoard, Moodle)?

- Extremely easy
- Very easy
- Average easy
- Slightly easy
- Not at all easy

Any additional comments:

17. How well do the classrooms / virtual classrooms meet the learning needs of students?

- Extremely well
- Very well
- Moderately well
- Slightly well
- Not at all well

Any additional comments:

18. How important to your learning experience is the classroom interface software Adobe Connect (Hardware problems not to be considered)?

- Extremely important
- Very important
- Average importance
- Slightly important
- Not at all important

Any additional comments:
19. How much social interaction do you have with other students that is not course related?
   - Constant
   - A lot
   - Moderate amount
   - A little
   - None at all
   Any additional comments

20. How much did the course design influence your interactions with other students?
   - Influences to a very large extent
   - Influences to a large extent
   - Influences moderately
   - Influences Slightly
   - Does not influence at all
   Any additional comments

21. How important to learning quality is social class interaction to you?
   - Extremely important
   - Very important
   - Average importance
   - Slightly important
   - Not at all important
   Any additional comments
8.3 Appendix C

Pie charts detailing results from the evaluation survey.

**Q. 2 How effective is the teaching for this Masters Course?**

![Fig. 5.2 Results from Question 2 of the evaluation survey.](image)

**Q. 3 How helpful is the instructor feedback?**

![Fig. 5.3 Results from Question 3 of the evaluation survey.](image)
Q. 4 How would you rate instructor participation in class discussions?  
(Campus Students)  
How would you rate instructor participation in on-line discussions?  
(Distance Students)

[pie chart showing results]

Campus Students: 50.0% (6), 25.0% (3), 16.7% (2), 8.3% (1)  
Distance Students: 22.2% (2), 22.2% (2), 33.3% (3)

Fig. 5.4 Results from Question 4 of the evaluation survey.

Q. 5 How effective are the instructors at motivating students?

[pie chart showing results]

Campus Students: 41.7% (5), 22.2% (2), 16.7% (2), 33.3% (3)  
Distance Students: 22.2% (2), 22.2% (2)

Fig. 5.5 Results from Question 5 of the evaluation survey.
Q. 6 How effective are the instructors at delivering valuable course content?

Fig. 5.6 Results from Question 6 of the evaluation survey.

Q. 7 How much does your interactions with the instructors influence the quality of learning?

Fig. 5.7 Results from Question 7 of the evaluation survey.
Q. 8 How much interaction do you have with other students?

Fig. 5.8 Results from Question 8 of the evaluation survey.

Q. 9 How relevant and meaningful to the course are your interactions with other students?

Fig. 5.9 Results from Question 9 of the evaluation survey.
Q. 10 How much does your interaction with other students influence the quality of learning?

Fig. 5.10 Results from Question 10 of the evaluation survey.

Q. 11 How explicit were course objectives stated (Expected learning outcomes)?

Fig. 5.11 Results from Question 11 of the evaluation survey.
Q. 12 How well structured was course content to encourage participation?

![Pie charts showing results from Question 12 of the evaluation survey.](image1)

**Campus Students**
- Extremely structured: 16.7% (2)
- Very structured: 50.0% (6)
- Moderately structured: 8.3% (1)
- Slightly structured: 25.0% (3)
- Not at all structured: 44.4% (4)

**Distance Students**
- Extremely structured: 11.1% (1)
- Very structured: 22.2% (2)
- Moderately structured: 11.1% (1)
- Slightly structured: 33.3% (3)
- Not at all structured: 50.0% (6)

*Fig. 5.12 Results from Question 12 of the evaluation survey.*

Q. 13 How would you rate instructor created outlines and summaries of course content?

![Pie charts showing results from Question 13 of the evaluation survey.](image2)

**Campus Students**
- Extremely good: 16.7% (2)
- Good: 33.3% (4)
- Average: 33.3% (3)
- Poor: 11.1% (1)
- Extremely poor: 11.1% (1)

**Distance Students**
- Extremely good: 22.2% (2)
- Good: 11.1% (1)
- Average: 11.1% (1)
- Poor: 22.2% (2)
- Extremely poor: Not applicable

*Fig. 5.13 Results from Question 13 of the evaluation survey.*
Q. 14 How important to learning quality is the structure of course content to you?

![Pie chart showing responses to Q. 14](image)

Fig. 5.14 Results from Question 14 of the evaluation survey.

Q. 15 How easy was it to find course information in the course web-portal (BlackBoard, Moodle)?

![Pie chart showing responses to Q. 15](image)

Fig. 5.15 Results from Question 15 of the evaluation survey.
Q. 16 How easy was it to navigate through the different pages of the web-portal (BlackBoard, Moodle)?

Fig. 5.16 Results from Question 16 of the evaluation survey.

Q. 17 How well do the classrooms / virtual classrooms meet the learning needs of students?

Fig. 5.17 Results from Question 17 of the evaluation survey.
Q. 18 How important to your learning experience is the classroom interface software Adobe Connect (Hardware problems not to be considered)?

Fig. 5.18 Results from Question 18 of the evaluation survey.

Q. 19 How much social interaction do you have with other students that is not course related?

Fig. 5.19 Results from Question 19 of the evaluation survey.
Q. 20 How much did the course design influence your interactions with other students?

Fig. 5.20 Results from Question 20 of the evaluation survey.

Q. 21 How important to learning quality is social interaction to you?

Fig. 5.21 Results from Question 21 of the evaluation survey.