

ODL – The Open and Distance Learning Web Application

A dissertation submitted to The University of Manchester
for the degree of Master of Enterprise
in the Faculty of Humanities

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ABSTRACT

This dissertation is submitted to The University of Manchester for the degree of Master of Enterprise in the Faculty of Humanities. This dissertation comprises of two distinct and separate sections. The first section regards the science element behind developing a web based distance learning platform that enables individual instructors to teach online. This section therefore includes the requirements analysis, design, implementation, testing and evaluation of the software developed. The second section regards the business aspects of the enterprise, including market analysis, business model and commercialisation issues.

DECLARATION

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PREFACE

Rationale for the Master of Enterprise Dissertation

The Master of Enterprise (MEnt) research programme is unique as it comprises two distinct and separately marked elements. The first part is the subject element entitled Part 1: Subject. This is assessed by the 'home' School where the student is supervised by a Subject supervisor. This part of the work represents half of the overall dissertation (120 credits) and must therefore be assessed quantitatively and qualitatively on the basis of this.

The second part is the enterprise element entitled Part 2: Enterprise. This is assessed by Manchester Enterprise Centre (MEC) where the student is supervised by an Enterprise supervisor. This part of the work represents half of the overall dissertation (120 credits) and must therefore be assessed quantitatively and qualitatively on the basis of this.

The two parts of this complete dissertation will occasionally refer to each other.

PART 1:

SUBJECT

“ODL – THE OPEN AND DISTANCE LEARNING WEB APPLICATION”

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The University of Manchester

Abstract

The internet has evolved over the past few years, from HTML static pages and slow connections to web-based powerful applications and broadband connections enhancing the functionality and quality of e-learning. Open and distance, online learning is becoming more and more popular. Technological advances, the availability and drop in the cost of information technology, such as computers and internet connectivity, together with the need for distance learning by organisations and individuals made this new form of learning available to any person with internet connection worldwide. This e-learning method is being used extensively at different universities, colleges, militaries and commercial organisations. Whilst using these latest technological advancements, methods and tools, most e-learning web based applications are not successful. There is a need for a user friendly, easy to use, easy to learn to use and effective web based elearning application that allows individual instructors to deliver courses online so that they can easily teach other people effectively at a distance. Students will be able to learn by registering and then logging in to the online application. This report is the subject section of the dissertation submitted for the degree of 'Master of Enterprise' and is based on and extends previous work done by the author (Constantinou, 2008) in order to develop further and market the proposed application. It provides a brief analysis of the current process, previous work and investigates various available choices in order to implement a more effective system based on this analysis. This document includes the design, implementation and evaluation of this elearning application which offers a high level of user satisfaction.

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There are a number of individuals who made this work possible.

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Second, I would like to thank Microsoft, for producing and making available for free on its official website, tutorials on using programming languages and web authoring tools, such as ASP.NET, C#, Visual Basic, SQL Server 2010, AJAX, and most important Visual Web Developer 2020.

Third, I would like to thank The University of Manchester for accepting me as a student and also giving me access as a user to 'Blackboard' web application, so that I could have first hand experience on online educational material.

Special thanks to the people that took part in the surveys, interviews, and focus groups during the requirements elicitation phase, testing and evaluating the software developed.

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Chapter 1

1. Introduction

This chapter provides the foundation for the report. It introduces the key concepts, looks briefly at the project origins, identifies some of the problems faced with current approaches, and highlights the motivation for the project. Furthermore, it presents a brief description of the project goals and provides an outline of the report.

1.1 Project Origins

Open and distance learning is concerned with making available and delivering courses to students at physically remote locations. Various and different courses exist but mostly as part of formal education at universities or colleges worldwide (i.e. Open University, University of Phoenix, and University of Liverpool). The rapid growth of the internet and the worldwide web has made these courses ever more popular. A course on the internet typically consists of some sort of teaching material (such as text and animated notes), student support (such as email clients, chat rooms, message boards) and examination or evaluation material (such as online quizzes or exams). The crucial thing for the success of an open and distance learning web application is to deliver the educational content in an interesting way and format (not just static copies of notes) and be able to provide quick feedback and answers students' questions by the instructors themselves (not automated responses).

The objective of the project is to develop a web based elearning application, which can be used as a platform to manage, maintain and retrieve information related to online courses, and should be accessible to anybody willing to learn online, mainly through video tutorials by choosing the course and instructor according to their own criteria (i.e. instructor's achievements and reputation, instructor's ability to teach, usefulness and practicability of subject). In addition, this application needs to have a well designed interface based on the users' mental model which will provide access to the information in a user-friendly way, and deliver educational material in an interesting format.

1.2 Current Approach

The current open and distance learning approach is to have a central web based application for each specific department or organization. These can be implemented from a platform (such as Moodle) or developed by the organisation's IT department, or outsourced by companies specialised in learning technologies. Therefore a member of the teaching staff within the organisation will use the platform as a support tool for his course and that will be accessible only to the organisation's students. The students taking that course have to register first and then login to that system used by that university, in order to access the online educational material. Current systems mainly offer an upload/download facility and do not simulate the normal lecture with multimedia content.

1.3 Problems

After having looked at the various current approaches available, a number of problems were identified. A few problems associated with the current approaches are discussed below, illustrating the need for a new web application that solves these issues.

A common issue is that a person who wants to take part in different courses offered by different institutions, need to register and make a payment for each course, at each institution, and then gain access logging in to different online web based software applications and thus has to remember the different user names and passwords to access the educational material.

Since these will be different applications, there will not be any consistency and thus cause frustration and confusion for the user. The same is also true for users of the same platform participating in different courses within the same institution.

The teachings currently offered online are mainly for formal education, and therefore are expensive. Another problem has also surfaced, because the student usually pays first, after having just read a short description of the course outline, and then gains access to the material. This means that the learner doesn't know the instructor or his method of teaching or if the course delivers what is being expected in an interesting manner.

The main problem faced by an educational organization is that of developing the web application in house or outsource it, and then maintain it. Both ways (in-house or outsourcing) cost money and resources in developing and maintaining it. Most of these applications are confusing and complicated with poorly designed user interfaces and thus difficult to use. Return on investment is usually very difficult to be accomplished.

Most of the current systems are being used by the instructors as a common virtual location to store the educational materials provided as different files (such as PDF, MsWord or PowerPoint) that the instructor uploads and the student downloads on his own disc. The educational content should be available in some sort of multimedia content (such as videos or animations) online, which enhances learning, but this is not readily available in most systems as it needs more disc space on the servers.

Other small businesses and individuals with practical knowledge on various subjects that their income is based in educating people cannot afford spending so much money and resources in developing such an application. An e-learning platform can expand their sphere of influence, thus increasing profit, but this is not economically feasible for them.

Currently there is no such online elearning application that can be used by all instructors and learners simultaneously. As stated previously in the project description, a new application should be developed that delivers teaching material, student support and examination in an interesting way and format but also able to provide quick feedback to learners. The new application should solve these problems by allowing all instructors and learners to use it effectively in a user friendly way.

1.4 Other Work

In recent years, a number of elearning companies and organisations attempted to provide solutions to a few of the issues discussed. An example of an elearning platform which is currently being in use at The University of Manchester mainly as course support tool is Blackboard (used to be Web Course Tools).

Blackboard is an online proprietary virtual learning environment system which is sold to colleges and other institutions and is used in many campuses for e-learning. Instructors can add to their courses tools such as discussion boards, mail systems and live chat, along with content such as documents and web pages.

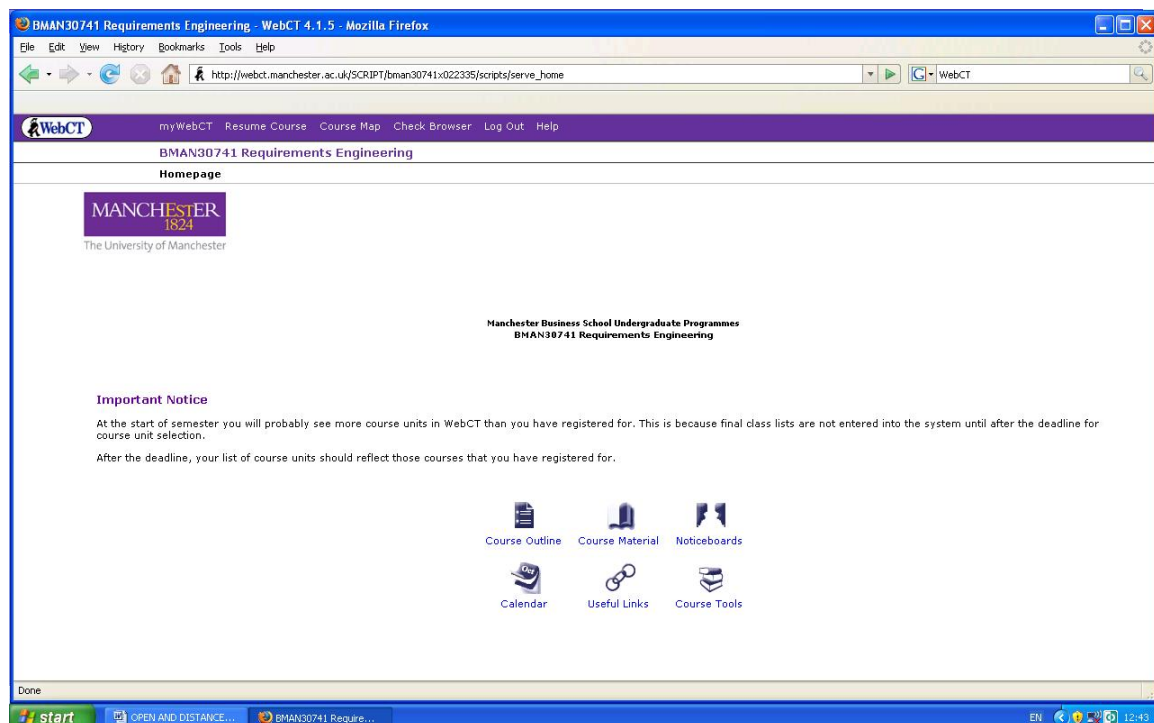


Figure 1 – WebCT used at The University of Manchester in 2008

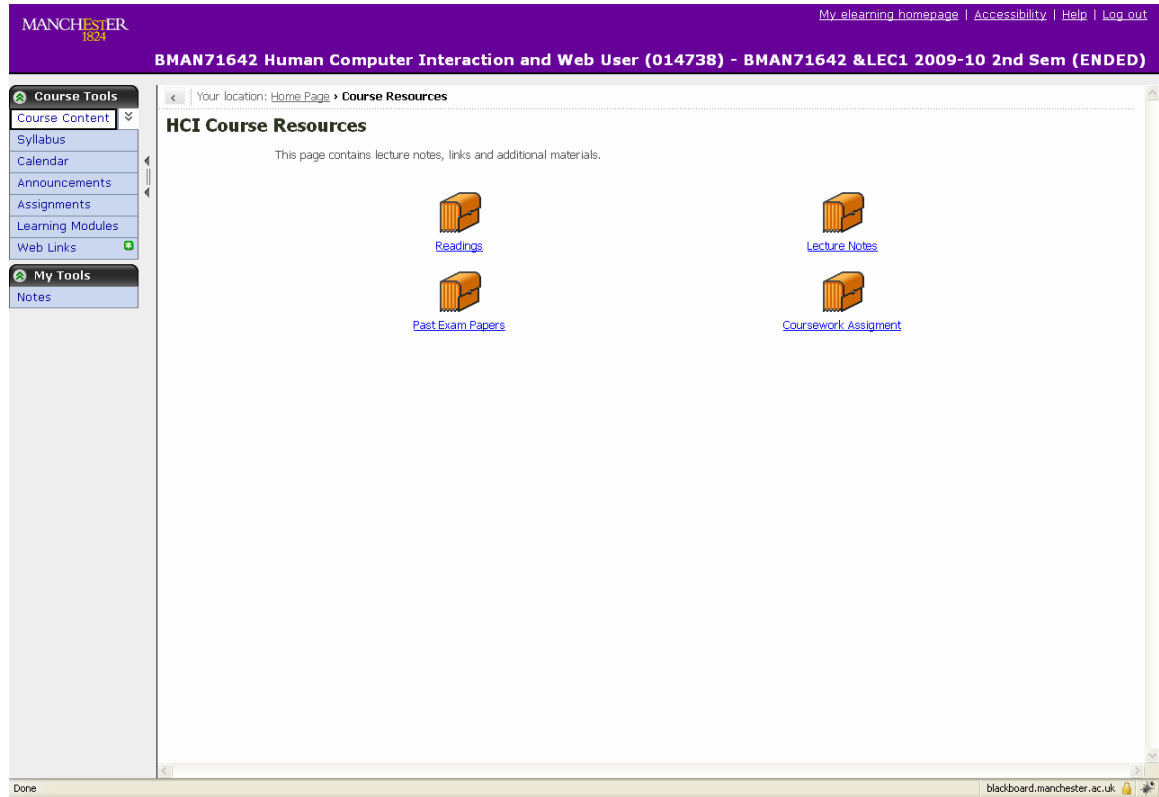


Figure 2 – Blackboard used at The University of Manchester in 2010

Another open source software application which is being used by other universities and educational institutions worldwide is Moodle (most popular e-learning platform). This application needs a strong and skilled IT department to set it up and maintain it within the organisation using it.

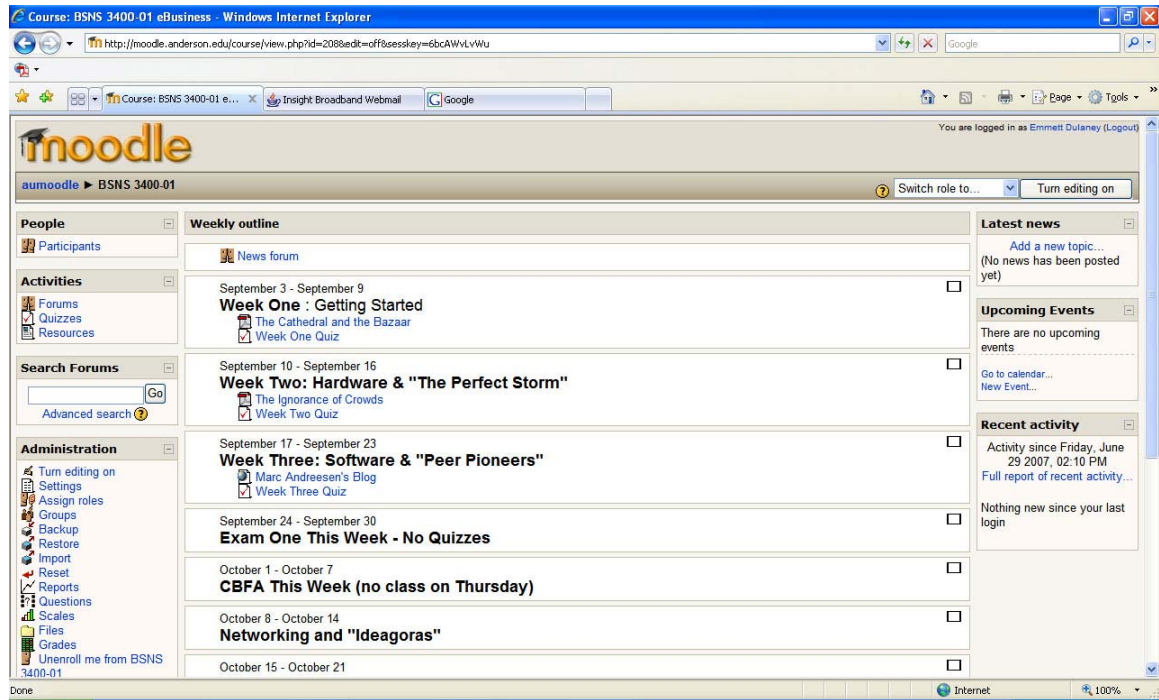


Figure 3 – Moodle used at Anderson University in 2010

These observations are taken into consideration throughout the project.

1.5 Project Goals

The main goal of this project is to develop an online elearning application that allows the individual instructors effectively and easily deliver their educational information in an interesting way. The application should allow the learners to log in, view their courses and access the courses' educational material. A user friendly, easy to learn and easy to use interface should facilitate customer experience, satisfaction and learning. The educational content should be displayed in various interesting formats that enhance learning such as to simulate a lecture with the use of multimedia content such as videos and animation.

To achieve the required results for this project, a detailed plan was produced. During however the actual development of the application, this plan was modified to meet the changing circumstances.

This development was accomplished in four main phases which include: Requirements, Design, Implementation, Testing and Evaluation.

The main advantages of the new elearning application include:

- Quick update of educational content by instructors.
- Safe and reliable authentication and authorization of the users.
- User friendly interface and functionalities.
- Easy to use, easy to learn how to use, and efficient.
- Lecture simulation based on multimedia content and animations thus enhancing learning and user experience.
- Ability to be accessed and used worldwide with devices connected on the internet.

1.6 Project Overview

The second chapter describes the background which has provided motivation and inspiration for this project. It gives a brief overview elearning, and then it explains the reasons for using this method of learning. Furthermore, it give a brief description of the different methods used, followed by some statistical figures. Finally it outlines some of the issues faced. Having investigated the background information, Chapter 3 briefly explains the gathered requirements of the proposed solution. Chapter 4 details the design phase and the methods used to design the proposed application. At this phase the final decision on how the system should be developed is documented. Furthermore, Chapter 5 explains the implementation phase with the details on the issues faced. Chapter 6 and 7 describe the outcome and results of the application's development. Finally, chapter 8 details the effectiveness of the project along with suggestions for future work and conclusions of the project.

1.7 Summary

This Chapter looked at the origins of the project, the problems with the current approach which needed to be resolved by introducing a new efficient elearning application and provided a brief explanation of other work carried out. Finally, the project goal was concluded. The following chapter investigates the background of elearning and highlights the benefits and problems of this approach.

Chapter 2

2. Background and Literature Survey

2.1 Background and Literature Survey

Distance learning is a method used to teach people at remote locations, and has been used extensively for over 2,000 years. The first distance learning method used was writing up educational material in the forms of letters or books, and then sending them to the learners. Well known examples of this correspondence course method include the teachings of the apostles (St. Paul) of Jesus Christ that trained different groups of Christians (new Christian churches in Asia Minor and the Mediterranean) using letters and books (University of Plymouth, 2007).

Distance education was defined by educational theorist Michael Moore as: "the family of instructional methods in which the teaching behaviours are executed apart from the learning behaviours ... so that communication between the learner and the teacher must be facilitated by print, electronic, mechanical, or other devices" (Moore, 1972: 76). The rapid technological advances over the past few decades have significantly affected the methods of delivering distance learning and education. These included radio training sessions, television educational shows, pre-recorded audio and video tutorials and nowadays also e-learning (Pasc and Vladicescu, 2007).

The 'e-learning' term does not have a universally accepted definition and so the actual term means different things to different people (Dublin, 2003). Derek Stockley (2003) defines e-learning as "the delivery of a learning, training or education program by electronic means, and involves the use of a computer or electronic device (e.g. a mobile phone) in some way to provide training, educational or learning material". Derek's definition regards only the delivery of educational material in electronic format, but doesn't mention the creation or the reason for learning. Lance Dublin (2003) defines e-learning as "the use of technologies to create, distribute, and deliver valuable data,

information, learning, and knowledge to improve on-the-job and organisational performance, and individual development”. This is a widely accepted definition since it includes the creation and distribution of educational information in electronic format.

Online learning is a term used very often to describe the most popular form of e-learning, which uses web-based tools to deliver learning through the internet (Interactive Quality Assessment Tool, 2010). Open learning can be defined as means of studying in your own free time (UNESCO, 2010), and it is the main trend and future of e-learning.

Open and distance, online learning is becoming more and more popular. Technological advances, the availability and drop in the cost of information technology, such as computers and internet connectivity, together with the need for distance learning by organisations and individuals made this new form of learning available to any person with internet connection worldwide. This e-learning method is being used extensively at different universities, colleges, militaries and commercial organisations.

The internet has also evolved over the past few years, from HTML static pages and slow connections to web-based powerful applications and broadband connections enhancing the functionality and quality of e-learning.

Doug Wallace and Anthony Levinson (2006) highlight the importance of separating educational content from its layout and delivery media, as being used by HTML static pages over the web, in order to make content highly re-usable and be able to present it more readily in different delivery media thus targeting more variety of audiences. They stress the importance of enforcing pedagogy and facilitating good user interface design in order to raise the quality of the solution. Their conclusion is to use XML instead of purely HTML in order to enhance pedagogy, increase the possibilities to format for different visual layouts and also developing a solution that is unrestricted to delivery media.

Ellen Wagner (2002) suggests implementing 'learning objects' in designing and using e-learning applications. Whilst having a great functionality it might be costly and time consuming in developing and managing them.

Whilst using these latest technological advancements, methods and tools, most e-learning web based applications are not successful. According to Lance Dublin (2003), most organisations have deployed some form of e-learning and now learning management systems are regarded as standard tools, which were developed using large investments of money, time and resources. In general, these systems developed and used, are expensive, badly designed and don't provide the requested learning abilities, and thus a bad investment for organisations since they don't deliver what was promised. There isn't an effective business model yet that supports the development of learning systems.

High attrition rates are very common and Margaret Martinez (2003) proposes the implementation of an attrition management plan in order to reduce the attrition but also improve learner motivation, independence, persistence, satisfaction, and accomplishment. Margaret suggests that high degree of self-motivation, self-directed learning, greater persistence and commitment from the learner are required for effective e-learning and if these requirements are not recognised and managed strategically they can create the serious problem of high attrition rates.

Frankola (2001) highlighted the main drop out reasons by e-learners, which include: lack of time, lack of student support, poorly designed courses, inexperienced instructors, and individual learning experiences. Jean-Marrie Muhira (2009) identified further obstacles to quality interaction in developing countries, such as frequent internet disconnections, limited student access to computers, unfamiliarity with technology, poor social dynamics and ineffective technical support. Further more Margaret Martinez (2003) identified that the main reasons for students high attrition rates are that they get what they want and then quit, that learners find e-learning to be e-boring and finally that there is a mismatch between learning orientation and e-learning design.

Research in this area is extensive, but restricted on academic institutions and in pedagogical and technical issues. There is not much research on the actual teachers, which are extremely important in the teaching, since each teacher has a different experience, different knowledge and different kinds of knowledge, and possibly the actual teacher is the most important factor in having a successful e-learning system.

This gave rise to information that is not formal and is delivered free to learners using various web based tools, such as weblogs, wikis, podcasts, personal websites and even other services as YouTube, and eHow. These open media are effective and affordable tools for constructive learning (Seitzinger, 2006).

The main reason for their success is the need of people to practically learn how to do things and not just learn useless theory, thus wasting their time and resources. E-learning systems at universities generally are used for uploading and downloading lecture slides (usually in PowerPoint) (Seitzinger, 2006), whereas these free video tutorials display the instructor talking in conversational, friendly tone and so use themselves as agents to the learning process, but also provide prompt support, and help. Furthermore the learner is highly motivated, very interested on the subject and has the ability to choose the instructor, by the instructor's knowledge and ability to transfer information to them, in a way that enhances their learning. The instructors' main reason for teaching is to earn an extra income using the online advertising model such as Google's AdSense.

Clive Shepherd (2006) states that "with new tools, everyone's a publisher, everyone's a teacher" and that there are over a billion potential teachers and learners, and there are uncountable web pages, blog postings, and podcasts delivering free informal learning.

According to John Chambers the CEO of Cisco Systems, "education over the internet will be the next big killer application" and that "online learning will be much bigger than the last, e-mail" (Kidd, 2009).

Ruth Clark (2002) states that “it is not the medium that causes learning, but the design of the lesson itself and the best use of instructional methods”. He proposes using a learner-centred approach in designing lessons that accommodate human learning processes.

Richard Mayer’s (2005) research identified six media element principles on how to best use audio, text and graphics to optimize learning in multimedia: multimedia principle, contiguity principle, modality principle, redundancy principle, coherence principle, and personalization principle.

There is considerable evidence that well designed multimedia resources can enhance learning outcomes. Empirical results indicate and support the effectiveness of multimedia inclusion for online student learning (Clark and Mayer, 2002). The theoretical value of multimedia inclusion is supported by a range of basic learning principles, such as the cognitive theory of multimedia (Moreno and Mayer, 2000) and the multimedia principle (Doolittle, 2010).

Ruhe (2006) identified that student engagement is rooted in a combination of personality, affective, and motivation. Schlectly (1994) found that students with high levels of engagement enjoy the process of learning. According to Jean Mandernach (2009), multimedia featuring the instructor teaching in a conversational manner similar to friendly face-to-face course, enhances student engagement and learning. Research has shown that students like the instructor-personalised multimedia and believe they are important to their online learning experience.

Results from Jean-Marie Muhira’s (2009) study shows that “one of the most remarkable features of multimedia learning is the potential it offers to use both auditory and visual modalities to convey meaning and enhance learning”. This is supported by the ‘dual-coding theory (Clark & Paivio, 1991) which states that presenting information in both visual and verbal form enhances learning and recall.

Overall results from Katherine Pang's (2009) study about the pedagogical equivalence of video-driven multimedia web based professional development training program as compared with traditional, face to face training, proved that the knowledge gains were higher among the web based participants. Furthermore, the web based environment contributed more than the live environment to pedagogical effectiveness. This study diminishes the perception that traditional, live training is pedagogically more effective than web based training.

2.2 Conclusion

According to the literature review and scientific research, web based video-driven multimedia environments that feature the instructor teaching in a conversational tone is pedagogically more effective than traditional teaching methods. Thus e-learning applications should be designed with that as their basic functionality, should not have many features but just essential ones, provide minimum text, and provide simple, easy to use interface. It is generally agreed upon, that the marriage of technology and education will be a lasting one, and more students will be instructed via more media than was ever thought possible.

Chapter 3

3. Requirements

This chapter presents the application's requirements that were gathered from primary research techniques such as surveys, interviews, observations and focus groups, based on user interaction with other elearning platforms. These requirements are the deliverables of the requirements phase and were used as input to the design phase.

3.1 Overview

Requirements elicitation and the identification of users' potential tasks are the most important part in designing an effective user-centred application. The first task in requirements elicitation is the identification of the objectives, which will determine the appropriate methods for gathering user requirements.

They include:

- Understand business requirements.
- Identify the stakeholders.
- Identify and prioritize functional requirements.
- Identify and prioritize non-functional requirements.
- Identify other type of requirements.

The methods used in gathering the requirements included surveys, interviews, observations and focus groups.

It is a known and inevitable fact that users' requirements will change in the near future, and so the application should be designed bearing this fact in mind.

3.2 Requirements Elicitation

Requirements discovery is the process and tools used to identify system requirements of the users of the proposed system. A system requirement is a description of the needs and desires for the application, and thus describes functions, features and constraints. The requirements analyst works with the stakeholders in order to elicit their needs, wants and any other known requirements. In other words, requirements elicitation is the task of communicating with customers and users to determine what their requirements are.

3.2.1 Stakeholder Identification

Stakeholders are people who have an interest in the system and so they may be affected by it either directly or indirectly. They are identified below:

Instructors:

These are individuals who use the system as a method to teach their subject online. They are direct users of the system.

Learners:

They are direct users of the system that use it in order to learn from instructors who teach through it.

Administrators:

Administrators are the people responsible for managing the system.

Advertisers:

They are indirect users of the system as they are involved in advertising on different pages within the system.

Bankers:

This group of users refer to indirect users or systems responsible for payment transactions (e.g. Paypal).

3.2.2 Surveys

Surveys allow information to be collected from many people in a relatively short period of time, and thus can be an effective way to collect quantitative information. Different questionnaires were prepared and sent to the different groups of stakeholders in order to gather quantitative information.

3.2.3 Interviews

Stakeholder interviews are the most common technique used in gathering requirements. The interviews are of crucial importance as they reveal the main requirements, since each stakeholder will have an idea of their expectation or will have visualized their requirements. Interviews were used in order to understand the reasons behind the quantitative results from the surveys, and thus providing us with qualitative results which helped in revealing the main requirements.

3.2.4 Observations

Observation is watching people as they go about their jobs. Observation can be an effective way to gain a realistic and detailed understanding of how potential users work is done in the real environment. Observations were carried out by observing how learners were interacting with online learning platforms, such as 'Blackboard' and 'Moodle' applications, but also when interacting with folksonomy applications for learning, such as 'YouTube' and 'eHow'.

3.2.5 Focus Group

Focus groups are important in making decisions regarding the designing of an application interface, which is one of the main issues regarding user acceptance. Participants are usually willing to express their opinions, point out what works and what doesn't, discuss what functions they expect and their experience from using similar platforms; and so this method proved to be effective as a method of gathering requirements for design issues.

The focus group members were five full time students at the University of Manchester. They all had the following characteristics:

- access to Blackboard eLearning platform as learners
- working on their computers on a daily basis
- confident computer users with access to the internet
- using elearning for educational purposes

A Rich Picture diagram (figure 4) was passed on to each of the focus group participants that illustrated the proposed system. This technique was used to make sure that the participants have a clear understanding of what the proposed system should do.

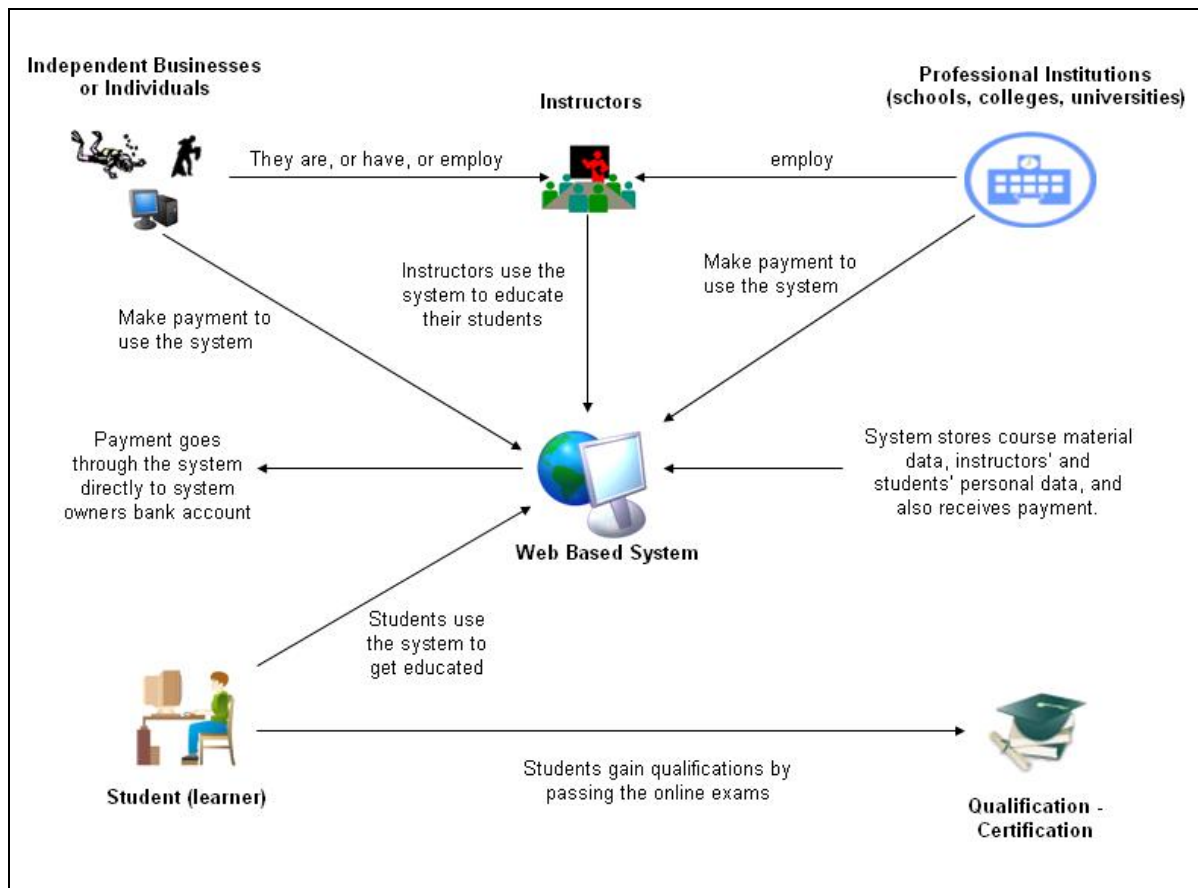


Figure 4 – Rich Picture
(Source: Constantinou, 2008)

The idea and reasons behind using the focus group was to acquire a clear understanding of the learners' usage of elearning platforms such as Blackboard. The outcome of this research method was the identification of the main functions and features of an effective, user friendly, engaging and entertaining elearning platform application. The Use Case diagram (figure 5) was constructed by the participants. Furthermore, the Use Case diagram was used as the source for gathering the functional and non-functional requirements.

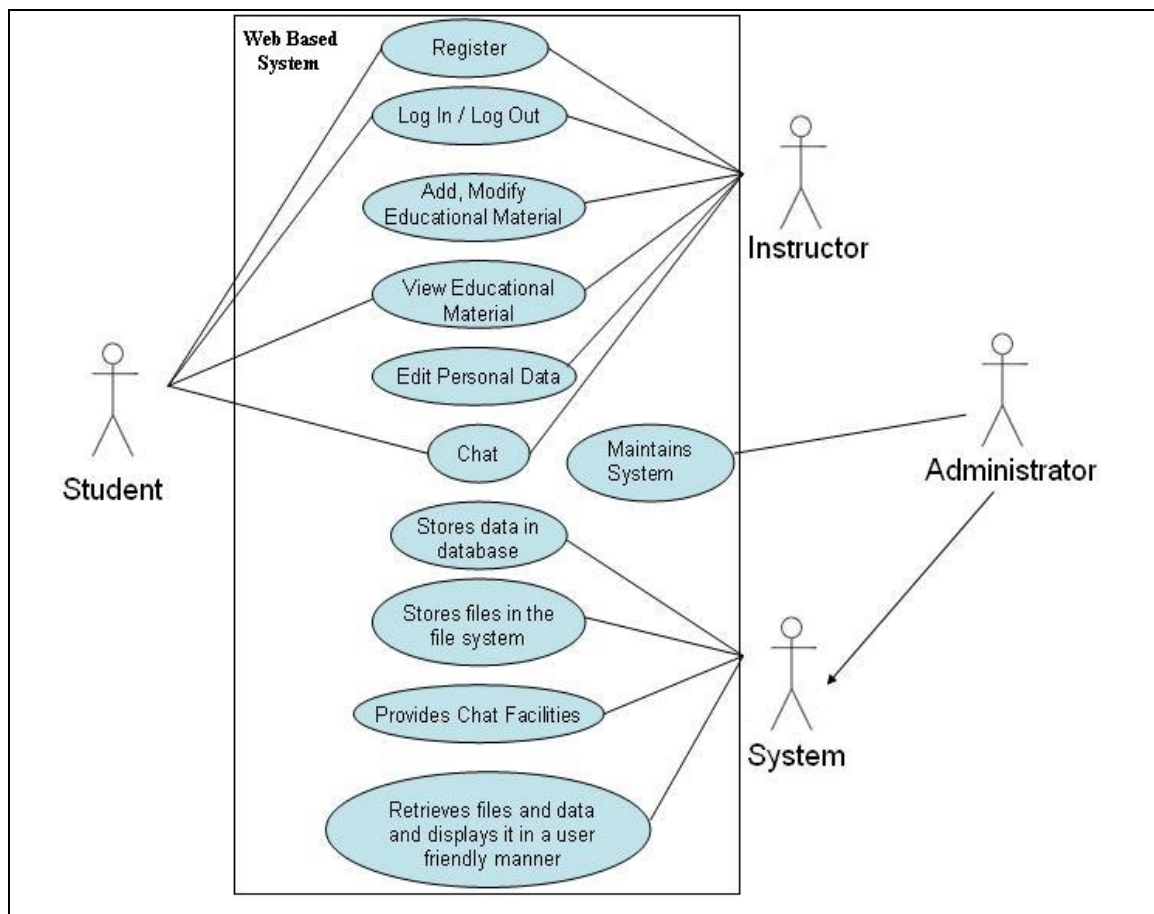


Figure 5 – Use case diagram

3.3 Scenarios

Scenarios are stories regarding people undertaking activities in contexts using technologies to accomplish a specific objective. Different types of scenarios were used during the analysis of the requirements and included: user stories, conceptual scenarios, concrete scenarios and finally use cases.

3.3.1 User Stories

User stories are a quick way of handling customer requirements. These are real stories about people regarding what they do and want. They provide real world experiences, ideas and knowledge of people.

Here is a user story from someone describing what happened the last time he attended a martial arts class.

“I work from 09:00 to 17:00 or sometimes a bit later. I then need to get back home and spend some time with my kids and family. The martial arts class starts at 19:00, and that means I need to leave the house at 18:30, drive back to the city, park the car and finally attend the class. I am already tired and so don’t really have the capacity to learn more. I then get back home around 21:30 or sometimes 22:00. I really love martial arts and I am really passionate and highly motivated, but I waste an hour getting there and then I am already dead tired so don’t learn much, and also pay some money for the class and petrol. I really think about quitting.”

3.3.2 Conceptual Scenarios

Conceptual scenarios can be used to generalize the user stories in order to generate design ideas and better understanding the requirements of the system.

Conceptual scenario describing some of the requirements for an online learning system is described below.

“People with basic computer skills that have access to a computer connected to the internet will be able to join an online course, such as martial arts, by making a payment to the instructor to be able to view the course contents and thus learn from home.”

3.3.3 Concrete Scenarios

Concrete scenarios are ideal for prototyping ideas and evaluating them, since they provide more concrete and structured scenarios than the conceptual ones. They dictate particular interface design features and particular allocation of functions between people and the proposed system.

The following is a concrete scenario for accessing an online course through the proposed system.

Selecting a new course:

“James Dalreach has been practicing Karate for the past few years. He is really interested in martial arts in general, and has heard about Hapkido, which is Korean martial art, known to be very effective. After viewing a few videos online on YouTube, he decides to take part in an online course through the system. He logs in [1] and then clicks on ‘browse courses’ [2] in order to find available courses online. Under the heading ‘Martial Arts’ [3] he clicks on ‘Hapkido’. He then browses the different courses [4], the instructors details (rank, age, years of experience, achievements, biography), and the price. Once he found the appropriate one, he then

selects it and makes the payment [5]. Once the payment is approved, the course is then displayed on his ‘courses’ page [6], and so he is able to learn.”

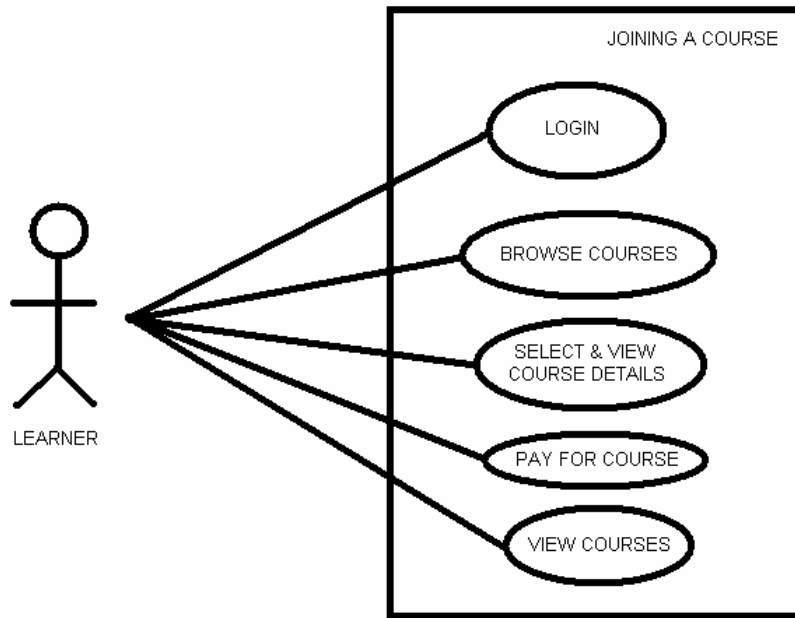
Notes to selecting a new course:

1. Logging is necessary to allow personalization and enable restrictions to unauthorized users.
2. A browse button should enable the user to view all the available courses grouped in different categories.
3. Courses are grouped according to their category.
4. Browsing specific courses allows the learner to view the different details such as the instructor details, price, payment methods, outline, sample videos, in order to make a clear decision in whether to participate on that course or not.
5. Payments could possibly be redirected to other sub-systems such as a commercial bank, or Paypal.
6. This page should displays the courses that learner is taking part in, and so access the trainings pages through it.

3.3.4 Use cases

Use cases describe all of the interactions that the users will have with the software. In other words what the people should do and what the system should do. A use case is a description of a specific interaction that a user may have with the software. Use cases are simple tools for describing the behaviour of the software, and so a use case contains a textual description of all of the ways that the intended users could work with the software through its interface. They do not describe any internal workings of the software, nor do they explain how that software will be implemented, but simply show the steps that the user follows to use the software to accomplish the specific task. An example is shown below:

Use case for joining a course:



- Go to the application page.
- Enter username and password to login.
- Browse available courses.
- Select appropriate course and make payment.
- Return to courses page, and view course.

Figure 6 – Use case diagram for joining a course

3.4 Customer Requirements

Customer requirements are statements of facts and assumptions that define the expectations of the system (basic needs) in terms of mission objectives, environment, constraints, and measures of effectiveness and suitability.

- **Operational distribution or deployment:** The system will be available as an online web-based application, and thus able to be accessed at people's households, through a personal computer connected to the internet.
- **Mission profile or scenario:** The system will accomplish its mission objective by allowing instructors to teach online and get paid according to their own business plan.
- **Performance and related parameters:** The critical system parameters to accomplish the mission are ease of use, practicability and effectiveness of teaching.
- **Utilization environments:** The main system components include computers linked together via the web, and so they need a monitor and speakers for output and keyboards and mouse for input of data.
- **Effectiveness requirements:** The effectiveness or efficiency that the system must be in performing its mission is in the usage of its users in order to learn.
- **Operational life cycle:** The system will be usually in use on average around an hour by each user per day.
- **Environment:** Home environments would be the main environments that the application will be used.

3.5 Functional Requirements

Functional requirements define the internal workings of the software, such as technical details, data manipulation and processing, and other specific functionality that shows how the use cases are to be satisfied. After having created an initial set of use cases and filled them in, we then began documenting the functional requirements. The table shown below presents the main functional requirements of the application:

Table 1 – Functional Requirements

ID	Title	Summary	Users	Priority
FV1N001	Registration	Potential users of the system (instructors and learners) need to register to use the application. The application should accept and store the users' personal data. Users should be able to choose their unique username and password which should be used as the credentials to login to the application once registered.	Learners Instructors	M
FV1N002	Login	A login feature should prompt the users to enter their personal credentials (username and password). A 'forgot password' feature should be embedded within this login page where by a new user's password can be created and send to the user's registered email address in case it was forgotten.	Learners Instructors	M
FV1N003	Welcome Page	This should be the page that users land on by accessing the domain name through their browsers. All other pages and further information including contact details and tutorials should be accessed through this page.	ALL	C
FV1N004	Access Rights	Only registered and authorised users should be able to access the material and pages that are indented for them through the application. Instructors should be able to access their personal instructor pages only,	ALL	M

		and learners should be able to access only their own personal learner pages, with only the courses they participate in.		
FV1N005	Edit Course	A course should be edited only by the course's instructor. This feature should be accessed from the instructor's main page, whereby each course should have a learner's view and instructor's view. The editing material should be accessed through the instructor's view.	Instructor	M
FV1N006	Course Outline	The outline of the course should be displayed on a separate page within the course contents, which should only be edited by the course's instructor.	Instructor Learner	C
FV1N007	Educational Material	Educational material in the form of different files in any format (such as images, presentations, documents (word, PDF), and short videos or audio files) should be stored in a specific area within the course contents. The course instructor should be able to upload these files and the learner should be able to download and store them.	Instructor Learner	S
FV1N008	Online Lecture	A course should be divided in Chapters. Each Chapter should be divided in pages, and each page should have an image, a video tutorial and textual information. These information and files should be uploaded to the feature by the instructor of the course only. The video should be displayed on the top right area, the image on the top left area, and the text area should be displayed below the two files. The learner should be able to interact with this feature in a ways that simulates an online lecture.	Instructor Learner	M
FV1N009	Slide Show	The slide show feature should provide the instructor of means to add images and form a slide show that can be viewed by the	Instructor Learner	W

		learner. There should be one slide show per chapter.		
FV1N010	Videos	This feature should allow instructors to upload their video tutorials online, in order to be viewed by the learners. There should be one video tutorial per chapter.	Instructor Learner	W
FV1N011	Audio	This feature should allow instructors to upload their audio tutorials online, in order to be listened to by the learners. There should be one audio tutorial per chapter.	Instructor Learner	W
FV1N012	Lecture Notes	Any instructor can upload his own notes for each chapter, in order to be viewed by the learners and thus enhancing their learning experience.	Instructor Learner	W
FV1N013	Chat Room	A chat room facility should provide a way of interaction between different learners of the same course and their instructor.	Instructor Learner	W
FV1N014	Logo	A feature that will allow the instructor to upload a logo image which should be displayed on the top left hand corner of the course pages.	Instructor Learner	W
FV1N015	Instructor Details	This feature should provide the ability for the instructor details (e.g. name and email) to be displayed on the learners' pages, for contact purposes.	Instructor Learner	S
FV1N016	Instructor Notices	Daily or weekly notices for a course could be edited by the instructor and shown on the course's main page as viewed by the learners.	Instructor Learner	C
FV1N017	Administrator Tools	Administration tools and features that enable the administrator to manage all the users of the application.	Administrator	
FV1N018	Languages	The ability to display courses in different languages.	Learners Instructors	W
FV1N019	Quizzes	Online chapter quizzes per course.	Learners Instructors	W

FV1N020	Exams	Online exam per course.	Learners Instructors	W
FV1N021	Available Courses	Provide the ability for a learner to browse all the available courses	Learners Instructors	S
FV1N022	Participation	A learner should be able to participate in unlimited number of courses.	Learner	M
FV1N023	Search	Provide a search facility	Learner	W
FV1N024	Add/Remove Learners	The instructors should be able to manage (add/remove) the users of their courses.	Instructor	M

3.6 Non - Functional Requirements

Non-functional requirements impose constraints on the design or implementation, such as performance requirements, quality standards or design constraints. The main non-functional requirements (qualities of the application) are listed below under the categories of execution qualities and evolution qualities:

3.6.1 Execution Qualities

Management of data input

A mechanism should be implemented that restricting data input to the system from unauthorized instructors.

Learnability

The application should be capable of enabling the user to learn how to use it. It should be easy for users to accomplish basic tasks the first time they encounter and use the application.

Consistency

The application need to have consistent layout for all the courses in order to make it easy for the user to learn fast and be able to remember the different functions and layout, after having spent some time not using it.

Usability

The application should be easy to learn to use, efficient (takes less time to accomplish a particular task) and satisfying.

Effectiveness

The users' tasks should be accurate and complete while using the application.

Errors

Users should not be able to make unrecoverable and severe errors, but not severe errors should be easily recoverable by the user.

Satisfaction

It should be very pleasant to use the design of the application by the different groups of users.

Memorability

When users return to the design after a period of not using it, they should easily re-establish proficiency.

Efficiency

Once users have learned the design, they should be able to perform their tasks relatively quickly without the need for guidance or documentation.

Authentication

Only authenticated users (instructors and learners) should be able to access the application. An authentication mechanism should be implemented that provides adequate protection against unauthorized access.

Security

Security issues include the protection of the application's contents (images, videos, etc) from illegal downloading, but also access and restrictions to users which shouldn't be allowed to access specific content.

3.6.1 Evolution Qualities

Cross - Platform

An online web based cross-platform application will allow access to users regardless of the users' operating system, but just through their browsers which should be connected on the internet, allowing them access from any physical location. In addition, the application should be developed to be used by the most common internet browsers such as Mozilla Firefox and Microsoft's Internet Explorer.

Update data at any time, on any machine

The application should be web based in order to be accessed through any device connected to the internet. This will provide the instructors with the flexibility to update their educational material on any device with internet connection at anytime.

No advanced IT skills

The application should be easy to use, straightforward, easy to learn to use, user-friendly, and should not require advanced levels of IT skills. Instructors should be able to use the elearning platform and edit their educational content without any technical knowledge.

No special software

The application should not need any other specialised software in order to be used by the users. A common personal computer running on Windows or Macintosh with a web browser connected to the internet should be sufficient.

Multiple Accesses

Many users may potentially access the same piece of information at the same time and so the application should allow multiple accesses to data at the same time.

File Format

Information should be stored and retrieved in a format that can be displayed on the pages which will be viewed on a browser.

Reliability

The application should be reliable by presenting the correct information at all times, and should never fail, but respond as predicted by the users.

Adaptability

The user interface should be displayed in an organised manner, be easy to navigate to the different pages, be engaging, entertaining, not causing confusion or frustration but pleasing to use.

Data Recovery

Data should be stored in a way that could be easily recovered in case of server failure.

Scalability

The application should be developed bearing in mind that it will be used on a daily basis by many instructors and learners at the same time, and thus should be able to handle these multiple requests, without the possibility of failure.

Maintainability

The system should be easy to maintain by allowing administrative users to maintain it, fix bugs and add future improvements to it.

Extensibility

It should be able to allow for extensions on functionalities or even the ability of adding more functions to the system, without interfering with existing ones.

Testability

It should be able to test changes and updates of the software before applying them to the live version of the system, thus reducing the possibility of affecting the performance.

3.7 Data Requirements

The application will require personal details for each user such as name and address details, in order to allow them to register and then use a user name and password to login. Other information will include specific details for courses and course contents.

Authentication data will reside in the authentication database, and the rest will reside on the application main database. Videos and images will reside in the file system of the application according to the course they are related.

The data will all be provided by all users, and maintained by the system administrator who will manage the system.

The database technologies to be used are Microsoft's SQL Server 2008.

3.8 Interface Requirements

The user interface is the key to application usability. The application should include content presentation, application navigation, and user assistance.

3.9 Verification

These functional and non-functional requirements were verified with the focus group participants against validity, consistency, completeness and realism.

3.10 Summary

This chapter has presented the main functional and non-functional requirements of the elearning application. These requirements were used as the input to the design phase, which is presented in the next chapter.

Chapter 4

4. Design

The requirements gathered from the previous phase are considered as the backbone of the design phase. This chapter describes the design phase in detail and starts by discussing the design method used followed by the storyboarding method (pages, paper designs, personas and storyboarding), digital design and interactive design. The final designs are the deliverables required for the implementation phase, which is describes in the next chapter.

4.1 Method

The requirements gathered from the previous phase, suggest that an elearning platform needs to be developed that fulfils all the main functional and non-functional requirements. The design phase is the first step before the implementation of the application.

The first part of the design phase was the use of storyboarding. This method involved the identification of the required pages that would constitute the application, followed by hand drawn sketches of those pages. Personas were then developed according to the users' characteristics and then different scenarios of using the application with these personas were constructed. Finally storyboarding took place taking all these in consideration.

The second part of the design phase involved the development of digital designs (using Ms PowerPoint) of these pages taking HCI principles and cognitive psychology in consideration in order to develop user friendly designs of the required interface (pages).

The final part of the design phase involved the development of a basic interactive design by taking the digital designs and transforming them into interactive HTML documents. The outcome was a non-functional interactive web site with the required look and feel.

4.2 Story Board

This technique is fast and easy to implement for making design decisions since it requires minimum resources and is capable of identifying the main interactive events between the users and the application, but also describing the interface design of the application as needed by the actual users.

4.2.1 First Stage – Pages

The requirements phase identified the pages needed to form the application and are described below in some detail:

Home: This should be the page that users land on by accessing the domain name through their browsers. All other pages and further information including contact details and tutorials should be accessed through this page.

Login: This page has the login feature where the users can enter their personal credentials (username and password) in order to access the application.

Registration: This is the page responsible for the registration of potential users (both learners and instructors).

Main Page: This is the page that successful logged in users are redirected to. This is their personalised page which displays their courses, personal details and provides the ability to browse and find available courses.

Course Main Page: This is the main page of a specific course and provides access to the course's specific educational material.

Course Outline: This is a page that displays the outline of the particular course.

Course Material: This is the educational files repository whereby the instructor can upload files and the learner can then download them.

Chat Room: This page should provide a way of interaction between different learners of the same course and their instructor.

Online Lecture: This page should allow the learners to interact with the online lecture feature in ways that simulates an online lecture.

Main Edit Page: This is the main edit page for a specific course whereby the instructor has the ability to update the educational content of the course.

4.2.2 Second Stage – Paper Designs

Having identified the pages of the application, the next stage of the design involved the construction of paper designs that should take the features of each page in consideration in order to present the proposed interface. The figure shown below are the actual paper sketches of the main page (figure 7), course main page (figure 8) and the online lecture page (figure 9):

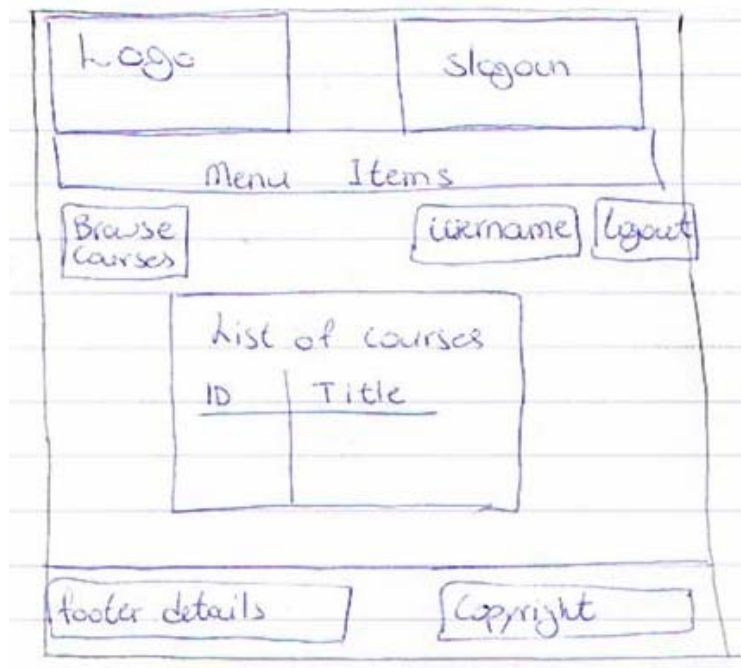


Figure 7 – Paper design of main page

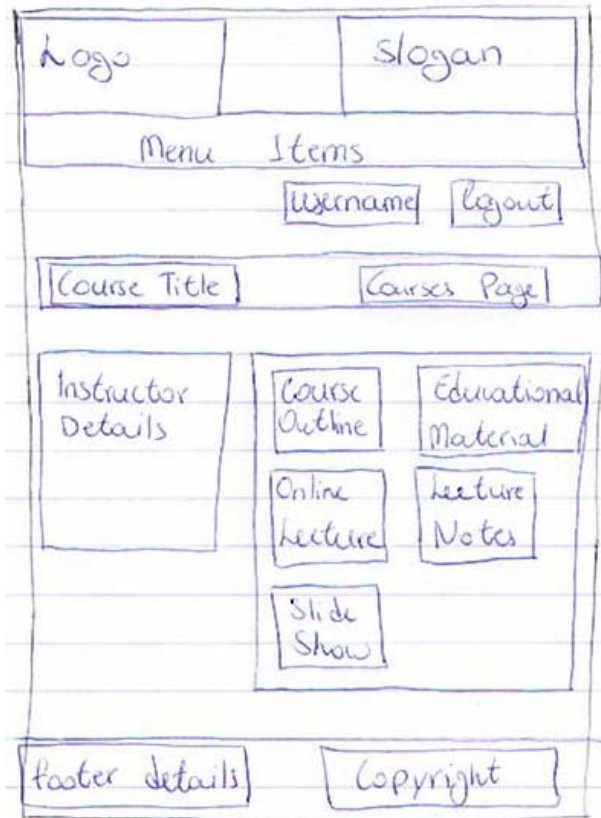


Figure 8 – Paper design of course main page

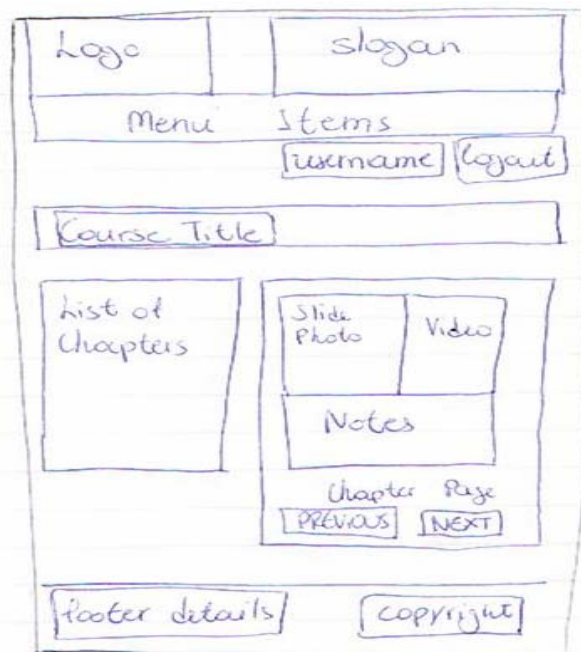


Figure 9 – Paper design of course online lecture page

4.2.3 Third Stage – Personas

This method was used in order to better understand the users. In doing so we acquired a better understanding of the actual users, including their characteristics and behaviour. Two personas were used. The first one concerned an instructor and the second one concerned a learner. The personas were developed according to the actual users characteristics based on the interviews. This is a very helpful technique since it helps identify and understand the needs and wants of the actual users.

4.2.4 Fourth Stage – Scenarios

Scenario development then followed the persona construction in order to understand how the application will be used by the end users. These scenarios were narrative stories involving a persona using the proposed application in order to perform useful tasks. Two scenarios for the two different users (instructors and students) of the system were constructed. The scenarios were important in order to gain an understanding in how the users will interact with the application, and so helped us in redefining the requirements of the design in order to enhance the user experience. In doing so, potential design issues and opportunities for a better design were identified.

4.2.5 Fifth Stage – Storyboarding

This involves the actual storyboard technique, and so the scenarios were related to the pages in order to interlink them. All the stages were merged into one in order to get the overall way the website could be used Figure 10 displays the pages and their links.

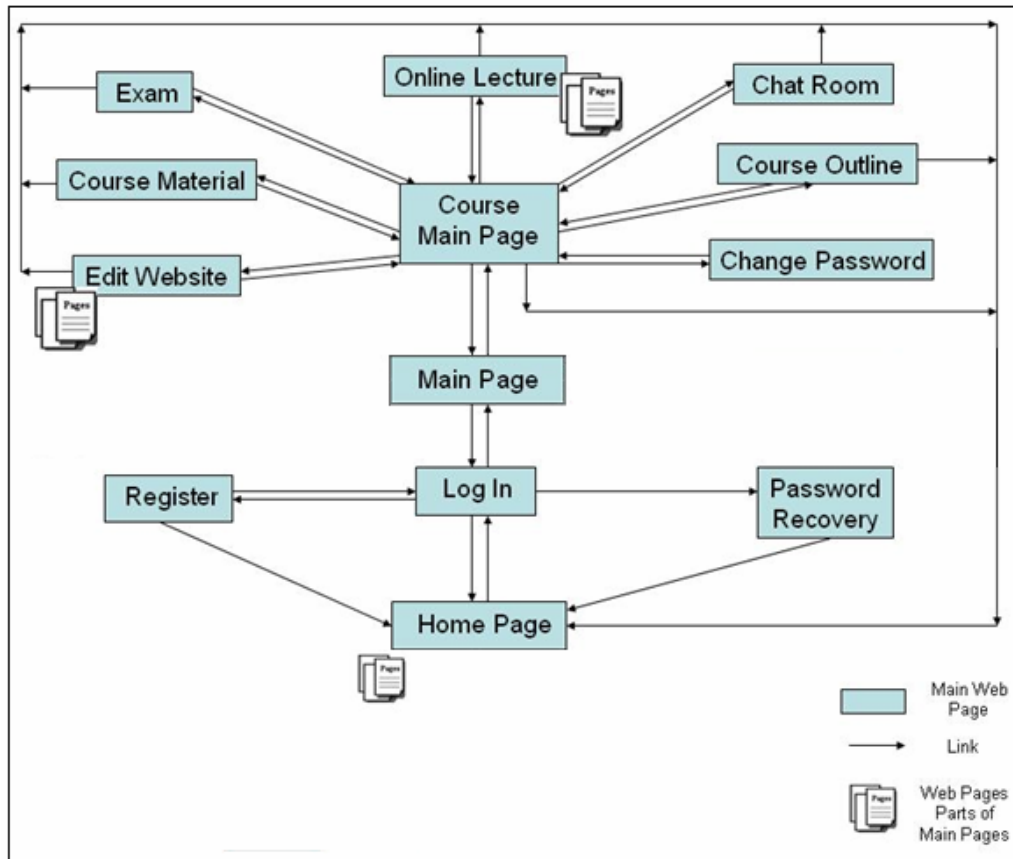


Figure 10 – Main pages and their connection links (navigation)

4.3 Digital Design

This part of the design phase involves the transformation of all the designs (hand drawn) constructed from the previous part into digital designs. The software tool used was Ms PowerPoint. Figure 11 shows the main page of a course and Figure 12 shows the page simulating an online lecture.

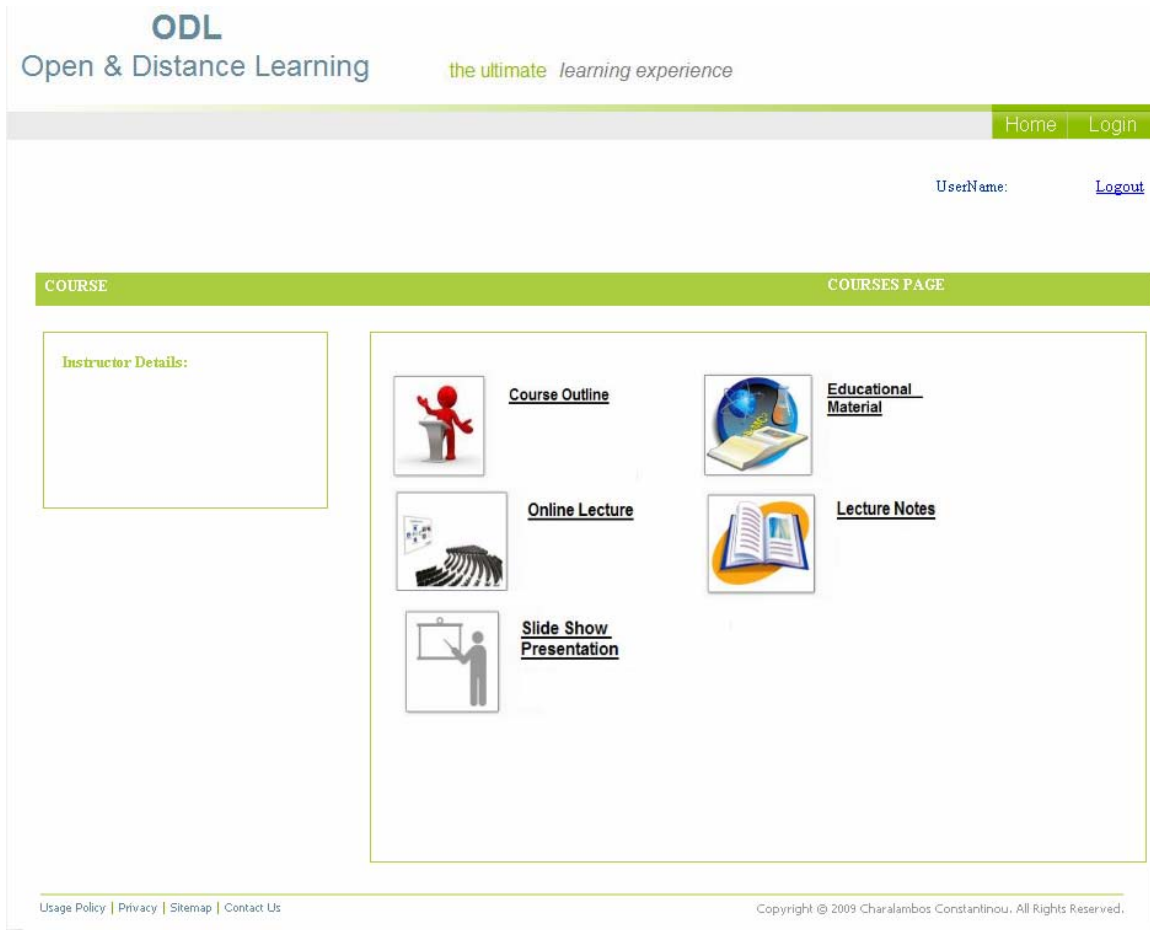


Figure 11 – Main page of a course

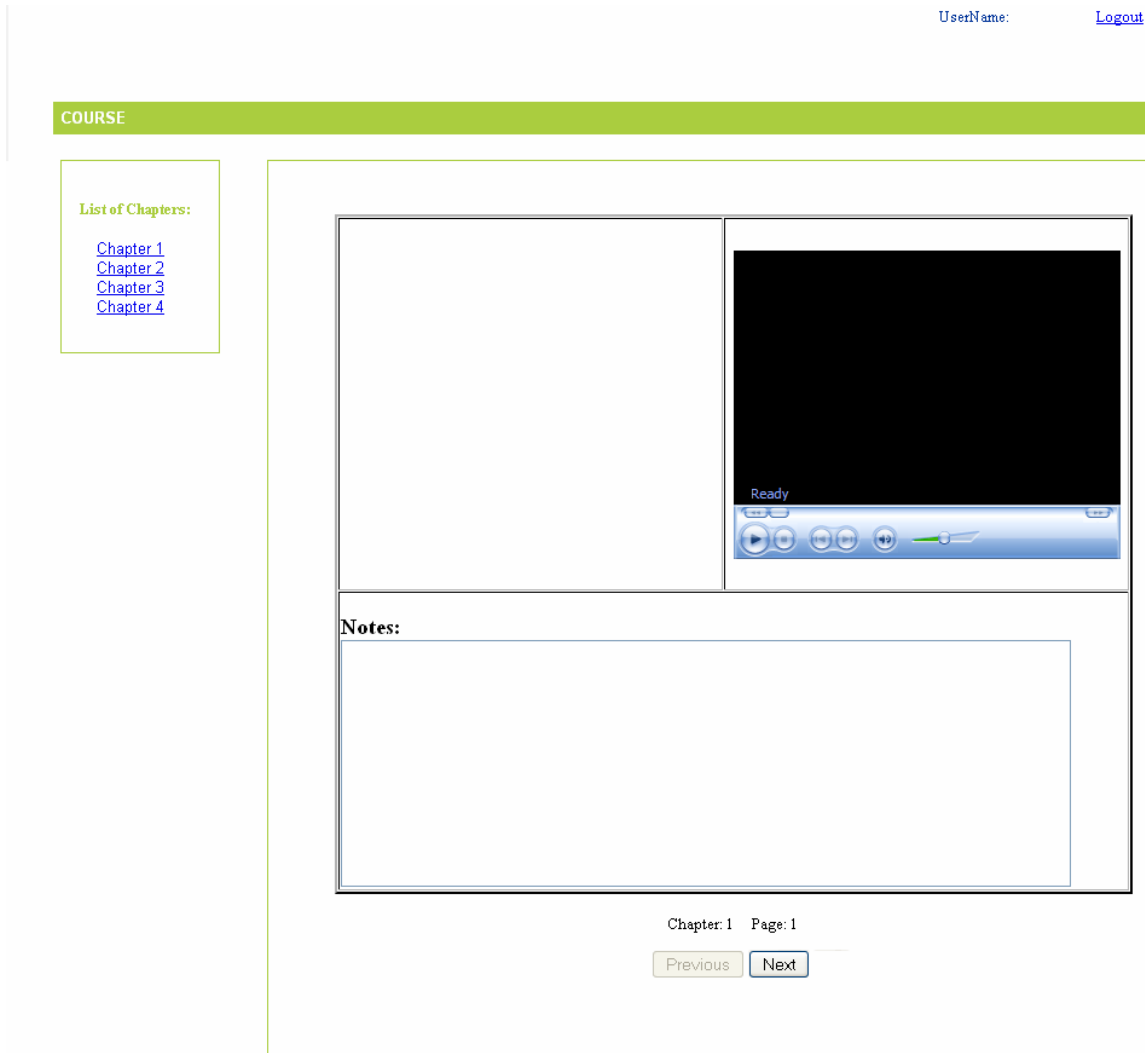


Figure 12 – Page simulating an online lecture

4.4 Interactive Design

The final part of the design phase involved the development of a basic interactive design by taking the digital designs and transforming them into interactive HTML documents. The outcome was a non-functional interactive web site with the required look and feel. This enabled potential users to interact with the design and identify further requirements before moving to the implementation phase. Once these designs were approved by the potential users, they were then used in order to add the functionality and implement the application. They were thus the inputs of the implementation phase.

4.5 Conclusion

The method used for the design phase involved the storyboard technique using personas and scenarios, followed by the construction of hand drawn sketches which were transformed into digital designs and then to interactive HTML documents, forming a non-functional interactive website. This methodology helped in concentrating our valuable resources (time, effort and money) on constructing the required design at the first time. The outcome of this phase was the final interactive design which was used in order to add the required functionality on it in the implementation phase, which follows in the next chapter.

Chapter 5

5. Implementation

This phase is concerned with the implementation issues and tools (programming languages and software) used to develop the proposed elearning application.

We have seen from the previous chapter how the requirements from the requirements phase were transformed into designs, and so in this chapter we are going to transform these designs to the actual product. Furthermore, issues of quality, performance, programming and debugging are dealt in this phase.

The first step in the implementation was to identify technologies and software tools that could be used for the implementation. The second step of the process involved dividing the implementation phase into two parts: student view and instructor view.

5.1 Programming Languages and Implementation Tools

The technologies and tools listed below were used to implement the application according to the requirements and designs gathered from the previous chapters:

HTML: HyperText Mark-up Language is a text and image formatting language that is used by web browsers on the client side to format web pages and display them accordingly. This language is used as the backbone structure language of the web pages of the application as it is accessed and viewed through web browsers over the internet.

CSS: Cascading Style Sheets is a style sheet language used to change the look and formatting of an HTML document. In the application they are used in order to change the look and feel of the pages in an organized and consistent way, by enabling the separation of document content (HTML) from document presentation (CSS). This separation improved content accessibility, more flexibility and control in the specification of presentation characteristics, and reduce complexity and repetition in the structural content.

JavaScript: This client-side scripting language is used to provide enhanced user interfaces when users interact with web pages through a browser. Since JavaScript code can run locally in a user's browser, it can respond to user actions quickly, making an application feel more responsive. JavaScript was mainly used in our implementation of the application to write functions that are embedded in HTML pages in order to perform client-side validation of web form input values, making sure that they will be accepted before they are submitted to the server. Another useful functionality was changing images on mouse over in order to draw the user's attention to important links displayed as graphical elements.

ASP.NET 3.5: This is the framework used to build the web application which allowed the use of server side programming and the development of web services; thus able to use technology to built pages composed of user and server controls that provide similar functionality including look and feel to a Windows user interface.

ASP.NET AJAX: This enables AJAX (Asynchronous JavaScript and XML) functionality to be extended on client-side and server side components in the user and server controls that are used to implement the pages of the application and thus enhance the user experience.

C# and Visual Basic: These are the third-generation event driven programming languages used for server side programming. The .NET framework allows controls and functionality to be programmed in any of these two programming languages to perform the required functions of the application such as database access, retrieving and storing information but also performing calculations (editing, updating, sorting information).

XML: The Extensible Mark-up Language is a general-purpose specification for creating custom mark-up languages, which is used to share structured data in order to encode documents and to serialize data, such as specific settings for the application, including connection strings to databases.

Net Framework 3.5: This is the framework of the environment used to build the application, as it allows the use of development tools needed to run Visual Web Developer and server side programming.

Visual Web Developer 2010 – Express Edition: This is the free main application tool developed and distributed by Microsoft, which was used to develop and build the whole application.

SQL Server Express 2010: This is the free database management system developed and distributed by Microsoft that accompanies Visual Web Developer and was used to hold the relevant database and data including stored procedures (retrieving, storing, deleting and updating) of the application.

5.2.1 Methodology

The implementation of the web application was performed in three layers, using object oriented programming techniques for the server side objects that provide the powerful functionality of the application. These layers include the presentation layer, business layer and data access layer. The presentation layer involved HTML, JavaScript and CSS used to develop the look and feel of the pages according to the designs from the design phase. The data access layer is the layer responsible for storing, updating, deleting and retrieving data from the database and so it was implemented using SQL Server Express 2010. The business logic layer is the layer responsible for communicating the presentation layer and the data access layer, and so involved server side programming with C# and Visual Basic. The business layer objects were used to call the database stored procedures (data access layer) which return a set of data, which can then be displayed through the presentation layer in the user interface of the application.

5.2 First Step – Student View

This section explains the details involved in the first step of the implementation phase. This step is of crucial importance since this is directly involved in the user acceptance of the application. The functionality, quality, response time and user interface are the most important elements.

5.2.1 Home page, registration and log in

This home page is the first page that a user accesses. This page should have means to access the application, but also include further relevant information regarding the application and the business (contact details, about us, etc).

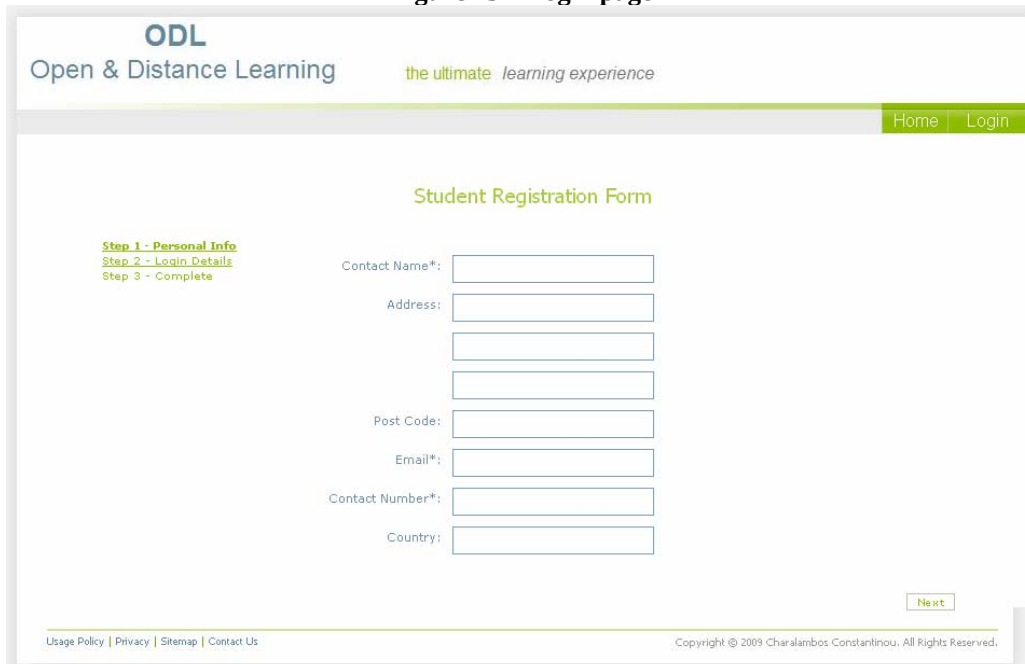
The registration process is accessed through the login page (figure 13). The registration is different for the two different users, and so there is one form for a student (learner) and another different one for an instructor (teacher). The forms are part of a wizard (figure 14) which makes it user friendly and easier to complete in two steps (personal information and login details).

A registered user can log in using his username and password through the login page and by successfully logging in gets redirected to the main page.



The screenshot shows the ODL (Open & Distance Learning) login page. The header includes the ODL logo, the text "Open & Distance Learning", the tagline "the ultimate learning experience", and navigation links for "Home" and "Login". The main content area features three images of students using laptops. On the right, the "Registered User Login" section includes fields for "Username:" and "Password:", a "Remember me next time." checkbox, a "Login" button, and a link for "+ Forgotten your password?". Below the images, there are links for "New Student?" and "New Instructor/Teacher?", each with a "Register" button. The footer contains links for "Usage Policy", "Privacy", "Sitemap", and "Contact Us", along with a copyright notice: "Copyright © 2009 Charalambos Constantinou. All Rights Reserved."

Figure 13 – Login page



The screenshot shows the ODL (Open & Distance Learning) Student Registration Form. The header is identical to the login page. The main content area features the "Student Registration Form" title. On the left, there are three steps: "Step 1 - Personal Info", "Step 2 - Login Details", and "Step 3 - Complete". The form fields include "Contact Name*", "Address" (with three stacked input boxes), "Post Code:", "Email*", "Contact Number*", and "Country:". A "Next" button is located at the bottom right of the form. The footer is identical to the login page, containing links for "Usage Policy", "Privacy", "Sitemap", and "Contact Us", and the copyright notice: "Copyright © 2009 Charalambos Constantinou. All Rights Reserved."

Figure 14 – Student registration form

5.2.2 Main Page

This is the learner's main page of the application (Figure 15). From this page all the rest can be accessed. The learner can change his personal details, browse for courses and view the courses he is participating. These participating courses are shown as a list with the course Id and title. The title is a link that transfers the user to the course main page.

ODL
Open & Distance Learning *the ultimate learning experience*

Home Login

UserName: harnis123 Logout
09 August 2010

Welcome, Harry Constantinou

Welcome to your main page

[BROWSE COURSES](#)
[EDIT PERSONAL DETAILS](#)

Courses List:

Course id	Course Title
1001	NAUI - Scuba Diver
1002	NAUI - Advanced Scuba Diver
1005	Ninjutsu

Usage Policy | Privacy | Sitemap | Contact Us

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Figure 15 – Learner's main page

5.2.3 Course Main Page

This page (figure 16) includes links to the course outline, course material, lecture notes, slide shows and online lecture. The links are presented in the form of user friendly icons. Instructor details are shown on the left in case the user wants to contact the instructor (usually via email).



Figure 16 – Course’s main page

5.2.4 Course Outline

This page (figure 17) enables the learner to view the outline of the course. To enable that, the instructor has to write the course outline in a text file, rename it to 'outline.txt' and then upload it on the course outline upload facility.

The screenshot shows a web interface for 'ODL Open & Distance Learning'. The header includes the site name and tagline 'the ultimate learning experience', along with 'Home' and 'Login' links. A user is logged in as 'cyprusbujinkan' on '09 August 2010'. The page title is 'NINJUTSU'. On the left, under 'Instructor Details:', the name 'Charalambos Constantinou' and email 'chconst@hotmail.com' are listed. The main content area contains a narrative about a night walk, statistics on crime, and a description of the Ninjutsu course. The footer includes links for 'Usage Policy', 'Privacy', 'Sitemap', and 'Contact Us', and a copyright notice for 2009.

ODL
Open & Distance Learning the ultimate learning experience

Home Login

UserName: cyprusbujinkan Logout
09 August 2010

Welcome, Charalambos

NINJUTSU

Instructor Details:

Charalambos Constantinou
chconst@hotmail.com

It is late at night and you are all alone walking in the dark and 3 heavily tattooed guys step out from the shadows laughing, tapping something in their hands and looking your way.

You glance around and see no one to help you and no where to run, all you can hear is your heart pounding in your chest.

There seems to be no way out - or is there?

The facts speak for themselves. In-depth Statistics from 2005 show that 15,000 people are attacked everyday in broad daylight. Yearly there are about 227,000 robberies, 20,000 rapes, 5.2 million violent crimes, 18 million property crimes, 400,000 gun crimes all resulting in 40,000 murders. Out of every 334 people someone will get robbed, that is scary! And bad economies only increase theft and violence.

This Ninjutsu Black Belt Home Study Course is being used by members of the special forces in the Iraq/Afghan wars, military, FBI, law enforcement, top government protection agencies, martial art masters, housewives and everyday working people.

You will learn all the techniques from 9th kyu to 1st degree black belt.

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Figure 17 – Course outline page

5.2.5 Course Material

This page (figure 18) enables the learner download files available in the ‘uploads’ folder of the course. A standard dialogue box should appear at the browser enabling the learner to download or open the file directly.

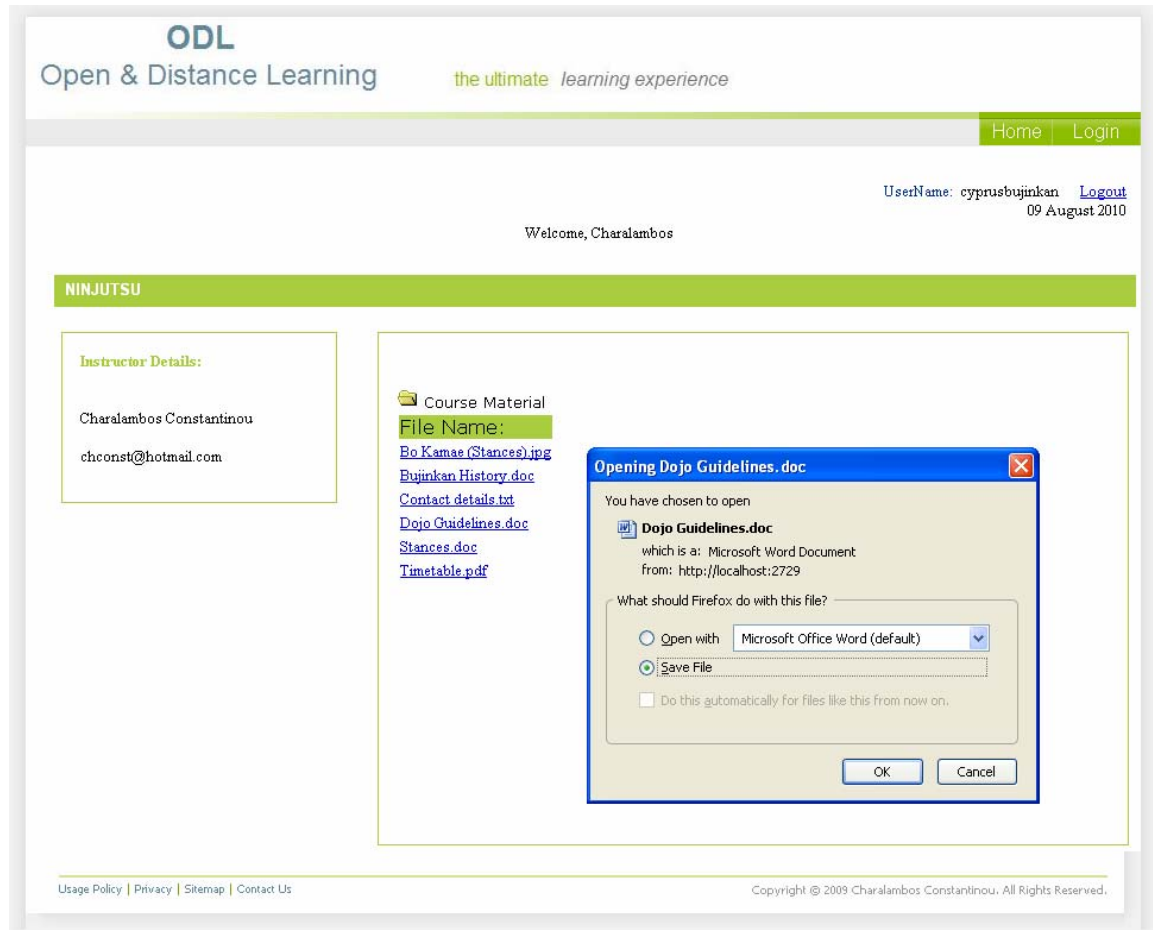


Figure 18 – Course material page

5.2.6 Slide Show

The slide show page (figure 19) enables the learner to view a slide show for each chapter of a course, either by viewing the images one by one, or by playing the presentation which will change the images according to a timer.

Open & Distance Learning
the ultimate learning experience

Home
Login

UserName: cyprusbujinkan
Logout
09 August 2010

Welcome, Charalambos

NINJUTSU

Instructor Details:

Charalambos Constantinou
chconst@hotmail.com

Slide Show - Chapter 1

[Back to SlideShow Page](#)



- 1) Front Foot: Slightly turned in
Back Foot: Slightly turned away
Angle between feet: 90 °
Distance between feet:
appr. 2 shoulder widths
- 2) The back leg carries between
60 and 70 percent of the weight.
- 3) Turn the hips away from your opponent.
- 4) The lead arm is bend 90 degrees or
slightly less and the hand is at head
height.
- 5) The back hand is close to the chin, so
that you can protect your head.

1st Slide

Previous
Play
Next

Usage Policy | Privacy | Sitemap | Contact Us

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Figure 19 – Slide show for Chapter 1

5.2.7 Lecture Notes

This page enables the learner to view the lecture note of a course according to the chapter (figure 20). This can be accomplished by typing in the number of the requested chapter (for example '2' for the second chapter) followed by clicking on 'Get Chapter Notes'. This button enables the retrieval and presentation of the notes. The navigational elements at the bottom enable the user to get the next or previous page of notes.

UserName: cyprusbujinkan [Logout](#)
09 August 2010

Welcome, Charalambos

NINJUTSU

Instructor Details:

Charalambos Constantinou
chconst@hotmail.com

CHAPTER NOTES

Enter Chapter Number (e.g. 1): [Get Chapter Notes](#)

Ichimonji no Kamae:

1. Keep your back knee above the big toe of the rear foot. Your front leg and your front arm have no weight. In fact Ichimonji no Kamae is Hichô no Kamae.
2. Keep your hips leveled during the movement in the attack and in the defense. This will give more power to your attack or your Uke Nagashi.
3. Keep your back foot at a 45°, toes pointing to the rear, when in Kamae. This will protect you from multiple attacks thrown at you by various opponents.
4. Do not move your arms before your legs cross each other. Remember that your legs are longer than your arms. Keep your heels deep into the ground.
5. Slide your back hand alongside the front arm. In the basic Koto Ryû Kamae, the front hand is designing the target of your hit.
6. Use your Uke Nagashi, the blocking absorbing motion, to prepare for the reaction with the other hand.
7. Move your arms naturally with no strength. Your front arm goes down and in circle by the movement of your legs. Not by using the muscle of your arm or shoulder.
8. Keep your backbone straight and relax your arms when in Kamae. This will save your energy. It is useless to put tension in your arms while waiting for the attack of Uke. It is also useless to put any strength in your attack before you actually hit your opponent.
9. Keep your front elbow low. This will help you to protect your body in case Uke's attack is coming too low.

<<<< Previous Page Next Page >>>>

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Figure 20 – Lecture notes for Chapter 1

5.2.12 Online Lecture

This feature simulates a lecture based on cognitive theory of users' mental models. Since users regard a course is composed of book that has chapters, and each chapter has pages with text and images, we implemented this feature to have chapters, pages, images, text and video. This method increases the ability to learn since the learner can watch the video tutorial, view an image and read the relevant text all in one screen (Figure 21).

NINJUTSU

List of Chapters:
[Chapter 1](#)
[Chapter 2](#)
[Chapter 3](#)
[Chapter 4](#)
[Chapter 5](#)
[Chapter 6](#)
[Chapter 7](#)
[Chapter 8](#)
[Chapter 9](#)
[Chapter 10](#)





Notes:

Distance between feet: approx. 2 shoulder widths

2) The back leg carries between 60 and 70 percent of the weight. The upper body is upright. Don't lean back too much, just because the backleg carries more weight. This would make the stance instable.

3) Turn the hips away from your opponent. This makes his target smaller.

4) The lead arm is bend 90 degrees or slightly less and the hand is at head hight. (open hands) If you stand with the left foot in front, the left arm has to be your lead arm.

5) The back hand is close to the chin, so that you can protect your head.

6) Bent your head slightly down to protect your chin and look straight forward.

Chapter: 1 Page: 1

PREVIOUS

NEXT

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Figure 21 – Online lecture feature

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5.3 Second Step – Instructor View

This step involved the development of the instructor's pages. This section describes these pages' implementation in detail.

5.3.1 Instructor's Main Page

The main purpose of this page (figure 22) is to provide access to all the pages that the instructor needs and can edit the contents of the courses.

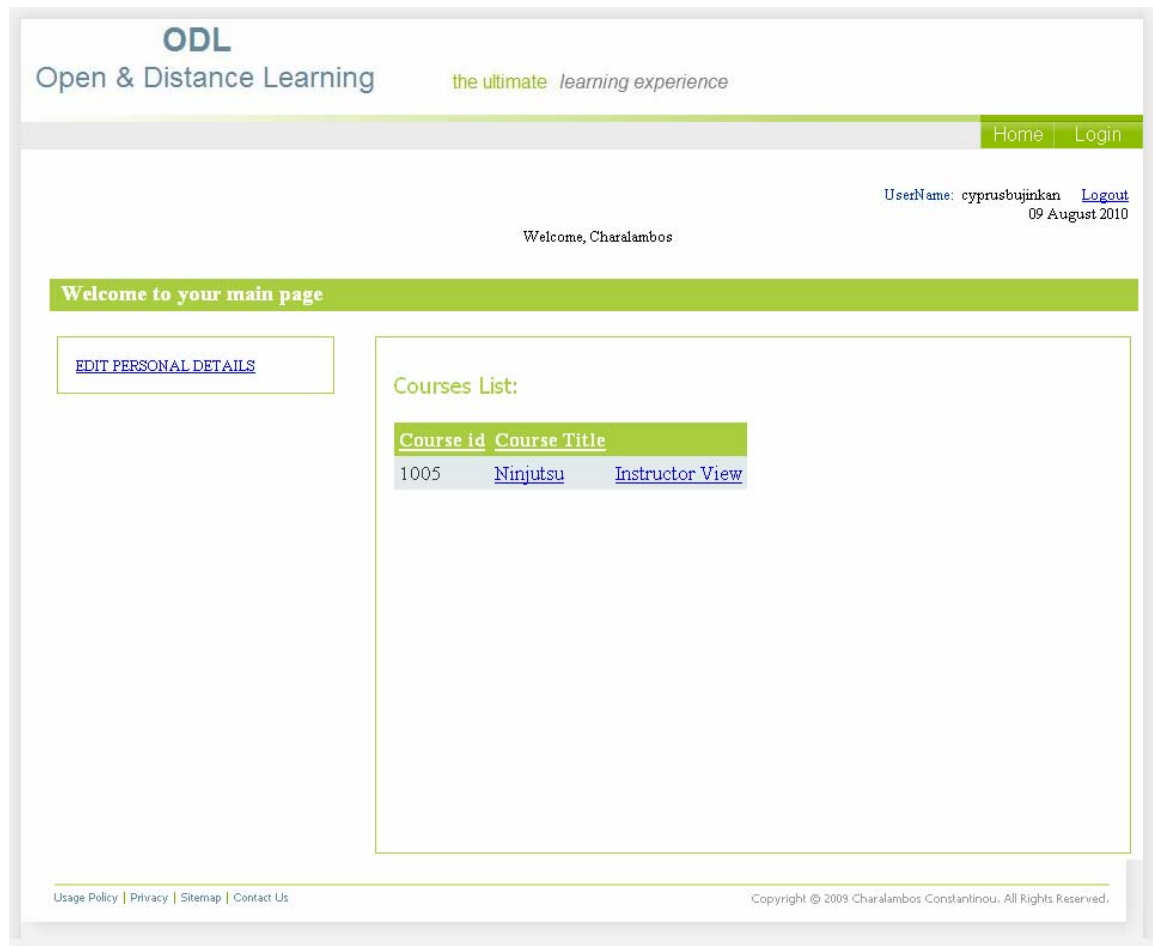


Figure 22 – Instructor's main page

5.3.2 Edit Course Outline

This is the page that allows the instructor change the course outline (figure 23). There is a brief description on the left hand side of the screen that explains the steps involved in editing the course outline. The upload feature enables the user to upload the file that should be titled 'outline.txt' on the server's file system. This file overrides the current file and so the changes are affected immediately.

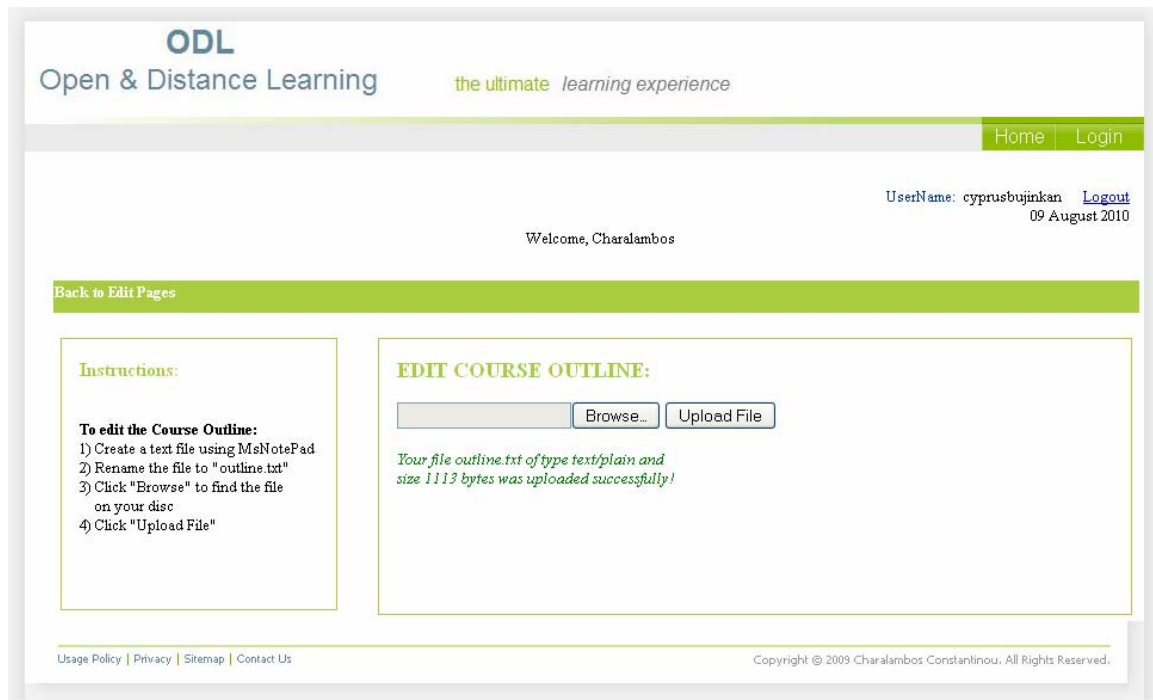


Figure 23 – Edit course outline

5.3.3 Edit Course Material

This is the page that the instructor to manage the files uploaded files. There is a brief description on the left hand side of the screen that explains the steps involved in editing the course material. The upload feature enables the user to upload the file on the server's file system. The file name appears in the directory area of the page after a successful upload (Figure 24).

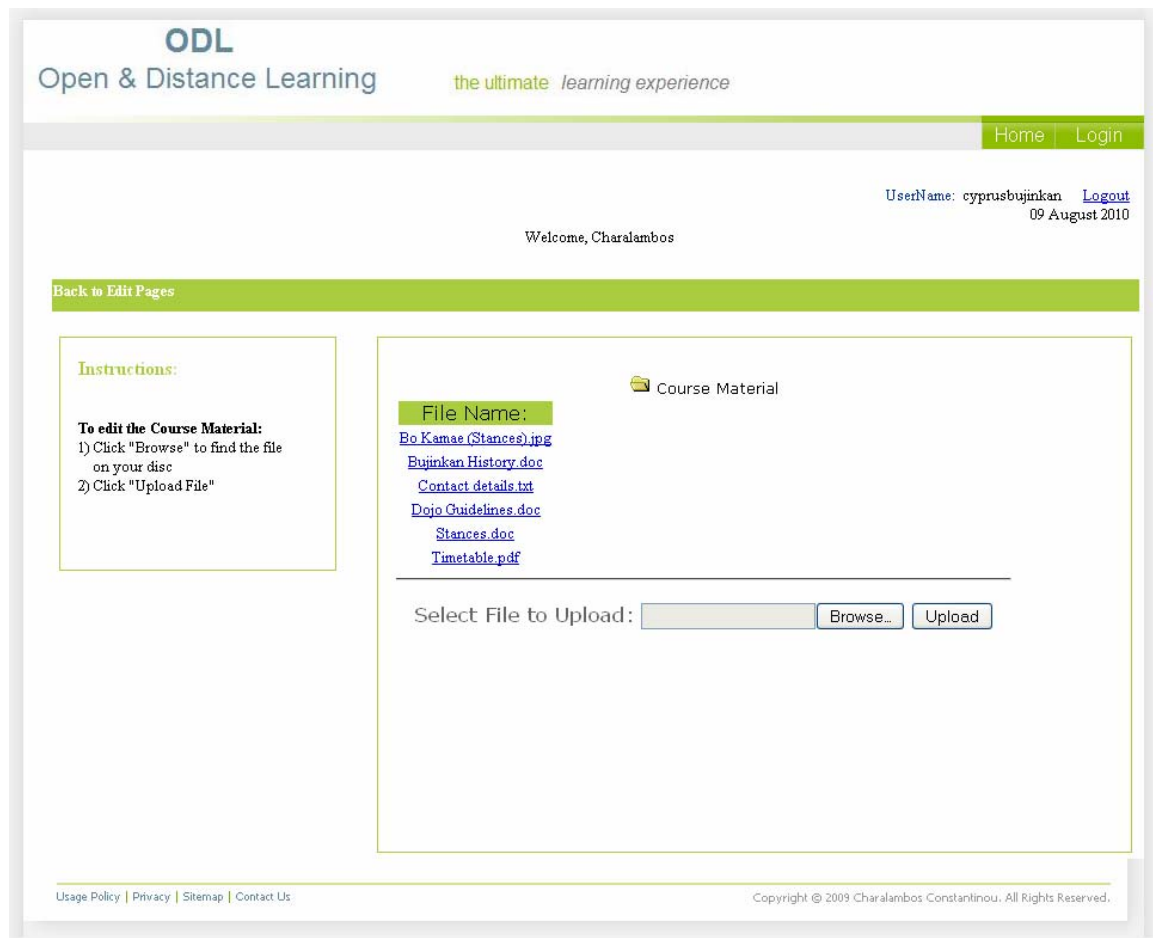


Figure 24 – Edit course material

5.3.4 Edit Slide Show

This page enables the editing of the slide shows per chapter. There is a brief description on the left hand side of the screen that explains the steps involved in editing the slide shows. The upload feature enables the user to upload the file that should be titled according to the description (e.g. “2_3.jpeg” for the 3rd slide image of chapter 2) on the server’s file system. This file overrides the current file and so the changes are affected immediately.

5.3.5 Edit Chapter Notes

This page enables the editing of the chapter notes. There is a brief description on the left hand side of the screen that explains the steps involved in editing the chapter notes. The upload feature enables the user to upload the file that should be titled according to the description (e.g. “3_2.txt” for the 2nd lecture note of chapter 3) on the server’s file system. This file overrides the current file and so the changes are affected immediately.

5.3.6 Edit Online Lecture

This page enables the editing of the online lecture pages. There is a brief description on the left hand side of the screen that explains the steps involved in editing the online lecture pages. The user needs to select the required chapter from the drop down list of chapters. The upload feature enables the user to upload the file that should be titled according to the description (e.g. "5.txt" for the 5th textual notes of the selected chapter) on the server's file system. This file overrides the current file and so the changes are affected immediately (Figure 25).

Figure 25 – Edit online lecture contents

5.3.7 Manage Course Learners

The instructor can actually manage the users of the course. The instructor can view current users or delete a current user, or even add a new one by entering the student's username and the course id.

5.4 General Functionality

General functionality was added to all the required pages of the application, such as navigation, uploading facilities for the edit pages, authentication and authorisation.

The functionality for all the required pages of the application included the ability to navigate effectively from every page within the application. This was accomplished after having developed all the pages and checking their interlinking according to the requirements and design phases. Navigation usability issues and the presentation of the links in order not to cause confusion were taken in consideration.

The upload feature of the edit pages was developed and coded using C# server side programming language, as shown in Figure 26.

```
protected void UploadButton_Click(object sender, EventArgs e)
{
    if (FileUpload1.PostedFile != null) //Checking for valid file
    {
        // Since the PostedFile.FileName gives the entire path we use
        // Substring function to rip of the filename alone.
        string StrFileName = FileUpload1.PostedFile.FileName.Substring(FileUpload1.PostedFile.FileName.LastIndexOf("\\") + 1);
        string StrFileType = FileUpload1.PostedFile.ContentType;
        int IntFileSize = FileUpload1.PostedFile.ContentLength;
        //Checking for the length of the file. If length is 0 then file is not uploaded.
        if (IntFileSize <= 0)
            Response.Write("<font color='Red' size='2'>Uploading of file " + StrFileName + " failed </font>");
        else
        {
            FileUpload1.PostedFile.SaveAs(Server.MapPath(".\\videos\\" + StrFileName));
            UploadSuccessLabel.Text = "Your file " + StrFileName + " of type " + StrFileType +
                " and size " + IntFileSize.ToString() + " bytes was uploaded successfully!";
        }
    }
}
```

Figure 26 – Uploading in C# code

It is important to allow access to pages only for the authenticated and authorised users. This functionality involved allowing only instructors to access their course edit pages only, and logged in authorised learners to access only their own personal main pages and courses. This implementation method with authorisation and authentication on every page of the application made it impossible for any internet user to access the pages by typing the URL on their browsers.

5.5 Other details

Default features were added to the application in order to be displayed as templates for first time users of the application. This affects mostly the instructors, as these default features appear when a new course is setup for them to use. These default features include images, videos and notes.

.

5.6 Conclusion

The implementation phase was described in detail. The end deliverable of this phase was the application itself. The current version of the implemented elearning application allows two types of users (instructors and learners) to register and then login in order to use the features of the application. The application allows the instructor to edit the course contents accordingly through the upload facilities of the different features of the course. It is also a secure application allowing only authenticated and authorised users only to access the application. The current version allows for future improvements to be implemented as different features within the same platform. Works in practice, intention on usage, limitations and constraints are discussed in the next chapter.

Chapter 6

6. Results

The results of the application's implementation are presented in this chapter. A clear idea regarding the usage of the elearning platform is acquired by discussing the works in practice, intention on usage, limitations and constrains.

6.1 Works in Practice

The application can run on any browser running on any operating system with live internet connection.

This version can possibly be used as a support tool to courses already available. The instructors should request a course and by paying a small fee, the administrator of the system will set up the course for them. Once the course is setup (using the servers file system by the administrator) the instructor can edit the course contents through his main page. It should be noted that the administrator has the ability to manage all users of the application, but only the instructor has the ability to change the course contents.

A form of training should be available to train the administrator in setting up the courses and maintaining the whole system. The administrator should have strong IT skills including server side programming and database administration.

The instructor can change the course contents at anytime and then add his learners as course students in order to use the application to enhance their learning experience.

The learners can register and then access the course. In order to view the course contents the instructor needs to add them as students to the course. The students can pay a fee to the instructor directly in order to access the educational content.

6.2 Intention on Usage

This version of the elearning platform can be used by individual instructors in order to teach online, by conducting the system administrator in order to setup a default course for them. This version does not support any form of evaluation such as examinations or quizzes, so evaluation needs to be performed in another way by the instructors if needed. The online payment system is not implemented in the current version, and so the instructor cannot get paid automatically by the system for each learner he accepts for his course. The instructor can update the course content at any time and allow access to different learners.

Learners will be able to access the educational material from the courses they participate in, by logging into the application. They can participate in courses by contacting the instructors directly. Once accepted by the instructor, they can then view online lectures and download educational material.

6.3 Limitations and Constrains

The application was implemented having a few limitations and constraints on its usage. These limitations and constraints are explained below:

Online Lecture: The default basic package involves limitations on the course contents. This limitation involves the use of only 10 chapters per course with each chapter having only 10 pages.

Editing: The editing features currently involve an upload facility whereby the instructor uploads the content to be changed, and so that content needs to be titled accordingly and be in the correct file type, for example 'outline.txt' for the course outline, '1_1.jpeg' for the slide show, and '1_1.text' for the lecture notes.

The instructors can always contact the systems administrator in order to remove constraints on using the application. The administrator has the ability to overcome these limitations and constraints and offer a bespoke solution of elearning within the same platform.

6.4 Summary

This chapter explained how the current version should be used in practice by the actual users of the application. Furthermore it described the current limitations and explained how a potential instructor might overcome them. The following chapter describes the testing and evaluation of this application.

Chapter 7

7. Testing and Evaluation

Testing and evaluation was carried out in order to make sure the application works as it is supposed to according to user requirements. Three types of users were involved in this process and included: instructors, learners and administrators. The testing was divided in two parts. The first part involved testing all the application's pages by the developer, which was accomplished with the help of testing documents. Every feature had its own testing document with specific questions regarding each page. The second step was the acceptance testing which was performed by the actual potential users of the application. Security and performance testing were part of the acceptance testing. Finally the usability evaluation followed.

7.1 Functional Testing

The developer was responsible for the functional testing of the application. This process involved designing a test plan, developing testing documents (in the form of questionnaires), and the actual testing. Analysis of the results then followed. Figure 27 shows the testing document used for the Online Lecture pages.

<u>TESTING DOCUMENT</u>			
ONLINE LECTURE PAGES			
TESTING	YES	NO	COMMENTS
1. Is the page layout consistent with the rest pages (master page)?			
2. Is the navigation consistent?			
3. Are all the links working?			
4. Are the chapters displayed properly?			
5. Do the 'Previous' and 'Next' buttons work properly?			
6. Are the chapter numbers and page numbers displayed properly?			
7. Are the slide notes displayed properly?			
8. Is the slide image displayed properly?			
9. Can the image be shown in full screen when clicked on?			
10. Is the slide video displayed properly?			
11. Are the video player controls working?			
12. Can you view the slide video tutorial in full screen?			

GENERAL COMMENTS: _____

Figure 27 – Testing document

7.2 Acceptance Testing

The acceptance testing was performed by the actual potential users of the application, in order to test the application according to their acceptance criteria, which involved security, performance and quality on the current functionality of the application. The following subsections describe the tests and the evaluations for each user group.

7.2.1 Administrator

It should be noted that the administrator is the only user that has access to the administrator tools such as the ‘ASP.NET Web Site Administration Tool’. The administrator using this tool has the ability to manage users and their roles directly to the system.

Add New User Roles

This functionality was tested with ‘Instructor’ as the data for the new role (Figure 28). After having added successfully the new role, it is then displayed under the ‘Role Name’ header (Figure 29).

The screenshot shows the 'ASP.NET Web Site Administration Tool' interface. The 'Security' tab is selected. Below the navigation bar, there is a text box explaining that roles can be added to control access to specific folders. Below this, the 'Create New Role' section has a text input for 'New role name' containing 'Instructor' and an 'Add Role' button. At the bottom, a table lists existing roles: 'Admin' and 'Learner', each with 'Manage' and 'Delete' links.

Role Name	Add/Remove Users
Admin	Manage Delete
Learner	Manage Delete

Figure 28 – Adding a new user role

ASP.NET Web Site Administration Tool

Home **Security** Application Provider

You can optionally add roles, or groups, that enable you to allow or deny groups of users access to specific folders in your Web site. For example, you might create roles such as "managers," "sales," or "members," each with different access to specific folders.

Create New Role

New role name:

Role Name	Add/Remove Users
Admin	Manage Delete
Instructor	Manage Delete
Learner	Manage Delete

Figure 29 – User roles

Change User Roles

The administrator is able to change a user's role. This step was accomplished by first clicking on 'Manage' under the 'Instructor' role. The required user name is then located and the administrator then only has to check the check box titled 'User Is In Role' (Figure 30). The changes are affected immediately. In order to verify the changes, the user entered logged in the application and checked out if he could or not access the instructor pages.

ASP.NET Web Site Administration Tool

Home **Security** Application Provider

Use this page to manage the members in the specified role. To add a user to the role, search for the user name and click the Add User button.

Role: **Instructor**

Search for Users

Search By: for:

Wildcard characters * and ? are permitted.

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z All

User name	User Is In Role
Instructor	☒

Figure 30 – ASP.NET Web Site Administration Tool

Delete User

Deleting a user can be a very important function of the administrator. The function was tested by deleting a learner user. The success of this action was verified by the unsuccessful attempts to login with that user's login details.

Delete User Role

The ability to manage roles is very important, and so this functionality was tested in order to make sure it works as it should. This was tested by deleting an instructor user role and then logging in the system using an instructor's login details. The user couldn't access the instructor pages.

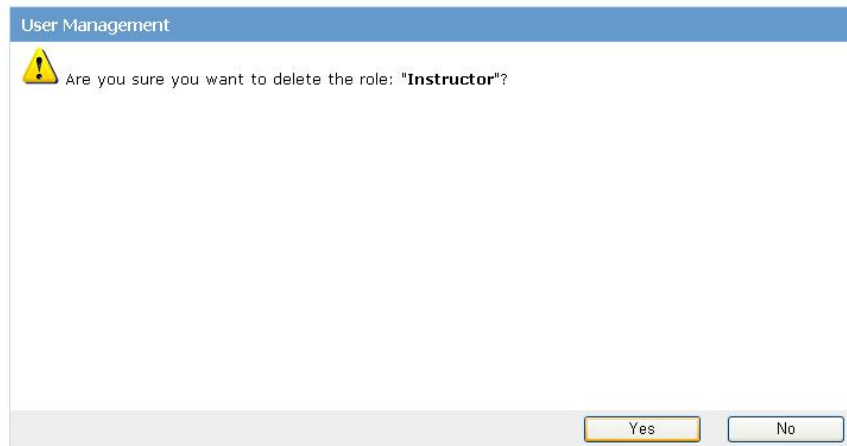


Figure 31 – User management

Overcoming Default Limitation

This can be accomplished by the administrator only, and it can be done by applying a few simple changes on the actual code. Figure 32 shows the changed number of slides for chapter 1 from 10 to 17.

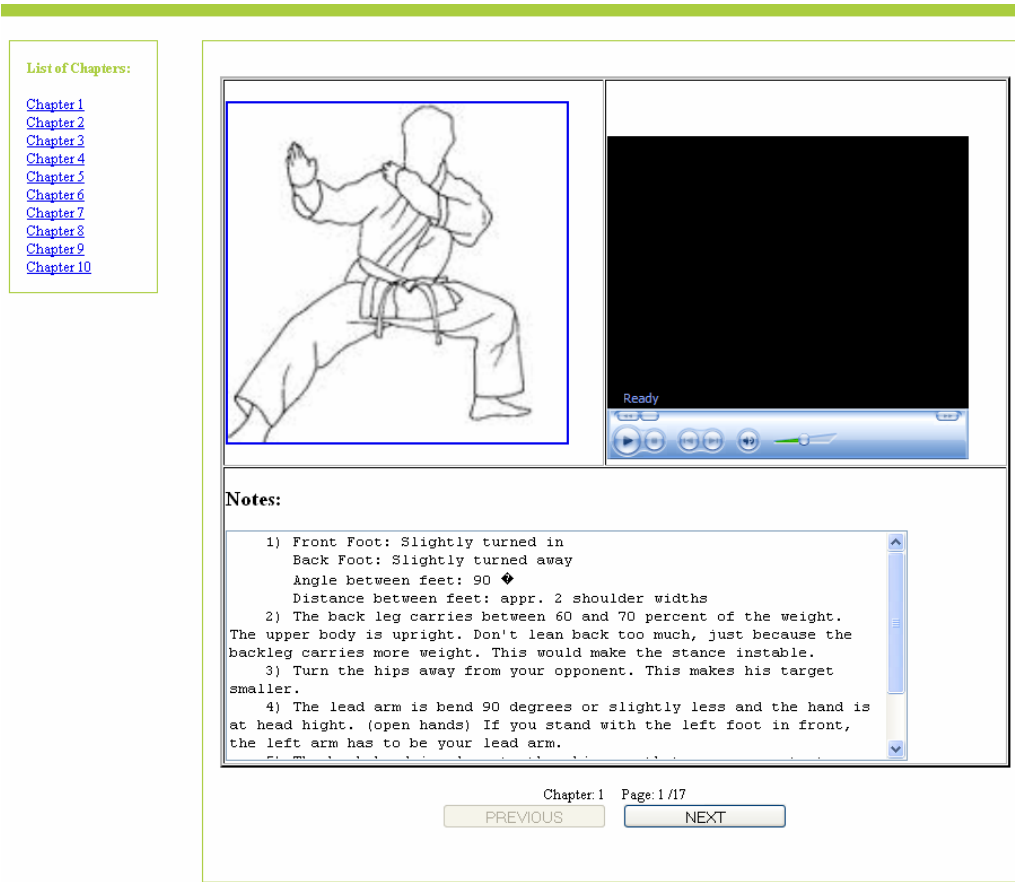


Figure 32 – Online Lecture page with more pages

Evaluation:

The administrator's functions were tested and worked according to the requirements. Issues such as security, quality and performance are acceptable and within the requested limits.

7.2.2 Instructor

The instructor's main concern on using the application is to be able to edit the course's educational material. This part was tested by logging in and accessing the instructor's page for the specific course (Figure 33). The instructor then tried to access all of the course's editing functions. The testing involved changing the contents of the course for each edit function by replacing the material (Figure 34). Finally when all the parts had been edited they were then viewed through the learner's view.



Figure 33 – Course main edit page (instructor's view)

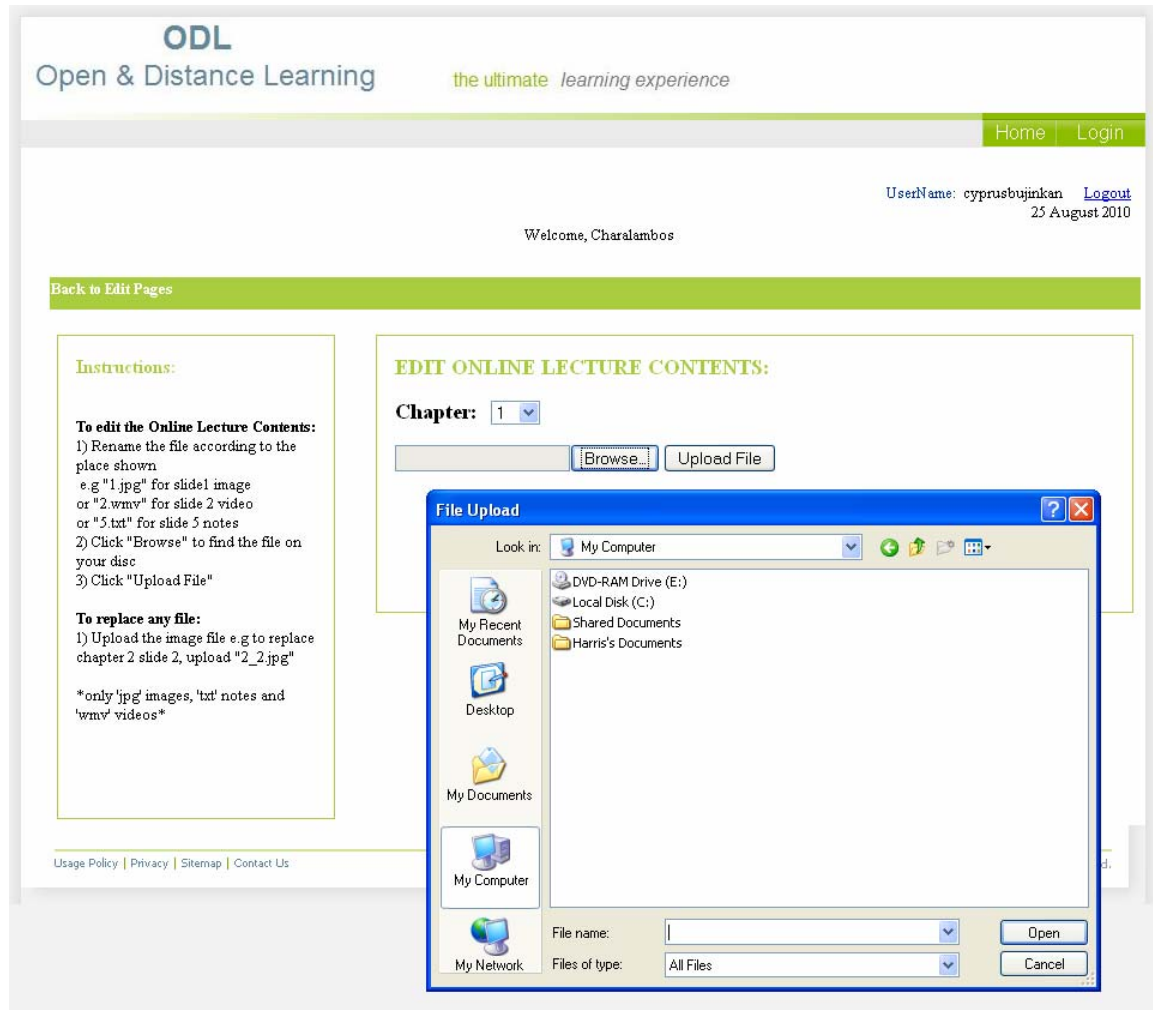


Figure 34 – Editing Online Lecture contents

Evaluation:

The contents can be edited effectively (easily) and efficiently (fast). The main issue for using this method of editing (file system) is the limitation of the file format used in uploading. An example would be that only windows media video (.wmv) files can be used as video files. An advanced and better method would be to use some sort of drag and drop facility to add files of any type. The interface, usability, performance, security, and quality issues are within acceptance limits.

7.2.3 Learner

The learner's main concerns on using the application as a user are usability issues and the ability to take part in a course and view the course contents. The learner should have access to the relevant authorized course pages only, and unable to edit them.

Access Pages

The first step for a learner is to register. Once registration is successful the user can then log in to the application. Learners tested the access, usability, quality, and performance on all relevant pages of the application based on a sample course.

Unable to Edit

Learners shouldn't have access to the edit pages of the instructors. Testing took place to access the instructor's edit pages using a learner's account.

Unauthorized Access

Unregistered and users that are not logged in, shouldn't be able to access any of the course pages except the home page of the application which can be accessed from the domain name. This issue was tested by having checked the access on all the pages one by one by entering the pages' URL on the browser's address bar.

Evaluation:

The learner has a various methods for using the application to get educated and learn new things as a user. The interface, usability, performance, security, and quality issues are within acceptance limits.

7.3 Usability Evaluation

The usability evaluation of the application evaluated the potential for errors and difficulties involved in using the application. During the usability evaluation the users had to execute specific scenarios (figure 35).

1. Scenario The test user has to login and use the application to complete the appropriate tasks specified by evaluator. The users will examine a task/case study. 2. Scenario How should links be displayed? – Color, highlighting... Are the different concepts of links, bookmarks and notes clear to the user? 3. Scenario Is the information logically organized? Can the users easily locate the information they are looking for?

Figure 35 – Scenarios for evaluation

Specific usability goals were determined from the above concerns which allowed for the creation of evaluation scenarios and tasks. This evaluation was based on the usability goals shown in figure 7.10.

• Participants will be able to begin using the application with no documentation. • Participants will be able to complete activities or locate specific information within specific time limits. A series of tasks will be designed and benchmark times established. We will time users during the usability evaluation. • Participants will be able to find related information with no expressed or visible frustration. • Participants will have no more than two false attempts in finding specific information. • Participants feel that the pictures used on the icons are recognizable and do facilitate system use/understanding? • Participants feel that the application facilitates their work: “perceived easy of use” and “perceived usefulness”.
--

Figure 36 – Usability goals

Typical users of the application are users which want to learn or teach online. We assume that in general the users do have some IT experience, and so the application has to be intuitive and logical structured that potential users are able to find the information relevant to them.

Criteria for test user selection were:

- **Age:** 18+
- **Computer literacy:** medium
- **Use of electronic support tools:** on a daily basis (e.g. email, Internet access, PC, etc)

A single usability evaluation was run in four individual participant sessions. Each individual session consisted of a set of tasks and an interview/questionnaire for the participants to complete.

The individual evaluations took place in the following order:

- A performance evaluation in which each participant is asked to perform a series of real-life tasks
- A questionnaire and an interview after each performance evaluation to gather additional insights from the participants about the application.

The usability evaluation process was accomplished in four parts which included: participant greeting, orientation and performance evaluation. The performance evaluation consisted of a series of tasks that were evaluated separately and sequentially. The individual participants completed the tasks while being observed by the usability specialists. Furthermore the participants completed the ‘computer system usability’ (figure 37) questionnaire, a ‘usefulness’ questionnaire (figure 38) and a ‘words’ questionnaire (figure 39).

12.	It is easy to find the information I needed	strongly disagree	☐	☐	☐	☐	☐	☐	☐	strongly agree	☐
13.	The information provided for the system is easy to understand	strongly disagree	☐	☐	☐	☐	☐	☐	☐	strongly agree	☐
14.	The information is effective in helping me complete the tasks and scenarios	strongly disagree	☐	☐	☐	☐	☐	☐	☐	strongly agree	☐
15.	The organization of information on the system screens is clear	strongly disagree	☐	☐	☐	☐	☐	☐	☐	strongly agree	☐
16.	The interface of this system is pleasant	strongly disagree	☐	☐	☐	☐	☐	☐	☐	strongly agree	☐
17.	I like using the interface of this system	strongly disagree	☐	☐	☐	☐	☐	☐	☐	strongly agree	☐
18.	This system has all the functions and capabilities I expect it to have	strongly disagree	☐	☐	☐	☐	☐	☐	☐	strongly agree	☐
19.	Overall, I am satisfied with this system	strongly disagree	☐	☐	☐	☐	☐	☐	☐	strongly agree	☐
			1	2	3	4	5	6	7		NA

List the most **negative** aspect(s):

1.
2.
3.

List the most **positive** aspect(s):

1.
2.
3.

NAME:

SURNAME:

Figure 37 – 2nd page of computer system usability questionnaire

Please circle the number of the statements that you regard as being correct.

- **Usefulness**

1. It helps me be more effective.
2. It helps me be more productive.
3. It is useful.
4. It gives me more control over the activities in my life.
5. It makes the things I want to accomplish easier to get done.
6. *It saves me time when I use it.*
7. *It meets my needs.*
8. *It does everything I would expect it to do.*

- **Ease of Use**

1. It is easy to use.
2. It is simple to use.
3. It is user friendly.
4. It requires the fewest steps possible to accomplish what I want to do with it.
5. *It is flexible.*
6. *Using it is effortless.*
7. *I can use it without written instructions.*
8. *I don't notice any inconsistencies as I use it.*
9. *Both occasional and regular users would like it.*
10. *I can recover from mistakes quickly and easily.*
11. *I can use it successfully every time.*

- **Ease of Learning**

1. I learned to use it quickly.
2. I easily remember how to use it.
3. It is easy to learn to use it.
4. *I quickly became skillful with it.*

- **Satisfaction**

1. I am satisfied with it.
2. I would recommend it to a friend.
3. It is fun to use.
4. It works the way I want it to work.
5. It is wonderful.
6. *I feel I need to have it.*
7. *It is pleasant to use.*

Figure 38 – Usefulness questionnaire

WORDS QUESTIONNAIRE				
☐ Convenient	☐ Familiar	☐ Slow	☐ Cutting Edge	☐ Friendly
☐ Busy	☐ Straight forward	☐ Personal	☐ Confusing	☐ Stressful
☐ Fun	☐ Boring	☐ Innovative	☐ Helpful	☐ Simplistic
☐ Empowering	☐ Usable	☐ Old	☐ Complex	☐ Irrelevant
☐ Dated	☐ Dull	☐ Advanced	☐ Patronizing	☐ Meaningful
☐ Clear	☐ Flexible	☐ Sophisticated	☐ Effective	☐ Difficult
☐ Accessible	☐ Time saving	☐ Business-like	☐ Too Technical	☐ Intuitive
☐ Organized	☐ Calm	☐ Disruptive	☐ Fast	☐ Consistent
☐ Controllable	☐ Annoying	☐ Easy to use	☐ Met Expectations	☐ Powerful
☐ Novel	☐ Comfortable	☐ Approachable	☐ Collaborative	☐ Distracting
☐ Frustrating	☐ Attractive	☐ Efficient	☐ Ordinary	☐ High Quality
☐ Valuable	☐ Gets in the way	☐ Fragile	☐ Connected	☐ Overbearing
☐ Sterile	☐ Exciting	☐ Desirable	☐ Overwhelming	☐ Secure
☐ Predictable	☐ Intimidating	☐ Appealing	☐ Clean	☐ Understandable
☐ Low Maintenance	☐ Comprehensive	☐ Unrefined	☐ Unconventional	☐ Effortless
☐ Inviting	☐ Entertaining	☐ Confident	☐ Optimistic	☐ Enthusiastic
☐ Customizable	☐ Time consuming	☐ Stable	☐ Unattractive	☐ Stimulating
☐ Not valuable	☐ Relevant	☐ Inconsistent	☐ Compelling	☐ Reliable
☐ Professional	☐ Compatible	☐ Incomprehensible	☐ Useful	☐ Undesirable
☐ Not secure	☐ Trustworthy	☐ Integrated	☐ Disconnected	☐ Energetic
☐ Engaging	☐ Motivating	☐ Poor quality	☐ Impressive	☐ Unpredictable
☐ Hard to use	☐ Ineffective	☐ Creative	☐ Uncontrollable	☐ Fresh
☐ Responsive	☐ Essential	☐ Satisfying	☐ Exceptional	
☐ Impersonal	☐ Inspiring	☐ Unapproachable	☐ Rigid	

Figure 39 – Words questionnaire

The participants carried out all the tasks successfully and within the required time limits, and so they were satisfied with the outcome of their actions. The computer system usability questionnaire results revealed that the information was easy to be found, the information provided was easy to understand, the organisation of the information on the screen was clear, has a pleasant interface, and all participants were overall satisfied with the use of the application. The only problem revealed is that it does not have all the capabilities they expect it to have (which will be implemented on the next version).

The usefulness questionnaire proved that the application is useful, easy to use, easy to learn how to use and all participants are satisfied with it. The words that resulted from the completion of the words questionnaire include: convenient, easy to use, friendly, fun, helpful, usable, effective and useful.

This usability evaluation concluded that the application developed has met the goals and expectations of the users. The main concern is that there is still some more development needed in order to fulfil all of their expectations as there are more capabilities that they expect the application to have. These capabilities and features will be implemented on the next version of the software.

7.4 Summary

The testing proved that the required functions were implemented according to the user requirements and work as expected. The testing and evaluation was used as means to document and gather requirements for the next version of the application whereby these recommendations including new features will be analysed and implemented.

Chapter 8

8. Conclusion

This is the final chapter and so concludes and reflects the project. The achievements from the application development are described including a brief investigation of meeting the users' requirements. Finally a reflection on the project plan is presented including future features and ideas regarding the development of the application.

8.1 Project Overview

The proposed application was implemented according to users' requirements. The following sub-sections describe the achievements of working on this project, discuss the meeting of users' requirements and briefly explain the initial project plan

8.1.1 Achievements

The project has achieved outstanding outcomes, as this web application developed is able to deliver the online courses to the students who will be at different physical locations using video based tutorials presented in a way that enhances learning (online lecture). A user-friendly web based interface was developed that allows the instructors to modify the information stored effectively in a user friendly way. The following is a list of achievements acquired by working on this project:

- Learning effectively and efficiently various different web technologies (such as HTML, AJAX, CSS) and programming languages (C#, VB.NET).
- Gaining experience on using different software tools (Visual Web Developer) and making decisions on choosing appropriate software or programming languages.
- Learning how conduct primary and secondary research.
- Strengthening time management skills.
- Planning and prioritising skills.

8.1.2 Meeting User Requirements

The majority of user requirements identified during the requirements phase were met successfully. Few of these were not implemented in this current version and include the following functional requirements: exams, quizzes, different languages, chat room, changing logos, search facility. The continuous development of the software and the continuous maintenance will ensure that these needs are met, and by providing an effective mechanism for feedback (telephone, email, online) the users can communicate their needs.

8.1.3 Project Plan

The project plan that was developed in early October 2009 was continuously modified due to changes made in the development of the project. At the beginning the waterfall model was chosen for the development of the application but it was later changed to an iterative model based on change in requirements.

8.2 Future Developments

The next version of the application will include: all the functional requirements not implemented in the current version and a reliable payment system. A user feedback mechanism needs to be established in order to get direct feedback regarding the usage of the application including feature requests and maintenance issues. The elearning platform will be launched on the World Wide Web in January 2011.

8.3 Summary

The new application developed aims to enable individual instructors to manage and deliver educational information regarding online courses to their learners. The majority of user requirements identified during the requirements phase were met successfully and important achievements were acquired by working on this project. Further developments need to be implemented in order to release the next version of the application which will be launched in January 2011.

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Appendix A – Focus Group Moderator’s Guide

Focus Group Moderator Guide

I. INTRODUCTION

1. My name is Charalambos Constantinou and I am the moderator today.
2. The purpose of this discussion is to talk about your experience of using Blackboard for learning. In particular, I am interested in discussing the functionality and the interface design, and so I will be asking your opinions and your experiences.

II. GROUND RULES

1. This session will last about 60 minutes.
2. This session is not audio or video taped and so I will be taking notes.
3. There are no wrong answers in this research. I am just looking for different points of view, and so I want to know what your opinions are.
4. Everyone needs to talk but each person doesn’t have to answer each question.
5. Please talk one person at a time and avoid side conversations, since it is distracting to the group and I don’t want to miss any of your comments.
6. You can exchange points of view with each other (you don’t need to address all answers to me).
7. Please turn off all cell phones.
8. Does anyone have any questions before we begin?

III. CURRENT USE – (15 minutes)

1. How often do you use Blackboard?
2. For what purpose do you use it?

IV. CHARACTERISTICS (35-45 minutes)

1. What is your mental model regarding a course?
2. What are the different elements that a course consists of?
3. What are the characteristics of a good elearning application?
4. What should the content be composed of?
5. Can you give me any examples of the content you suggest?
6. How should the content be organised?
7. What is the role of graphics such as animation, images, colour and illustrations?
8. How important is the navigation between the different elements?
9. How important is a good HCI design for elearning applications?
10. What are your needs and wants (requirements) that are not addressed on Blackboard? What would you like to do, that you can’t do?

V. CLOSE

Thank you for your comments and your time. This has been a valuable session.

Appendix B – Project Plan

Project Plan

Number	Task	Resource	Start	End	Duration	% Complete	2009			2010								
							October	November	December	January	February	March	April	May	June	July	August	September
1	Search for Literature	Internet/ Journals/ Library/ Universities	1/10/2009	30/10/2009	22													
2	Study the Literature	Literature	1/11/2009	20/12/2009	35													
3	Requirements Elicitation	Surveys/Interviews/ Focus Groups/ Observations	1/12/2009	1/2/2010	45													
4	Design	Requirements Documentation	1/2/2010	10/3/2010	28													
5	Implementation	Design Documentation	10/3/2010	30/3/2010	15													
6	Testing	Software Implementation	1/4/2010	10/4/2010	7													
7	Requirements Gathering	Testing Results	15/4/2010	30/4/2010	12													
8	Design	Updated Requirements Document	1/5/2010	20/5/2010	14													
9	Implementation	Updated Design Documentation	25/5/2010	23/6/2010	22													
10	Testing and Evaluation	Completed Implementation	1/7/2010	30/7/2010	22													
11	Report Writing	Completed Testing and Evaluation	1/8/2010	5/9/2010	25													

PART 2:

ENTERPRISE

“ODL – THE OPEN AND DISTANCE LEARNING WEB APPLICATION”

By **Charalambos Constantinou**
UID: 2361003

Supervised by
Dr. Carol Birchmore

13th September 2010

Manchester Business School

The University of Manchester

Executive Summary

‘ODL Platform’ offers an eLearning platform and services for instructors, providing them with the ability to deliver their teachings to their learners, in a user friendly way, that is cost effective, and provides a way for instructors to generate revenue.

Our clients are individual instructors who choose to teach courses online. ‘ODL Platform’ offers a variety of eLearning services from basic online support and training through content creation and developing courses.

Across the U.K. the eLearning industry has seen an explosion of growth over the last three years. The U.K. is an affluent area with a high density of martial artists of different disciplines. Our market research has shown that 9 out of 10 martial artists would prefer to enrol to an elearning course offered by their instructor.

While there are currently many businesses offering elearning platforms and courses, none of these offer a platform for learning activities such as martial arts.

ODL Platform’s marketing strategy is to emphasize the quality and effectiveness of elearning in martial arts through our platform that we provide (“*because people teach people*”) and the availability of our services. Martial artists who work, have busy daily schedules, no time to train, no time to practice, no time to attend classes, or have already quit martial arts training can now join and take part in a course by any instructor teaching online through our platform, by paying a small fee to them.

All services will be provided by staff well trained in martial arts, teaching online and IT. On start up we will have one staff to provide the services. To begin with, owner Charalambos Constantinou will be scheduling and coordinating the services.

The management of 'ODL Platform' consists of only one person, Charalambos Constantinou. Charalambos has extensive experience in developing web based applications, has worked in sales and marketing for more than 5 years, and holds a 5th degree black belt in the traditional Japanese martial arts of the samurai and ninja . He will be taking hands-on management roles in the company. In addition, we have assembled a board of advisors to provide management expertise.

Based on the size of our market and our defined market area, our sales projections for the first year are £62,000. The salary for the owner will be £12,000.

The owner will finance the company by investing £20,000 to meet the working capital requirements and help in growing the business.

Already we have planned to aggressively build our client base through direct contact, telephone contact, email advertising, Google and Facebook advertising. The ODL Platform's professional service that will provide is sure to appeal to instructors and martial artists throughout the United Kingdom, and not only.

This report is the enterprise section of the MEnt dissertation, and so provides the business details behind the application in development. The report explains the project concept and its unique selling point but also highlights the market issues including competition. Furthermore the service development is explained in detail. Finally the business model, business strategy and financial analysis are reported.

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There are a number of individuals who made this work possible.

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Chapter 1

1. Project Concept and USP

This chapter explains the concept of the project and its unique selling proposition. The chapter is split into three different sections, which include the commercial context, project concept and an overview of the project.

1.1 Commercial context

Distance learning has been around for over 150 years. The first course offered via distance learning was in 1858 by the University of London External programme (Study2U, 2009). Since then there has been a considerable general movement in teaching and learning in an open and distance learning manner. With modern technologies, traditional campus-based universities are now offering learning via the Internet. In 2006 the Sloan Consortium (leading researcher of online learning) stated that "more than 96 per cent of the very largest institutions (more than 15,000 total enrolments) have some online offerings" (Study2U, 2009).

The Open University (OU) was the world's first successful distance teaching university, founded on the belief that communications technology could bring high quality degree-level learning to people who had not had the opportunity to attend traditional campus universities (The Open University, 2010a). According to Brenda Gourley (The Open University's Vice Chancellor) "The future of open and distance learning lies with technology - a technology that combines with human ingenuity to deliver even more possibilities"(The Open University, 2010a).

The Open University is regarded as Britain's major e-learning institution and is a world leader in developing technology to increase access to education on a global scale (The Open University, 2010a). It is the largest higher education institution in the UK and a world leader in flexible distance learning. Since it began in 1969, the OU has taught more

than 1.5 million students and has more than 250,000 current students, including 20,000 overseas, learning in their own time (The Open University, 2010b). The OU has been highly rated for teaching quality, and has been at the top of student satisfaction rankings in the National Student Survey, with 93% of the students saying they were satisfied overall with the quality of their course (The Open University, 2010a).

In 1969, when the idea of The Open University was announced, it was described as "blithering nonsense" by Iain Macleod MP (The Open University, 2010b). According to Mr. Christodoulou (OU University Secretary 1969-1980), Mrs Thatcher came and tore them to shreds, and she even asked them how they could justify spending so much money in order to satisfy the hobbies of housewives (The Open University, 2010b).

The benefits of distance learning have already been acknowledged and accepted by the general public, and the availability of the internet has played a major and significant role. These factors gave rise to the need of developing web based applications that facilitate learning. Companies, organisations and individuals pay, outsource or even employ IT companies or people to design and develop such systems. They then charge a fee for its users.

Today, distance learning is regarded important in commercial organisations and companies and that is the reason three out of four FTSE 100 companies have sponsored staff to take OU courses (The Open University, 2010b). According to Tarang (2008), a leading Electronic Payments Solution provider, the eLearning market is expected to surpass \$52.6 billion by 2010, and online tutoring is a \$4 billion industry and is growing at a rate of 10%-15% per annum.

LearnDirect is an e-teaching organisation in the UK which helped over 2.4 million people transform their lives by gaining a new skill or qualification (LearnDirect, 2010a) since purchasing an online course is not expensive (courses start from as little as £17.50) (LearnDirect, 2010a).

Other distance learning institutions include OpenLearn where its study units have had more than 12.8 million unique visitors, and materials on iTunes, which had 22.5 million downloads (The Open University, 2010b).

Formal education is not the only form of learning. Informal learning is also important and accounts for over 75% of the learning taking place in organisations today (Conner M., 2010).

A lot of people nowadays use the internet and Google's search engine in order to practically learn how to do things (figure 1) (Google Trends, 2010a).

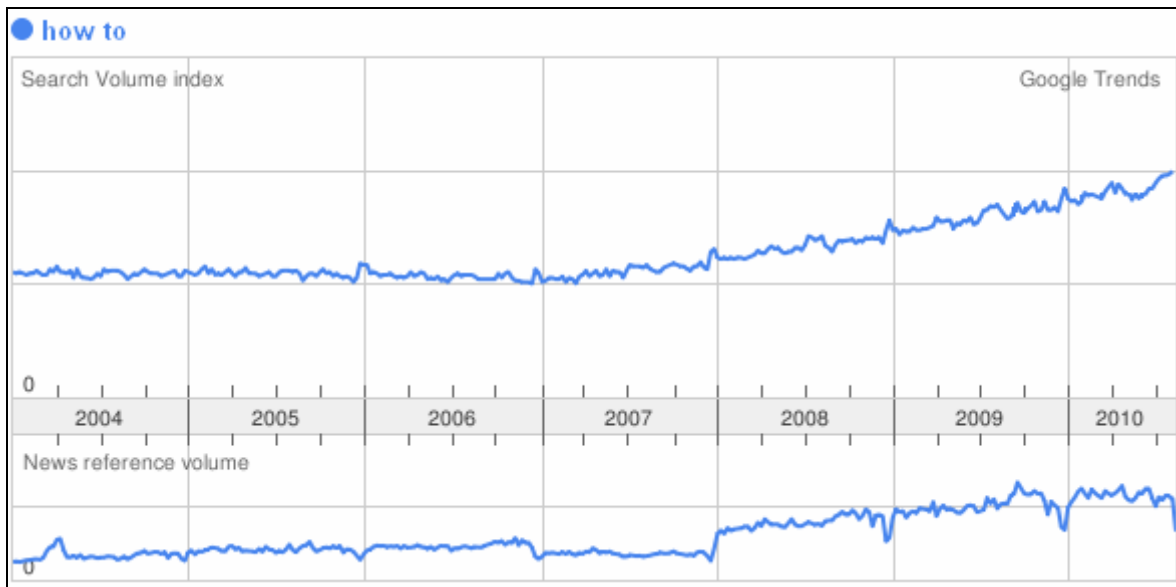


Figure 40 – ‘How to’ at Google Trends

Most of these ‘how to’ search results point on YouTube where different instructors had already uploaded video tutorials explaining how to do things (figure 2). YouTube became the 2nd most popular search engine in August 2008, behind Google (1st) and over Yahoo (3rd) (Clean Cut Media, 2009).

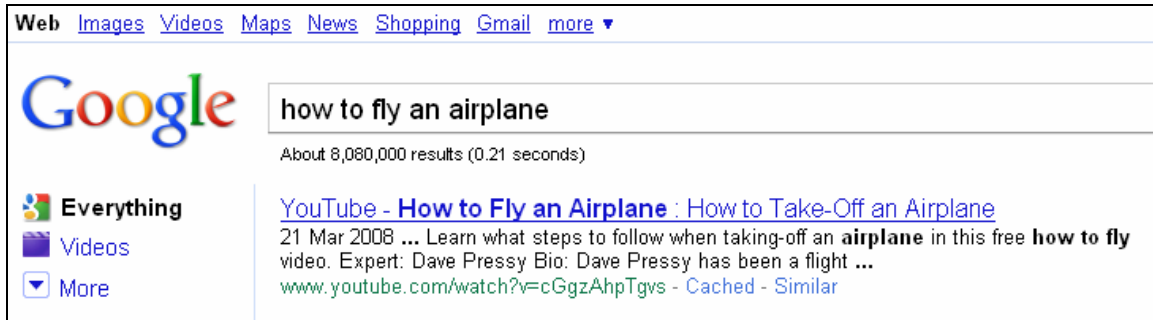


Figure 41 – ‘How to’ example search results

Statistics show clearly that adults spend over 15 hours a week on the internet and the broadband access will rise from 55% to 90% by 2012 in the US, thus increasing online video viewing by 35% year by year (Clean Cut Media, 2009).

This technology advances and the need of people to practically learn how to do things that don't need certification or formal education gave the rise to the formation of companies that provide free video tutorials, such as ExpertVillage (ExpertVillage's Channel, 2010), eHow (eHow, 2010), VideoJug (VideoJug, 2010), HowCast (HowCast, 2010) and others.

Statistics for 'eHow' gathered by 'SmartViper' (SmartViper, 2010a) show that there are 21,614 websites related to "learn how", 4,011 websites related to "how to use" and 290 related to "how to videos" (figure 3). According to the same source, 'eHow' has 295,598,144 page views per month, and more than 10,000,000 backward links from other websites. These statistics show that people are interested in learning how to practically do things.

Keyword	Keyword Weight [▲]	Competition [?]	Keyword Cost [?]
Learn How 21,614 related websites		 Position <u>1</u> of 21614	
How To Use 4,011 related websites		 Position <u>1</u> of 4011	
How To Videos 290 related websites		 Position <u>1</u> of 290	
How To Articles 259 related websites		 Position <u>1</u> of 259	
How Tos 229 related websites		 Position <u>1</u> of 229	
How To Video 124 related websites		 Position <u>1</u> of 124	
How To Instructions 57 related websites		 Position <u>1</u> of 57	
How To Do 31 related websites		 Position <u>1</u> of 31	
Expert How To 24 related websites		 Position <u>1</u> of 24	

Figure 42 – eHow statistics

These companies have their own YouTube channels which they use to redirect viewers to their own websites where they sell advertising and thus generate revenue (eHow's Channel, 2010). The actual instructors get paid a very small fee (around \$10 per 10,000 views on a video, per video) for uploading the videos (Satrap, 2010).

YouTube has also formed a channel, called 'YouTube EDU' (YouTube EDU, 2010) dedicated to gathering educational videos from YouTube in one channel (figure 4). It is one of the largest online video repositories of higher education content in the world with over 300 universities and colleges contributing content such as, University of Cambridge, Yale, Stanford, MIT, University of Chicago and The Indian Institutes of Technology.

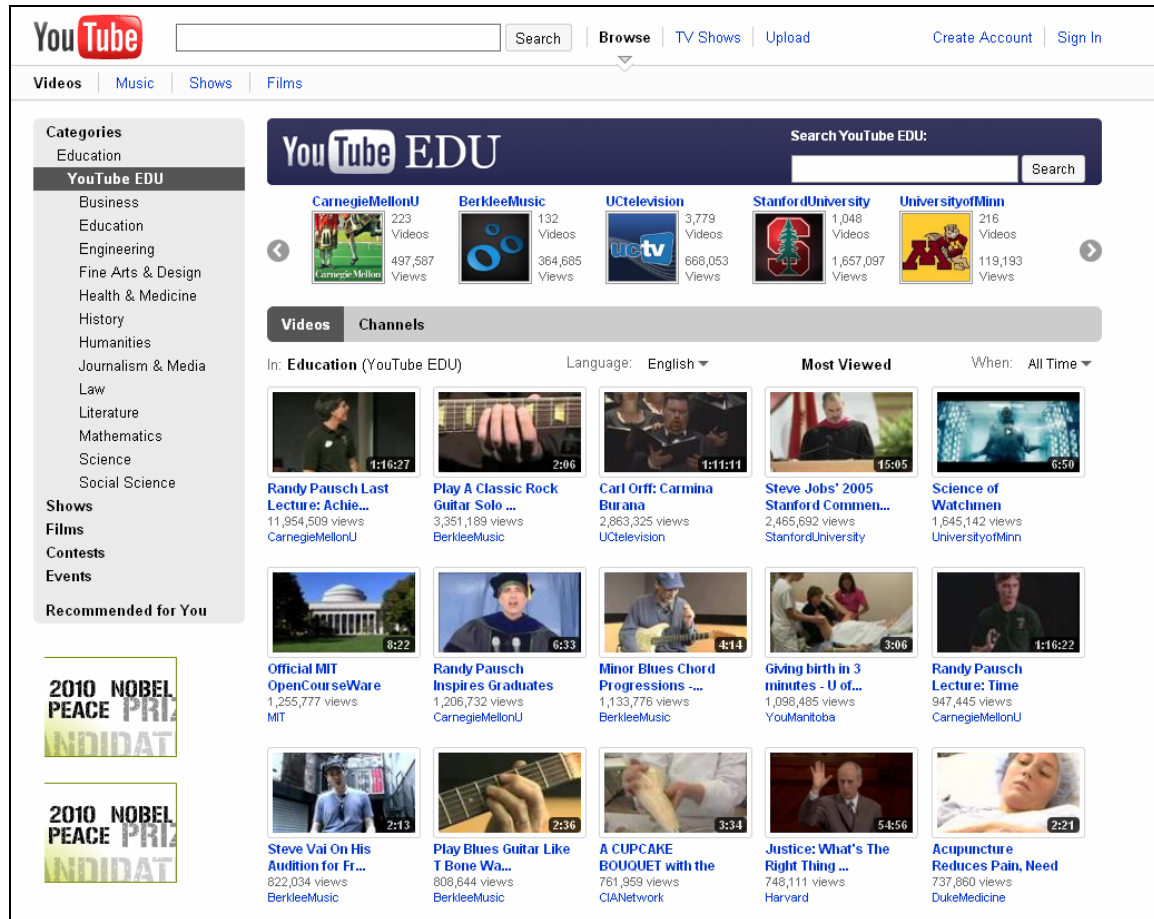


Figure 43 – YouTube EDU

Meanwhile other individuals struggle to earn an income (JT Austin, 2010) by uploading educational videos online in platforms such as YouTube. These individuals are trying to get people to subscribe to their channels and increase their video views in order for YouTube to invite them on its YouTube partner program (YouTube, 2010).

1.2 Project concept and Unique Selling Point

Most elearning applications are used for uploading and downloading files, and so they are more or less acting as file transferring platforms. They do allow customization and so each instructor can use the same platform but make the courses look totally different which causes confusion and frustration between learners of different courses within the same platform.

Another problem faced is that in most cases people just view a course outline or description and then have to pay in order to participate. They don't know who the instructor will be and they don't know if he or she is able to teach the way they want to learn from them. In other words they don't know the instructor or his teach ability.

A popular distance learning method is the use of educational videos (DVDs). A potential buyer cannot see the contents of it, but needs to buy it first and then view it. This causes a problem as the customer doesn't know if there is what he asked for in the video. These videos can easily be copied or downloaded illegally from the internet and so distributed to other potential buyers.

On the other hand the instructors involved in teaching at distance, usually do so because they have to (usually because of their organisations' policies). They get paid a salary and the companies they represent get all the income from their courses. If they wanted to do it themselves it would cost them a lot of money and resources in order to develop and market their courses, which will make it difficult to get a return on their investment.

The concept of the project is to market an open and distance learning web based application (platform), which enables people to teach any course online mainly through video tutorials. These instructors will not need strong IT skills or the need to employ others. The application will provide different ways for the instructors to get paid (e.g. fees and advertising) and thus provide means for various instructors (such as individuals seeking to join the YouTube partner program) to achieve their ambition to earn an income by sharing their knowledge and teaching online through video tutorials.

The students on the other hand, will be able to use the system to look for relevant courses, and then choose the instructor, according to their criteria (such as instructor's achievements, teach ability, and price). They can then take part in the course through their personal portal. This gives them the ability to choose any subject, any instructor (according to instructor's ability to teach effectively, reputation, and experience), interact with the instructor, and manage their courses, all in one virtual location, and cheaper than using any other way.

1.3 Project overview

The aim of the project is to develop the open (accessed anytime) and distance (at remote locations from instructors) learning application and market it appropriately, thus generating revenue streams and so make profit.

The motivation and the reasons for starting up this business is because there is high demand in people that want to practically learn how to do things, which believe that instructors are the most important factor in learning. Such proposed system will provide them the means of choosing an appropriate instructor, and be able to interact with him.

On the other hand, a lot of instructors teach effectively online, through different platforms or systems but do not make enough money in return (e.g. YouTube channels). They need a platform that will reduce their efforts, bring in more people and thus generate more income, through various revenue streams (such as fees and advertising).

Thus the business problem to be solved is to implement such web based application that will solve the needs and wants of these stakeholders, the instructors, learners and advertisers (providing targeted advertising).

The main goal and so the desired outcome of the project is to get more than 100,000 users on the system, and then negotiate the sale of the business to a bigger company (such as Google, Yahoo!, and Microsoft), but meanwhile generating enough revenue to keep the business going (Wikipedia, 2010c; Wikipedia, 2010d; Wikipedia, 2010e).

In order to do so, the business should start by targeting specific market segments within specific markets. The niche market analysed for this purpose would be that of Martial Arts, as there is a high demand for it (as discovered in our primary and secondary research), the management team of the project knows well this industry and a lot of instructors are already using different learning systems to do so (such as YouTube, eLearning platforms, educational DVDs).

The custom software (system) required for the project will be developed in-house, and the IT department will also provide the required hardware. Training and help desk services will also be provided by the IT department. The system will be housed at a remote, dedicated server. The users will access the new application through their existing internet connections. There is no data to be converted since this will be a new application and service.

Benefits for using this system include the following shown below (Table 1):

Table 2 – System benefits

Students	Instructors	Advertisers
Choose course	Have more students	Targeted advertising
Choose instructor	Expand world wide	More income
Learn effectively and in an efficient manner	Effective marketing	More leads to their websites
Pay less money	More income	Support by instructors
Full support by the real instructor	Teach effectively to more audience	Recommended to learners by instructors
Open and distance learning	Better reputation	Good reputation
Improved performance	Increased access	Increased access
Convenience and flexibility	Convenience and flexibility	
Develop skills and competences needed		
Reduce overall training time		
Spread training out over extended periods of time		
Bookmark progress		
Remain in one physical location with no need to travel		
Access courses from a variety of locations		

Important assumptions to consider include:

- People will use it on a daily basis: people will be using the application on a daily basis to enhance their learning by participating in their courses and watching the video tutorials.
- Will cover all the needs of all stakeholders: the major needs of the students, instructors and advertisers will be covered and so they will be satisfied and use the application.
- Will be legal to use: users will be uploading their own content and not copyrighted material which might cause legal issues and trouble for the company.
- Will generate revenue streams and good income: the advertisers will be willing to pay in order to advertise on our application, the instructors will pay for having courses on our platform and earning income from commissions (students participating in courses).
- A dedicated server will provide adequate service: a dedicated server is needed to host and manage the web application including its databases and provide the appropriate bandwidth to accommodate the simultaneous users.
- The web based application will be easy to maintain and will not cause unexpected trouble or other issues

Known risks include the following:

- Competition: other competitors might react aggressively and acquire most of the market share thus driving our company out of business, by providing a more effective solution.
- Server Failure: this could possibly damage or erase all the data stored or even cause serious problems to the software which can make it unusable.
- Application being rejected by users: the business is dependent on the application, and so if the users reject the application for various reasons (not user friendly, frequent failures, difficult to use) then the company would run out of business.
- Other legal issues not considered: there might be other legal issues that might arise in the future which haven't been considered and could possibly cause bad reputation or cause unrecoverable damage to the company.

- No protection of concept, idea or design: the concept and the idea cannot be protected and so other competitor might copy the concept and thus increase the competition.

The resources needed to start this business include:

- Capital invested in the business: £20,000 will be needed as capital invested in the business in order to cover the expenses and finance the business.
- Human resources with strong IT background: An experience web developer with knowledge in object oriented programming, web developing, database administration and building web applications will be needed.
- Good management team: managers will be needed to manage the tasks and making sure the required deliverables are delivered according to the specifications and on time.
- Server: a dedicated server needs to be hired in order to host the application and the relevant databases.
- Web based application: the application needs to be developed according to the specifications.
- Good marketing team and strategy: the marketing team should be good at planning and organising effective marketing campaign and developing appropriate strategies to manage the market and competition.
- Office premises: an office with appropriate equipment (desk, chair, telephone, computer, printer, and scanner) is required to give a physical presence of the company to the customers and other stakeholders.

1.3 Summary

This chapter gave a brief introduction and background to the project together with a clear definition of the project concept including identification and justification of the unique selling point. The next chapter examines the market issues.

Chapter 2

2. Market Issues

This chapter investigates a few of the major market issues. Within this chapter, the market is analysed in detail, and so the different environments such as macro and micro environments are discussed. The required information was gathered by both secondary and primary research methods such as surveys, interviews, observations and focus group meetings. Finally, the competition analysis is presented, highlighting present and future competition.

2.1 Overview

There has been considerable outside research and marketing of "Sports" in the United Kingdom (Key Note, 2010a; Key Note, 2009; Key Note, 2010b) and the United States of America (US Census, 2010a; US Census, 2010b; US Census, 2010c; US Census, 2010d), however we find that several categories of sports were seriously overlooked in most analysis. Martial Arts are one of them. While basic figures are provided for Martial Arts by the U.S. Census (US Census, 2000), most of the available data has been obtained through other sources, such as independent studies (Gabelhouse, 2008; Martial Arts History Museum, 2010), published articles (BNET, 2003) and annual membership reports (British Judo Association, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010; British Kendo Association, 2010).

The ODL Platform targets all people in general, but the content will be slanted towards what we call "busy people." These are people who most likely have busy lives such as being a full-time student, working, having a family, etc. These people often feel that they're too busy to attend face to face lessons. They tend to be in the 25-34 age range, moderate to high income level, and they live in all geographical locations. Obviously, our market must have access to the Internet in order to view our site and web application.

Our secondary and primary research has shown that opportunity exists in our marketplace and it became clear that the market is poorly defined, marketed and organized. The information acquired reveals that there is a great opportunity for growth and led us believe that our position as a potential leader in our market is not an impossible task.

2.2 Market Analysis

This section of the chapter analyses the market and estimates the potential market size, segments the market, creates a customer profile and outlines the primary research findings. By using this kind of market analysis it gives the reader a better understanding and an insight of the target market.

2.2.1 Martial Arts

Since the dawn of humanity until now, martial arts, served on the effectiveness of physical conflict, athletic activity and aesthetic expression. They flourished in all major civilizations and they are now a cultural heritage but also an important athletic activity of mankind (Skopelitis, 2004).

In the mid 20th century, westerners showed keen interest in other 'exotic' military expressions, among which were the Asian martial arts (Lowry, 2008). They were thrilled and amazed by the dance like movements of the Asian martial arts of kungfu, and the effectiveness of judo, karate, and taekwondo, but were also troubled by the spirituality that is reflected in these arts by the Chinese shaolin monks and the Taoist approach to human conflict (Green, 2001), as described in the ancient book "The Art of War ' by Sun Tzu (Giles, 1910), written in the 6th century BC.

They were also impressed by the dedication of the Japanese samurai, the creativity of the ninja, and by the cinematic image of Bruce Lee, who appeared as a shooting star from the sky of martial arts (Skopelitis, 2004).

Today, millions of people are brought in the martial arts, not because of the essential aim of self-defence or athletic distinction, but for self-improvement. It is generally accepted, that a long-term contact with martial arts enhances the physical, mental and spiritual health, and ultimately helps to manage wisely the challenges of life (Skopelitis, 2004).

There has been a general increase in sports participation in the UK over the past few years, including martial arts (Sport England, 2009). Reasons for the increased participation according to Sport England (2009) include: self defense, keeping fit, competitions, improve performance, meeting with friends, losing weight and just enjoying it.

Martial arts disciplines like Judo, Karate, Taekwondo, Kickboxing, Boxing, Wrestling and Aikido are now being regarded as sports (Sport England, 2010b), and so being taught at schools (Sport England, 2003). Since they are regarded as sports, they are involved in competitions such as ‘British Open Championships’ (Judo), ‘British Karate Federation 4 Nations Championships’ and ‘London Open Taekwon-Do Championships’. The most popular and recognised competitions worldwide are the Olympic Games, where athletes can participate in Judo, Boxing, Taekwondo and Wrestling (Olympic Movement, 2010). The 2012 Olympic Games will be hold in the UK and so a lot of athletes are training hard for the games but also seek help and guidance in the form of video tutorials by successful athletes that had participated in the Olympic Games over the previous years. Such an example could be ‘Classic Judo Competition Techniques – DVD’ regarding the practical application of Judo techniques in competitions, developed by Hal Sharp who is an American legend in the art of Judo (WarriorVideos.net, 2008).

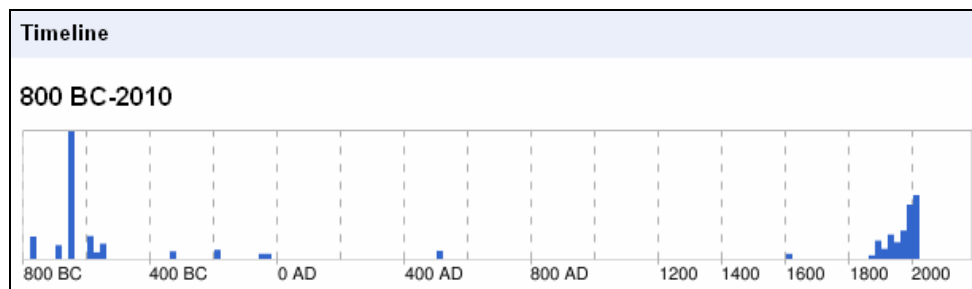


Figure 44 – ‘Olympic Games Martial Arts’ Timeline by Google

2.2.2 Crime in the UK

A major reason for people to seek martial arts teachers online for practical self defence techniques is due to the high criminality. According to the Youth Justice Board (Mori, 2003) around 30-35% of pupils in the UK admitted to carrying a knife. According to BBC National News, there is 60% increase in recorded knife carrying incidents in just 6 years (1999-2004), and many criminologists now believe that people carrying a knife is a bigger threat than people carrying guns (Insight Security, 2009; Silvestri et al., 2009). Figure 6 shows the crime map of Britain (Squires et al., 2008).

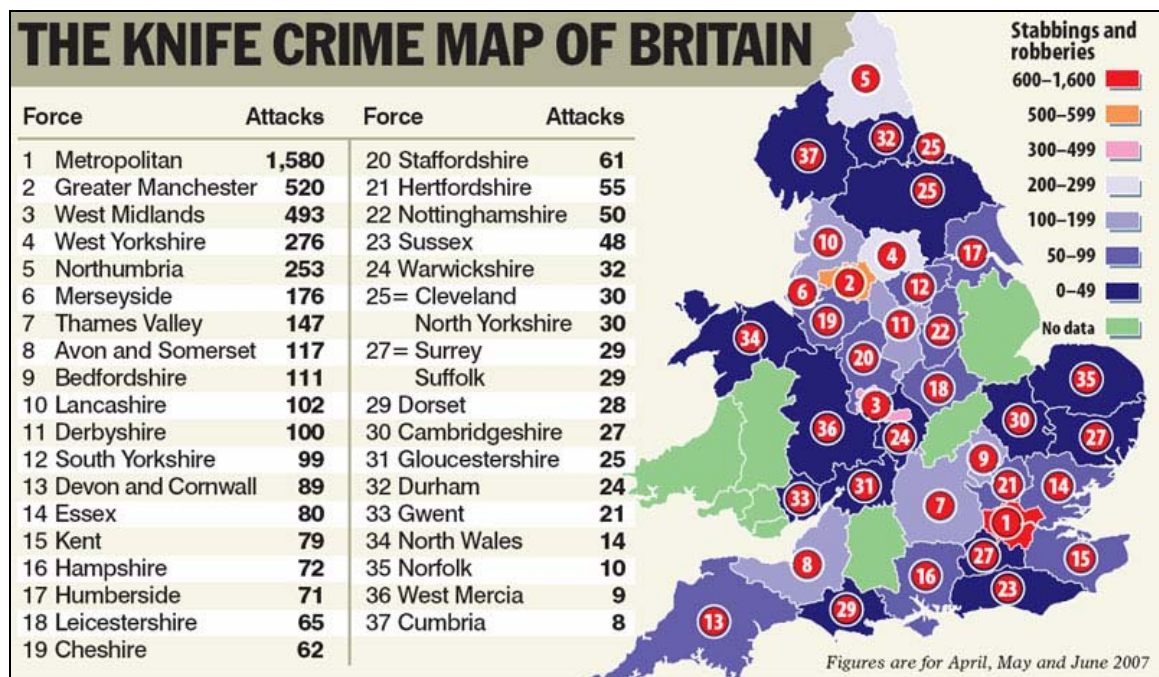


Figure 45 – Knife crime map of Britain

Figure 7 shows the hospital admissions episodes where external cause is assault by a sharp object, like a knife (Squires et al., 2008).

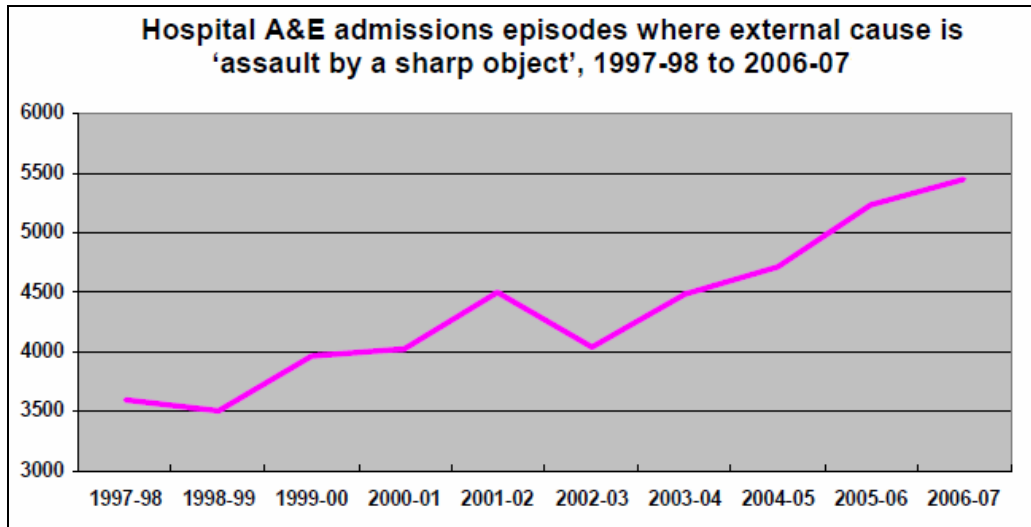


Figure 46 – Hospital admissions caused by assault from a sharp object

Figure 8 shows the recorder crime and persons proceeded against offenders from 1950-2008 (Ministry of Justice, 2010). The figure shows that in 2008 there were around 5,000,000 recorded crimes but only around 450,000 offenders were found guilty or cautioned.

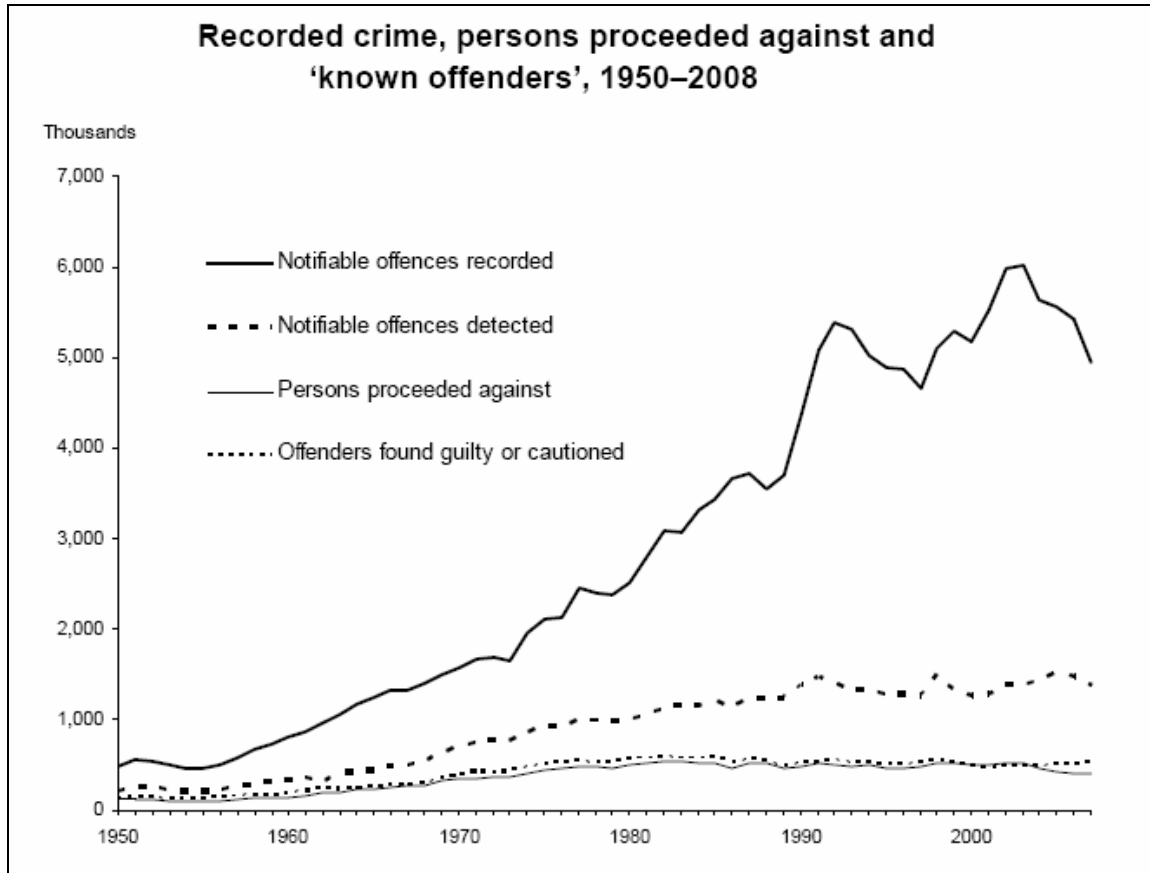


Figure 47 – Recorded crime and persons proceeded against

According to Tavares and Thomas (2009), violent crime (such as physical assault, stealing by force and rape) incidents recorded by the police in England and Wales were 1,099,434 for the year 2007.

2.2.2 Potential Market Size

An estimated 5% of adults in the U.S. say they participated in martial arts last year at least once, and around a quarter of those (28%) say they do martial arts "every chance they get." [1] Surprisingly, this bunch is fairly evenly split between men (52%) and women (48 %). But for the most part, participants are young. 63% are between 18 and 34, compared with 25% who are between 35 and 49 and 12% who are 50 or older (BNET, 2003).

According to 'FightingArts.com', 19.8 million adults in the U.S. alone cited that they had taken formal martial arts classes, and 5.7 million adults in the U.S. market taking formal martial arts training classes on a weekly basis (Gabelhouse, 2008).

An important issue to consider is the drop out rate of people practicing martial arts. 86% of people practicing martial arts quit for the reasons shown in the table (Table 2) below (Gabelhouse, 2008).

Table 3 – Martial Arts drop out reasons in the US

Reason	%
Personal & Job/Time Constraints	31
Moved away from school	23
Just lost interest	18
Injury or medical problem	13
Classes run their term	8
Finances/ Cost of classes	7

According to the statistics gathered by Martialinfo.com (Martial Arts History Museum, 2010), the leading martial arts website, there are over 30,000 schools across the United States alone and some schools have over 300 students.

On 'UK's Martial Arts Clubs' website there are 2,345 martial arts clubs listed (MartialArtsClubs.co.uk, 2010) and on 'MartialArtsRegister.co.uk' website there are 3,964 clubs registered. Each club has on average 50 members participating in their classes (average calculated by phone calls to 20 clubs). That gives a total of around 200,000 participants.

According to the 'Sports Market' report (Key Note, 2010a), consumers in the UK spent £10bn on sport in 2008. According to the 'Sports Equipment' report (Key Note, 2009), the sports equipment market is extremely fragmented and difficult to define, but Key Note values it at £1.1bn in 2008. According to the 'Health Clubs & Leisure Centres' report (Key Note, 2010b) healthy living is growing preoccupation of consumers and the media, and Key Note estimates that consumers spend £3.5bn a year on basic participation costs for both sport and fitness. According to the same source in the year ending September 2009, 37.4% of adults used some sort of fitness-related facility.

The following table (table 3) shows the membership figures of judo practitioners by the British Judo Association from the year 2001 to 2009 (British Judo Association, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010):

Table 4 – British Judo Association membership (2001-2009)

Year	Number of members
2001-2002	22,053
2002-2003	21,905
2003-2004	21,141
2004-2005	21,455
2005-2006	24,624
2006-2007	26,161
2007-2008	26,767
2008-2009	27,679

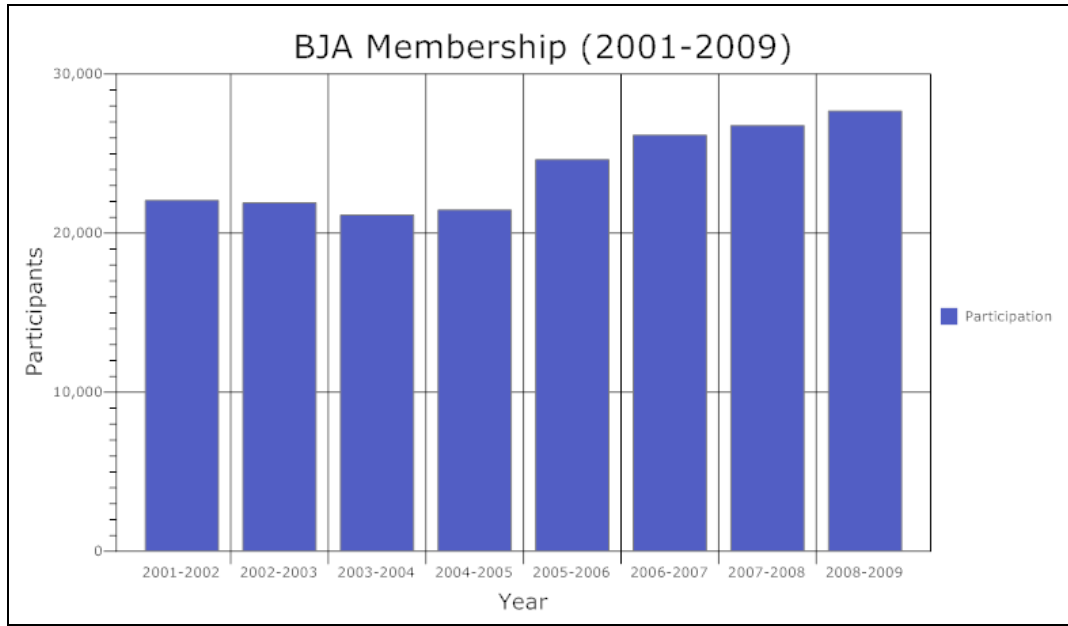


Figure 48 – BJA Membership (2001-2009)

The following figure (figure 10) was taken by the British Judo Association's Annual Report 2009 (British Judo Association, 2010), and shows the number of judo clubs across the UK:

AREA	NUMBER OF CLUBS 2008	NUMBER OF CLUBS 2007	NUMBER OF CLUBS 2006	NUMBER OF CLUBS 2005	NUMBER OF CLUBS 2004	NUMBER OF CLUBS 2003	NUMBER OF CLUBS 2002
LONDON	39	34	36	37	37	38	40
SOUTHERN	132	139	135	134	137	135	132
NHC	87	90	81	78	77	75	72
MIDLANDS	75	80	79	82	82	87	92
NORTHWEST	70	69	74	73	74	80	76
NORTHERN	35	33	32	34	32	34	34
Y&H	31	32	32	32	30	27	28
WESTERN	84	73	90	91	87	85	79
EASTERN	39	40	40	33	35	39	40
BSJA	0	0	0	0	0	0	2
BUJA	23	17	19	20	17	19	20
ARMY	1	7	6	5	3	2	2
NAVY	2	2	5	4	3	0	0
RAF	4	8	4	5	8	6	7
N/IRELAND	38	38	37	36	33	29	22
SCOTLAND	136	138	125	109	101	106	104
WALES	68	66	75	75	56	58	61
POLICE AA	2	2	2	2	2	1	1
TOTAL	866	868	872	850	814	822	812

Figure 49 – Judo clubs across the UK

The following table (table 4) (British Kendo Association, 2010) shows the number of dojos (martial arts schools) that teach Kendo, Iado and Jodo across the UK:

Table 5 – Schools in the UK teaching Kendo, Iado and Jodo

Discipline	2009	2008	2007	2006
Kendo	64	64	57	52
Iado	55	57	52	50
Jodo	29	27	25	26

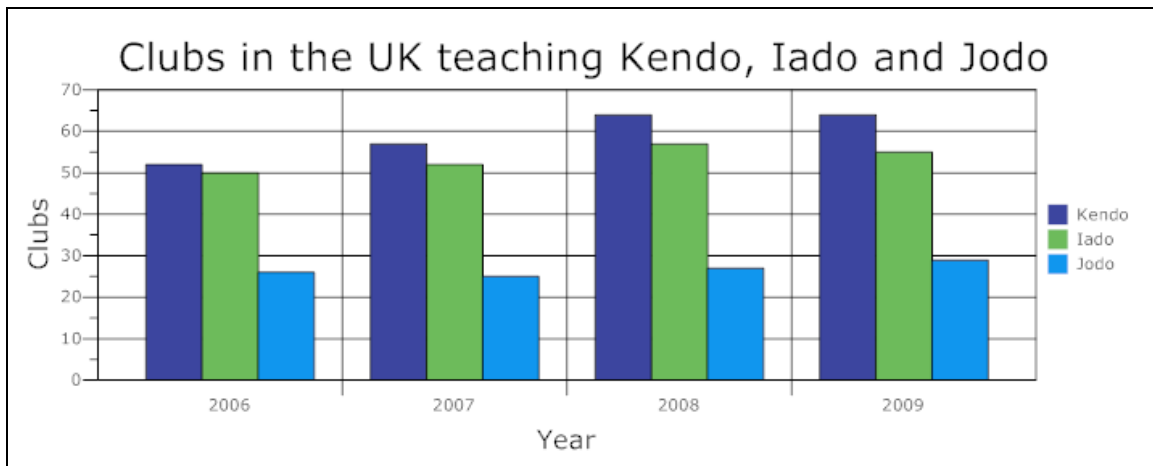


Figure 50 – Clubs in the UK teaching Kendo, Iado and Jodo

According to the British Aikido Board (2010), there are 437 aikido clubs in the UK. According to the British Taekwondo Council (2010), there are 3,191 Taekwondo instructors registered in the UK. According to the British Council for Chinese Martial Arts (2010), there are 577 Chinese martial arts clubs in the UK, and according to the British Ju-Jitsu Association Governing Body (2010), there are 304 ju-jitsu instructors in the UK.

The following is a brief list of statistics (Martial Arts History Museum, 2010) regarding the U.S. market provided by the 'Martial Arts Channel' and Martialinfo.com, the largest martial arts resource centre:

- **21.7 million adults** have participated in some form of a martial arts program over their lifetime
- **17 million** have participated in Yoga (a popular form of martial arts)
- **100+ colleges** have martial arts programs
- There are over **600** tournaments a year in America
- Videogames is a **\$23 billion** dollar business with martial arts playing a large role in its content
- Over **93 million** people attended martial arts movies in 2002-2003
- Currently, there are over **1,500** martial arts businesses including supply stores, photography, teachers' associations, books and more

According to a martial arts business owner the market segment of Brazilian Jujitsu apparel and gear continues to grow rapidly in the US with sales approaching \$25,000,000, but expected to increase over the next 20 years to over \$250,000,000 (anon, 2010). This market is expected to increase rapidly in the UK with the formation of the British Association of Mixed Martial Arts (BAMMA) which is a UK based mixed martial arts promotion company that was premiered on June 27, 2009 and shown on the television channel Bravo (British Association of Mixed Martial Arts, 2010).

The martial arts industry is a growing market with a high interest in people and so it is not limited to face to face classes but also expanding to popular TV channels (National Geographic, 2010; Discovery Channel, 2010; SPIKE Digital Entertainment, 2010; National Geographic Channel, 2010; BBC, 2010; Ultimate Fighting Championship, 2010) with millions of views world wide, which produce and show martial arts shows shown on a weekly basis and include:

Table 6 – Martial Arts weekly TV shows

TV Channel	Program Title
Discovery Channel	Fight Quest
National Geographic	Fight Science
Spike TV	Ultimate Fighter
National Geographic Channel	Fight Masters
BBC	Mind Body and Kick Ass Moves
ESPN	Ultimate Fighting Championship

The Ultimate Fighter alone (reality television series and mixed martial arts competition) has 11 seasons, has a user rating of 8.1/10 (very popular) on the Internet Movie Database website and won the BMI Cable Award in 2008 (Internet Movie Database, 2010). The Ultimate Fighter Championship (UFC) has had more than 118 tournaments and it is shown in over 130 countries in 20 different languages (Wikipedia, 2010a), and it has expanded successfully in other industries such as music (Amazon.com, 2010), action figures (UkrainianGuy, 2010), TV shows (TV.com, 2010), DVDs (ClearVision, 2010) and very popular video games (Horton, 2010) on various consoles such as Microsoft's X-Box and Sony's Playstation.

**Figure 51 – UFC Collectible Action Figures**

(Source: <http://forums.musculardevelopment.com/showthread.php?p=2012998>)

These TV channels have educational information regarding martial arts and the different disciplines on their own websites, and also provide advertising for martial arts schools, suppliers and shops.

Popular martial arts events draw millions of people and the interest is increasing year by year (Wikipedia, 2010a). Such live events which are broadcast live on TV world wide include UFC (Ultimate Fighting Championship, 2010), BAMMA (British Association of Mixed Martial Arts, 2010) and WWE (World Wrestling Entertainment, 2010).

These TV shows and events transfer the viewers into participation to martial arts, and so the actual fighters and other martial artists teach online through ‘YouTube’ (GracieAcademy’s Channel, 2010) (such as the Gracie family who are the founders of Brazilian Jujitsu (Gracie Combatives, 2010)) but also make educational videos (KarateSupply.com, 2010) which they sell to the public through websites and martial arts stores (such as Amazon.co.uk, KarateSupply.com, MartialArtShop.co.uk and FightingFilms.com). People are really interested and highly motivated in learning moves by those people.

The following table shows a few relevant YouTube channels and their details, as on 12th July 2010. The data was gathered by analysing the statistics (ReelSeo, 2010) provided by YouTube for these channels (Submissions101’s Channel, 2010; ChosonNinja’s Channel, 2010; GracieAcademy’s Channel, 2010; SenseiNinja2’s Channel, 2010; TechniquePrevails’s Channel, 2010; RohnertParkKarate’s Channel, 2010; ExpertVillage’s Channel, 2010; eHow’s Channel, 2010; LiveStrong’s Channel, 2010) and their videos.

Table 7 – YouTube Channels details

Channel Name	Total Upload Views	Subscribers	Videos
Submissions101	22,655,920	52,041	386
ChosonNinja	26,481,769	70,039	1,357
GracieAcademy	3,506,734	12,772	150
SenseiNinja2	5,249,050	15,436	90
TechniquePrevails	2,311,154	7,036	277
Mountainous	1,130,910	2,538	232
RohnertParkKarate	9,761,580	2,126	287
ExpertVillage	1,251,661,921	646,009	138,797
eHow	53,256,679	77,644	16,716
LiveStrong	8,608,827	34,472	2,440

Figure (13) shows the statistics from one such video tutorial. This video tutorial is created and uploaded by an instructor teaching Aikido (a martial arts discipline), on behalf of ExpertVillage. From the statistics on the video supplied by YouTube, we can see that the number of viewers is increasing rapidly and has reached more than 300,000 for this video, only by that instructor. Another important piece of information is that the video is most popular with men aged 25-54.

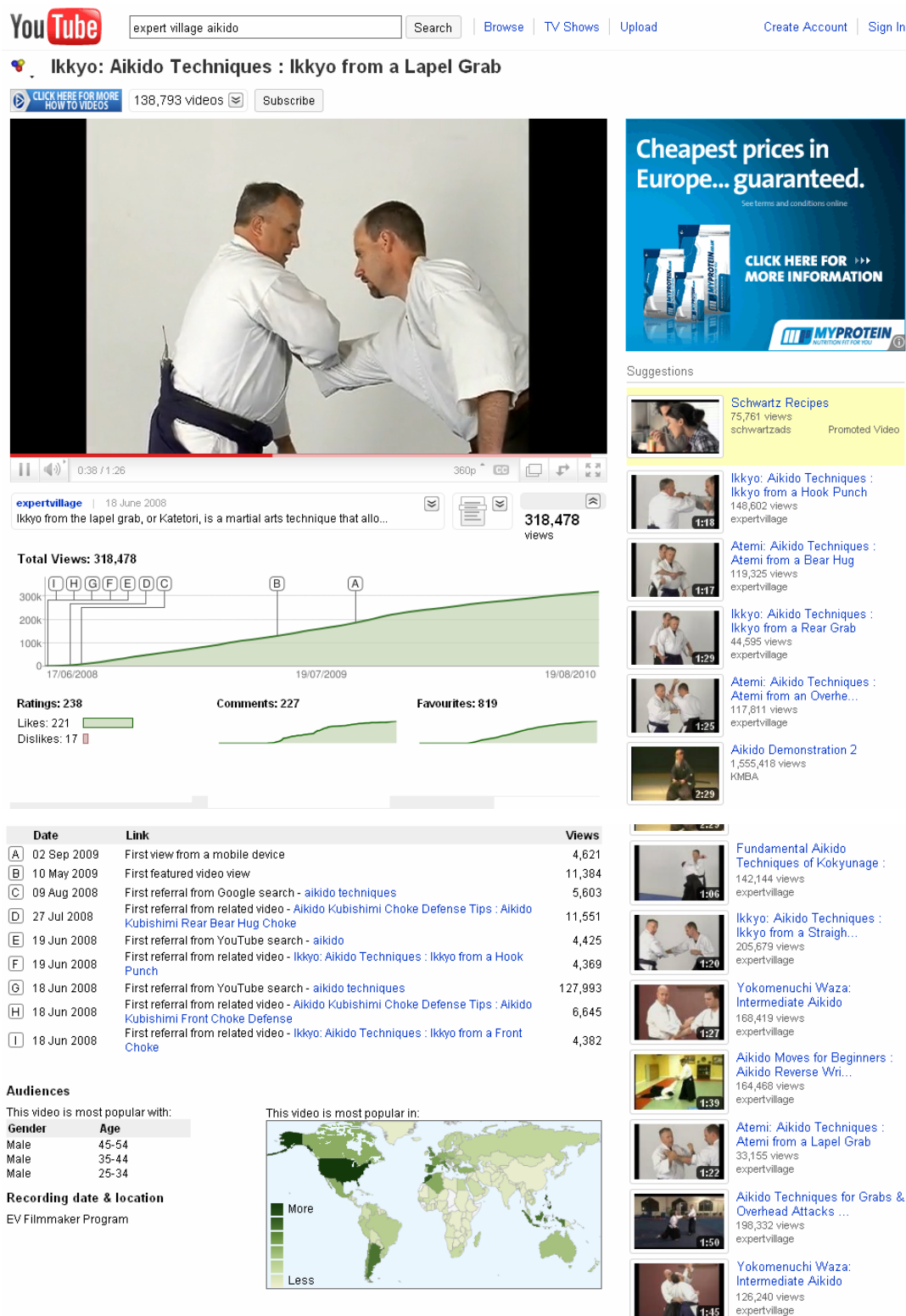


Figure 52 – Aikido YouTube instructional video statistics

These instructors have decided to use the ‘YouTube Partner Programme’ (YouTube, 2010) in order to make money by uploading these educational video tutorials. In order to join this programme, a ‘YouTube’ channel needs to have the following minimum requirements:

- 1,000 views per video uploaded
- 2,000 subscribers
- 50,000 channel views

‘YouTube’ then (if you have the minimum requirements and YouTube selects you to join the program) pays approximately: \$2.5 per 1,000 views on a video, \$0.05 per subscriber to the channel and \$0.01 per channel view (BizCovering.com, 2009)

YouTube states the following *“There are no guarantees under the YouTube Partner agreement about how much, or whether, you will be paid. Revenue is generated based on a share of advertising revenue generated when people view your video - the more views you get, the more money you'll make.”* (YouTube, 2010b)

Other martial artists have their own distance education systems and others have invested in e-learning platforms in order to teach online using pre-recorded video tutorials. Examples include ‘Gracie University’ which has 34,954 students from 170 countries (Gracie University, 2010), Van Donk’s ‘Ninja Black Belt Course’ which is the worlds best selling Ninjutsu training method for more than 16 years (International Bujinkan Dojo Association, 2010) and Rick Tew’s “College of Martial Science – Mixed Martial Arts and Ninjitsu Home Study Program” (Rick Tew’s NinjaGym ,2010).

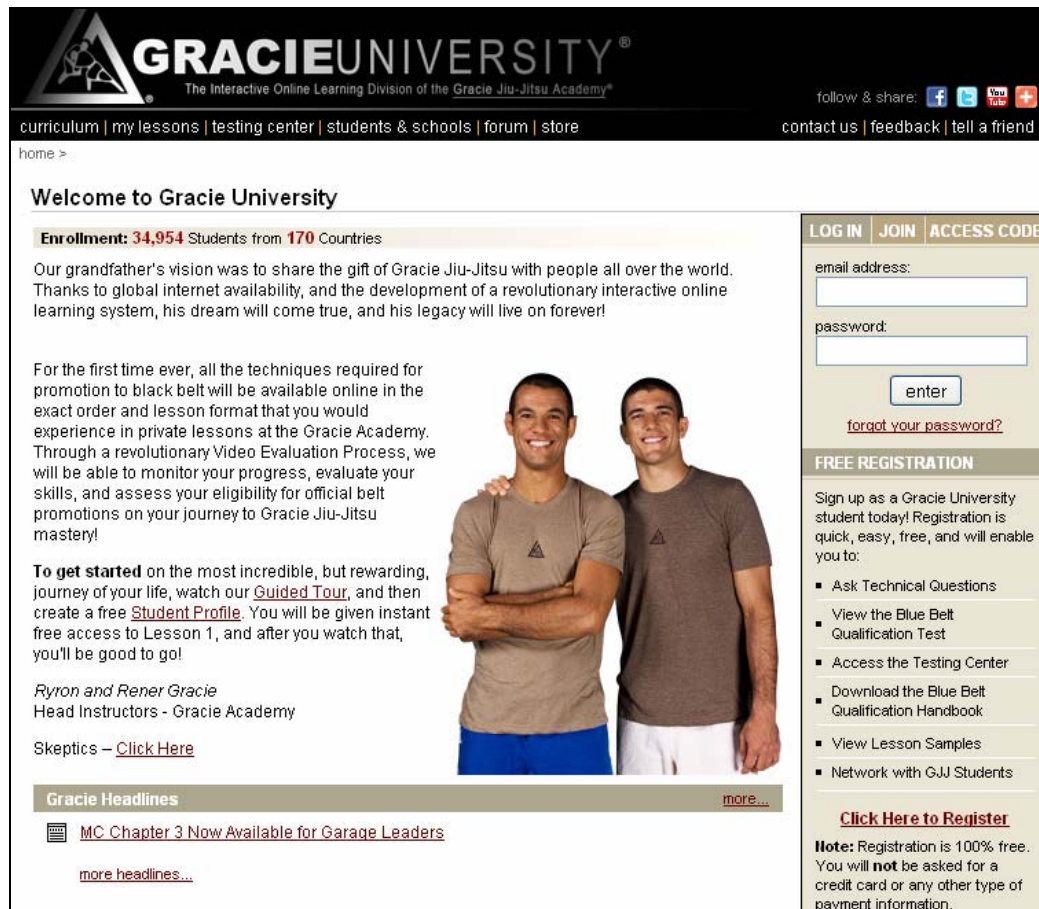


Figure 53 – Gracie University Website

Distance learning of martial arts is not a new concept as instructional videos have long been on sale by martial artists. On 'BudoVideos.com' under the 'self-defence' category there are more than 120 instructional DVDs for sale (Budo Videos, 2010), and this is only one of more than sixty different categories, from just one website that sells martial arts instructional videos.

According to Lam Sze Yeung (2008) traditionally, people who are interested in martial arts, have to join training courses and learn under a coach with other students. Usually there are many students under a single coach and hence it is difficult for each student to learn, get attention and suggestions in class (other factors include exhaustion, late in the evening classes and tiredness). It would be far easier for them to practice at home. There are also people that do not want to join such classes due to some bad experiences or having busy schedules and cannot attend classes. These people usually practice martial arts themselves at home watching videos and reading books.

2.2.3 Market Segmentation

The martial arts market can be segmented according to the different disciplines, location and age groups. Examples are shown below.

Discipline:

- Karate
- Tae Kwon Do
- Jujutsu
- Mixed Martial Arts (MMA)
- Kickboxing
- Kung Fu
- Other (such as Aikido, Judo, Muay Thai, Freestyle, Ninjutsu, Arnis Escrima Kali, Tai Chi, Jeet Kune Do, Hapkido and Capoeira)

Location:

- Country
- City

Age Groups:

- Young adults 18-34 years old
- Adults 35-49 years old
- Adults over 50 years old

By analysing data and the information gathered from BNET (2003) the market is segmented in almost all martial arts the same and it as shown on the pie chart below (figure 15) according to the adult participants age.

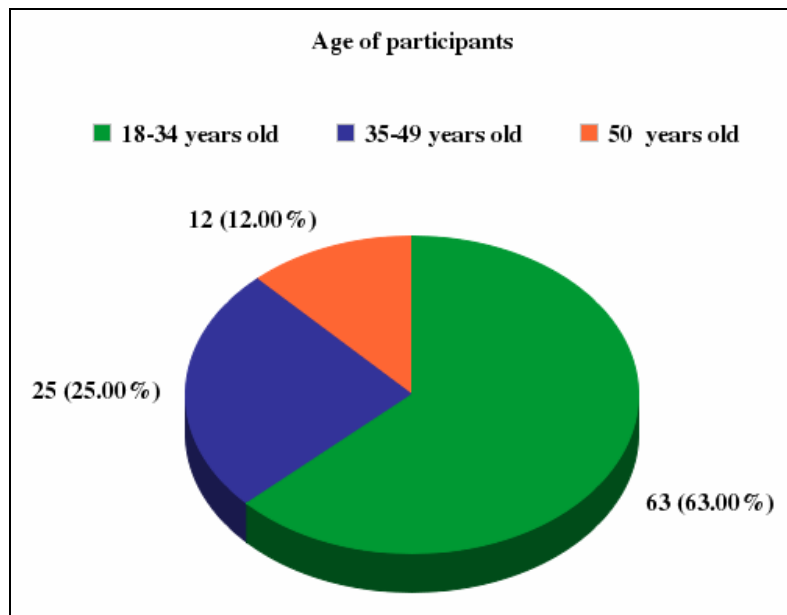


Figure 54 – Age of participants' pie chart

By analysing data acquired from MartialArtsClubs.co.uk (2010) we drew a pie chart with the number of martial arts clubs (according to their discipline) that had added their details on MartialArtsClubs.co.uk (figure 13). The 'other' include Aikido (88 clubs), Judo (66 clubs), Muay Thai (66 clubs), Freestyle (59 clubs), Ninjutsu (43 clubs), Arnis Escrima Kali (35 clubs), Tai Chi (32 clubs), Jeet Kune Do (23 clubs), Hapkido (23 clubs), Capoeira (14 clubs) and other. This chart can give us an idea regarding which disciplines are the most popular in the UK.

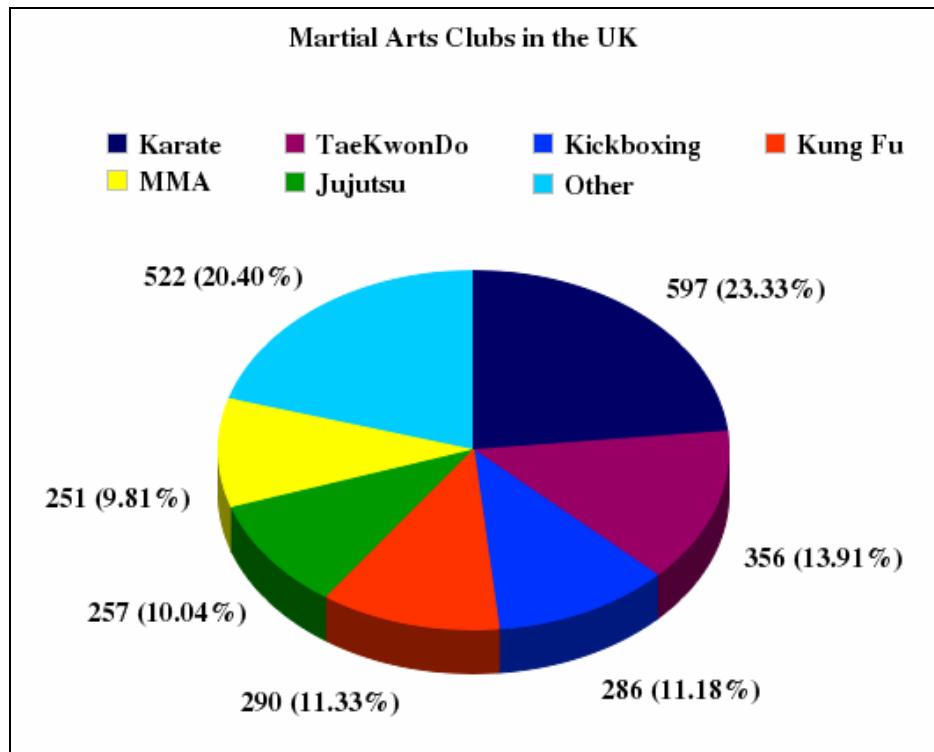


Figure 55 – Martial Arts Clubs in the UK

Using the data gathered by the British Judo Association for the year 2008, we constructed a pie chart (figure 17) that enables us to observe the number of judo clubs across the UK by area. We can assume that this is the case with all martial arts clubs in the UK.

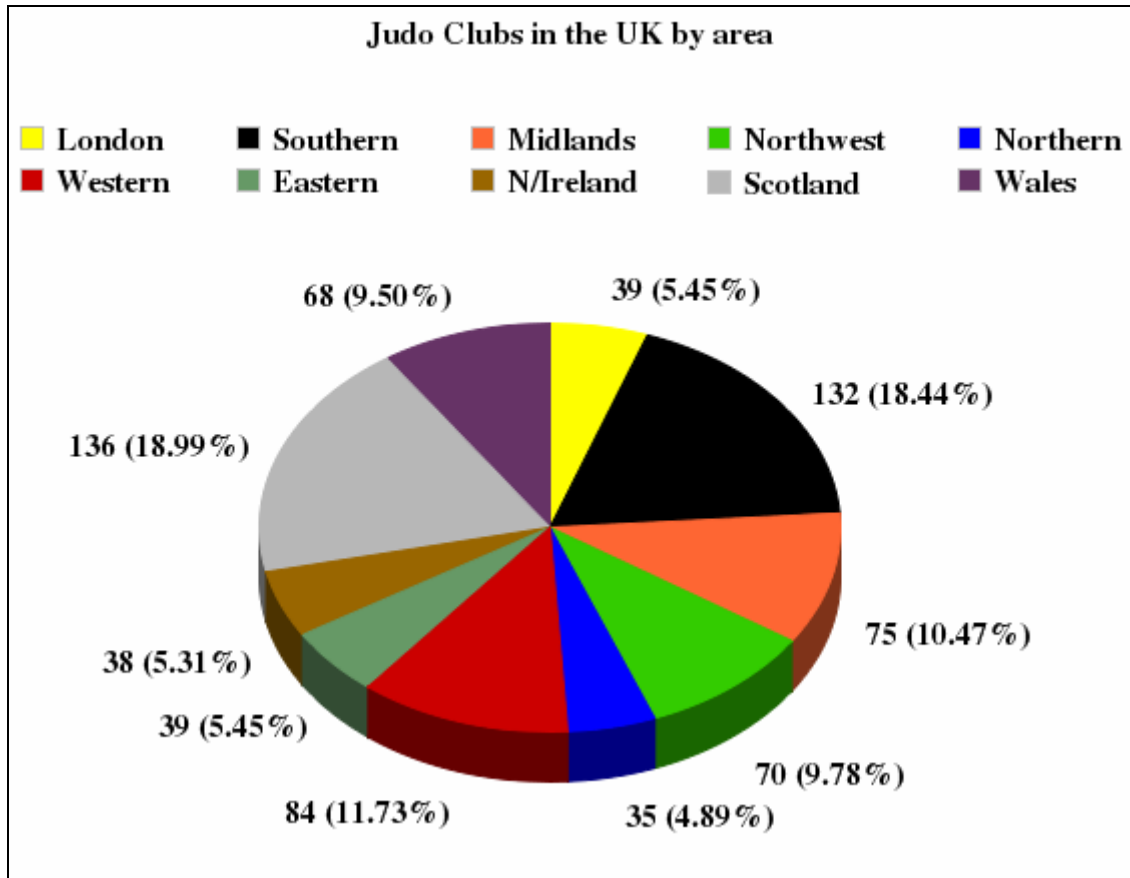


Figure 56 – Judo clubs in the UK by area

By analysing different YouTube channels (ExpertVillage, ChosonNinja, GracieAcademy and other) that have martial arts materials, we concluded that there are at least 2.5 million people interested in martial arts that use YouTube to view videos, as shown in figure 18 (2,588,220 views).

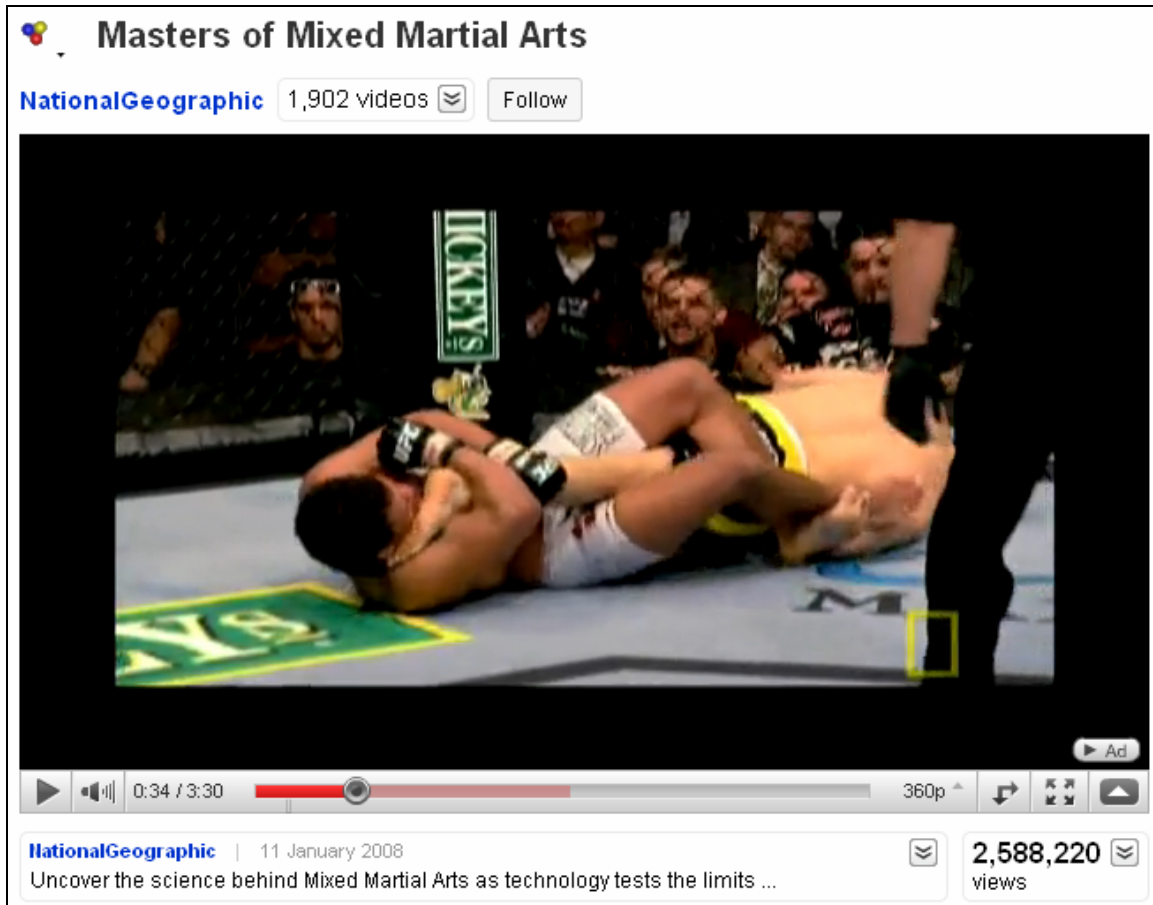


Figure 57 – YouTube martial arts video
 (Source: <http://www.youtube.com/watch?v=FjVvhDwFnJk>)

This segmentation method provides a good way of developing marketing strategies in order to target specific segments for students, instructors and advertisers, which would generate the revenue streams.

For martial arts students, we can develop a strategy that targets people aged 18-34 (63% of martial arts participants), in London (5.5% of all clubs in UK), practicing “Karate” (23% of martial arts participants). In such a case, we can then send promotional material to the Karate clubs in that area.

Next, for advertisers we can then target eShops (Martial Arts equipment, clothing, weapons, etc), retail shops, fitness centres, martial arts schools and centres. Finally, for the instructors we can then target instructors based on their recognition, achievements and their ability to teach others.

2.2.4 Primary Market Research – Methods and Results

Primary research was conducted using different techniques in order to gather information which was not acquired in our secondary research. Surveys were conducted using questionnaires in order to gather quantitative information. Interviews and focus groups then followed these surveys.

Interviews are the most common technique used in understanding people and their preferences, and so they were used in order to understand the reasons behind the quantitative results from the surveys, and thus providing us with qualitative results which helped understand the reasons behind their choices.

The survey used to acquire a better understanding of the market involved three questionnaires that were given out to 67 participants, all practicing (or had been practicing) Japanese martial arts, such as Ninjutsu, Jujitsu, Aikido, and Judo.

The first questionnaire involved gathering information related to eLearning used by martial arts participants. The questionnaire itself was divided into three parts which included: personal information, elearning and elearning factors.

The second questionnaire involved gathering information relating to martial arts classes, and the third one relating to martial arts seminars.

The results of these questionnaires which were used to better understand the martial arts market are summarised below:

Questionnaire 1 – Martial Arts eLearning: Part 1 – Personal Information

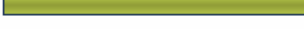
1. Are you...?			
		Response Percent	Response Count
Male		65.7%	44
Female		34.3%	23
answered question			67
skipped question			0
2. Which age group do you belong to?			
		Response Percent	Response Count
Under 18		0.0%	0
18-25		37.3%	25
26-40		44.8%	30
41+		17.9%	12
answered question			67
skipped question			0
3. How long have you been practicing martial arts?		Create Chart Download	
		Response Percent	Response Count
<1 year		26.9%	18
1-2 years		37.3%	25
2+ years		35.8%	24
answered question			67
skipped question			0

Questionnaire 1 – Martial Arts eLearning: Part 2 – eLearning

1. Have you used any electronic media for learning (internet, DVDs, CDs, videos, etc)?				
			Response Percent	Response Count
Yes			100.0%	67
No			0.0%	0
			answered question	67
			skipped question	0
2. If yes, which ones?				
			Response Percent	Response Count
Interactive DVDs/CDs			10.4%	7
Videos (DVDs/CDs/Tapes)			55.2%	37
Internet Searches			86.6%	58
YouTube Videos			100.0%	67
Other (please specify):			0.0%	0
			answered question	67
			skipped question	0
3. Will you recommend using electronic media for learning to others?				
			Response Percent	Response Count
Yes			100.0%	67
No			0.0%	0
			answered question	67
			skipped question	0

4. How often do you use electronic media to enhance your learning?							
			Response Percent	Response Count			
Daily			26.9%	18			
Weekly			64.2%	43			
Monthly			9.0%	6			
Yearly			0.0%	0			
Never			0.0%	0			
			answered question	67			
			skipped question	0			
5. Do you believe it (electronic media) enhances your learning?							
			Response Percent	Response Count			
Yes			100.0%	67			
No			0.0%	0			
			answered question	67			
			skipped question	0			
6. Please will you rate the helpfulness of electronic media in learning martial arts? (5 - Very Good, 1 - Very Poor)							
	Very Poor	Poor	OK	Good	Very Good	Rating Average	Response Count
Helpfulness	0.0% (0)	0.0% (0)	0.0% (0)	7.5% (5)	92.5% (62)	4.93	67
						answered question	67
						skipped question	0

Questionnaire 1 – Martial Arts eLearning: Part 3 – eLearning Factors

1. Which factors do you think affect the ability to learn from a video? (you can select more than one)			
		Response Percent	Response Count
Instructor/Teacher		41.8%	28
Video Resolution/Quality		14.9%	10
Audio Quality		4.5%	3
Conversational Tone		10.4%	7
Animations		7.5%	5
Interesting		34.3%	23
Motivation		22.4%	15
Practicability/Relevance		44.8%	30
All of the above		55.2%	37
None		0.0%	0
Other (please specify)		0.0%	0
answered question			67
skipped question			0

Questionnaire 2 – Martial Arts Classes

1. How often do you attend a Martial Arts class?			
		Response Percent	Response Count
Everyday		4.5%	3
Twice a week		58.2%	39
Once a week		19.4%	13
Monthly		13.4%	9
Never		4.5%	3
answered question			67
skipped question			0
2. How much do you pay per class?			
		Response Percent	Response Count
0-3 GBP		4.5%	3
4-6 GBP		89.6%	60
6-10 GBP		3.0%	2
10+ GBP		3.0%	2
answered question			67
skipped question			0
3. How much do you pay for classes on average for a year?			
		Response Percent	Response Count
0-100 GBP		13.4%	9
100-200 GBP		10.4%	7
200-300 GBP		14.9%	10
300-400 GBP		11.9%	8
400+ GBP		49.3%	33
answered question			67
skipped question			0

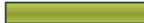
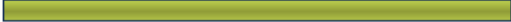
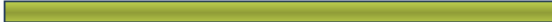
4. Have you ever purchased an educational DVD video regarding martial arts training?			
		Response Percent	Response Count
Yes		76.1%	51
No		23.9%	16
		answered question	67
		skipped question	0
5. If yes, how much did you pay?			
		Response Percent	Response Count
0-10 GBP		4.5%	3
10-20 GBP		29.9%	20
20-30 GBP		49.3%	33
30+ GBP		16.4%	11
		answered question	67
		skipped question	0
6. Have you ever received a copy of an educational DVD video which was not legally copied?			
		Response Percent	Response Count
Yes		79.1%	53
No		20.9%	14
		answered question	67
		skipped question	0

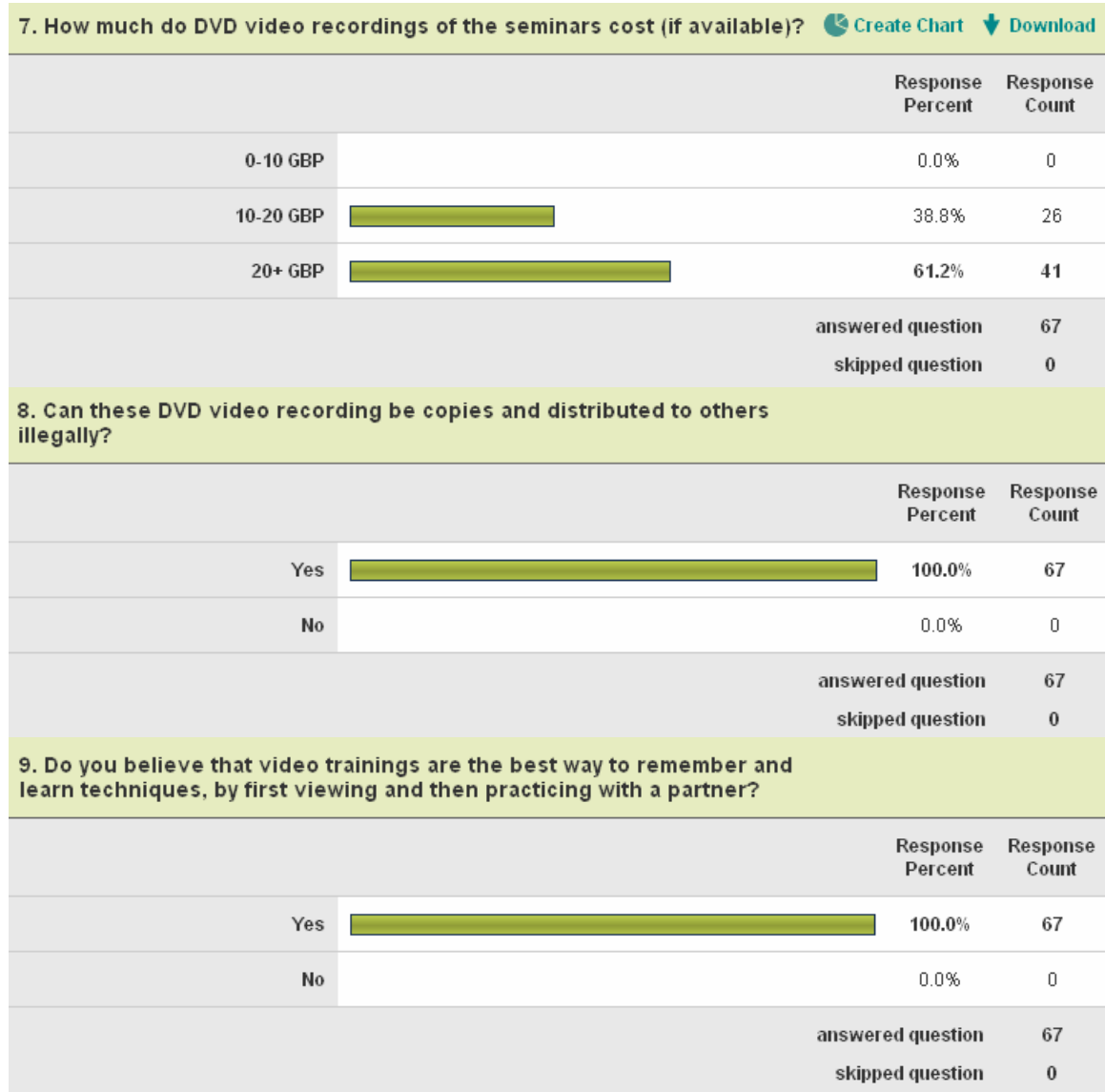
7. What are the benefits of using videos or other electronic media to enhance your learning?			
		Response Percent	Response Count
Distance Learning		44.8%	30
Cheaper than classes		40.3%	27
Effective learning		100.0%	67
Reviewing techniques (replay)		80.6%	54
Remembering techniques		80.6%	54
Learning different martial arts		74.6%	50
Practicability		77.6%	52
Learning by specific (well known) instructor		79.1%	53
Other (please specify)		0.0%	0
		answered question	67
		skipped question	0
8. What are the disadvantages of learning from these media (DVDs, YouTube, etc)?			
		Response Percent	Response Count
Not structured		92.5%	62
Need partner to practice		22.4%	15
No support		58.2%	39
Other (please specify)		0.0%	0
		answered question	67
		skipped question	0
9. Will you try to purchase an educational DVD within the next 12 months?			
		Response Percent	Response Count
Yes		64.2%	43
No		35.8%	24
		answered question	67
		skipped question	0

10. How motivated are you in learning martial arts?					
	Not Motivated	OK	Very Motivated	Rating Average	Response Count
Motivation	0.0% (0)	11.9% (8)	88.1% (59)	2.88	67
answered question					67
skipped question					0

Questionnaire 3 – Martial Arts Seminars

1. What do you think is the most important factor in learning martial arts?				
		Response Percent	Response Count	
Instructor (e.g. character, personality, way of teaching)		83.6%	56	
Teaching material (e.g. using material that enhances learning)		0.0%	0	
Martial Arts Discipline (e.g. Judo, Karate)		0.0%	0	
Partner in Martial Arts		16.4%	11	
answered question			67	
skipped question			0	
2. How many martial arts seminars do you attend each year?				
		Response Percent	Response Count	
0		4.5%	3	
1		10.4%	7	
2		43.3%	29	
3		37.3%	25	
4		4.5%	3	
5+		0.0%	0	
answered question			67	
skipped question			0	

3. How much money on average do you spend per seminar?			
		Response Percent	Response Count
0-20 GBP		1.5%	1
21-40 GBP		14.9%	10
41-50 GBP		58.2%	39
50+ GBP		25.4%	17
answered question			67
skipped question			0
4. Are you able to remember all the techniques taught during the seminar a week later?			
		Response Percent	Response Count
Yes		7.5%	5
No		92.5%	62
answered question			67
skipped question			0
5. Is it important to remember the techniques taught at these seminars?			
		Response Percent	Response Count
Yes		100.0%	67
No		0.0%	0
answered question			67
skipped question			0
6. Will an online video tutorial of the techniques taught during the seminar be very helpful in remembering these techniques?			
		Response Percent	Response Count
Yes		100.0%	67
No		0.0%	0
answered question			67
skipped question			0



Interviews were then carried out in order to understand the reasons and issues faced regarding teaching over YouTube. These interviews involved 5 martial arts instructors (teaching aikido, judo, jujitsu, Brazilian jiu-jitsu and Ninjutsu) and 10 learners (2 from each instructor). The instructors were asked if they were interested in teaching full courses online and getting paid by their learners, and if so how much they were willing to pay to use such a platform. The students were also asked if they were willing to pay for full courses by their instructors, and if so how much they were willing to pay for it.

The results from the instructors' interviews ('*Teaching Full Courses Online*' section) are presented below (table 7):

Table 8 – Teaching full courses online

Question	Response
Are you interested in teaching full courses online on the web through an elearning platform and get paid by your learners?	"Sure" "Definitely interested" "Well yes, if there is a demand for it" "That depends on how much the learners will pay for it" "Will not get a return n investment"
How much are you willing to pay for using such a platform per course, per year?	"around 100" "don't know" "less than 200" "depends on the benefits and features" "around 200"

The results from the learners' interviews ('*Full Courses Online*' section) are presented below (table 8):

Table 9 – Teaching full courses online

Question	Response
Will you be interested in participating in a full course online by an instructor such as this one using video tutorials?	All the participants answered "Yes"
What kind of support would you like by the instructor?	"To answer questions" "...be able to contact him" "conversational tone in his teachings" "be friendly"
What features would you like?	"video tutorials" "educational material such as ebooks" "articles that the instructor regards important" "look at techniques"

	“animation like the ones in National Geographic would be useful” (participant means the Martial Arts Science show)
How much are you willing to pay for an online course (using this kind of video tutorials) per year?	The mean average was 25.

The next step was to conduct a focus group in order to gain a better understanding of the ways people interact with YouTube for learning and their thoughts. The focus group was conducted with 6 participants (table 9), all university students (table 10) with experience in using various elearning platforms for learning.

Table 10 – Focus group session details

Number of participants	Location	Duration	Observer	Note taker
6	City Campus, The University of Manchester, Manchester	120 mins	1	1

Table 11 – Demographic breakdown of the sample

Initials	Gender	Age	Occupation
N.L.	Female	21	BSc Student
P.P.	Male	23	MSc Student
F.F.	Male	22	BSc Student
M.K.	Female	20	BSc Student
S.E.	Male	26	PhD Student
P.L.	Male	22	BSc Student

The participants were asked to discuss the advantages and disadvantages of the platforms they are using. They were then given the task of viewing two video tutorials of martial arts and then practicing the techniques taught. The videos were made by two different instructors, teaching two different Judo techniques, using different quality cameras, thus one having a good quality high definition video, whereas the other having poor quality video and audio. Since none of the participants had previous martial arts training or experience, it was important to observe their behaviour and thoughts on the process, but also the end results. They were asked to comment on what they believe to be important factors that affect their ability to learn from such tutorials. They were then asked if they were interested in participating full courses and if they were willing to pay, and if so, how much.

The results from the focus group's 'Previous Experience' section are presented below (table 11):

Table 12 – Previous experience

Question	Focus group response
Why did you decide to use an eLearning platform (e.g. Blackboard) for learning?	“we have to” “our lecturers tell us to” “we need it for our studies” “it is helpful”
How long have you been using them?	The participants' answers were between 1 and 5 years.
Do you have experience with similar products? Which ones?	The all replied “No”.
What are the advantages of using it?	“You don't need to keep notes during lectures” “We can view the lecture notes on our computers” “We can study anytime”
What are the disadvantages?	“confusing” “each lecturer has a different structure” “courses are not consistent” “no tutorials, just a download facility” “they don't teach through it” “cannot be used for learning... just to read notes”

The results from the focus group's 'Martial Arts Video Tutorials' sections are presented below (table 12 and table 13):

Table 13 – Martial Arts video tutorials (before showing videos)

Question	Focus group response
Have you ever practiced martial arts in the past?	All participants answered “No”
Do you think you will be able to learn martial arts from video tutorials?	All participants answered “No”
Do you think you will be able to learn the techniques that will be shown to you?	All participants answered “No”

Table 14 – Martial Arts video tutorials (after showing videos)

Question	Focus group response
You can now view the first video. What do you think (general thoughts)?	All participants showed interested and moved towards the monitor. They all looked at the screen with concentration. “That isn’t as difficult as I thought!” “That’s easy!” “Interesting”
You can now practice the technique, two people at a time.	All participants were involved in the process by looking closely the performers and advising them. “No... you need to make him loose his balance first” “oh, yes, he said that on the video” The participants found the techniques easy to perform.
Do you think you will be able to learn the techniques that will be shown to you?	The all replied “No”.
You can now watch the second video. What do you think (general thoughts)?	“The previous video was better” “It is still interesting” “The quality of the video and sound is important” “But the way the teach is more important” “He is good!”
You can now practice the technique, two people at a time.	All participants were involved in the process by looking closely the performers and advising them. The participants found the techniques easy to perform.
What do you think about learning martial arts through video tutorials online?	“it’s easy” “I am very interested” “it’s the way” “very helpful” “I prefer it than signing to clubs” “you just need a partner and space to practice... that’s all”
How useful do you find video tutorials like these ones for learning?	“They are great!” “Very useful” “Useful” “It’s easy to learn from them”
What do you believe to be important factors that affect your ability to learn from such video tutorials?	“the teacher obviously” “the instructor is the most important factor” “the teacher and the quality of the video” “if it’s interesting or not”

How do you think value can be added to these videos for your benefits?	“animation” “different angles maybe” “structured as part of a course, so we can learn from the beginning” “being part of a series of tutorial videos, which are part of a course” “quality of video and sound”
Which factors influenced or will influence your decision to learn online?	“instructor” “teacher and his ability to teach” “practical techniques” “easy to learn”
What could the instructors do to make you loyal to their teachings?	“friendly, conversational tone” “be able to contact them” “a course” “experienced teacher” “ability to teach” “practical, useful teachings”
Is there anything that would encourage you to participate in other courses from the same instructor?	“his way of teaching” “be happy with his teachings” “teach in an interesting way” “teaching interesting things”
Would you participate and pay for an online full course by instructors teaching in this way as shown in the videos? If yes, then how much would you pay per year for a course?	“depends on the course” The participants replied between 20-50 GBP.

The focus group participants were asked to meet up again after a week in order to gather information related to their thoughts on learning through YouTube. They were asked to practice the techniques taught the previous week, and then whether they had used YouTube video tutorials on their personal free time for learning purposes.

The results from the focus group's 'Previous Experience' section are presented below (table 14):

Table 15 – Previous experience

Question	Focus group response
Can you please practice the two techniques you have learned? (two people at a time please)	The participants showed a bit confused at the beginning but then managed to perform both techniques well. “...remember you need to make him loose his balance first...”
What are your thoughts? (general thoughts)	“remembered the video and so can perform the technique” “confused at first” “well, I have been practicing” “an effective way to learn”

The results from the focus group's 'YouTube Experience' section are presented below (table 15):

Table 16 – YouTube experience

Question	Focus group response
Have you used YouTube after the previous session?	All the participants said they are using YouTube on a daily basis.
Have you used any YouTube video tutorials on your free time for learning purposes? If so, for what reasons and what subjects?	“I found tutorials on YouTube regarding my studies at university, and they are very helpful” “Yes, I have been searching on how to do different things” “there are a lot of video tutorials” “almost about anything” “the make everything easy to understand and easy to do” “they teach effectively” “most have thousands of video views”
What is your impression about teaching and learning online?	“effective” “interesting” “practical” “easy to learn” “good teachers”

Finally four people were interviewed that have no experience in using computers or the internet, in order to get their thoughts regarding learning martial arts online, by showing them various video tutorials on YouTube. The participants were all martial artists (black belts) with more than 10 years experience in their discipline (karate and jujutsu), and they don't speak English (2 participants from Cyprus and 2 from Poland).

Table 17 – Martial Artists (no English)

Question	Focus group response
How useful do you find these kind of video tutorials?	“they are very useful” “very interesting”
What are the most important factors that you would consider in learning from these kinds of video tutorials?	“the teacher” “it’s all about the instructor” “how practical they are” “how easy it is to learn”
How motivated are you in learning from such tutorials online?	“very much” “highly motivated” “I will learn English and how to use a computer”
How often would you use them if you could?	“everyday” “a few times a week” “whenever I can”
Would you pay for a course even if it is in a language you don’t understand?	“Sure” “Yes” “Definitely” “Language is not a problem”

2.2.5 Primary Market Research - Analysis

Primary research analysis has revealed important information regarding people's preferences and trends.

We have seen that women are also interested in martial arts (more than 30%), and so it is not an interest or hobby concerned only with men. Most of the participants of martial arts are between 18 and 40 years of age (80%), and they practise martial arts for more than a year.

According to our surveys, everyone has used some sort of electronic media for learning martial arts (100%), and so we can assume that this is the case for most martial artists. The most popular method seems to be YouTube videos (100%), followed by internet searches (87%) and videos (55%).

Almost everyone (93%) agrees that these electronic media are very good, and very helpful in learning martial arts, and so it is agreed that they enhance learning (100%). Most people use this method of learning at least once a week and they all (100%) recommend it to others who are interested.

The factors agreed that affect the ability to learn from video tutorials are the following: instructor/teacher, video resolution/quality, audio quality, conversational tone of instructor, useful animations, interesting way of teaching and presentation, motivation for learning, relevance and practicability of teachings. The most popular are practicability of teachings, the instructor and teaching in an interesting way.

Most martial arts schools and instructors have lessons twice a week, and so the regular students attend at least a class per week. A class costs between £4 to £6 and so most martial artists spend more than £400 per year on these classes. The classes are not their only expenses as they tend to purchase instructional videos (DVDs) which they cost more than £20 (courses might cost as much as £500).

These costs cause most of the martial artists (80% of survey participants) to purchase or copy illegal copies of these instructional videos which cost them less, and thus saved money. These videos are important to them and provide them with benefits such as effective learning, ability to review the techniques shown, help in remembering the techniques taught, learning by specific instructor at distance, practical techniques and methods, learning other martial arts and techniques, distance learning benefits and also they are cheaper than classes.

People practicing martial arts are very motivated in learning martial arts, and so would be purchasing educational video tutorials on a regular basis. The problems faced by people learning from these videos are that the videos are usually not structured (in the form of a course) and there is no support by the instructor (no means of interaction). Most people do have a martial arts partner to practice the techniques taught on videos, and so not having a partner is not an issue using videos for learning, even though having a partner is important factor in learning martial arts.

The most important in learning martial arts is the instructor himself (84%) with his personality, character, experience, and way of teaching. Martial arts discipline and using other material for teaching are of no importance.

Various martial arts seminars take place each month for different disciplines by popular instructors and grandmasters of different disciplines from other countries (such as Japan). Most practitioners attend 2-3 such seminars each year, where they spend more than £40 and a significant number of participants (25%) actually spend more than £50. Some of them also travel abroad to get trained by these instructors which obviously costs them even more.

Almost everyone (more than 90%) does not remember the techniques taught during these seminars. They all believe that it is very important to remember them, and so if these techniques from the seminar were taught online through video tutorials they would be really helpful to everyone.

Most of these seminars are being recorded on video in order to be sold to the participants for more than £10 (most of the time more than £20). These videos can be possibly purchased by one person who will then copy and distribute it to others.

All of the martial artists believe that video trainings are the best way to remember and learn techniques, by first viewing them and then practice them with their partners.

People with good knowledge and experience in martial arts, including instructors from various disciplines have chosen to teach online through YouTube. The main reason is to get an extra income through the YouTube partner program, but also impact their reputation on the market place and also as a method of free advertising for their dojo (martial arts school). The income generated through this way is not sufficient, and so they are regarding other ways to increase it. They are willing to pay in order to use a platform for delivering these courses online to learners and thus getting paid by them in return. They are willing to pay around \$200 annually, and they think that they would get at least 20 learners to start with.

Other people that use YouTube to learn martial arts usually have previous experience of martial arts or are still attending classes. They do show an interest in other disciplines and the specific instructors in particular, no matter what the discipline is, but just the effectiveness and application of the various techniques taught. These learners have a genuine interest in martial arts, are highly motivated in learning and are willing to pay for full courses by these specific instructors teaching in the way they currently do, through video tutorials, but in a more structured way. They are willing to pay between \$20-40 annually. This is approximately the normal price for an educational DVD, but they would have access to educational material (ebooks, charts, diagrams, photos, etc) and the ability to interact with the instructor, thus offering a better value.

We have also noticed that people with no previous knowledge of martial arts can get easily excited by learning how easy it is to learn how to defend yourself, and learn martial arts in general, through video tutorials. These tutorials have proved to be effective and interesting, and so this group of people is willing to pay for purchasing videos or learning online through video tutorials. The main issue is to get people know about it, which can be caused by carefully planned and managed marketing campaigns.

We have seen from the results that people are highly motivated in learning martial arts and are willing to learn how to use a computer and the internet in order to learn martial arts. We have also noticed that the videos and the instructor are the most important factors and the language does not form any major barriers.

2.2.6 Customer Profile

There are three groups of customers concerned with our proposed system. The profiles were constructed by analysing the interviewees and their characteristics.

The first are the instructors. These are mainly individuals aged 35-45 who have acquired good knowledge (Black-Belt/Dan level) about a specific martial arts discipline or techniques and are able to teach it to others. They are able to use technology available to create mainly video tutorials in order to present their course online. They need a system whereby they can upload their tutorials, and get paid by different people that find their course useful. They need the system to be able to reach more audience and thus get more people who are willing to pay for the course.

Secondly are the learners. These are individuals (mainly 25-34 years old) who can use the internet to search for different techniques regarding martial arts. They are highly motivated and eager to learn. They have some knowledge about martial arts but want to learn more practical techniques and also different disciplines. They are willing to pay in order to learn a full course by other individuals who are good at their techniques and offer practical advices and guidance. The instructor they are looking for needs to be good at what he does, and able to teach effectively. The instructor official qualifications are not important, but just the effectiveness of his teachings.

Finally there are the advertisers. The advertisers are companies and businesses willing to pay money for targeted advertising. These can be martial arts suppliers, schools or stores. They want to advertise to people who practice martial arts and will think that their advert is important for them and so will go to their website to purchase goods.

2.3 Macro Environment Analysis

The macro-environment involves factors outside of the direct control of the company, such as the economy, government policy and social change. These factors can have a significant effect on a company and its position in the market, and so affect the decisions of the decision makers in any organisation (Oxford University Press, 2007a).

These factors can be categorized using the PESTEL model (Oxford University Press, 2007a) in order to be analyzed by relevant managers in a company. The categories of these macro-environmental factors are: Political, Economic, Sociocultural and Technological.

PESTEL Analysis Situation being analysed: 'ODL'	
PESTEL analysis (Political, Economical, Sociocultural, Teachnological, Environmental and Legal) assesses a market, including competitors, from the standpoint of a particular proposition or a business.	
Political - Grants - Sport participation support - Sport market importance	Economical - Cheaper learning method - Internet marketing effectiveness - Extra income importance - Continuous learning benefits - Employment difficulties
Social - Motivation for continuous learning - Importance of practical learning - Increase in sports participation - Online learning socially accepted - Effectiveness of video tutorials - High crime figures - Work from home trends	Technological - Advances in multimedia technologies - Internet availability and access - Electronic hardware price drop-down - Availability of eLearning technologies - Faster internet connections
Legal - Online payment legislation - Intellectual property concerns - Instructors' contracts	Environmental - No waste of paper - No travelling involved

Figure 58 – PESTEL Analysis

2.3.1 PEST Analysis

POLITICAL FACTORS

- There are various grants by different organisations, help and support for start-up businesses and entrepreneurship (StartUps, 2010; Prince's Trust, 2010; Business Link, 2010; SmallBusiness.co.uk , 2010; European Commission, 2010)
- Support for sports: According to Sport England (2009) "Game Plan sets the challenge of moving from 30% of the population being regularly active in 1998 (5 times a week, 30 minutes, moderate intensity) to 70% in 2020. As a consequence of this broad target Sport England has adopted a target that by 2020 70% of the adult population will be taking part in sport (for at least 30 minutes) for a minimum of three times per week."
- Importance of sports market: According to Sport England (2010) "sport-related economic activity increased from £3,358 million in 1985 to £13,649 million in 2003 and £16,668 million in 2008" and "sport-related employment in England is estimated at 441,000 in 2008, accounting for 1.8% of all employment in England".

ECONOMIC FACTORS

- Cheaper online learning: it is accepted that in general learning online is cheaper than traditional learning methods (Attwood, 2010).
- Effectiveness of internet marketing and advertising since it provides targeted advertising (Armstrong, 2010; Weinstein, 2010; Goldfrarb and Tucker, 2010).
- Earning an extra income for the instructors is very important.
- Benefits of continuous learning include: salary raise, develop better skills, become more efficient and increase performance.
- Employment difficulties in today's economy as the number of people claiming unemployment benefit has hit its highest level since 1997 (Office for National Statistics, 2010a).

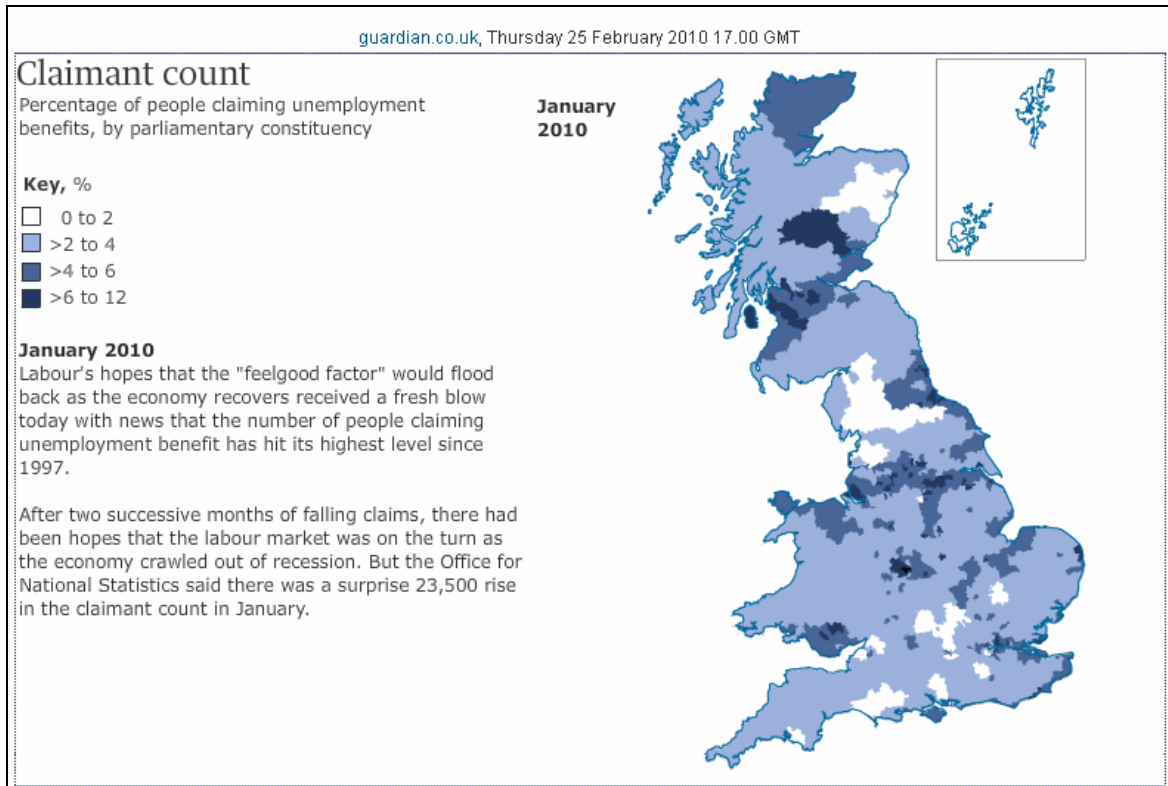


Figure 59 – Unemployment benefits claimed across the UK

(Source: <http://www.guardian.co.uk/business/interactive/2009/jan/21/unemployment-map>)

SOCIOCULTURAL FACTORS

- Motivation for continuous learning: the benefits of continuous learning are acknowledged and so there is rise in elearning courses.
- Practical learning: is important and can be acknowledge by the number of people searching online “how to”, in order to practically learn how to do things.
- Increase of participation in more and more activities, interests, hobbies and sports (Sport England, 2010b)
- Home online learning is accepted by general public and this gave rise (and increase in demand) to many elearning institutions such as K12, LearnDirect, Open University and others.
- Working from home is accepted and researched thoroughly by people (Flexibility, 2010).
- Video tutorials are acknowledged to be effective in learning.
- Crime figures are high and cause people to seek alternatives in order to protect themselves.

TECHNOLOGICAL FACTORS

- Multimedia advances: allows home users to produce rich multimedia content and thus not dependent on expert professionals (e.g. Movie Maker which is a free software application installed in all computers using Ms Windows).
- Internet availability and access: has increased (70% of households in the UK had access in 2009) and will continue to increase even more (Office for National Statistics, 2010b).
- Hardware price drop-down: computer equipment, cameras and other electronic devices become more compact, more powerful and their price decreases with time.
- eLearning technologies available to be used: platforms such as Moodle and technologies such as ASP.NET and other software packages (such as Adobe eLearning Suite) are available by people to be used.
- Internet connections become faster (broadband) and provide rich applications with multimedia content that can be distributed online.

ENVIRONMENTAL

- No paperwork: Recycling and limiting paperwork is really important in our society, and so eLearning courses minimize paperwork by having everything in electronic format and accessed online (iD2Communications, n.d.).
- No travelling: the use of road vehicles cause greenhouse gasses emissions to increase (Envocare, 2005), and so since elearning activities do not need travelling are environmental friendly.

LEGAL

- Online payments legislation: online payment laws need to be considered as slight changes in legislation might cause problems to e-commerce businesses (Pinsent Masons, n.d.).
- Intellectual property concerns: it is relatively easy for people to breach intellectual property of someone else (e.g. copying videos), and so it needs to be researched thoroughly as this might cause serious damage to a business.
- Contracts with instructors to their institutions regarding teaching: if an instructor has contract with his organisation that does not allow him to teach anywhere else, then it is not legal for him to do it, even in elearning platforms.

2.4 Micro Environment Analysis

The micro-environment involves individuals or organisations (stakeholders of the business) that a company deals with on a regular basis and includes the suppliers, distributors, competitors, customers and employees. This environment can affect and be affected by the company's actions, and so plays a critical role in the success of a business (Oxford University Press, 2007b). These can be summarized using SWOT analysis (Oxford University Press, 2007c) and the market can be analysed using Porter's Five Forces (Oxford University Press, 2007d) to determine its attractiveness and other issues.

Suppliers:

The company develops and markets a software application and services regarding software, so there are no raw materials involved in the process. The suppliers therefore include providers of servers, hosting, electronic equipment and software. For the company to be able to operate it needs an Internet Service Provider (ISP) and hosting services to host the software for internet access by its users. These suppliers provide high quality products and services at a good price with reliability in required volumes and flexibility to respond to the company's demands. Since there are many suppliers that can provide the company with the same products and services, the company is not dependent on them. The software needed to develop the application will be freeware and/or developed in-house.

Distributors:

There are no external distributors of the ODL platform but the company's 'Sales & Marketing' department is mainly responsible for distributing the product to the clients. The application and services will be distributed directly through the company's official website, and so there will not be any need for other distributors. Good communication and a good marketing strategy are very important.

Customers:

Sales and marketing department has employed methods for gathering information about the customers in order to monitor their needs, meeting their requirements and thus coming up with recommendations. The customers will be Martial Arts instructors (holding a black belt degree at any discipline) mainly 25-40 years old, who want and can, teach online in order to earn an income.

Employees:

There will be one employee for the first three years who will manage the day to day running of the business and its processes. It is extremely important to keep the employee motivated and also up to date with changes in the company's environment.

Competition:

At the moment there aren't any competitors providing the same or similar product and services. There are currently companies that sell educational videos (DVDs) and educational books, and other instructors who teach online through their own elearning platforms. Others do teach a few techniques but not courses on YouTube and companies such as eHow and ExpertVillage. The company could possibly compete with other companies in an oligopolistic market and so there could be a high degree of interdependence and so companies will carefully think how their competitors might react to any actions they take.

2.4.1 Porter's Five Forces: eLearning Application Platform (System)

The competitive structure of an industry can be analysed using Porter's five forces (Porter, 1979). This model attempts to analyse the attractiveness of the market and the likelihood of the company making profit in the industry by considering five forces within the market, as described below:

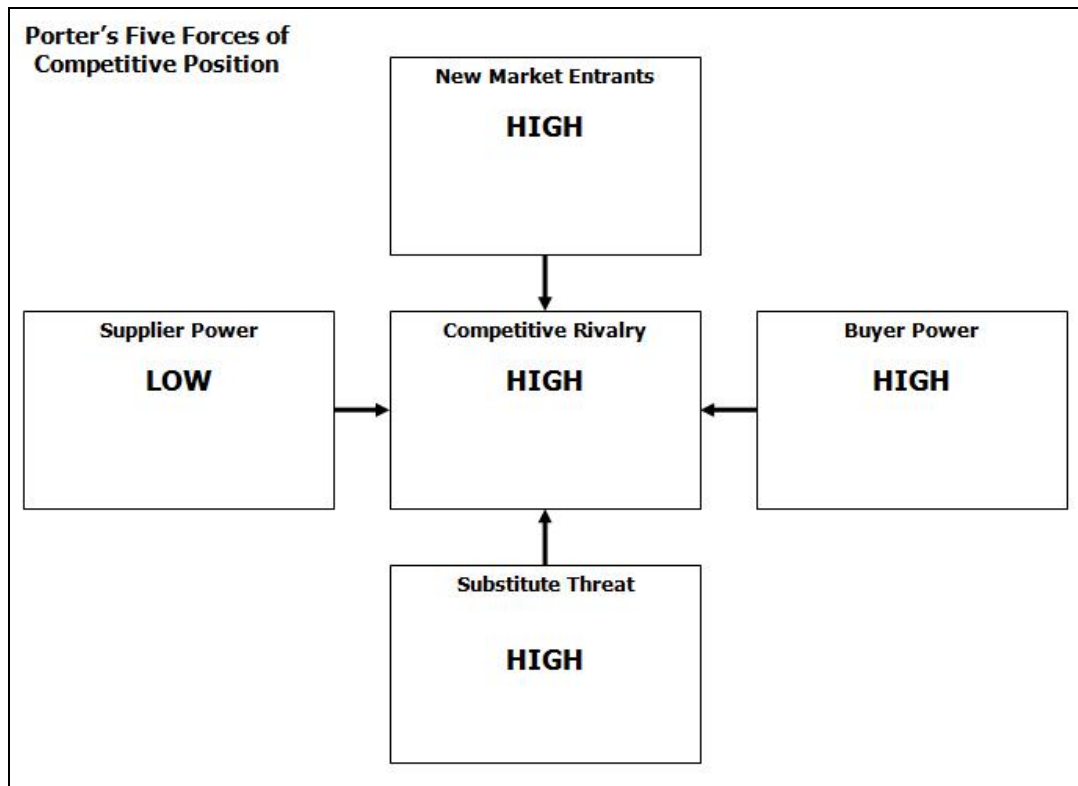


Figure 60 – Porter's Five Forces

Likelihood of New Entry: HIGH

- Costs: regarded low to medium since the main costs involved are hiring a dedicated server, developing the application and a salary.
- Experience: there is a major advantage to companies already operating in the elearning industry (“learning effect”). These companies have successful platforms but are competing in other elearning industries such as IT (Lynda.com, VTC.com) and higher education (Blackboard, Moodle).
- Government Policy: promotes entrepreneurship, IT innovations and eLearning.
- Competition: the existing firms may react aggressively and drive our company out of business, once they realise that there is an opportunity in the martial arts industry.

Power of Buyers: HIGH

- There are no few big buyers, but many small ones, and so we are not dependent on one buyer that can easily switch to a competitor and thus loose the main customer.
- The buyers can easily switch, since they own their educational material and they can move it to another platform.
- The buyers cannot buy the provider.
- The business depends on the buyers (customers) and their customers.

Power of Suppliers: LOW

- There are relatively many suppliers of dedicated servers and hosting companies that provide the services required.
- It is relatively easy to switching our suppliers.
- Suppliers are not in strong negotiating position, as there are many providing the same services.

Threat of Substitute: HIGH

- It is easy for buyers to switch to another platform for teaching online, or even develop their own websites or DVDs and sell them online.
- There are other similar alternatives, such as DVDs, TV channels, YouTube, and other elearning companies such as ExpertVillage, eHow and VideoJug.

Degree of Rivalry: HIGH

- There are not many large numbers of similar companies.
- The costs of leaving the industry are low.
- The elearning market is a growing market.
- There is little or no brand loyalty.
- There is a high level of capacity being underutilized.

Porter's Diamond Model (MarketingPlanNow, 2010):

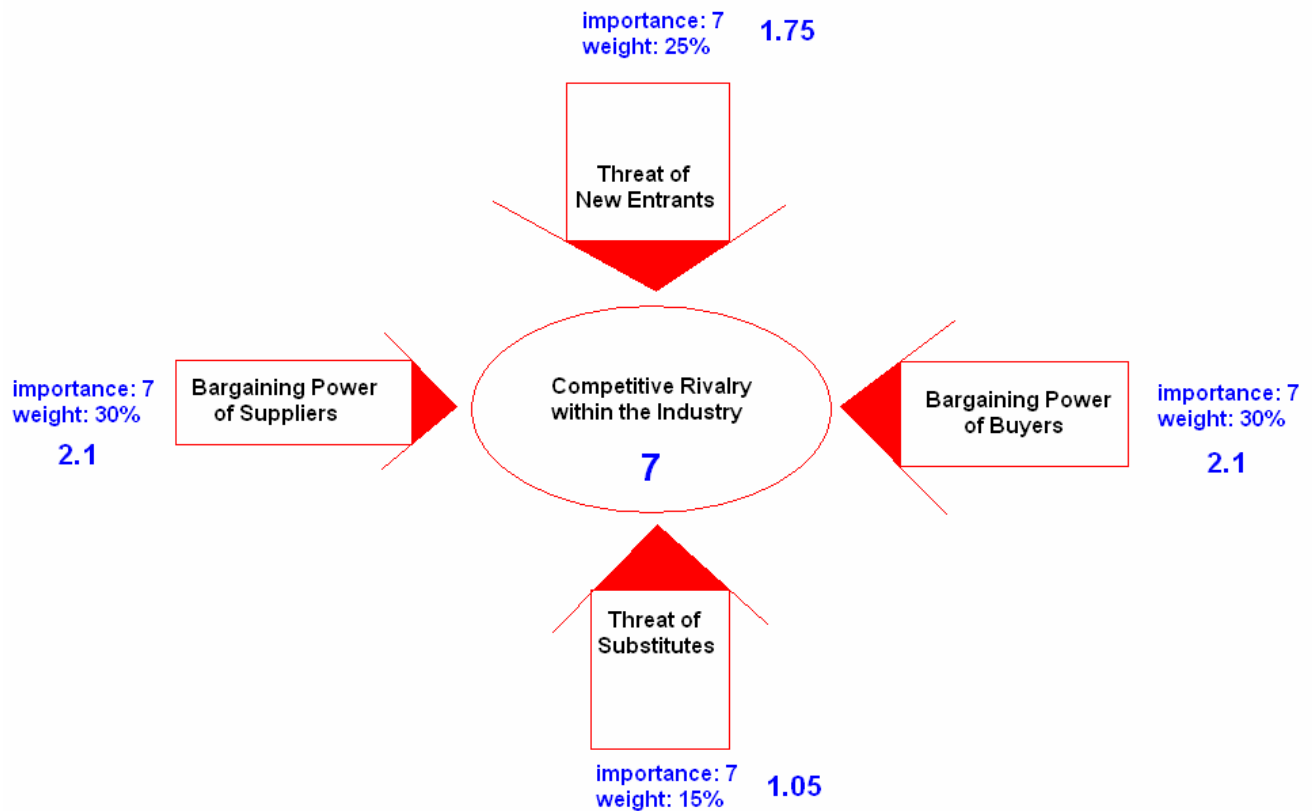


Figure 61 – Porter's diamond model

- Level of market competitiveness is high, **7**, while the attractiveness of this market is relatively low, **3**.

(This model regards the martial arts market, and so the suppliers are the actual instructors (supplying video tutorials and teaching material) and not the suppliers of IT equipment and software.)

The following figure defines the five forces regarding eLearning according to Elloumi (2004) based on research carried out by Porter (1985, 2001) and Woudstra and Powell (1989).

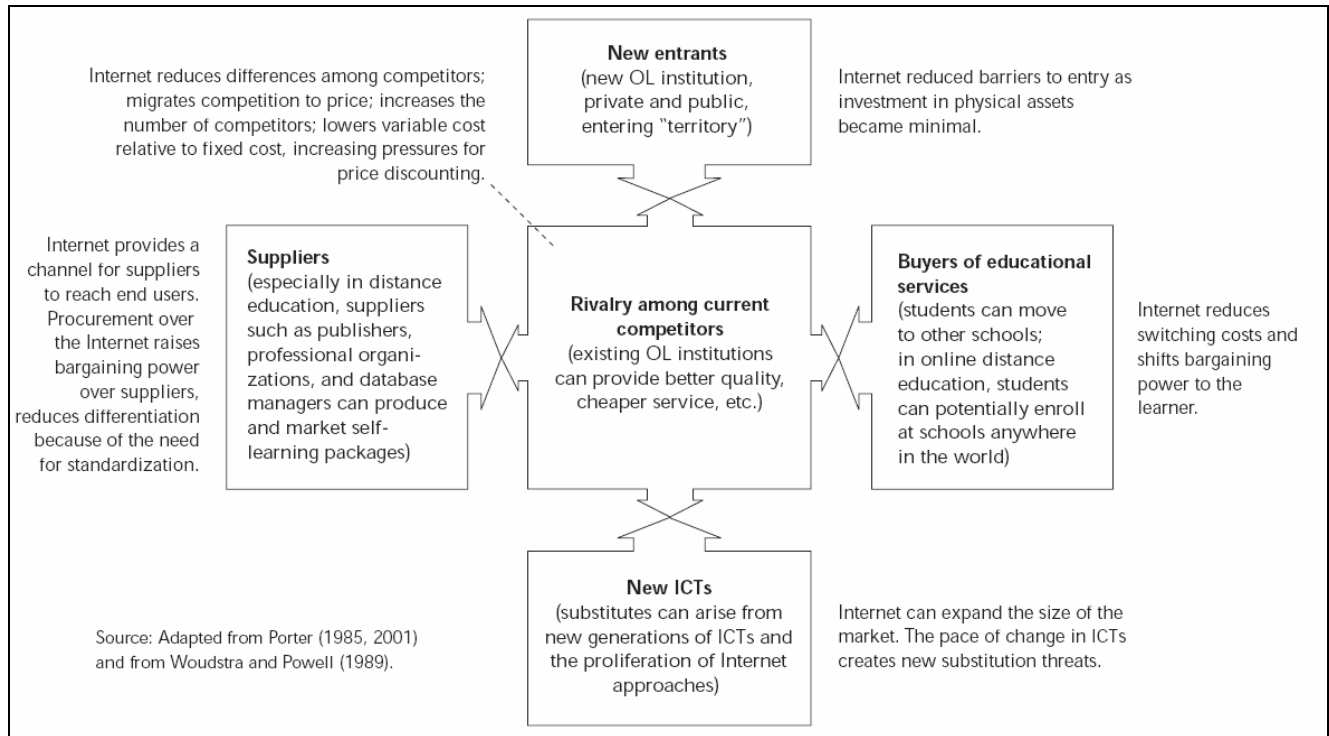


Figure 62 – eLearning Five Forces

2.4.2 SWOT Analysis

SWOT analysis is an important tool in order to understand our strengths and weaknesses but also the opportunities and threats that can affect the business, in order to develop our strategy (Oxford University Press, 2007c).

The strengths and weaknesses are internal factors, within the company. Strengths are important in order to capitalize on and weaknesses in order to limit them. To identify these factors, we had to analyse our capabilities, resources, and processes but also used the PRIMEFACT (Parrish, 2005a) checklist (People, Reputation – Brand, Intellectual Property, Market Information, Ethos – Values, Finances, Agility – Ability to change, Collaborators – Partners, Talents – Skills).

Opportunities and threats are external factors that the company is affected by, but cannot control. These are identified using secondary research (industry data, and competitive data), potential customer feedback, PESTLE and ICEDRIPS (Innovation, Competition, Economics, Demographics, Regulations, Infrastructure, Partners, Social Trends) analyses (Parrish, 2005b).



Figure 63 – SWOT Analysis

STRENGTHS

- The application is very cheap to use.
- The application is easy to use for both instructors and learners.
- The application itself provides various revenue streams for the instructors, such as fees, advertising, product placement, sponsorship by product suppliers, and other.
- The courses can be provided cheaper than alternatives (such as purchasing an educational DVD)
- There is no installation or set-up required by the instructor.
- Free prompt support and training is provided by the company for the instructors regarding the use of the application.
- There is continuous development of the application (adding features and functionality)
- The application has the ability to offer targeted advertising for advertisers interested in advertising on the application (e.g. advertising MMA equipment on MMA related courses and pages).

WEAKNESSES

- Low manpower: there is only one person currently involved with the development of the application.
- Not advanced IT skills: the developer is an IT graduate with only one year experience in building commercial web applications.
- No previous experience: there is not any previous experience in managing a company by the directors, or even in the elearning industry as this is their first business venture.
- Easy to be copied: the concept can be easily copied by competitors or other businesses.

OPPORTUNITIES

- There are new, growing and multiple markets that the application can be targeted.
- People are interested and seeking information regarding how to practically learn to do things.
- Worldwide opportunity exists with low barriers for the marketing of the application through the internet.
- There are a lot of partnership opportunities such as partnering with other elearning companies and DVD production companies in order to help them generate more revenue by marketing their material to more potential customers.
- Online learning socially accepted by the public.
- There are a lot of available, advanced, easy to use technologies (better, faster, everywhere, cheap, with unlimited functionality) such as computers, cameras, specialist software (e.g. Adobe eLearning Suite) which makes creating, delivering and viewing educational content easy.

THREATS

- Competition: competitors might react aggressively and so drive us out of business.
- Server failure: the case of a server failure might cause service disruption, bad reputation, make the business unreliable to customers, and loss of important data and information.
- Loss of data: loss of data by any case (server failure, application update, or developers' errors) will cause loss of customers and would possibly cause a lot of unnecessary trouble to the company, including legal issues.
- Hidden, unpredictable expenses: there is the possibility of other unpredicted expenses to rise which will possibly cause cash-flow problems and thus cause the company financial difficulties.
- Revenue streams are affected by others, and so if these people do not pay in time, or switch applications or stop our services, they will damage our income.

2.5 Barriers to Entry

Barriers to entry vary and include the following:

- Need strong IT skills and workforce: these resources are needed in order to design, develop and implement a software solution that will satisfy the needs of the instructors, learners and advertisers.
- Need strong marketing skills: good marketing skills are needed to develop successful, effective marketing campaigns which will increase the number of potential customers and thus increase sales.
- Good knowledge of the market: a good knowledge of the market is needed in order to identify key trends and take actions against them.
- Knowledge of learning psychology: learning psychology is needed in order to design a solution with a good interface that accommodates the users' conceptual models in order to make the application user friendly, acceptable and engaging, whilst providing the best method for them to learn using appropriate media (e.g. icons, videos, animations at appropriate locations on the screen)
- Need of strong management team: a good management team is needed to manage all the business processes of the company successfully.
- There is a need for investment, since an initial amount money is needed to start-up the company and keep it operating properly until it generates sufficient income.
- The concept is easy to be copied and implemented by others, thus there is high possibility for the competition to increase and so the threat of rivalry is high.
- Threat of substitute products and services exists which might make it difficult to market the product to the potential customers.

2.6 Competition Analysis

Analysis of the present and future competition is crucial for a start-up business, as competition is most of the times the major risk factor. Competition needs to be analysed in order to understand the competitors, their products and strategy, in order to derive a successful strategy and marketing objectives.

2.6.1 Present Competition

At the present there is no such way or platform that enables any instructors to teach a course, market and promote it online.

There are existing systems and platforms developed by different IT departments within educational organisations, institutions and companies that facilitate educational content. Such systems include universities distance learning systems but also platforms such as 'Blackboard' and 'Moodle' (Blackboard, 2010; Moodle, 2010).

Some of these systems need a strong IT department to set them up, run and maintain them. A martial arts instructor will need to invest time, money and effort in order to set up such system, which will make it difficult to get a return on investment.

2.6.2 Future Competition

YouTube: YouTube (YouTube.com) is the world's leading user created video sharing platform, which is accessed by millions of users world wide on a daily basis. According to statistics gathered by Clean Cut Media (2009), 77% of users coming to YouTube come intending to watch only one video but end up watching several. In August 2008, YouTube became the 2nd most popular search engine, and it is currently the 4th largest website on the internet, the 1st largest video site on the internet with 40% of all the videos online. 15 hours of video are uploaded every minute and has over 100 million visitors per month (Clean Cut Media, 2009).

Google: Google (Google.com) is the worlds most popular and powerful search engine and web based e-mail client. Statistics gathered by Google Internet Stats (2010) reveal that there are 146 Million monthly Gmail users globally (Royal Pingdom, 2010a), 57% of the top 10,000 websites in the world use Google Analytics (Royal Pingdom, 2010a), there are over 87.8 billion monthly searches on Google globally (ComScore, 2009), and in April 2010 Google received 4.1 billion search page views in the UK (Google Internet Stats, 2010). Google serves 98.29% of mobile search queries globally (figure 18), followed by Yahoo with 0.81%, Bing 0.46%, other sites 0.46% (Royal Pingdom, 2010b). When Google Images launched in 2001, 250 million images were indexed. By 2005, this was up to a billion images. Now, in 2010, there are over 10 billion images indexed (TechCrunch, 2010).

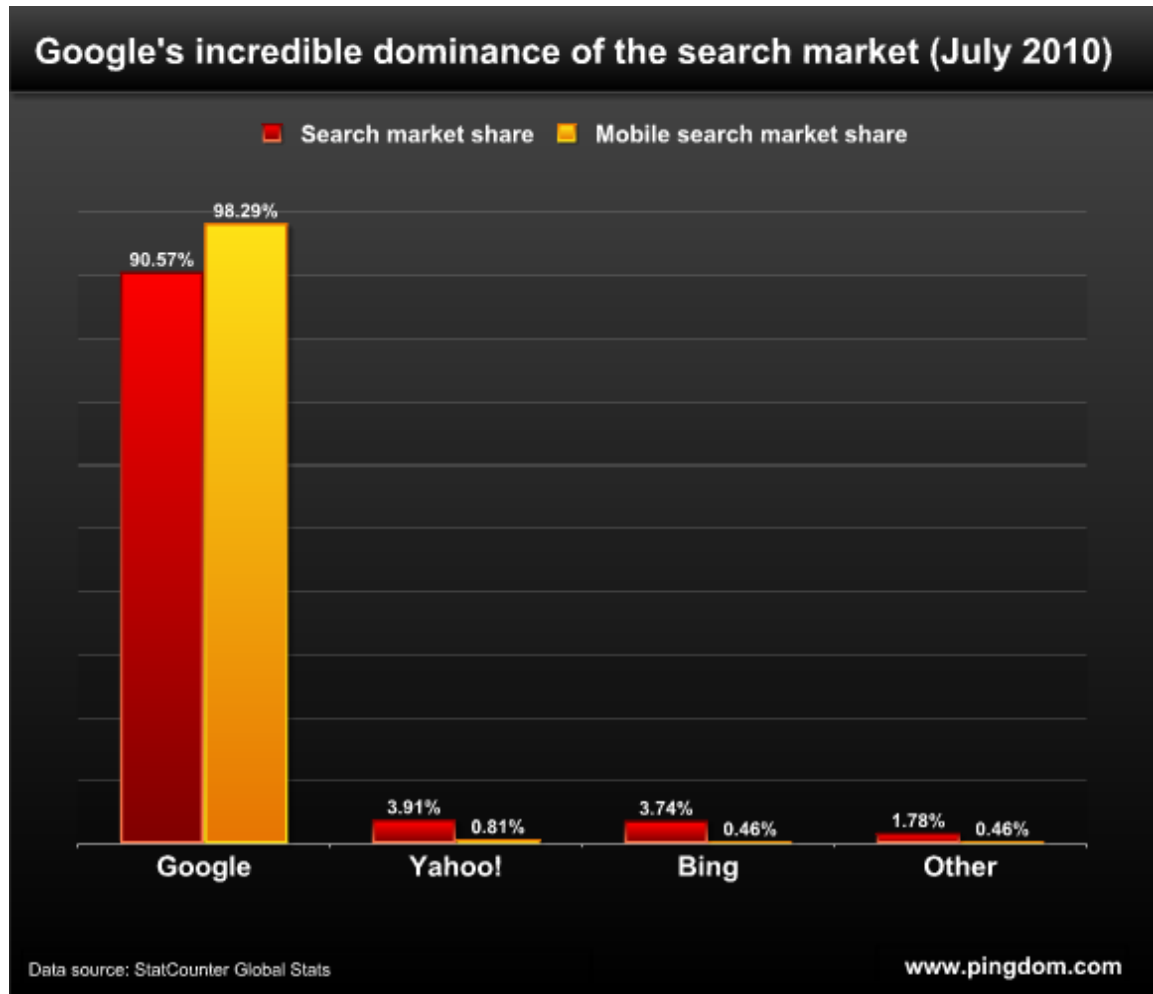


Figure 64 – Search Market

eHow: eHow is the world's leading provider of 'How to' tutorials (eHow, 2010), a popular search phrase used in Google's search engine. According to statistics gathered by UrbanData (2010a) there are on average 33.5 million hits on the website with maximum 75.7 in 29th July 2010. Over 58 million pages from this website (eHow.com) were found in the search engines and there are over 12 million other sites linking to eHow. It is ranked as the best site in keyword searches such as "learn how", "how to use", "how to videos", "how to instructions" and other keywords (figure 26) from over 21,000 related websites (SmartViper, 2010a).

Keyword	Keyword Weight [*]	Competition [?]	Keyword Cost [?]
Learn How 21,614 related websites		 Position <u>1</u> of 21614	
How To Use 4,011 related websites		 Position <u>1</u> of 4011	
How To Videos 290 related websites		 Position <u>1</u> of 290	
How To Articles 259 related websites		 Position <u>1</u> of 259	
How Tos 229 related websites		 Position <u>1</u> of 229	
How To Video 124 related websites		 Position <u>1</u> of 124	
How To Instructions 57 related websites		 Position <u>1</u> of 57	
How To Do 31 related websites		 Position <u>1</u> of 31	
Expert How To 24 related websites		 Position <u>1</u> of 24	

Figure 65 – eHow statistics

VideoJug.com: An instructional video website which launched in 2006, and provides professionally made videos produced internally, as well as videos produced and uploaded by amateurs. During 2007, VideoJug raised approximately \$30 million in funding (Wikipedia, 2010b). According to ‘Solution Watch’ VideoJug is like a video-handbook to life where VideoJug and its users create and share informative and helpful videos that teach how to perform certain tasks (Solution Watch, 2006).

videojug user statistics 2009					
Videojug Channel	Audience Profile* (Data from Survey Interactive '09)	% ABC1	UK Monthly Page Impressions	UK Pre-Rolls after user capping	UK Monthly Uniques (ABCe)
Beauty & Style	75% Female, 15-34	60%	419,560	186,454	183,917
Creative & Culture	60% Male, 15-44	58%	179,153	63,727	75,808
Family & Education	65% Female, 25-44	62%	90,339	38,343	44,603
Food & Drink	60% Female, 25-54 with Kids	69%	954,868	344,089	425,876
Health & Wellbeing	70% Female 25-54	67%	125,897	49,759	59,288
Lifestyle & Home	Male 50%, 35-54	64%	271,352	115,026	118,496
Love & Dating	65% Male, 15-34	55%	253,184	58,554	75,060
Money & Careers	75% Male, 25-54	62%	57,195	22,726	25,252
Sports & Outdoors	60% Male, 15-35	64%	220,713	59,497	78,690
Technology & Cars	70% Male, 15-44	68%	186,939	81,663	95,786
Total		67%	3,280,132	1,019,838	1,182,776

Figure 66 – VideoJug user statistics for 2009

VTC: ‘Virtual Training Course’ is an online software training company based in USA providing training tutorials and courses, mainly for commercial purposes to different companies and individuals, in the form of e-Learning or DVD videos. In the last few years, VTC has opened offices in UK, Australia, New Zealand, France, South Africa, Hong Kong and Canada (Virtual Training Company, 2010). According to UrbanData (2010b) it has a traffic volume of over 3 million page views per month.

Lynda.com: An online software training company co-founded by Lynda Weinman and provider of educational materials for individuals, businesses and schools, including the Online Training Library and DVD-based video training (Lynda.com, 2010). According to UrbanData (2010c) it has a traffic volume of over 14 million page views per month.

Millions of people are already using the services from these companies on a daily basis for teaching and learning. If any one of these companies moves in providing full online courses of any subject (as our proposed system), then they will probably dominate the market and thus constitute a huge threat for the implementation of our business plan.

2.6.3 Competition Summary

At the present there is no strong competition, but once the market is proven and the demand is seen by others, strong competition will be formed in this new market place. Strong management and marketing skills will be needed in order to acquire as many customers and users as possible, as soon as possible, and thus be the market leader in this new market.

2.7 Summary

This chapter has discussed the major market issues of the project. Market information was acquired from secondary sources and primary research. Primary research involved mixed methods, but we do acknowledge that there were flaws in the designing of the questionnaires. By having dedicated more time and resources in the design of these primary research methods, we could have acquired better quality results. Overall this chapter has provided a sound basis for the service development, which is presented in the next chapter.

Chapter 3

3. Service Development

“A pessimist sees difficulty in every opportunity; an optimist sees the opportunity in every difficulty.” – Sir Winston Churchill

This chapter investigates the development of the service. The chapter starts by giving a brief overview of the different phases of the service development, followed by the website details, key features, services offered and intellectual property strategy.

3.1 Overview

The market research phase is the starting point and regards the identification of the customer problems, needs and demand. The customer's pain (needs and demands), problems, issues and requirements are captured. The next phase involves developing the service definition. This phase takes the requirements and casts them into a set of service components that form the heart and soul of the customer engagement. Marketing and Selling phase follows, which is responsible for communicating and selling the service product to customers. Once the service is purchased by a customer, the final phase, delivering and supporting, is used to implement the service. The process is then repeated as shown in figure 28 (Birnbaum, 2004).

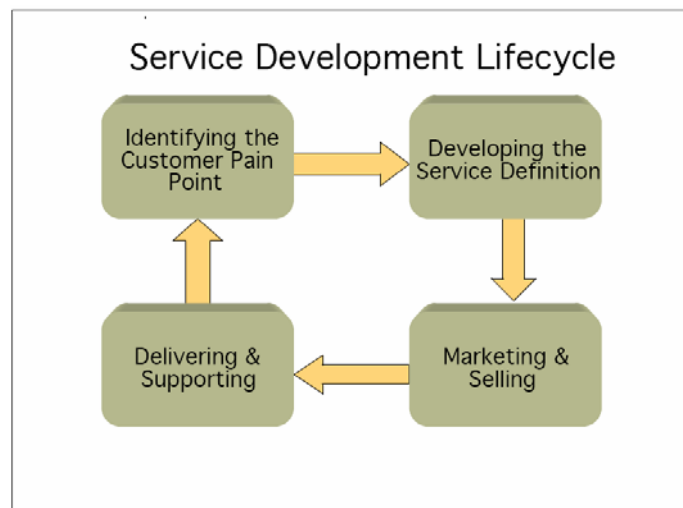


Figure 67 – Service development lifecycle
(Source: Birnbaum, 2004)

3.2 Service definition

The idea development process, which was used in order to develop the service definition, involved whole-brain thinking (convergent and divergent thinking) and it is a systematic business process involving four steps (Brag and Brag, 2005).

Seeking and shaping opportunities	Greater insight into the investigated market
Generating new ideas	Developing a range of possible solutions
Evaluating and selecting ideas	Evaluating and selecting the business ideas using criteria in order to identify the leading contender to plan for implementation
Planning for implementation	Increasing the likelihood of success by identifying and resolving potential implementation blocks

Figure 68 – Idea development process steps

The service will provide a way for an instructor to teach online through a web application and thus will provide means of expanding his sphere of influence (getting more customers/learners), increase revenue (more profit), acquire more revenue streams (many ways of generating income) and gain popularity in the marketplace (according to instructor's teach ability).

The service will be delivered in the form of a web based application, accessed through its main website, which will be available on the internet.

The blueprint on figure 30 portrays the development of the service system, and the blueprint on figure 31 portrays the service system.

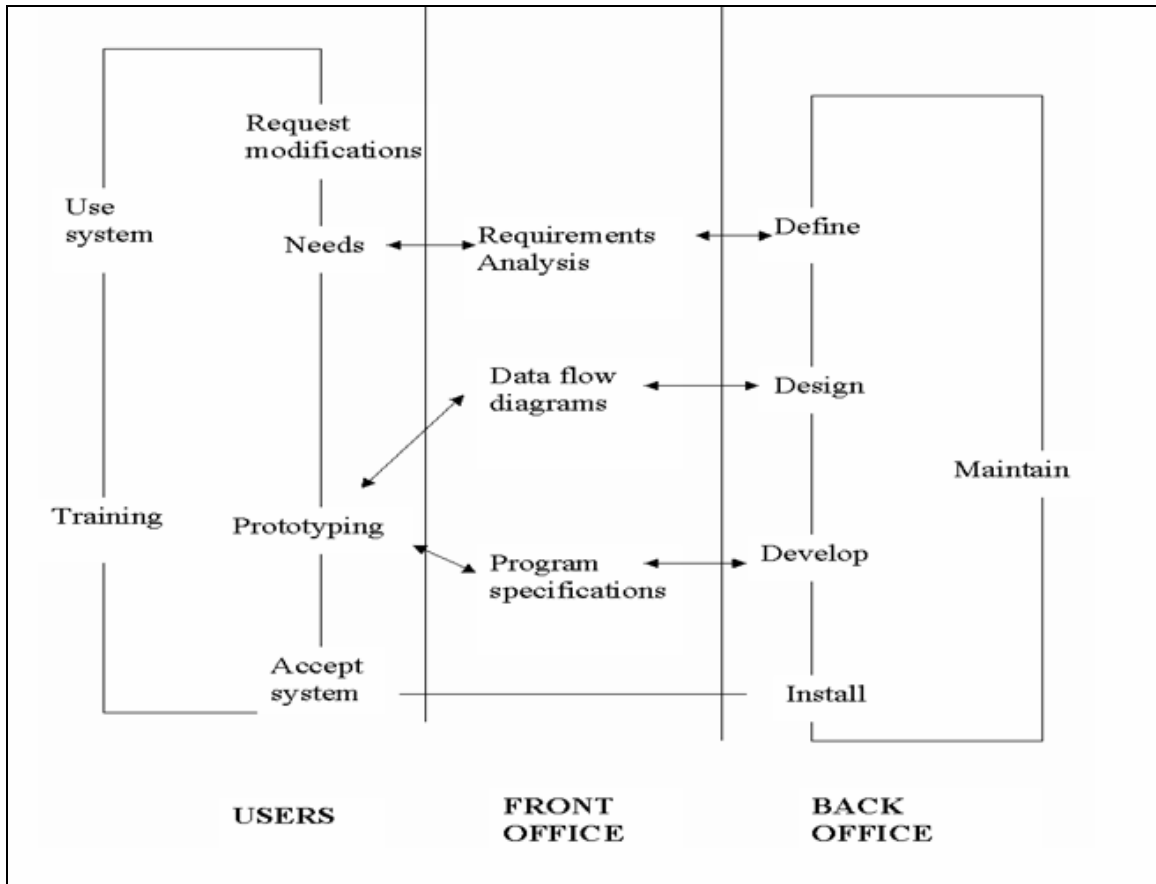


Figure 69 – Development of the service system blueprint
(Source: McBride, 2010)

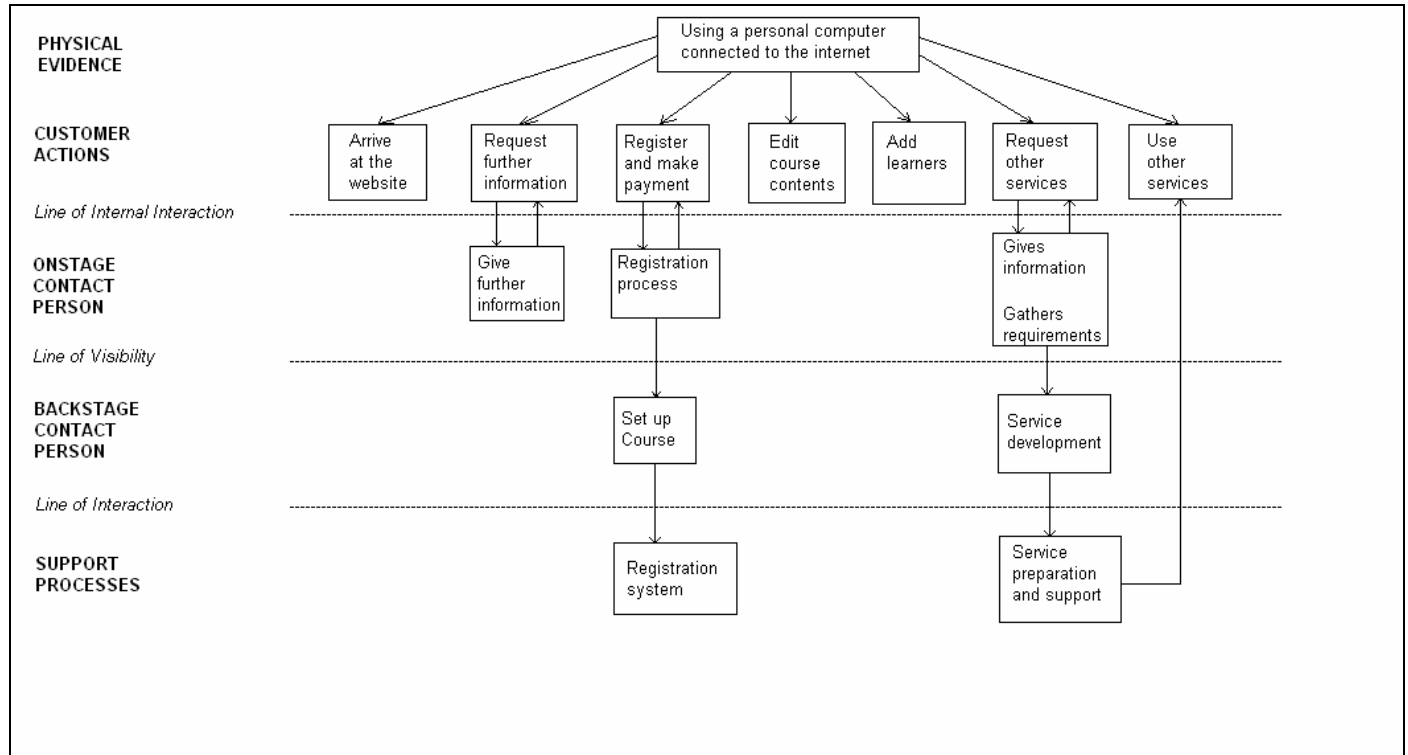


Figure 70 – Service system blueprint

3.3 Website

The website will provide information regarding the services offered and will be used to access the application. In most cases this will be the first contact with potential customers and so should be designed to give a good first impression of the company and the services on offer.

The website will be the subject for most of the advertising campaigns (e.g. pay-per-click advertising). It will also lower the costs involved in sending direct mail by sending electronic newsletters, electronic magazines, announcements, invitations and offers free of charge. Other important documents (print-off information) such as manuals, brochures, booklets will be send via email and so reduce the printing costs. This will allow us to stay in contact with the customers on a regular basis.

The web site will allow us to conduct business with anyone, anywhere with minimum expenses, and thus expanding our sphere of influence and customer base. There's no need to place ads in different areas to expand our business. A professional web site equipped with the right tools could possibly enable the selling of our services to an international marketplace twenty-four hours a day, seven days a week.



Figure 71 – Website (Login screenshot)

3.4 Key features of web application

The open and distance learning web application is in the heart of the business and it is the main service of the business (see Section 1: Subject). All other services will be based around it.

The key features of the application are the following:

- Instructors can set up a course and edit the course contents.
- Instructors can give access to learners for their course.
- Instructors can teach mainly through video tutorials and also provide educational material that can be downloaded by the learners.
- Instructors can generate revenue through different methods (product placement, subscriptions, advertising, etc)
- Consistency of the different courses.
- User friendly interface.
- Ability for instructors to set up their own teaching businesses through the application without the need of other resources.
- Reliable and secure system.
- Internal marketing and advertising of courses.
- Videos cannot be copied from the application and thus distributed illegally.

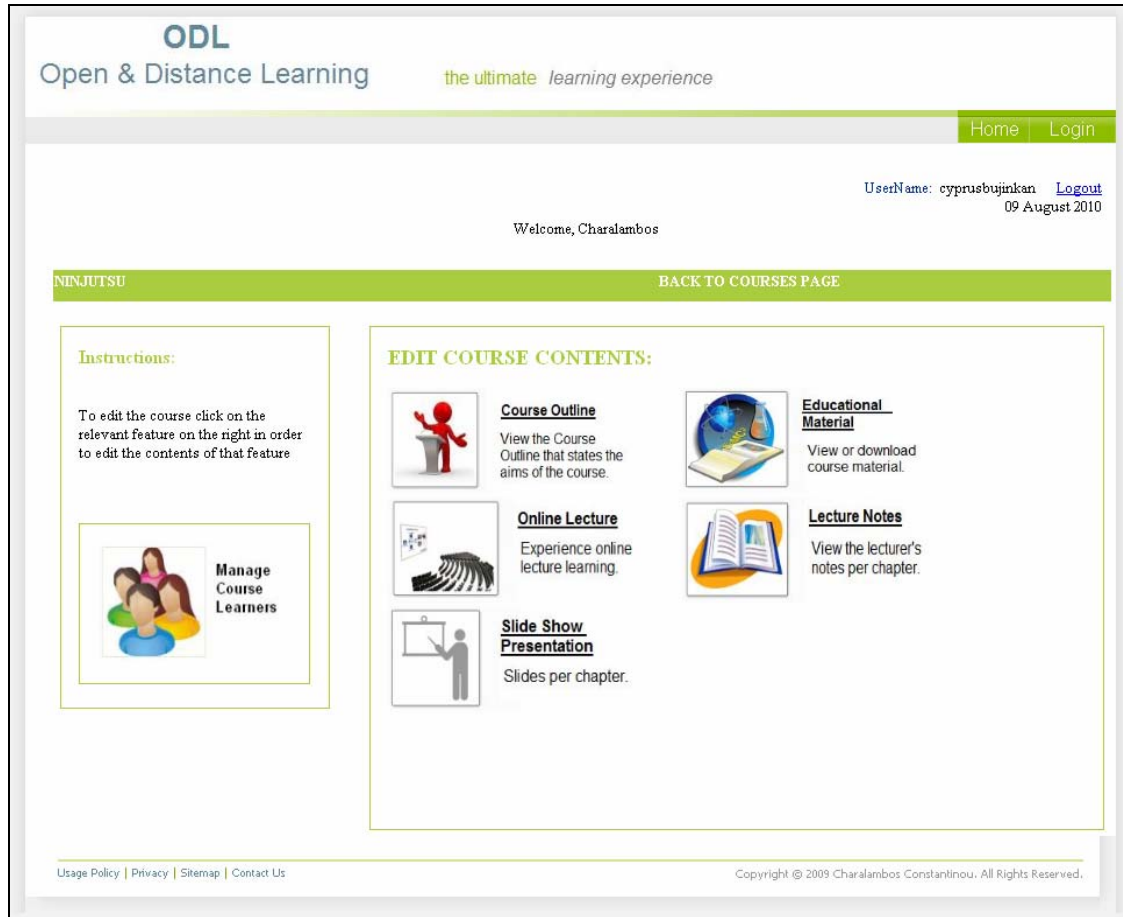


Figure 72 – ODL web application (instructor's screen)

3.5 Services

There are a number of services on offer, based around the web application platform, which were developed based on the needs of the potential customers and literature (The eLearning Guild, 2008), in order to enhance their abilities to deliver their teachings online. These services have four key services dimensions in common, which include:

Reliability: reliable and accurate service performance.

Responsiveness: provision of prompt service and willingness to help customers.

Assurance: courtesy and knowledge of employees including the ability to convey trust and confidence.

Empathy: individual attention and provision of caring to customers.

The following is the list of the services and a short description of each one:

Web application platform: This is the main service of the business that allows the instructors (customers) to run their business of teaching in an effective and efficient way, but also generating income from different revenue streams. An annual subscription fee will be paid for each course to be hosted on the application.

Support: Free full support will be provided online during office hours using Skype (enables free international calls with better sound quality than normal telephone connections), and via email.

Course Tailoring: Involves tailoring the course according to instructor's requirements by bypassing the default settings. Payment is according to the changes and added features.

Content creation: This service involves paying a small fee to create the contents of a course for an instructor, as required by the instructor.

Animation: A small fee will be paid in order to create video animations for a video to be displayed on a course.

Video editing: A small fee will be paid in order to edit a video tutorial according to the instructor's requirements.

Advertising: By paying a fee, a course can be advertised on the system, and in the monthly electronic magazine which is distributed to all users of the application.

Consultancy: Consultancy will be offered on developing courses, including pedagogical and using technology to deliver education.

Marketing: Effective marketing campaigns can be purchased by an instructor in order to successfully market the courses.

Retail: Software and other hardware tools that enable and enhance the creation of educational material (video tutorials, pdf documents, video and image editing, etc) will be on sale at reduced price for the instructors using the application.

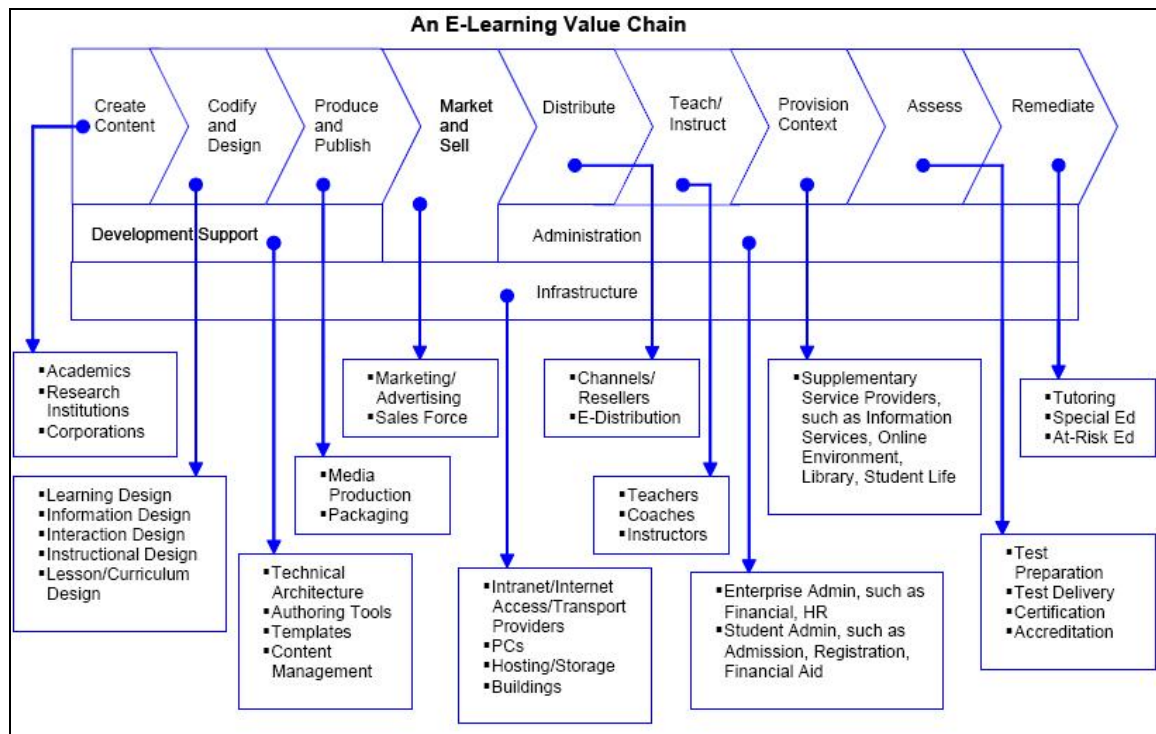


Figure 73 – An E-Learning Value Chain
(Source: Katz, 2003)

3.6 Intellectual property strategy

Software and services cannot be patented or protected in any way, in the UK. Software code and designs will be copyrighted. It is also important to copyright the educational content of instructors to them, and also making documents available to them in order not to use other people's work for their teachings without the proper acknowledgment from the creators or owners of that material (such as videos, electronic books, images, etc).

3.7 Summary

This chapter investigated the development of the service. The different phases of the service development were explained, followed by the website details, key features, services offered and intellectual property strategy.

Chapter 4

4. Commercialization – Business Model

This chapter investigates the commercialization of this start up company in terms of its business model. The chapter starts by giving a brief overview, followed by the company's mission and vision statements. Finally the business model is presented and explained in detail.

4.1 Overview

In order to develop the business model, we first had to make clear the mission of the business and its vision. To design the business model it was important to understand the current situation (business environment) and where things are heading. Analyses of the environmental forces and the application of foresight to the driving trends of the market were needed.

4.2 Mission Statement

This statement is a statement of purpose which is understood by every member of the team (Bryant, 2006). It is clear and concise and provides clarity about the primary objective for which resources are used (Webber, 2001).

The following is the mission statement for the company:

“To build a virtual place where people are given unlimited opportunity to teach others online in an effective way, providing them with means to generate revenue through their teachings, but also providing the ability for people to learn directly from others by choosing their instructors according to their ability to teach. We are committed to impact and improve people's lives through practical online classes.”

4.3 Vision Statement

This statement expresses the destination of the company, by giving shape and direction to service development and stating what the service aspires to become, defining what will be pursued (Bryant, 2006).

The company's vision is to: "be the primary destination of online classes and become the leader in delivering supported open and distance learning through innovation and collaborative partnership, by providing educational opportunity to people who wish to realise their ambitions".

4.3.1 SMART Idea Objectives

Increase the number of users (both instructors and learners) on the web application, by conducting 20 instructors a day, 5 times a week, in order to get more than 500 courses online through the system by the December 2011.

4.3.2 SMART Personal Objectives

To setup a successful company, with a powerful web based application, and I am committed to work in the company 8 hours a day, 5 days a week, ensuring the smooth running of the business, and making sure the business achieves its aims by December 2011, which is to make profit by having more than 500 courses online.

4.4 Business model

We first analysed carefully different business models, such as the ones discussed by Katz (2003) shown on figure 34 and others such as the Google's, Freemium, Opensource and Multi-market business models (Henery, 2009), and then we developed the business model of this business (figure 26) according to Alex Osterwalder's business model ontology (Osterwalder, 2002), which includes the following elements: partner network, key activities, key resources, offer, relationships, target segments, distribution channels, cost structure and revenue streams. The following subsections explain these elements of the business in detail.

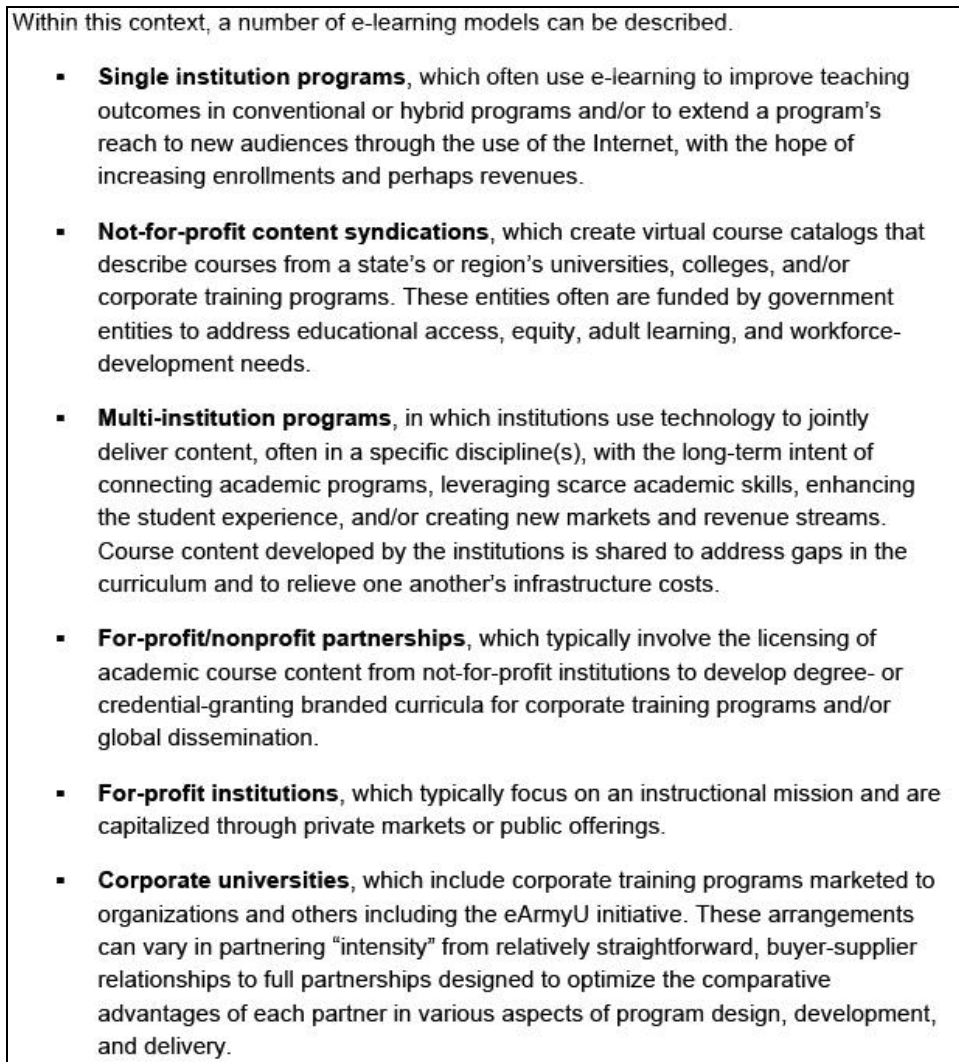


Figure 74 – eLearning Models
(Source: Katz, 2003)

PARTNER NETWORK - Martial Arts Stores - Martial Arts Centres - Websites - Martial Arts Schools and instructors - Martial Arts Organisations	KEY ACTIVITIES - Developing and Maintaining Software - Support Services - Acquiring and Serving Customers - Developing Marketing and Advertising Campaigns	OFFER - web application and services that allow instructors to teach effectively online and generate income through various revenue streams available - web application that allows people to get taught by others at remote locations, effective and efficiently, by giving them the opportunity to select their course and instructor based on their own preferences - targeted advertising for advertising companies	CUSTOMER RELATIONSHIPS - Newsletter - Telephone Contact - Monthly Electronic Magazine - Special Offers - Support Services	CUSTOMER SEGMENTS - individuals aged 18+ with interest in martial arts and self defence - individuals teaching online martial arts (e.g. YouTube) - martial arts schools - martial arts instructors - advertisers - martial arts drop outs
	KEY RESOURCES - Web Application - IT Staff - Management Team - Marketing Strategy - Partners		DISTRIBUTION CHANNELS Website	
COST STRUCTURE - Server - Hosting - Salaries - Advertising - Marketing - Overheads - Consultancy			REVENUE STREAMS - Annual Subscriptions - Advertising - Commission Fees - Services	

Figure 75 – Business Model

4.4.1 Partner network

Partner network relates to agreement between companies and organisations in order to create value.

Martial arts stores will be targeted in order to promote our website in their stores thus generating leads by people interested in the system, and they will also be able to advertise their stores online through the application.

The same method can be used with martial arts centres that have many instructors teaching different martial arts disciplines (e.g. Judo, Aikido, Karate, and etc). Other individual instructors and martial arts schools will be targeted in order to teach online and get their students online in order to enhance their learning.

Indirect routes to market will include strategic alliances and good relationships with martial arts organisations that will help in the recognition and delivery of the services, but will also provide means of acquiring quality leads.

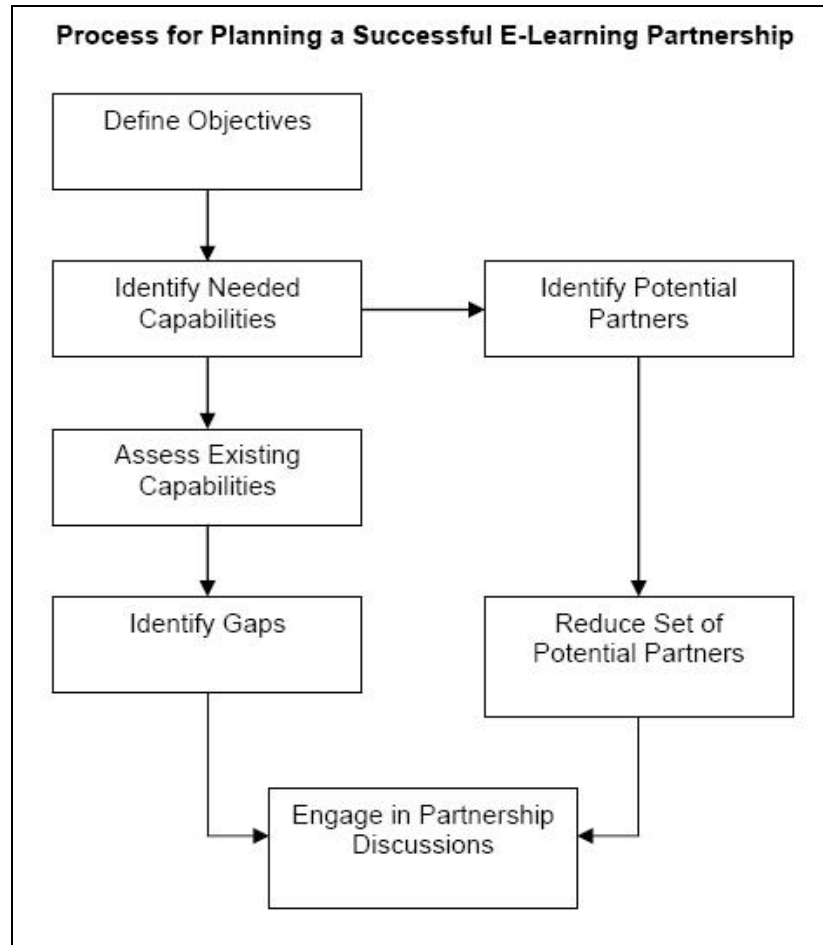


Figure 76 – Partnership Process
(Source: Katz, 2003)

4.4.2 Key activities

Key activities relate to activities necessary in order to create value for the customers.

Developing and maintaining the software is one of the major activities since it involves continuous development of new features, debugging, support, maintenance and deployment of new features to clients. It ensures the smooth running of the web based platform which is in the heart of the business.

Support for the software enables the IT team to realise and fix problems that may arise, as well as support any minor issues faced by customers. Online training sessions will be available for instructors which enable these customers to learn how to use the software properly.

The sales department will be trying to acquire new customers by the leads generated by the marketing campaigns. New and current customers can have direct contact in order to express their complaints or needs for other services. These services will then be developed and served to the customers.

It is very important for the business to develop effective marketing and advertising campaigns in order to generate quality leads which can then be converted to sales.

Other key activities include delivering services such as course tailoring, content creation, animation, video editing, advertising, consultancy, marketing and retailing. The delivery of these services can be accomplished by continuously training the staff.

4.4.3 Key resources

Key resources relate to resources necessary in order to create value for the customers, such as finance, cash flow, partnerships, people and other assets.

The web application and website are probably the most important resources as they are the resources responsible for serving customers and generate revenue.

The IT staffs regard the people responsible for developing and maintaining the software, and so they are extremely important assets, and key resources for the value creation. The management team involves the people behind the running of the business and with their skills and successful marketing campaigns can make the business successful and thus make profit.

Key resources not only include the partner network, but also other partners such as IT consultancy services which can be used in order to overcome programming issues and problems that may arise during the development of new features.

4.4.4 Offer and value proposition

The offer and value proposition relates to the overall view of the company's bundle of products and services that are of value to the customer.

The company provides a web based application through the website that allows instructors to teach effectively online and generate income (business opportunity) through various revenue streams (such as advertising, subscription fees, direct sales, etc). The instructors do not need strong IT skills, or other resources (high costs, programming, employees, etc) to set up a course. The minimum costs, internal marketing, business opportunity and e-learning factors will increase their sphere of influence, keep current learners (86% drop outs), attract more learners and thus generate more income.

The web application also allows people to get taught by others at remote locations, effectively and efficiently, by giving them the opportunity to select their course and instructor based on their own preferences (such as teach ability, practicability, effectiveness, success, etc)

The application offers targeted advertising facility which is one of the most successful methods of advertising and thus attractive for advertisers.

4.4.5 Customer relationships

This describes the kind of link that the company establishes between itself and the target customers.

Daily support to customers and training sessions will be offered at no cost.

Monthly newsletters and electronic magazines showing the different features of the application but also the courses and instructors available on the system, together with advices and guidance for instructors and learners will be sent via email to the users.

Special offers and other services (editing videos, creating content, consulting, etc) will be communicated and be available to the customers.

4.4.6 Distribution channels

Regards the means by which the company gets in touch with the customers.

The sales & marketing department will attend different exhibitions each year focusing on informing potential customers about the value proposition we offer to them. Other means of getting in touch with potential customers and making sales include the official website, direct sales, and through the partner networks.

The main distribution channel will be the official website, whereby all potential customers will be asked to check out for further information, and thus all relevant information including contact details will be displayed on the website.

4.4.7 Customer segments

These regard the segments of the customers that the company wants to offer value to and include: individuals over 18 years of age with an interest in martial arts and self defence, individuals teaching martial arts online through other platforms (e.g. YouTube, ExpertVillage), martial arts drop outs (people with high interest and motivated but don't have time or resources to attend classes), martial arts schools, martial arts instructors, and potential advertisers (retail stores, suppliers, online shops, etc).

4.4.8 Revenue streams

This Company makes money through the following revenue flows: annual subscriptions from instructors per course, commission fees from learners (10% from each learner participating in each course), advertising (direct income from advertisers) and other services (content creation, animation, consulting, etc).

4.4.9 Cost structure

Cost structure includes office expenses (overheads), staff salaries, IT infrastructure (such as hosting services, dedicated servers, software licenses, etc), marketing campaigns (exhibition stands, brochures, etc) and consulting fees.

4.5 Value Chain Analysis

The value chain framework is an approach for breaking down the sequence of business functions into the strategically relevant activities through which utility is added to products and services. Value chain analysis is undertaken in order to understand the behaviour of costs and the sources of differentiation (Shank and Govindarajan, 1993).

Value chain analysis describes the activities that take place in a business and relates them to an analysis of the competitive strength of the business. It is thus a mean for examining internal processes and identifying which activities are best undertaken by a business and which are best outsourced (Rojnuckarin, 2006).

According to Arisa Rojnuckarin (2006), Fathi Elloumi (2004) analyzed the internal value chain of an online learning institution according to Porter's rule (Porter, 2001). The constitution of e-learning industry was separated under two elements: Primary activities and Support activities as shown on figure 38.

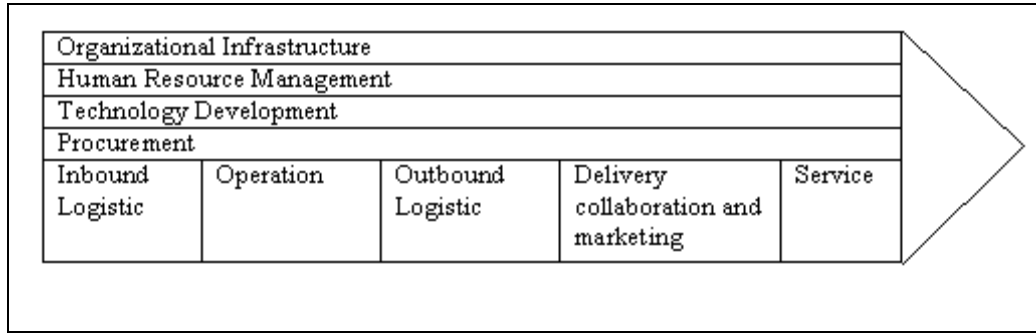


Figure 77 – The eLearning value chain

Primary activities provide, create and deliver the service to customers while support activities are indirectly implicated in production and operation and so would be assisted to the core business for high effectiveness and efficiency (Rojnuckarin, 2006).

These findings were taken in consideration when analysing the value chain of the business (figure 39).

Support Activities consist of:

1. **General Administration:** Lean organisation and focus on keeping operational and overall costs low. Support systems and functions, such as finance, planning, quality control, and general senior management are involved.
2. **Human resource development:** Involves recruiting, developing, motivating, rewarding, and continuously training the workforce of the organization.
3. **Product and Technology Research and Development:** Internal research and development on the software. Capitalize on workforce and available technology in order to continuously improve the software by adding more features and functionality. Managing information processing and the development of knowledge in the company is also regarded important.

Primary Activities include:

1. **Purchasing and Inbound logistics:** Purchasing licenses for appropriate software tools (such as Microsoft Office, Visual Studio 2010, SQL Server 2010, .NET controls) to add value to the development team. Other software tools should be updated regularly with their new features and functionality.
2. **Operations:** Highly motivated, productive, flexible and innovating workforce and excellent management process needed to use the resources available in order to produce the product and deliver the services required. They involve the actual process of software development, course development and advertisement, including writing, multimedia creation, editing, formatting, graphic design, printing, and Web publishing.
3. **Distribution and Outbound logistics:** The partner network and the web based application provide means to reach customers in an efficient and cost effective manner. They also concern the storage of courses, the process of delivering the knowledge material to the students and customer requirement.
4. **Sales and Marketing:** Marketing and market research should be performed on a regular basis to understand future demand and take actions accordingly. Sales depend on close and good long term relationships with customers. Developing a branding strategy to communicate the benefits, and competitive advantage is also important.
5. **Service:** Delivery of consultancy services, setting up the software for customer use and providing support.

Managing the value chain implies increasing the quality of products and services, while reducing the institution's costs and increasing revenue, thus increasing competitive advantage (Elloumi, 2004).

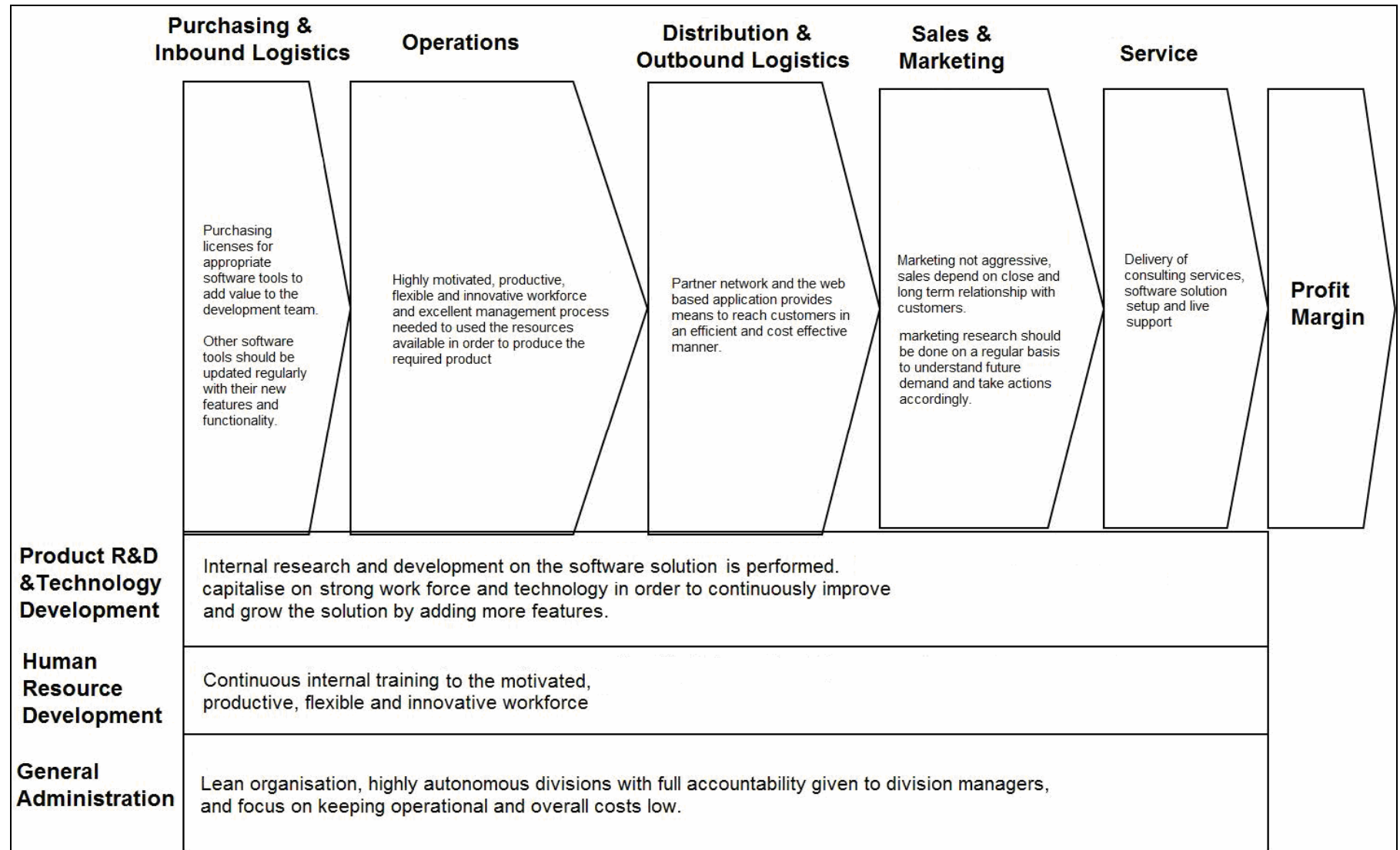


Figure 78 – ODL value chain

4.6 Finance

Charalambos Constantinou will invest £20,000 in the business and this investment will fund all the business processes and operations.

4.7 People

The Company will hire only one person for the first three years, who will be the managing director of the company, and so responsible for developing, marketing and delivering the product and services offered.

Charalambos has over 5 years experience in sales and marketing, holds a BSc degree in Computing for Business Applications and has over 2 years experience in developing commercial web based applications. He currently holds a 5th degree black belt in the Bujinkan (traditional Japanese martial arts of the ninja and samurai), and so has contacts and experience in the martial arts industry, which will help in understanding customers, but also market the product and services to that market segment.

4.8 Premises

The office will be located in Kent, London. The office will be given to the company free of charge, and includes basic office equipment such as a desk, chair and stationary.

4.9 Equipment

A computer, a printer/scanner machine, an external hard drive and a projector will be needed in order to run the business. They should cost £1,000, which should be included in the start-up expenses of the company.

4.10 Company's Structure

The company will have a central management department (team) which will manage all the operations of the company including its departments. The managing director will be the head of the department. The company will be then divided into four separate departments. The IT department will be responsible for the development and maintenance of the software, the sales and marketing will be responsible for marketing our products and services, the operations for delivering our services and finally the administration which will be responsible for administration issues mainly within the company. For the first three years of this start-up company, there will be only one employee working and managing these departments.



Figure 79 – Company's structure

4.11 Summary

This chapter described the business model in detail. According to General Douglas MacArthur *“no plan ever survives its first encounter with the enemy”* (Mullins & Komisar, 2009). The managers of the business should therefore be ready to accommodate the different changes of the continuous changing business environment. According to Alex Osterwalder (2009) *“continuously scanning your business model's environment is important because the economic landscape is driven by growing complexity, increased uncertainty and market disruptions”*.

Chapter 5

5. Commercialization – Business Strategy

This chapter investigates the commercialization of this start up company in terms of its business strategy. The chapter starts by giving a brief overview, followed by the marketing strategy and the business strategy to risks. Finally the key milestones for the first three years are presented and explained in detail.

5.1 Overview

The first part in developing the business strategy was to make clear the marketing strategy to follow. We then had to identify and plan responses to business risks and the changing market conditions in order to be able to adapt the business strategy to risks. Finally the key milestones were agreed for the first three years of this start-up company.

5.2 Marketing Strategy

The marketing strategy is a process where it allows the organisation to concentrate its resources on opportunities to increase sales and achieve a sustainable competitive advantage, and so it should be centred on customer satisfaction.

5.2.1 YouTube Instructors

All YouTube instructors that teach martial arts on YouTube through their own YouTube channels should be contacted. A small business plan should be developed according to their average views per video, and subscribers to their channel, that enables the instructors to see the opportunity they have to increase their revenue by just using our web application. The plan should have simple clear ways that will convince the instructor to setup the course through our system and get learners on it.

5.2.2 ExpertVillage Instructors

A similar method as the one for YouTube instructors should be implemented (targeting ExpertVillage instructors teaching martial arts), in order to get these instructors to setup an online course through our system.

5.2.3 Martial Arts Schools

Martial arts schools should be located through their websites and other sport centres. A marketing campaign should be develop and targeted specifically for these schools outlining the benefits and increase in revenue that the application will give to them.

5.2.4 Facebook Advertising

Facebook advertising is a powerful advertising tool that will be used to target martial arts school groups and people interested in martial arts. These leads will be redirected on the main website where they will get information regarding our system and the benefits they will get by using it.

5.2.5 Google Advertising

This method of advertising is attractive as it can control the budget of advertising. Google will advertise our official website through the following words “learn martial arts”, “martial arts elearning”, “learn judo”, “learn self defence”, “learn karate”, “learn MMA”, “learn Brazilian Jujitsu”, and “learn Ninjutsu”.

5.2.6 Word of Mouth

Word of mouth is the best method of marketing and it can only be successful if the customers and users of the system are completely satisfied and want to recommend it to others. Our services and campaigns will be concentrated on keeping the users happy and supporting them.

5.2.7 Leaflet Distribution

Leaflets will be designed for mass distribution to different festivals and seminars regarding martial arts. Other form of leaflets will be designed for instructors to distribute themselves to their current or potential students by filling in the gaps with their own details. These will be distributed to the instructors in electronic form via email.

5.2.8 Converting Instructional DVDs to Online Courses

Instructional martial arts DVDs will be converted to courses and then presented to the owners of the contents in the form of online courses, together with a business plan and projected revenue income.

5.3 Adapting Business Strategy to Risks

It is of crucial importance to recognise, identify and respond to the different risks that can cause trouble to the smooth running of the business. The subsections that follow describe the identification and responses to changing market conditions and business risks.

Impact	Risk Distribution		
Significant	I3		
	B1		
Moderate	I2 B3	M1 I4	
	B2		
Minor	I1		M2
	Low	Medium	High
	Likelihood		
	M1 - New Entrants M2 - New Technologies and Innovations B1 - Change in Demand B2 - Loss of Business to Competitors B3 - Bad Publicity I1 - Poor Performance I2 - Software Issues I3 - Loss of Staff I4 - Loss of Partners		

Figure 80 – Risk Map

5.3.1 Identification and Response to Changing Market Conditions

Market conditions are the characteristic of a market into which the company is entering so into which the services will be introduced (Business Dictionary, n.d.). The changing market conditions include the market's growth rate, the level of competitiveness and the number of competitors.

Since the elearning market is a growing market and people tend to be more computer literate a lot of new entrants will enter this market thus causing the level of competition to increase by having more competitors competing in the same marketplace.

With the possibility of competition arising from unexpected sources the company must constantly innovate to compete. The company needs to keep its strategy clear, and concentrate on developing a good reputation in the marketplace, have completely satisfied customers and achieve its targets. The target of achieving critical mass of users for the application needs to be achieved by the end of the first year (500 courses), in order to minimize the effects and risks of new entrants.

New technologies and innovations could possibly change the market and the demand for our services and so need to be taken in consideration. The management team needs to monitor these changes and keep up with these technological advances. This can possibly cause a major risk in case competitors have more advance technology than us.

5.3.1 Identification and Response to Business Risks

A business risk regards the probability of losing an important asset or resource of the company that may impair its ability to provide returns on investment (also includes competition and economic factors). It is the risk that a company will not have adequate cash flow to meet its operating expenses, which can be the result of internal conditions and external factors.

One of the most important external factor risks is the possibility of change in demand for the services offered by the company. If the change is negative (due to changes in economic conditions or loss of business to competitors), and the demand for the services of the company decrease, the amount of risk is increased.

Loss of business to competitors can have a huge effect on the business, and so our services need to be reliable, effective, provide prompt support to our customers and making sure we keep our existing customers completely satisfied and happy.

The internal factors that may impose business risks can be identified and corrected. If a marketing campaign or a sales force is not performing up to what is expected, making changes in the marketing approach will minimize the perception of the risk. The same can

be true if the development of the software is not operating at optimum efficiency, and thus changes (different methodology and approaches) will need to be made to the method of development.

Another important risk is losing the software's functionality. This can be accomplished by updating it to a newer version which proves to be unstable, or even cause the loss of data. Special care needs to be given to keep software and data backups whilst developing new features and updating the software to new versions. This will make recovery easy and keep the data safe.

Loss of key resources such as important IT staff in the future can be devastating. Proper documentation of the software needs to be produced highlighting the changes made at each update of the software. The programmer's documentation would be of crucial importance when new staff will be hired.

Other key resources include the company's partner network, and so losing a partner can cause serious trouble. In order to minimize this risk the company needs to be independent of its partners and at no time be dependent on a single partner.

Publicity can play an important role for the success of the business, and so bad publicity will cause sales to drop. This risk can be minimized by carefully scanning the publicity around the business, have good contacts with the industry, write articles in relevant magazines and provide seminars to educate people about the company, its vision, mission and services. Meanwhile we need to make sure the company provides full prompt support and keeps customers satisfied.

5.4 Key Milestones

Key milestones are the most important milestones that identify the completion of an important work package (deliverable or important decision) which affects the future of the business. They are important because they allow the managers to determine accurately whether or not the projects are on schedule. The company will be formed on January 2011, and so the first financial year (FY 2011) will be 1st January 2011 to 31st December 2011. The key milestones for the first three years (each year is divided by four quarters) of the business are presented in the subsections that follow.

5.3.1 Year 1 Milestones and Strategy

Table 18 – Milestones and strategy (Year 1)

Milestone	Strategy	Quarter
Company's Formation	Form the company in the UK.	1 st
Target the YouTube instructors of martial arts	Develop successful marketing campaign that will convince these instructors to teach through our system.	1 st
Mass Leaflet Distribution	Design, print and distribute promotional leaflets at key locations, but also design promotional leaflets for the instructors to use for their own courses.	1 st
Implement Reliable Payment System	The IT department would be responsible to develop, test and implement the reliable payment system that enables safe transactions to be completed.	1 st
Target ExpertVillage Instructors of martial arts	Develop successful marketing campaign that will convince these instructors to teach through our system.	2 nd
Target martial arts schools	Develop a marketing campaign that will identify and locate martial arts schools in order to convince them to teach through our system.	3 rd

Word of mouth marketing	Keep customers satisfied and provide them with prompt support and helpful guidance in order to achieve their targets (increase revenue), in order to recommend the system to others.	4 th
500 Courses	Developing successful marketing campaigns that will generate quality leads which will be transformed to sales.	4 th

5.3.2 Year 2 Milestones and Strategy

Table 19 - Milestones and strategy (Year 2)

Milestone	Strategy	Quarter
Keep all courses from previous year	Provide excellent support and services to current instructors.	1 st
CRM System	Develop a web based CRM system that will enable instructors manage their students.	1 st
Facebook Advertising	Use facebook advertising to generate quality leads for the website.	2 nd
Google Advertising	Use Google advertising to generate quality leads for the website.	2 nd
Target Self Defence Instructors	Develop successful marketing campaign that will convince these instructors to teach through our system.	3 rd
1,000 Courses	Developing successful marketing campaigns that will generate quality leads which will be transformed to sales thus increase the number of courses available to 1,000.	4 th

5.3.3 Year 3 Milestones and Strategy

Table 20 - Milestones and strategy (Year 3)

Milestone	Strategy	Quarter
Keep all courses from previous year	Provide excellent support and services to current instructors.	1 st
Marketing Campaigns System	Develop a web based marketing campaigns system that will enable instructors to create and manage their marketing campaigns which will help them acquire more students.	1 st
Target Military and Police martial arts Instructors	Develop successful marketing campaign that will convince these instructors to teach through our system.	3 rd
1,500 Courses	Developing successful marketing campaigns that will generate quality leads which will be transformed to sales thus increase the number of courses available to 1,500.	4 th

5.5 Cost Position

Porter (1980) argued that a business can develop a sustainable competitive advantage based on cost, differentiation, or both, as shown in figure 41. Our cost position is in differentiation and cost advantage box.

		Relative cost position	
		INFERIOR	SUPERIOR
Relative differentiation position	SUPERIOR	Differentiation advantage	Differentiation and cost advantage
	INFERIOR	Stuck-in-the-middle	Low cost advantage

Source: Shank and Govindarajan (1993, p. 49).

Figure 81 – Relative Cost position

5.6 Summary

This chapter investigated the commercialization of this start up company in terms of its business strategy. The marketing strategy and the business strategy to risks, together with the key milestones for the first three years were presented and explained in detail.

Chapter 6

6. Financial Analysis

This chapter investigates the financials of this start up company. The chapter starts by giving a brief overview, followed by the financial assumptions and their impact. The initial start up capital and identification of costs are then explained in detail. Furthermore an explanation is given with regards to the start up costs, sales forecast, profit and loss, and the balance sheet. Finally the break even analysis is presented.

6.1 Overview

ODL is a business that is very financially simple. Our only expenses consist of basic computer equipment, marketing, website hosting (server and domain name), and one salary starting in 2011. Our marketing expenses could even be cut if necessary, since generating lots of income isn't the primary goal for this business (but acquiring users is).

Our office will be based in Kent, London and will be provided free of charge (including basic office furniture and internet connection) by the owner, which is Charalambos Constantinou, the investor and director.

Since we want to remain profitable we need to keep a positive cash flow and cash balance to keep the business running strong and keep it healthy. As long as we keep our expenses low, just a couple hundred course sales should achieve that goal, as shown in the following financial plan.

6.2 Financial assumptions and their impact

In order to predict the company financials and so carry out a financial analysis, we need to make a few logical assumptions and consider their impact. These are shown in the table below.

Table 21 – Assumptions and their impact

Assumption	Impact
Instructors are willing to pay a small fee in order to get a course online.	This will generate a steady continuous flow of money to the company and so this segment should be targeted as the main revenue stream.
Students are willing to pay a small fee to the instructors to participate in their courses.	This will be the main revenue stream for the instructors and so the main motivation of teaching through the platform.
Advertisers are willing to pay a fixed amount on a monthly basis for advertising on the platform online.	This will bring in another revenue stream and thus increase profit.
Targeted advertising.	Targeted advertising proved to be in high demand from advertisers and it does not frustrate the viewers.
10% commission per student	The 10% commission that the company will acquire per student will not affect the pricing of the course significantly by the instructors.
Effectiveness of the application.	The application will prove its effectiveness and word of mouth will bring in more traffic to the site, thus generating more leads and sales.
Effective IT infrastructure and design.	The application will run smoothly without any interference or bugs, and so users will not complain about paying to use it.
Users using the system are the main issue.	According to Google's business purchasing plan, a website that has 100,000 users logging in daily for more than 3 minutes on a page of the application is worth around \$30,000,000.
Effective marketing campaigns.	That we will be able to generate traffic for our website through our marketing methods, and so resources will be used efficiently.
People will remain interested.	That people will remain interested in using the system both for teaching and learning.

6.3 Initial start up capital

‘ODL’ will start with an initial £20,000 investment from Mr. Charalambos Constantinou to get the website and company going. Mr. Charalambos Constantinou plans on doing all the initial website design and content creation himself, so there is no monetary cost associated with those items. That leaves £500 in legal expenses to form the company, £1,000 in computer equipment, and £12 to register the domain name for the website. The initial investment will cover these items and leave cash balance of £18,488 to cover expenses until income comes in as the company moves forward.

6.4 Identification of costs

The identification of monthly costs is crucial in running a business and ensuring that profit can be made. These are shown in detail on the table below.

Table 22 – Cost identification

Cost Description	Cost
Server	£60.20
Marketing and Advertising	£200.00
Overheads (includes telephone, gas and electricity bills)	£200.00
Wages	£1067.00

6.4.1 Server Costs

A dedicated server needs to be hired in order to be able to host the web application and enable the connection to the internet. The dedicated server costs £60.20 per month (based on an annual contract).

6.4.2 Marketing and Advertising Costs

£200.00 per month will be allocated for marketing and advertising our product and services. These expenses will be used to finance the different campaigns developed by our company (such as Google ads, Facebook advertising, leaflet distribution).

6.4.3 Overheads Costs

Overheads include the telephone (£50 per month), gas (£75 per 3 months) and electricity (£75 per 3 months) bills and other general day to day expenses (such as stationary). The domain name renewal is also included as overhead and it costs £12 per year. £200.00 per month will be allocated to cover these expenses.

6.4.4 Staff Costs

A salary of £1067.00 will be paid to our managing director to run the business for the first three years. There are no other employees, so there will be only one salary per month.

6.4.5 Equipment Costs

The equipment involves a laptop computer, a scanner/printer machine and an external hard drive. These are part of our start-up costs and so are not included in the general expenses, as there are no other expenses involved.

6.4.6 Website Costs

Our website is developed by our managing director and so there are no costs involved in the development. The website and application will be hosted on the same server (our hired server) and so there will not be any other costs involved. The domain name will need renewal annually and that costs £12 per year (paid every January as overhead).

6.4.7 Travel Costs

There company will not cover any travel costs by the director. Most of the communication and selling process will be done through the internet; using free software applications for communication such as email and Skype (video calls with better audio quality than telephones).

6.4.8 Office Premises Costs

The office premises are provided free of charge the managing director for the first three years. They include an office, a desk, a chair, stationary and internet connection.

6.4.9 Software Costs

The company will be using free software and in-house developed software for its operations. They include Microsoft's Visual Web Developer 2010 (for software development), Microsoft SQL Server Express 2010 (database management) and Skype (for communication purposes).

6.5 Start up costs

In order to start up the company and the business, we need to consider the costs needed in order to begin trading. These include mainly legal expenses (legal documents and agreements such as 'disclaimer', 'terms and conditions', 'agreement', and other for using our services for both customers and consumers), domain name and equipment (computer, a fax/printer/scanner machine, and an external hard drive) as shown below:

Table 23 – Start-up costs

Expenses	Cost
Legal	£500.00
Equipment	£1,000.00
Domain Name	£12.00

6.6 Sales forecast

Sales will be increasing year by year, by a significant factor each year. This will be implemented by targeting different market segments each year and also adding more functionality on the platform. The aim is to target more market segments and increase the attractiveness of the offer by adding value to it.

It is estimated that by the end of year 1, there would be at least 500 courses on the system (not instructors as an instructor can have many courses). Each course would cost £100 per year. It is estimated that there will minimum of 20 learners per course. The minimum amount of money that a learner would pay for a course is £10 per year. For the first three years there would be four advertisers advertising on the system for £500 annually. That leaves £50,000 from the courses, £10,000 from commission and £2,000 from advertisers. It is estimated that by the end of year 2, there would be at least 1,000 courses on the system, and so that could possibly leave £100,000 from the courses, £20,000 from commission and £2,000 from advertisers.

It is estimated that by the end of year 3, there would be at least 1,500 courses on the system, and so that could possibly leave £150,000 from the courses, £30,000 from commission and £2,000 from advertisers.

Table 24 – Sales forecast

Revenue Stream	Year 1	Year 2	Year 3
Courses	£50,000	£100,000	£150,000
Commission	£10,000	£20,000	£30,000
Advertising	£2,000	£2,000	£2,000
TOTAL	£62,000	£122,000	£182,000

6.7 Cash flow forecast

Cash flow refers to the movement of cash into or out of a business (includes VAT). Managing cash flow is of crucial importance in the smooth running, survival and success of a business. In order to produce a predictive cash flow forecast for the first three financial years starting from 1st January 2011 to 31st December 2011 (see Appendices F, G, and H), we need to make some assumptions, such as the following:

- Sales of courses will increase by 500 each year (also assuming other factors will not impact the sales forecast and operations).
- An instructor can have more than one course.
- All expenses will stay the same price.
- VAT will stay the same (17.5%).
- Exchange rates will be the same as the previous financial year.
- Orders placed within the same day will be delivered on the same day (ordered, received payment, access to courses).
- All courses purchased will be paid at the time of purchase.
- All courses hosting will be sold at the same price (£100 per year).
- No loans taken.
- All fixed costs will not increase.
- There are no variable costs.
- All wages will not increase but stay the same.
- Accounting will be done the director.
- Opening balance for January 2011 will be £18,488.
- Corporation tax (20%) for every financial year will be paid in August of each year.
- Advertising income will remain £2,000 for each year.
- Size of premises will stay the same and free of charge.
- Server and domain name prices will remain the same.
- Telephone contract will remain the same at £50 per month.
- £200 will be allocated to marketing and advertising each month.
- £100 will be allocated to other overhead expenses each month.
- No legal expenses after the first year.
- Gas and electricity bills will be paid on March, June, September and December of each year, and their costs will remain the same.

6.8 Profit and loss

Period: 1st January 2011 – 31st December 2011

Operating Activities

Sales

Courses	£50,000
Commission	£10,000
Advertising	£2,000
Total sales	£62,000

Cost of Sales

Total Variable Costs	£0
Total cost of sales	£0
Gross Profit	£62,000

Fixed Costs

Domain Name	£12.00
Dedicated Server	£722.40
Overheads	£2,400.00
Marketing and Advertising	£2,400.00
Wages	£12,804.00
Total Fixed Costs	£18,338
Net Profit	£43,662

Financing Activities

Total Interest on Loans	£0
Total Depreciation	£250
Total financing costs	£250

Profit before tax **£43,412**

Taxes

Corporation tax **£8,682**

Profit after tax **£34,729**

Figure 82 – Profit & Loss statement

The 'Profit & Loss Statement' is the income statement, which is the company's financial statement that indicates how the money received from sales (revenue) is transformed into net income by accounting for all revenues and expenses. In other words the income statement displays the total revenues and expenses (including depreciation and taxes) for a specific period of time, and thus shows managers and investors whether the company made profit or loss during that period (excludes VAT).

6.9 Balance Sheet

The balance sheet is of the most important statements in a company's accounts, as it tells how much money the company has, how much it owes, and what is left for the stockholders, and thus it is useful when assessing the financial stability of the company. It shows what assets and liabilities the company has, and how the business is funded.

Balance Sheet – 1st January 2011

1. Fixed Assets	
Computer Equipment	£1000.00
Domain Name	£12.00
Legal Documents	£500.00
Total fixed assets (A)	£1,512.00
Working Capital	
2. Current Assets	
Cash	£18,488.00
Stock	£0.00
Debtors	£0.00
Total current assets (B)	£18,488.00
Total assets (A+B)	£20,000.00
3. Liabilities	
Overdraft	£0.00
Tax payable	£0.00
Creditors	£0.00
Long term loans	£0.00
Total liabilities (C)	£0.00
4. Financed by	
Share capital	£20,000.00
Retained profits	£0.00
Total financing (D)	£20,000.00
(A+B) - (C+D)	£0.00

Figure 83 – Balance Sheet

6.10 Break even analysis

The break-even point is the point where total revenue received equals to the total costs. Thus in order to calculate that point we need to consider the costs needed to run the business. Figure 31 shows these calculations, and figure 32 shows the graph.

Break Even Point Analysis

Standard Sales Price

£100

Calculation of Variable costs

Total Costs Per Course Sale	£0.00

Fixed costs

Domain Name	£12.00
Dedicated Server	£722.40
Overheads	£2,400.00
Marketing and Advertising	£2,400.00
Wages	£12,804.00

Number of units	Variable costs	Fixed costs	Total costs	Sales
0	£0	£18,338	£18,338	£0
20	£0	£18,338	£18,338	£2,000
40	£0	£18,338	£18,338	£4,000
60	£0	£18,338	£18,338	£6,000
80	£0	£18,338	£18,338	£8,000
100	£0	£18,338	£18,338	£10,000
120	£0	£18,338	£18,338	£12,000
140	£0	£18,338	£18,338	£14,000
160	£0	£18,338	£18,338	£16,000
180	£0	£18,338	£18,338	£18,000
200	£0	£18,338	£18,338	£20,000
220	£0	£18,338	£18,338	£22,000
240	£0	£18,338	£18,338	£24,000
260	£0	£18,338	£18,338	£26,000
280	£0	£18,338	£18,338	£28,000

Figure 84 – Break even point calculations

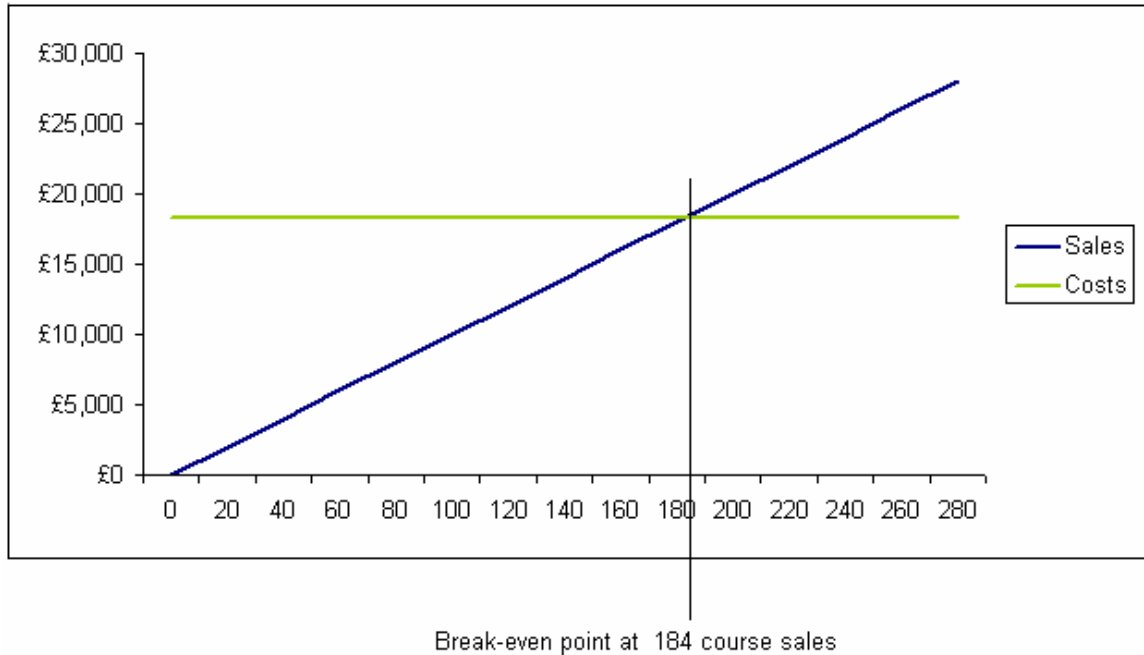


Figure 85 – Break-even analysis graph

The graph was plotted according to the calculations on figure 6.6, and shows that the break-even point is at making 184 course sales for a total of £18,400.

- Assume we are selling a course hosting for £100 per year, and do not offer any discounts.
- Assume that the variable costs do not exist, but only fixed costs.
- Assume that the fixed costs related to the product (the basic costs that are incurred in operating the business even if no product is produced) are £18,338.00.
- It assumes that fixed costs are constant.
- The firm would have to sell ($18338/100 = 183.38$) 184 courses to break even.
- Break-even analysis is only a supply side (*i.e.* costs only) analysis, as it tells you nothing about what sales are actually likely to be for the product at these various prices.
- We do not consider other revenue streams (commission and advertising) except the sale of hosting the courses.

6.11 Sensitivity analysis

Sensitivity analysis was carried out regarding the sale of hosting courses to instructors for the first three years. This analysis enables us to present a true picture of our potential for gain and loss, by comparing our Income Statement with worst/planned/best case scenarios. While the best case (120% of our planned sales) is what we hope for, the worst case (70% of our planned sales) is what we need to be prepared for; and in the meantime, the most likely case will be the basis for many of our business decisions (BizPlanBuilder, n.d.).

SENSITIVITY ANALYSIS			
YEAR 1			
	Pessimistic	Planned	Optimistic
Sales	70%	100%	120%
Courses	350	500	600
Income			
Courses	£35,000	£50,000	£60,000
Costs			
Fixed	£18,338	£18,338	£18,338
Variable	£0	£0	£0
Gross Profit	£16,662	£31,662	£41,662

Figure 86 – Sensitivity Analysis Year 1

SENSITIVITY ANALYSIS				
YEAR 2				
	Pessimistic	Planned	Optimistic	
Sales	70%	100%	120%	
Courses	700	1000	1200	
Income				
Courses	£70,000	£100,000	£120,000	
Costs				
Fixed	£18,338	£18,338	£18,338	
Variable	£0	£0	£0	
Gross Profit	£51,662	£81,662	£101,662	

Figure 87 – Sensitivity Analysis Year 2

SENSITIVITY ANALYSIS				
YEAR 3				
	Pessimistic	Planned	Optimistic	
Sales	70%	100%	120%	
Courses	1050	1500	1800	
Income				
Courses	£105,000	£150,000	£180,000	
Costs				
Fixed	£18,338	£18,338	£18,338	
Variable	£0	£0	£0	
Gross Profit	£86,662	£131,662	£161,662	

Figure 88 – Sensitivity Analysis Year 3

6.11 Critical Success Factors

These characteristics have a direct and serious impact on the effectiveness, efficiency and viability of the business:

- **Critical Mass:** achieving our aim of having more than 200 courses online within the first year in order to break even (financially).
- **Cash Flow:** cash flow is very important for the daily business functions.
- **Consumer and Customer Loyalty:** keeping existing customers and consumers is important, in order to achieve our business aims.
- **High Product Quality:** user friendly and effective platform that provides what the customers and consumers want.
- **Continuous Product Development:** continuously developing the web application by adding more features and functionalities according to customer requirements.
- **Low Product Cost:** keeping our costs low we can provide our services at low cost for our customers.
- **Customer Service and Feedback:** keeping customers satisfied by providing prompt feedback and quality services.
- **Targeting Market Segments:** the ability to target and reach segments of market.
- **Understanding Customers:** understanding of how and why customers buy our services and use the application.

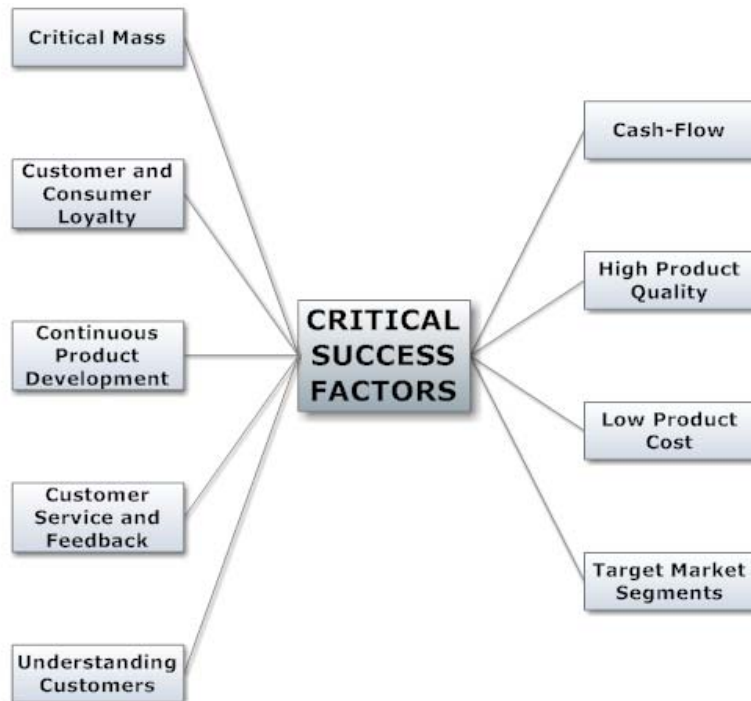


Figure 89 – Critical Success Factors

6.12 Summary

This chapter analysed the financials of the enterprise for the first three years of its operations. The financial assumptions and their impact were discussed, and the initial start up capital and identification of costs were explained in detail. The start-up costs, sales forecast, profit and loss, cash flow forecast, break even analysis together with sensitivity analysis were identified, calculated and taken in consideration by the management team.

Chapter 7

7. Conclusions

This chapter concludes the enterprise section of this dissertation. The chapter starts by giving brief conclusions of the concept, market viability, service development, commercialisation and financial analysis, followed by the decision of the management team regarding the enterprise.

7.1 Concept and Market Viability

By gathering and analysing information regarding the background of the project and developing a clear definition of the concept, we identified and justified the unique selling proposition of our services. Our primary research was composed of mixed methods, which included questionnaires. We do acknowledge that the questionnaires had flaws and with more time spent on designing the questionnaires we could have eliminated them. Important techniques and tools were used (PESTEL analysis, Porter's Five Forces, SWOT analysis) in order to understand the broad business environment (micro-environment and macro-environment analysis) and how this may impact the business venture. The market analysis proved that there are viable markets for our services and identified a market for the services and the key drivers and trends within that market. Key to the success of the enterprise is an understanding of potential customers and their needs, but also the identification of competition and market risks.

7.2 Service Development

The outcome of the services and web application to date were taken in consideration including key challenges and the implication of these for the commercialisation of the business. Further training and time is needed to be allocated in order to develop these services even further. The key features and innovations need to be accompanied by a better intellectual property strategy thus enabling us to keep the competitive advantage for more time.

7.3 Commercialisation and Financial Analysis

The marketing strategy and business model identified together with the key resources required for the operations will generate revenue streams and help the business grow. Special consideration needs to be given in achieving our targets and key milestones at the time allocated to them. Our efforts need to be concentrated on following our business plan, but meanwhile be open and acceptable to changes that will appear causing us to change our business processes and business plan accordingly. The business strategy adopted over the next three years may need to be adjusted to respond to these changing market conditions and business risks. The financial analysis showed that the enterprise is financially viable and can grow steadily within the next few years.

7.4 Decision

A viable market exists for our product and services, and the business is financially viable. The business plan, marketing and business strategy developed will provide a route to grow the business and therefore form a successful enterprise. The decision is to move forward according to plan and start trading on January 2011, with our product and services.

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APPENDIX A – YouTube Instructors Interview Questions

Recording Sheet

Welcome and introductions:

- Welcome the participant
- Introduce the interviewer
- Explain the reasons for the interview
- Explain the structure of the interview

Decision

No.	Question	Comments
1	How did you come over to teach on YouTube?	
2	What things motivated or discouraged you as you started?	
3	Were you pressured in making the decision?	

Communication Channels

No.	Question	Comments
4	How did you learn about it?	
5	Where did you get information about it?	
6	Did you attend any kind of training or information development sessions?	

Social Nature

No.	Question	Comments
7	Is there anything that helps instructors in adopting this method of teaching?	
8	Do you get any encouragement by anyone?	
9	Does anyone put pressure on you?	
10	Have you faced any changes in your classes as a result of this method of teaching?	

Change Agents

No.	Question	Comments
11	What is encouraging you to use the web for teaching?	
12	Has anyone helped you obtain the required skills and knowledge (formal or informal learning)?	
13	What can be done to encourage others?	
14	Are there any changes to the course preparation and delivery?	
15	Has your perception of the usage changed?	
16	What are the advantages and disadvantages?	
17	How do you think students feel?	
18	Are there any problems or opportunities for instructors?	

Teaching Full Courses Online

No.	Question	Comments
19	Are you interested in teaching full courses online on the web through an elearning platform and get paid by your learners?	
20	How much are you willing to pay for using such a platform per course, per year?	

Participant Questions?

Allow the participant to ask any questions

Interview wrap-up:

- Overview of the interview
- Thank the participant for the interview

APPENDIX B – YouTube Learners Interview Questions

Recording Sheet

Welcome and introductions:

- Welcome the participant
- Introduce the interviewer
- Explain the reasons for the interview
- Explain the structure of the interview

Usage

No.	Question	Comments
1	How did you find these video tutorials?	
2	Why were you looking for this kind of tutorials?	
3	How often do you use them?	

Advantages and Disadvantages

No.	Question	Comments
4	What are the benefits of using this kind of video tutorials?	
5	What are the drawbacks?	
6	How would you benefit more?	

Full Course Online

No.	Question	Comments
7	Will you be interested in participating in a full course online by an instructor such as this one using video tutorials?	
8	What kind of support would you like by the instructor?	
9	What features would you like?	
10	How much are you willing to pay for an online course (using this kind of video tutorials) per year?	

Participant Questions?

Allow the participant to ask any questions

Interview wrap-up:

- Overview of the interview
- Thank the participant for the interview

APPENDIX C – Martial Artists (no English) Interview Questions

Recording Sheet

Welcome and introductions:

- Welcome the participant
- Introduce the interviewer
- Explain the reasons for the interview
- Explain the structure of the interview

No.	Question	Comments
1	How useful do you find these kind of video tutorials?	
2	What are the most important factors that you would consider in learning from these kinds of video tutorials?	
3	How motivated are you in learning from such tutorials online?	
4	How often would you use them if you could?	
5	Would you pay for a course even if it is in a language you don't understand?	

Participant Questions?

Allow the participant to ask any questions

Interview wrap-up:

- Overview of the interview
- Thank the participant for the interview

APPENDIX D – Focus Group 1 Moderator Guide

Focus Group Moderator Guide

VI. INTRODUCTION

3. My name is Charalambos Constantinou and I am the moderator today.
4. The purpose of this discussion is to talk about eLearning through different Platforms and YouTube. I will be asking your opinions and your experiences.
5. I am a postgraduate student at the University of Manchester. I don't work for any particular company and I don't have anything to sell. I talk to people like you about product, services and ideas as part of my university degree study.

VII. GROUND RULES

9. This session will last about 2 hours.
10. This session is not audio or video taped and so I will be taking notes.
11. There are no wrong answers in this research. I am just looking for different points of view, and so I want to know what your opinions are.
12. Everyone needs to talk but each person doesn't have to answer each question.
13. Please talk one person at a time and avoid side conversations, since it is distracting to the group and I don't want to miss any of your comments.
14. You can exchange points of view with each other (you don't need to address all answers to me).
15. Please turn off all cell phones.
16. Does anyone have any questions before we begin?

VIII. BACKGROUND (5 minutes)

1. Please introduce yourself to the group. I'd like you to tell us something about yourselves, like your interests and hobbies.

IX. PREVIOUS EXPERIENCE – (15-20 minutes)

3. Why did you decide to use an eLearning platform (e.g. Blackboard) for learning?
4. How long have you been using them?
5. Do you have experience with similar products? Which ones?
6. What are the advantages of using it?
7. What are the disadvantages?

X. YOUTUBE EXPERIENCE (15-20 minutes)

11. Have you used YouTube before?
12. Have you used it to learn different things?
13. How knowledgeable do you consider yourself regarding this company? What types of products do they offer? Do they offer anything unique?
14. What is the image of this company? What reputation does it have? What are some of competitors? What image and reputation do they have?
15. How would you use YouTube?
16. What are the reasons for using it?

XI. MARTIAL ARTS VIDEO TUTORIALS – before video tutorials are shown (5-10 minutes)

1. Have you ever practiced martial arts in the past?
2. Do you think you will be able to learn martial arts from video tutorials?
3. Do you think you will be able to learn the techniques that will be shown to you?

XII. MARTIAL ARTS VIDEO TUTORIALS – after video tutorials are shown (30-40 minutes)

1. You can now view the first video.
2. What do you think (general thoughts)?
3. You can now practice the technique, two people at a time.
4. You can now watch the second video.
5. What do you think (general thoughts)?
6. You can now practice the technique, two people at a time.
7. What do you think about learning martial arts through video tutorials online?
8. How useful do you find video tutorials like these ones for learning?
9. What do you believe to be important factors that affect your ability to learn from such video tutorials?
10. How do you think value can be added to these videos for your benefits?
11. Which factors influenced or will influence your decision to learn online?
12. What could the instructors do to make you loyal to their teachings?
13. Is there anything that would encourage you to participate in other courses from the same instructor?
14. Would you participate and pay for an online full course by instructors teaching in this way as shown in the videos? If yes, then how much would you pay per year for a course?

XIII. COMMUNICATION (5-10 minutes)

1. Where would you like to get information about these kinds of courses?
2. What is the best way for someone providing these courses to communicate with you?

IX. ADVERTISING (5-10 minutes)

1. What would make an ad memorable and credible?

X. CLOSE

Thank you for your comments and your time. This has been a valuable session. Focus groups are one technique that assists researchers in their research. Thank you again!

APPENDIX E – Focus Group 2 Moderator Guide

Focus Group Moderator Guide

XIV. INTRODUCTION

6. My name is Charalambos Constantinou and I am the moderator today.
7. The purpose of this discussion is to talk about your experience of using YouTube for learning and how it has affected you. I will be asking your opinions and your experiences.

XV. GROUND RULES

17. This session will last about 40 minutes.
18. This session is not audio or video taped and so I will be taking notes.
19. There are no wrong answers in this research. I am just looking for different points of view, and so I want to know what your opinions are.
20. Everyone needs to talk but each person doesn't have to answer each question.
21. Please talk one person at a time and avoid side conversations, since it is distracting to the group and I don't want to miss any of your comments.
22. You can exchange points of view with each other (you don't need to address all answers to me).
23. Please turn off all cell phones.
24. Does anyone have any questions before we begin?

XVI. PREVIOUS EXPERIENCE – (15-20 minutes)

8. Can you please practice the two techniques you have learned? (two people at a time please)
9. What are your thoughts? (general thoughts)

XVII. YOUTUBE EXPERIENCE (15-20 minutes)

17. Have you used YouTube after the previous session?
18. Have you used any YouTube video tutorials on your free time for learning purposes? If so, for what reasons and what subjects?
19. What is your impression about teaching and learning online?

XVIII. CLOSE

Thank you for your comments and your time. This has been a valuable session.

APPENDIX F – Cash Flow Forecast 2011

Predictive Cash Flow: for the financial year 1st January to 31 December 2011												
2011 Sales Figures	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep	Oct	Nov	Dec
	10	20	30	40	50	50	50	50	50	50	50	50
TOTAL SALES:	500	Courses										
Predictive cash flow for financial year ending 31st December 2011												
Receipts, £	Jan-11	Feb-11	Mar-11	Apr-11	May-11	Jun-11	Jul-11	Aug-11	Sep-11	Oct-11	Nov-11	Dec-11
Sales	£1,000	£2,000	£3,000	£4,000	£5,000	£5,000	£5,000	£5,000	£5,000	£5,000	£5,000	£5,000
Commission	£200	£400	£600	£800	£1,000	£1,000	£1,000	£1,000	£1,000	£1,000	£1,000	£1,000
Advertising	£2,000	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0
Total Cash In	£3,200	£2,400	£3,600	£4,800	£6,000	£6,000	£6,000	£6,000	£6,000	£6,000	£6,000	£6,000
Payments, £												
Total Variable Costs	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0
Legal	£500	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0
Rent	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0
Telephone	£50	£50	£50	£50	£50	£50	£50	£50	£50	£50	£50	£50
Advertising	£200	£200	£200	£200	£200	£200	£200	£200	£200	£200	£200	£200
Overheads	£100	£100	£100	£100	£100	£100	£100	£100	£100	£100	£100	£100
Gas	£0	£0	£75	£0	£0	£75	£0	£0	£75	£0	£0	£75
Domain Name	£12	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0
Server	£60	£60	£60	£60	£60	£60	£60	£60	£60	£60	£60	£60
Electricity	£0	£0	£75	£0	£0	£75	£0	£0	£75	£0	£0	£75
Wages	£1,067	£1,067	£1,067	£1,067	£1,067	£1,067	£1,067	£1,067	£1,067	£1,067	£1,067	£1,067
Corporation Tax								£499				
VAT	£560	£420	£630	£840	£1,050	£1,050	£1,050	£1,050	£1,050	£1,050	£1,050	£1,050
Total Cash Out	£2,549	£1,897	£2,257	£2,317	£2,527	£2,677	£2,527	£3,027	£2,677	£2,527	£2,527	£2,677
Cash Flows, £												
Opening Balance	£20,000	£20,651	£21,154	£22,496	£24,979	£28,452	£31,775	£35,248	£38,221	£41,544	£45,017	£48,489
Net Cash Flow	£651	£503	£1,343	£2,483	£3,473	£3,323	£3,473	£2,973	£3,323	£3,473	£3,473	£3,323
Closing Balance	£20,651	£21,154	£22,496	£24,979	£28,452	£31,775	£35,248	£38,221	£41,544	£45,017	£48,489	£51,812

APPENDIX G – Cash Flow Forecast 2012

Predictive Cash Flow: for the financial year 1st January to 31 December 2012

	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep	Oct	Nov	Dec
2012 Sales Figures	55	65	70	90	90	90	90	90	90	90	90	90

TOTAL SALES: 1000 Courses

Predictive cash flow for financial year ending 31st December 2011

Receipts, £	Jan-12	Feb-12	Mar-12	Apr-12	May-12	Jun-12	Jul-12	Aug-12	Sep-12	Oct-12	Nov-12	Dec-12
Sales	£5,500	£6,500	£7,000	£9,000	£9,000	£9,000	£9,000	£9,000	£9,000	£9,000	£9,000	£9,000
Commission	£1,100	£1,300	£1,400	£1,800	£1,800	£1,800	£1,800	£1,800	£1,800	£1,800	£1,800	£1,800
Advertising	£2,000	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0
Total Cash In	£8,600	£7,800	£8,400	£10,800	£10,800	£10,800	£10,800	£10,800	£10,800	£10,800	£10,800	£10,800

Payments, £

Total Variable Costs	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0
Legal	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0
Rent	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0
Telephone	£50	£50	£50	£50	£50	£50	£50	£50	£50	£50	£50	£50
Advertising	£200	£200	£200	£200	£200	£200	£200	£200	£200	£200	£200	£200
Overheads	£100	£100	£100	£100	£100	£100	£100	£100	£100	£100	£100	£100
Gas	£0	£0	£75	£0	£0	£75	£0	£0	£75	£0	£0	£75
Domain Name	£12	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0
Server	£60	£60	£60	£60	£60	£60	£60	£60	£60	£60	£60	£60
Electricity	£0	£0	£75	£0	£0	£75	£0	£0	£75	£0	£0	£75
Wages	£1,067	£1,067	£1,067	£1,067	£1,067	£1,067	£1,067	£1,067	£1,067	£1,067	£1,067	£1,067
Corporation Tax								£9,037				
VAT	£1,505	£1,365	£1,470	£1,890	£1,890	£1,890	£1,890	£1,890	£1,890	£1,890	£1,890	£1,890
Total Cash Out	£2,994	£2,842	£3,097	£3,367	£3,367	£3,517	£3,367	£12,404	£3,517	£3,367	£3,367	£3,517

Cash Flows, £

Opening Balance	£42,761	£48,367	£53,325	£58,627	£66,060	£73,493	£80,776	£88,209	£86,605	£93,887	£101,320	£108,753
Net Cash Flow	£5,606	£4,958	£5,303	£7,433	£7,433	£7,283	£7,433	£-1,604	£7,283	£7,433	£7,433	£7,283
Closing Balance	£48,367	£53,325	£58,627	£66,060	£73,493	£80,776	£88,209	£86,605	£93,887	£101,320	£108,753	£116,036

APPENDIX H – Cash Flow Forecast 2013

Predictive Cash Flow: for the financial year 1st January to 31 December 2013												
2013 Sales Figures	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep	Oct	Nov	Dec
	100	110	120	130	130	130	130	130	130	130	130	130
TOTAL SALES:	1500	Courses										
Predictive cash flow for financial year ending 31st December 2011												
Receipts, £	Jan-13	Feb-13	Mar-13	Apr-13	May-13	Jun-13	Jul-13	Aug-13	Sep-13	Oct-13	Nov-13	Dec-13
Sales	£10,000	£11,000	£12,000	£13,000	£13,000	£13,000	£13,000	£13,000	£13,000	£13,000	£13,000	£13,000
Commission	£2,000	£2,200	£2,400	£2,600	£2,600	£2,600	£2,600	£2,600	£2,600	£2,600	£2,600	£2,600
Advertising	£2,000	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0
Total Cash In	£14,000	£13,200	£14,400	£15,600	£15,600	£15,600	£15,600	£15,600	£15,600	£15,600	£15,600	£15,600
Payments, £												
Total Variable Costs	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0
Legal	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0
Rent	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0
Telephone	£50	£50	£50	£50	£50	£50	£50	£50	£50	£50	£50	£50
Advertising	£200	£200	£200	£200	£200	£200	£200	£200	£200	£200	£200	£200
Overheads	£100	£100	£100	£100	£100	£100	£100	£100	£100	£100	£100	£100
Gas	£0	£0	£75	£0	£0	£75	£0	£0	£75	£0	£0	£75
Domain Name	£12	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0
Server	£60	£60	£60	£60	£60	£60	£60	£60	£60	£60	£60	£60
Electricity	£0	£0	£75	£0	£0	£75	£0	£0	£75	£0	£0	£75
Wages	£1,067	£1,067	£1,067	£1,067	£1,067	£1,067	£1,067	£1,067	£1,067	£1,067	£1,067	£1,067
Corporation Tax								£17,397				
VAT	£2,450	£2,310	£2,520	£2,730	£2,730	£2,730	£2,730	£2,730	£2,730	£2,730	£2,730	£2,730
Total Cash Out	£3,939	£3,787	£4,147	£4,207	£4,207	£4,357	£4,207	£21,605	£4,357	£4,207	£4,207	£4,357
Cash Flows, £												
Opening Balance	£115,552	£125,613	£135,026	£145,278	£156,671	£168,064	£179,307	£190,700	£184,695	£195,938	£207,331	£218,723
Net Cash Flow	£10,061	£9,413	£10,253	£11,393	£11,393	£11,243	£11,393	£-6,005	£11,243	£11,393	£11,393	£11,243
Closing Balance	£125,613	£135,026	£145,278	£156,671	£168,064	£179,307	£190,700	£184,695	£195,938	£207,331	£218,723	£229,966