

National Readiness for E-learning

- a comparative study of Thailand and Sweden

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Abstract

In this thesis a comparative study of Sweden and Thailand was conducted in order to find out why Sweden is top-ranked and Thailand low-ranked on an e-learning readiness scale. More specifically, I was focusing on the net universities in Sweden and in Thailand. The net universities and the countries were contrasted in order to find out, not only if the differences or similarities had any influence of the e-learning readiness rankings, but also to see what could be done to make Thailand more successful in e-learning.

The purpose of the study was to find out how a country best succeed with net universities and e-learning on a national level. The thesis is a qualitative study with interviews and documents used as the primary methods. Based on a previous study, a framework consisting of six components of an e-learning strategy was created and used throughout the study. The components included in the framework are: connectivity, capability, content, culture, technology advances and cluster. The thesis and the framework will hopefully be applicable and useful in other countries that wish to improve e-learning on a national level.

The results of the study show that Thailand and the Thai net university need to make efforts to improve some of the e-learning components in order to become successful in e-learning and become higher ranked in the e-learning readiness scale. Since a high level of quality must be ensured within every component in order to succeed, it is necessary to consider all six components when developing an e-learning strategy.

Keywords

e-learning, e-learning readiness, Thailand, Sweden, net university

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1 Introduction

This chapter describes the basis of the thesis and gives an overview of what the thesis aims to study. A description of the background, the research questions, the purposes, as well as the scope of the study and the outline of the thesis, is presented in this chapter.

1.1 Background

Over the last few years Information and Communication Technology (ICT) has come to play a major role for organisations working for poverty reduction. Since the development of Information Technology (IT) is of different levels in different countries, there is a risk that IT strengthens the developed countries while the developing countries become weaker. It is therefore of great importance that also the poor countries will receive the benefits of ICT and avoid falling even further behind in the global development. Great efforts need to be made to bridge the digital divide, both within and between countries, since the ICT is becoming more and more important in the social and economical development (SIDA, 2003).

One way for IT to support developing countries is by improving the education. There is a great difference between the number of people that has access to higher education in developing countries compared to developed countries. Higher education is essential for closing the gap between the industrial and the third world (Daniel, 2005b). E-learning is a way to close this gap. E-learning refers to the use of Internet technologies to provide education with advantages such as low costs and high flexibility, including accessibility any time and any where (Rosenberg, 2001). ICT has also created new opportunities for universities. Studying at a net university is a way of using e-learning, taking advantages of the technological benefits, transforming and hopefully improving the education. E-learning in schools is used to reach a broader segment of the population and to meet the needs of non-traditional students (EIU, 2003).

However, the success of e-learning differs in different countries. According to an e-learning readiness scale made by the Economist Intelligence Unit (EIU) Sweden is ranked as the top leader among 60 countries. This can be set in contrast to Thailand, which is ranked at 36th place in the same scale (ibid.) A combination of different factors influences the success of e-learning in a country and all of these factors have to be considered in order to improve the success. A relevant question to consider is why Sweden is placed in the top of the e-learning readiness ranking while Thailand is placed at 36th.

1.2 Problem area

In this thesis I study the reasons why Sweden is being high-ranked and Thailand low-ranked in the e-learning readiness scale. More specifically I focus on net universities in Sweden and Thailand and compare them in order to find out, not only if the differences or similarities have any influence of the e-learning readiness rankings, but also to see what could be done to make Thailand more successful in e-learning. A recommendation of the future development of the Thai net university, called Thailand Cyber University (TCU), in accordance with current trends and theories within the field of e-learning is also articulated.

The intended target group of the thesis is primarily students and teachers at the Department of Informatics at Lund University. In addition to this I hope my findings will be of interest to institutions and universities in Thailand working with e-learning.

1.3 Purpose of the thesis

By writing this thesis I intend to provide a study that investigates what is needed for a country to improve the success of net universities and e-learning.

I hope to gain knowledge in the field of e-learning that are useful for my own and others' understanding of the area. The study will hopefully be useful, not only for Thailand in order to improve their e-learning readiness ranking and in the development of the net university, but also in other developing or developed countries, that wish to improve e-learning.

1.4 Research questions

By conducting this study I intend to find answer to the following question: *What is needed for a country to improve the success of net universities and e-learning?* In order to reach an answer for this I aim to use the following questions:

- Why is Thailand low-ranked and Sweden high-ranked in the e-learning readiness ranking?
- What is needed for Thailand to get a higher ranking?
- What are the differences and similarities between the Swedish Net University and Thailand Cyber University?
- How will Thailand Cyber University develop in the future and what impact will it have on the e-learning readiness of Thailand?

- How should Thailand Cyber University develop in the future in order to succeed?

1.5 Scope

In this thesis I have chosen to focus on two specific countries, Sweden and Thailand, in order to contrast them. Although it would have been interesting to study and compare other countries in the e-learning readiness ranking this have been excluded in this thesis. I have chosen to study Thailand since my intention was to study a developing country with a relatively low ranking in the e-learning readiness scale. Since e-learning has become an important factor in order to improve the education level in Thailand, I found the country interesting to study. As a Thai exchange student made research within the field of e-learning at the Department of Informatics I also had the benefit to obtain information and contacts in Thailand. I have chosen to study the field of e-learning from an overall perspective, studying several aspects as opposed to focusing on any specific aspect. Since successful e-learning depends on several factors I would not be able to answer my research questions or reach my purpose with a deep focus on only one aspect.

1.6 Thesis outline

Chapter 1 – Introduction

In this introductory chapter the background of the thesis is described together with the research questions, aim and purposes and the scope of the thesis.

Chapter 2 – Research methods

In this chapter the research methods used in the study are described followed by an explanation of why they are suitable in this thesis. I also provide details about the planning, preparing and conducting of the study. In the end of the chapter critique of the methods, as well as ethical aspects, are discussed.

Chapter 3 – E-learning

This theory chapter starts with a short history and an introduction to e-learning. E-learning is then described in the context of the knowledge-based society which is followed by a presentation of the e-learning readiness study. The theoretical framework that I have composed is then presented. This framework consists of six components that are used throughout the thesis.

Chapter 4 – Thailand

This chapter consists of the empirical data that have been collected about Thailand. The chapter starts with general information about Thailand in order to give the reader a brief introduction to the country. Information relating to the country as well as to Thailand Cyber University are then presented within the theoretical framework.

Chapter 5 – Sweden

This chapter has the same structure as the previous one. It starts with general information about Sweden, followed by information related to the country and the Swedish net university within the frame of the earlier presented components.

Chapter 6 – Comparison

In this chapter Thailand and Sweden are contrasted. This starts with a comparison of general information about the countries followed by comparisons of information within the strategy framework. The chapter ends with a summary of the comparison in order to get a quick overview of the contrasts between the countries.

Chapter 7 – Discussion

In this chapter I discuss the comparison presented in chapter 6.

Chapter 8 – Conclusions

In this final chapter the conclusions of the discussion are presented. Recommendations for the future development of Thailand Cyber University are provided after the conclusions. This is also where I summarise the answers of my research questions. Finally I give reflections and comments on the work of the thesis as well as suggestions for further research.

As several abbreviations and concepts are used throughout the thesis, a list of these is presented in the appendices in order to facilitate for the reader.

2 Research methods

This chapter describes the process and the choices of the research method. An explanation of the method is followed by a description of how the work has been planned, conducted and analysed. As a final point critique of the methods and ethical aspects are discussed.

2.1 Research method

When planning a study the purpose must be well established as this will affect the method that is used. There are several different types of studies that in most cases differ by the amount of information that is available within a specific area. Studies that lack certain information and aim to gain as much knowledge as possible within a problem area are called *explorative studies*. These types of studies try to illustrate broad problem areas and are often used as a base for further studies (Patel & Davidson, 1994). As I intend to find information about e-learning and net universities in Thailand and Sweden, this study is focusing on information gathering rather than to discover peoples' values or opinions. The purpose of the study is therefore most in line with explorative ones.

There are two methods that often are used in research; *induction* and *deduction*. The inductive method starts with data collection in order to look close at a phenomenon and is followed by more general and theoretical conclusions. There is an ambition to collect data without preconceptions in inductive work. This has however been criticized since the selection of phenomenon involves a theoretic standpoint. As opposed to induction, deductive work starts off with a theory, which is later proved empirically. The theory has an important role in deduction since it is from this the study is derived from (Wallén, 1996).

I have chosen to use a deductive method for my study. I started by examining what was written about the field of e-learning and e-learning readiness and continued to develop a theoretical framework which I used throughout the thesis. The framework was then applied to each country and its net university. This can be seen as a deductive process since the existing theories were used as a foundation for the empirical study.

2.1.1 Qualitative study

There are two different traditional approaches that can be taken in scientific research; a *qualitative* and a *quantitative* approach. Methods associated with a qualitative approach have the ambition to gain a deeper understanding of the studied objects. The aim in qualitative studies is to give a vivid and detailed view of the social reality. The qualitative researcher tries to express events, actions, norms and values from the perspective of the

studied objects in order to create a thorough understanding of their experience. The information that is collected in a qualitative study is often described as more thorough than information in a quantitative study. In quantitative studies there is generally more focus on collecting data from a large number of people in order to generalise it on a larger population. The quantitative approach is often associated with studies within the area of natural science. In the qualitative approach there is a strong connection with the context since there is an attempt to understand objects in its circumstances. The overall view is emphasised within qualitative research when social entities are to be explained and understood in its totality (Bryman, 1997). By conducting this thesis I intended to get a deep understanding of the objects I studied. My intention was to focus on a few objects rather than trying to generalise a great amount of data in a larger field. The research questions and the purposes of the study are more in line with the qualitative approach.

2.1.2 Case study

What strategy to choose in a study is based upon the type of research question, the degree of control the investigator has over behavioural events and whether the study is contemporary or historical (Yin, 2003). Yin (2003) proposes five main strategies to choose among in a study; experiments, surveys, archival analyses, histories and case studies. Since each strategy means different advantages and disadvantages it is important to be aware of the differences between them in order to choose the most suitable. A case study is preferred when the study is intended to answer questions like *how* and *why*, when the investigator has little or no control of the events and when the study is contemporary (ibid.). In this thesis I will primarily focus on how and why questions in an explorative manner, which is in line with case study conditions. The study focuses on a contemporary context where I as an investigator intend to have no control over behaviours during the data collection. According to Yin's (2003) arguments a case study is preferable for this study.

2.2 Data collection

There are several ways to collect data in order to answer research questions. A combination of several different techniques is often used to collect information for explorative studies (Patel & Davidson, 1994). I have chosen the techniques that in the best way answer my research question. The information that has been used in this study is collected from documents and interviews. The data collection has been structured by a framework of six different components included in an e-learning strategy (see section 3.5).

2.2.1 Documentation

The choice of documents should be done in order to gain a comprehensive picture of the problem. By using several sources to describe the same issue the problem is studied in more than one perspective. Documents can be used in order to answer questions about actual facts or real events, as well as answering questions about people's experiences. In both cases it is essential to ensure that the presented facts are reliable. To ensure the

reliability of the facts there are a few relevant questions to consider. When and where the documents were published as well as why and in what purpose the creator had, are relevant questions in the critique of data. Who the creator is, what relation he had to the event, his background and possible influences are also to be considered. In order to create a reliable picture of the problem the information that is collected must not only support the researchers own ideas and opinions, but also present information that contradicts the results (Patel & Davidson, 1994). In accordance to Patel & Davidson (1994) I have collected information from many different sources in order to gain different views of the problem. Before using the sources I have studied the documents and the writers in order to prevent non reliable facts. Some of my sources have been more used than others. Reports from the Economist Intelligence Unit have been widely used to gain information about e-learning readiness. Much of the information about the net universities is collected from the web pages of TCU, the Swedish Net University and the Swedish Agency for Networks and Cooperation in Higher Education. Other central sources are the Commonwealth of Learning and UNESCO, who have given information about e-learning from a developing country's perspective. Since e-learning is a reasonably contemporary issue I have tried to gain as much information as possible from updated Internet web pages.

2.2.2 Interviews

Interviews create more detailed information from fewer people (Kvale, 1997). In this study I have chosen to conduct three interviews via telephone and one interview via e-mail.

The degree of structure can vary depending on the purpose of the data collection. An unstructured interview has open questions, which means that the format and the content of the questions are undetermined. Structured interviews contain determined questions which require specified answers. Semi-structured interviews can be seen as a combination of unstructured and structured interviews. In this type of interviews there are basic guidelines to follow (Andersson, 1994). Explorative interviews are open and not very structured. New information with new perspectives about questions, areas or problems is often searched for in explorative interviews (Kvale, 1997).

I have chosen to use semi-structured interviews for the telephone interviews in this study. With semi-structured interviews I have the possibility to gain information about the topics I am interested in without being constrained by the questions. In this way I can follow up topics that I am more interested in and form the interview as I prefer it. The respondents have the possibility to explain the central factors in the topics in their opinion and they are allowed to talk freely during the interview. I gave the respondents this possibility but ensured that the topics were followed. In that way I ensured that I received the information I searched for without controlling the respondents during the entire interview.

One of the interviews was conducted via e-mail. In an e-mail I presented my self and my study, the purpose of the interview followed by the interview questions that was adapted

to the respondent. The respondent then wrote down the answers in a document and sent it to me via e-mail.

In quantitative research random selections are most frequently used. The selection of respondents in a qualitative study is often more intentionally done (Bryman, 1997). In the planning process of the interviews selections have to be made not only among people but also among environments, events and social processes. One way to conduct the selection is to choose persons, environments or objects that meet specific criteria (Miles & Huberman, 1994). When selecting respondents for my interviews I have considered the persons' professions and knowledge area. I have chosen to interview persons that in some way are involved and have knowledge of the net universities in Sweden and in Thailand. Table 1 shows an overview of the persons that have participated in the study.

Table 1 Interviews

Interview 1	Ann Sofie Fredriksson	Information Officer at the Swedish Agency for Networks and Cooperation in Higher Education. Ann Sofie Fredriksson works with the Agency's and Net University's marketing and information as well as with web publishing.
Interview 2	Jan Erik Lundquist	Chairman of the International Committee at the Swedish Agency for Networks and Cooperation in Higher Education Jan Erik Lundquist is associate professor, Linköping University and vice president of the European Association of Distance Teaching Universities.
Interview 3	Anonymous	Programmer at the Chulalongkorn University which is one of the collaborating universities in TCU.
Interview 4	Nenad Cuturic	Webmaster and in charge of IT at the Swedish Agency for Networks and Cooperation in Higher Education. He works with the technical side of the web portal, communication, and learning platforms.

2.2.3 Preparing the interviews

The interviewer needs to be well prepared and familiar with the case in point in order to conduct an interview with high quality. Awareness of what information to search for as well as knowledge within communication also increases the quality of the interview (Kvale, 1997). I prepared myself in order to gain knowledge within the field of e-learning by reading articles and study theories before the interviews were conducted. As far as possible I also tried to gain information about the respondents' environment that could be relevant for the interviews, such as professions or background information. This was also applicable in the preparation of the interview questions.

Before conducting the interviews I prepared interview guides. Interview guides for semi-structured interviews contain an overview of what areas that will be covered as well as suggestions of questions (ibid.). I used interview guides since it would help me focusing

on the research area and the information I searched for during the interviews. I constructed one interview guide for each interview as the respondents work in different areas. Since the respondents are qualified to answer different questions the interview guides were adjusted to each respondent.

2.2.4 Conducting the interviews

Due to geographic distances it has not been possible to perform face-to-face interviews in this study. Instead I conducted the interviews via telephone and one via e-mail. By not being able to observe the respondents' facial expressions there is a risk that states of mind or physical expressions can not be perceived (Kvale, 1997). However since the intention of my interviews was to gain information rather than explore the respondents' personal opinions, I consider the telephone and e-mail interviews suitable for the purpose.

During the telephone interviews I used a speaker phone in order to record the interviews, as well as taking notes manually. The manual note taking was used in case of technical malfunction as well as gaining a second view of the interview. The recording allowed me as an interviewer to focus more on the interview and to adjust the questioning after my interests and objectives. However recording can also involve disadvantages; there is a risk that the respondents feel uncomfortable when their words are recorded (ibid.). In order to prevent this I chose to inform the respondents about the interview techniques and then asked them for permission to use speaker phone and a recorder. All of the respondents gave their permission.

The ability to determine the degree of structure in an interview is important in order to decide what is the most appropriate in the current context. A too structured interview can close the possibility to find new knowledge, although a too unstructured interview can lead to a loss of focus. The interviewer must therefore estimate when to follow up a question and when to follow the interview guide (Kvale, 1997). I used the interview guide as support for my interviews rather than strictly following the questions. I tried to direct the interview with my interview questions without preventing them from talking freely.

2.3 Data handling

It is common that the researcher starts to search for patterns, flows or relationships already during the data collection. In this stage and during the whole data analysis it is important to keep an openness and scepticism towards the conclusions. Usually the final conclusions cannot be drawn until the data collection is finished (Miles & Huberman, 1994). Printing the data includes an interpretation done by the person performing the transcription. There is a risk that the recorded material is transcribed differently by different persons. Breaks, giggles and sighs can be perceived differently depending on the one that interprets the data (Kvale, 1997). As mentioned earlier I recorded my telephone interviews although it involves a lot of work afterwards. I printed the interviews in order to manage the collected data.

Before the transcription is started, rules of how to print the interview have to be cleared out. The transcriber must for example determine whether the statements will be printed literally, if the transcriber will conclude parts of the interview that will be of importance for the analysis and whether breaks, sighs or emotional expressions will be described (*ibid.*). I have chosen to exclude breaks, laughs, and similar emotional expressions in the transcription. However, I believe that this kind of details will not provide the interviews with more information contributing to the purpose of the interviews.

An analysis of the interviews can be easier to handle by using different methods. Using a data handling method facilitates the analysis with a type of tools that is relevant for interviews. One of these methods involves categorising the interviews into categories so that a large amount of text is reduced and structured (*ibid.*). I find this type of data analysis method suitable in this study for both the telephone interviews and the email interview. I have chosen to use the six different components in my framework (see section 3.5) as categories for the analysis. By using this method I have structured the interviews and connected it to each category. In this way further analysis is easier to conduct. After categorising all interviews, information about every component for each country was summarised. For every component I contrasted the countries, allowing me to discover similarities and differences between them (see chapter 6). This was followed by an analysis of why there were differences or similarities between the countries, which then were related to existing theories within the field of e-learning (see chapter 7). Empirical material within every component were related to e-learning theories within every component.

2.4 Critique of methods

As a researcher it is important to reflect on the quality of the study during the data collection and the data analysis (Miles & Huberman, 1994). The two most common ways to ensure the quality of a study is by reliability and validity. I have tried to ensure the quality of this study by continuously reflecting on these concepts.

2.4.1 Reliability

The reliability is an important aspect that needs to be considered in a study. If the study is repeated by the same methods but with another researcher and shows the same results the reliability in the study is high. There is always a risk that the individual knowledge basis and preconceived ideas of a researcher can affect the study and its results (Yin, 2003). People often search for a meaning in what we see, read, discover or experience. We organise and interpret the world using our earlier experiences, knowledge and preconceived ideas. In the research it is important to ensure that these interpretations are real as well as to ensure good quality (Gilovich, 1991). I have been aware of this risk during the study when I have suspected that this can affect the result. I have been aware of how my presence and the way I ask the questions in the interviews can influence the respondents' answers. Not only can I affect the respondents, the respondents and the

environment can have a great influence of me as a researcher, which I also have had in mind in order to prevent adjusting conclusions or theories to the current situation.

In order to ensure the reliability of the transcription it is recommended to let two persons independent of each other print the material and to note differences (Kvale, 1997). Since I conducted this study alone this has however not been possible in this study. Instead I used my manual note takings during the interview as a second view of the transcription. The transcription was also sent to the respondents in order to ensure that my interpretation of the interview was in line with the respondents. During the first interview only the manual note taking was used due to a failure of the recording. Contrary to the other interviews this interview was therefore summed up by my own words. However, since the respondent confirmed that the summary was in line with her statements, I consider this interview reliable.

In order to enhance the reliability in the study I have attached the transcription or summary of the interviews. This will give the reader the opportunity to create an opinion of their own about the respondents' statements and make their own interpretation (Yin, 2003). One of the respondents specifically expressed a wish of not attaching the transcription in the thesis, which I of course respected. The transcriptions are written in Swedish since the respondents have answered in Swedish. Since the primary target group are students and teachers at the Department of Informatics in Lund, the transcriptions have not been translated to English.

2.4.2 Validity

Validity means that a method studies what it intends to study (Miles & Huberman, 1994). A difficulty in qualitative interviews is to ensure that I as an interviewer have understood the respondents correctly. Preconceived ideas in combination with personal, political and cultural values can affect the interpretation of the interviews (Kvale, 1997). The approval from the respondents of the transcriptions is one way of preventing this as well as strengthening the validity of the interviews. This verifies that the printing of the interviews is in line with the respondents statements. It is also a way of controlling and, if needed, questioning the information, which strengthens the validity in interviews (Kvale, 1997). If the respondents consider the transcriptions not to be in line with their opinions a new collection of data is required, followed by a repetition of the controlling procedure (Yin, 2003).

A detailed description of the work flow allows the reader to follow every step in the study (ibid.). Since qualitative studies are dependent of context, perspective and participants I have tried to explain the studied environment and the way of working in order to allow the readers to build their own opinion as well as to repeat the study if this is desired.

2.5 Ethical aspects

As important as it is to ensure the quality of a study, the consideration of ethical aspects also must be taken into account. It is necessary to reflect on what actions are right and wrong and what in the study can have an influence on people. The researcher has the responsibility to consider ethical issues in the study in order to increase the awareness and decrease the risk of arising ethical dilemmas. Before the study starts researchers should consider if their knowledge within the field is enough in order to conduct a study. Ethical aspects should be considered before, during and after the study (Kvale, 1997).

It is recommended to question the respondents' advantages and disadvantages when they participate in the study (Miles & Huberman, 1994). The participation in this study means investment in time and energy for the respondents. The interviews can allow the respondents to consider the subject and the questions and in some cases express their opinions. My hope is that this study will be useful for the respondents. I also hope that it can be usable also for people working with e-learning outside Sweden and Thailand. My hope is therefore that the respondents' participating and investment in time in the study will bring about advantages.

Before the interviews start off an approval of participation should be finished (Miles & Huberman, 1994). I described my study, my purpose and my way of working for the respondents. I also described how the interview would be conducted and gave an overview of what topics that would be discussed. I asked the respondents for approval of using their names in the study. One of the respondents did not want me to use the respondent's name in the thesis, which I of course respected.

There are no clear guidelines to ensure ethical quality in a study. Ethical aspects are more about considering the respondents involvement and to reflect on the effect the created knowledge can have on the society (Kvale, 1997). By reflecting on ethical dilemmas and discussing the different aspects within the field of ethics in research the ethical quality of the study can be strengthened and thereby also contribute to the overall quality of the study.

3 E-learning

In this chapter I aim to give an introduction to e-learning. Concepts within the field of e-learning are defined, followed by a description of possible effects. The e-learning readiness study is described as well as a clarification of e-learning in the context of a knowledge-based society. In the end components of an e-learning strategy are described. These are used as a framework throughout the thesis.

3.1 Definition of e-learning

There are several terms to describe the use of technology for learning and the terms tend to change rapidly. Below I explain a short history of e-learning in order to clarify some of the terms that have been used within the field of technology for learning.

As more and more personal computers were deployed in offices and homes in the seventies and eighties, the use of *computer-based training* (CBT) increased (Rosenberg, 2001). With CBT it is possible to learn by utilising special training programs on a computer, often equipped with CD-ROMs, which makes the education more viable (Webopedia). CBT has the benefits of interactivity, which was missing in the previous period of educational television in the fifties and sixties. Although the benefits were apparent in the early days of the CBT, several imperfections soon were discovered. CBT programs were often limited by poor graphics, slow computer speeds and small hard drives, which led to dull programs composed by text based screens. CBT neither met the needs of changing technology nor the new approaches to learning where great advances were made in order to understand how people learn (Rosenberg, 2001). This gave rise to *web-based training*, which refers to the use of Internet or Intranet in order to provide training or instruction using a Web browser. For instance web-based training includes audio and video, portals of information and interactive methods such as chat rooms and instant messaging (Webopedia). This is similar to *online learning* which refers to education in a distance education mode and only occurs through the web. In this type of learning there is no face to face contact or any physical learning materials (Nichols, 2003).

According to Rosenberg (2001) e-learning has greater possibilities than the concepts described above. Based upon three criteria he describes e-learning as follows:

- 1) Firstly, e-learning is connected to a network, making it possible to update, store, distribute and share instructions and information instantly. This excludes instructional CD-ROMs that lack the possibility of immediate update and deliver immediately.

- 2) Secondly, e-learning is delivered to the user via a computer that uses standard Internet technology.
- 3) And finally, e-learning focuses on a broad view of learning which differs from the traditional views of education. It goes beyond the terms CBT and web-based training as well as distance learning since it includes more than what these concepts consist of (Rosenberg, 2001).

In *distance learning* learners are separated from trainers and teachers mostly by time and space. Technology or media are used to make communication possible. Closely related to the term distance learning is *open learning*. *Open learning* has the ambition to describe learning with as few barriers as possible. Open learning is directed to whole populations regardless of gender, age, background or other possible barriers in the public surroundings. Students living in remote areas using distance learning are in a way also using open learning since the education is open for the students in the way it has not been before. Although separated in terms, open learning and distance learning are closely linked, which makes it hard to discuss one term without the other (Daniel, 2005a).

I will be using the term e-learning in this thesis. The definition below is used in the e-learning readiness study and also the definition that is most in line with my perception of e-learning:

“E-learning is defined as formal and informal education and information-sharing that uses digital technology” (EIU, 2003).

3.2 Possible effects

ICT is an essential factor in the improvement of the national performance and wealth of a country. In today's rapid change of technologies it is important to follow the development in the IT sector (Al-Rawas, 2001). E-learning has advantages such as: low costs, consistent or customized content depending on need, and more up to date and dependable content. E-learning can be delivered anytime and anywhere; it supports universal internet protocols and browsers and it can build communities by the sharing of knowledge. It can be used in small or very large scales, and it provides an increasingly valuable customer service (Rosenberg, 2001). Digital material is cheaper to copy, distribute, adapt and share than other formats. E-learning can provide interactive components of learning, which are important to the success of many students. The quality of interaction often has great influence on the overall quality of a university (Daniel, 2005b). In developing countries literate workforces, functional infrastructures and investments in human capital are not as apparent as in developed countries. E-learning in the developing world is faced by challenges obtaining basic literacy, functional local, regional and national infrastructure, technological leadership and social, linguistic and cultural factors (Al-Rawas, 2001).

3.3 E-learning readiness

The Economist Intelligence Unit is a research and advisory firm that provide analysis in political, economic and business in different countries around the world. The Economist Intelligence Unit has published a report of e-learning readiness ranking of 60 countries. In this context e-learning refers to formal and informal education and information-sharing that uses digital technology. The e-learning readiness specifies a country's ability to produce, use and expand e-learning at work, at school, in the government and in the society at large in order to improve the country's economic activity.

The study has 150 criteria, categorised into four groups: government, industry, education and society, which in turn are organised into four areas, the four Cs: *connectivity*, *capability*, *content* and *culture*.

1. *Connectivity* refers to the infrastructure, including broadband connectivity, mobile-phone usage, and PC usage. When the quality and the extent of the infrastructure are high and Internet is available in rural areas among poor people and used throughout the society, the connectivity is fulfilled.

2. Whereas the connectivity is essential for a country to become successful in e-learning the *capability* is necessary. Capability is measured by how well a country delivers and consumes e-learning based upon traditions of learning, literacy rates and educational trends. Successful e-learning countries have a strong education system, support for lifelong learning, a high rate of literacy as well as a broad tradition of learning.

3. The *content* indicates the quality and commonness of online learning materials, such as library materials, newspapers, corporate information and government databases. It is crucial that this material is published in the country's native language, making informal learning possible and strengthening e-learning programs at schools or companies. By keeping a low censorship and encouraging schools and libraries to increase funds for online learning material the government can support the content of the country.

4. The last area, which in combination with the other factors is necessary to succeed in e-learning, is *culture*. Culture is about a country's beliefs and behaviours of e-learning. A country that respects the teaching profession, welcomes Internet improvements, values learning high and has a public acceptance of online learning has a good chance of succeeding in e-learning.

The e-learning readiness study of 2003 ranked Sweden as number one while Thailand was positioned at 36th place. Good IT infrastructure, people's willingness to integrate the Internet into their daily lives, and a first-rate education system are the reasons why Sweden was placed number one. The Swedish government has provided online government services, at both national and local levels, which, according to the Economist Intelligence Unit, has helped Sweden to become the front-runner in the ranking (EIU, 2003).

	Score (of 10)	Rank (of 60)		Score (of 10)	Rank (of 60)
Sweden	8.42	1	Mexico	5.96	31
Canada	8.40	2	Argentina	5.86	32
US	8.37	3	Poland	5.73	33
Finland	8.25	4	Brazil	5.63	34
South Korea	8.24	5	Slovakia	5.51	35
Singapore	8.00	6	Thailand	5.11	36
Denmark	7.98	7	Peru	5.10	37
UK	7.93	8	Colombia	5.05	38
Norway	7.91	9	Bulgaria	5.04	39
Switzerland	7.72	10	South Africa	4.96	40
Australia	7.71	11	Romania	4.91	41
Ireland	7.60	12	Venezuela	4.82	42
Netherlands	7.59	13	Philippines	4.80	43
France	7.51	14	Russia	4.65	44
Austria	7.49	15	India	4.56	45
Taiwan	7.47	16	China	4.52	46
Germany	7.45	17	Saudi Arabia	4.50	47
New Zealand	7.37	18	Ukraine	4.38	48 (tie)
Hong Kong	7.34	19	Ecuador	4.38	48 (tie)
Belgium	7.19	20	Turkey	4.33	50
Italy	7.07	21	Egypt	3.98	51
Spain	6.98	22	Kazakhstan	3.79	52
Japan	6.53	23	Indonesia	3.67	53 (tie)
Greece	6.52	24	Azerbaijan	3.67	53 (tie)
Malaysia	6.48	25	Sri Lanka	3.66	55
Israel	6.34	26	Algeria	3.52	56
Portugal	6.33	27	Vietnam	3.32	57
Chile	6.13	28	Pakistan	3.22	58
Czech Republic	6.11	29	Iran	3.06	59
Hungary	6.09	30	Nigeria	2.82	60

Figure 1: Economist Intelligence Unit e-learning readiness ranking, 2003 (EIU, 2003)

3.4 E-learning in the knowledge-based society

Knowledge has long been an important factor in economic growth. The term *knowledge-based society* refers to the role of knowledge and technology in economic growth and great efforts are made to understand the area. The importance of production, distribution and use of knowledge are continuously growing and countries are becoming more dependent on this as the knowledge becomes a part of the whole society. Education will play a central role in the knowledge-based economy (OECD, 1996). It is now common that education systems around the world have problems to meet the needs of knowledge-intensive societies. The globalisation and the growth of information with knowledge from many more sources than before create new needs for learning. As the conception of knowledge is changing we are moving towards a more activity-based, distributed, customised, adaptive and interactive paradigm. The social changes caused by globalisation, technology developments and the information explosion is also changing the view of the universities. The traditional views of the universities have to be reconsidered and the universities need to rethink their roles. ICT is giving new possibilities for universities both in how to run the business of higher education and in the methodologies of teaching and learning (Mason, 2003). There is an increasing demand of capabilities of selecting relevant and disregarding irrelevant information as well as recognizing patterns and interpreting and decoding information. Investments oriented towards skill development of gathering and utilising information are essential in order to remain and develop the efficiency of the market economies. Learning will be a factor that influences both individual and organisational advancements. The success of national economies as a whole is also greatly dependent on the effectiveness in gathering and utilising knowledge. In order to exchange knowledge as a driving force for innovation, interactions in a community of actors within industry, government and academia are essential. Participators from every area are important since every sector has its own knowledge and plays a specific role and the knowledge acquirement is necessary in all sectors (OECD, 1996). In the increasing participation in distance and virtual education, the private sector has been a driving force. Many companies view e-learning as a strategic necessity in today's knowledge economy recognizing the benefits of advancing the employees' careers without training-related travel expenses and decreasing employee productivity (Farrell, 2001).

Workers will be in need of formal education as well as the capability applying the knowledge as they increasingly will be paid for their knowledge skills rather than for their manual work. In the knowledge-based society, training and learning are becoming increasingly common in non-formal settings, allowing the learner to use the knowledge in practice where new kinds of knowledge are developed (OECD, 1996). Learning is taking part of everyday life. The so called *embedded learning* is a social and informal activity rather than a peripheral and formal one. The current architecture of learning environments has to be reconsidered in order to adapt it to new views of learning. Reflections, sharing of knowledge and feedback from others with innovative technologies, such as blogs, are required in the learning society and knowledge economy (Verstraete, 2006).

3.5 Components of an e-learning strategy

An e-learning strategy should comprise educational sectors at all levels, benefiting all members of society including individuals that are unable to access higher education because they live in remote areas, are disabled, sick or unable to travel (Al-Rawas, 2001). Since many parties are involved in e-learning, with many different views of what learning events are and what they can be, it is vital to develop a strategy ensuring that e-learning has the best possible chance of succeeding. An e-learning strategy considers issues of technology, learning, effectiveness, culture, leadership, justification, organisation, talent, and change, and must deal with a combination of these areas (Rosenberg, 2001).

Below I have summed up components that should be considered in a strategy. These are based upon the four areas in the e-learning readiness ranking (described in section 3.3). In addition to these I have added two components that I find crucial to the success of e-learning. The components that will be used throughout this study are: *connectivity*, *capability*, *content*, *culture*, *technological advances* and *cluster*. These will be used as a framework in the comparison of the countries and the net universities in Thailand and Sweden (see figure 2). After studying several theories within the field of e-learning strategies I discovered a pattern of a few areas that were considered in the theories. The areas that were included in the theories were also included in the e-learning readiness ranking study. This was the reason why I found it suitable to use these four areas as a basis for my framework. Since technology advances and cluster also have a great impact on the success of e-learning I chose to add these aspects as they are not included in the e-learning readiness study. An explanation of why I have chosen to add components in my framework is presented in section 3.5.5 and 3.5.6. I have chosen to study all of these six components instead of just focusing on one or a few, since a broad overall approach is important for the success of e-learning (EIU, 2003). An explanation of every component, as well as theories about how to best deal with every one of them, is described below.

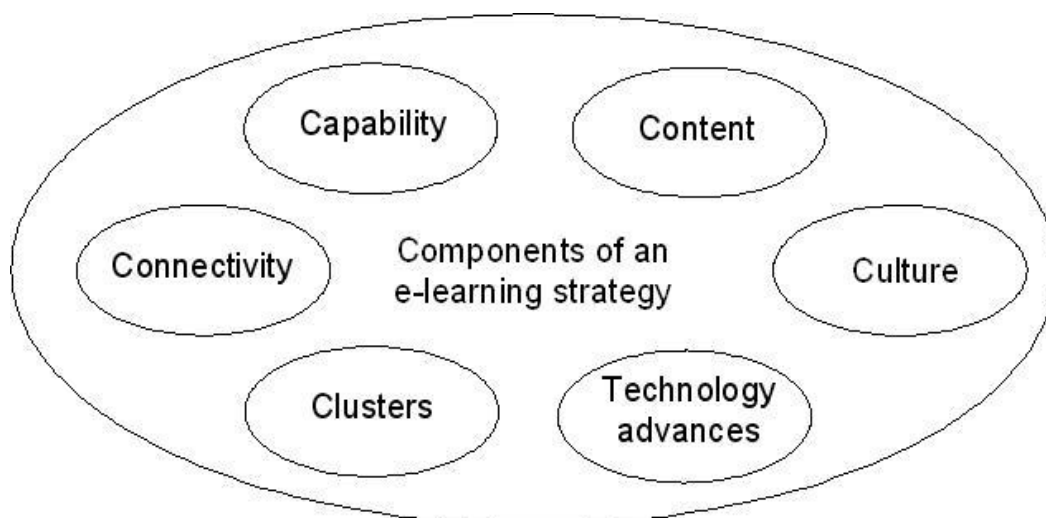


Figure 2: Components of an e-learning strategy

3.5.1 Connectivity

Connectivity is about the use of technological capabilities to deliver and manage e-learning (Rosenberg, 2001). The lack of connectivity is a major constraint to the use of ICT in education, and this is particularly common in developing countries (Farrell, 2001). Without capable computers, useful software and internet connections, e-learning will not be possible. New technologies, such as wireless technology, satellite spectrum and broadband allow remote areas access to e-learning (EIU, 2003). The use of mobile phones in the field of e-learning has also increased recently (UNESCO, 2005b).

To produce e-learning with high quality it is important to make sufficient bandwidth available and affordable. While many developing countries still do not have enough bandwidth, and since it will take time to expand it, it is essential to adjust the websites and the data that may be transferred making it acceptable for use with the current bandwidth (Daniel, 2005b). E-learning resources such as software and hardware may be very expensive. If the resources are not properly used they will not be cost-effective. Equipments in schools can therefore be used to support continuing education outside regular schools hours as a community resource (Al-Rawas, 2001). E-learning tends to develop fast in countries where government initiatives within the infrastructure are apparent (EIU, 2003).

3.5.2 Capability

Capability includes teaching and learning trends, literacy rates and traditions of learning. In countries where the teaching profession is respected and rewarded, where non-traditional certificates and degree programs are accepted, where national institutions support e-learning and learning is important to the general populace, there is a great chance for succeeding with e-learning (EIU, 2003). Attitudes towards learning must be changed so that the maintenance, development and the measuring will be adjusted to the new learning approach. (Rosenberg, 2001) This includes making school credits transferable, so that credits from different schools are accepted and can be combined in one degree (EIU, 2003). The learning architectures are also of importance including coordination of e-learning with the rest of the organisation's learning approaches so that, for example, classroom training is combined with e-learning (Rosenberg, 2001). In this so called *blended learning* educators are not replaced by technology, but it can work as a great tool for them. A blended approach to e-learning, where classroom time supplements online material, is optional. Courses that are mainly online can use e-mail or Internet-phone features to make interaction between students and instructors possible in order to increase the feeling of community (EIU, 2003).

Teachers need to be competent in their own subject area and trained in using modern learning technology and in methodological processes. This includes support in pedagogical aspects of teaching, new technologies, coaching and training. Designing a course for the web is a considerable step away from preparing lectures. Since e-learning requires different presentation methods, content and support from traditional learning, it is of great importance that teachers are trained to use technologies that are suitable in an e-learning session (Rudd, Rickinson & Benefield, 2004). Teaching students how to learn

and to motivate them to learn, not only in school but also after school, is an important task for the educator. Lifelong learning means that learning not only occurs in school, but also before and after. The distinction between working and learning is becoming vaguer when demands of continuous up-skilling are growing (Kalantzis & Harvey).

The importance of learning, not only throughout life, but also across life, has also increased. Lifewide learning means that the classroom is just one place where learning occurs. The division between learning and working as well as learning and living is becoming more and more questioned when educational institutions will be more open and more closely connected with wider communities. Informal and social learning will be linked to our everyday life and the importance of reflection will grow. Educators will be operating in a wider and more complex environment working as collaborators with a number of broad and diverse groups throughout society (ibid.). The role of the teacher is changing and will continue to change. The teacher will play the role of a learning manager who will help the learners to structure their own learning and make it relevant to the world outside school. The learner-centred education will be emphasised and the learning will become more individualised or personalised (Rudd, Rickinson & Benefield, 2004).

3.5.3 Content

Content refers to online training, that provides courseware, and knowledge management that provides informational databases and support tools (Rosenberg, 2001). Successful e-learning countries have access to content including library materials, newspapers, corporate information, government databases etcetera, online in their native language (EIU, 2003). Developing e-learning content for a big heterogeneous group of people is a great difference from developing paper-based course material for a small group of known people. To provide courseware of high quality there are for example new communications rules that have to be considered. In order to structure the process of the development, frameworks can be helpful and useful. *Instructional systems design* is used to describe a systematic approach to the design of instruction (Tozman, 2004). Instructional design emphasises knowledge of educational theory in combination with practice with appropriate technologies. It is a component of a user centred development process that focuses, not only on the development of the product, but also on training and support. The increased understanding of user centred design and usability in design has lead to e-learning resources that meet the needs of the target market more sufficiently. The principles of user centred design are not new, but it has been rediscovered in the educational market (AFLF, 2003). The cost of designing, developing and modifying content is much higher in an electronic environment, which is a reason why reusability and rapid development tools have come to play a more central role in the field of e-learning (Tozman, 2004).

In the development of the content the learning experience is also an important factor to consider. The learning experience is highly influenced by the e-learning usability, which refers to the design of usable environments, that are easy to use and that provide a pleasant, enjoyable and rewarding user experience. E-learning usability is especially important since the learners need to focus on the content and the learning process rather

than the use of the webpage (E-learning site). The importance of the users' needs has increased more and more. A wide understanding of the learner facilitates the process of adapting the content, the learning environment and the technologies to its context. The content itself is of uncertain value until it is utilised in the context of the users, the technology and the organisation. Since the importance of the modification of the content has increased, new tools that allow teachers to modify and sequence the material to customise the content to its context have become helpful. The development of e-learning is often composed by technical developers. Although the use of new technology is of importance, pedagogical innovations have more impact on the success of the learner. By including different groups of participants, such as learners, teachers, designers and ICT specialists, in the design and development process the possibility of considering all important aspects in e-learning increase (AFLF, 2003).

3.5.4 Culture

In the development of e-learning content, the context and the audience is of great importance. The environment includes learning culture and the management, who all must share the attitude of regarding learning as a valuable activity (Rosenberg, 2001). In order to be successful with e-learning in a country, government, citizens and the business sector need to have embraced technology on a cultural level (EIU, 2003).

It is becoming increasingly important to develop content for a diverse audience or in a worldwide or multicultural context. To make the content suitable for a multicultural environment, factors like graphics, colours, forms and time zones have to be taken into account. Symbols, pictures and gestures might arouse negative feelings, distract or upset as they can be interpreted differently in every different culture. Local expressions, jokes and abbreviations can be confusing to students who use a second language or live in a different culture. This is a reason why the globalisation of online teaching has to be considered in the development of e-learning (E-learning site).

It is also of importance to ask whether e-learning helps to address the challenges in higher education in the country as well as considering if the content fits the learners' needs and respect their cultural belonging. The e-learning content must frequently be adapted to the context it will be used in (Daniel, 2005b). This is also true for teaching methods. There is for example a difference of challenging your professor's opinions in Asia and in other cultures. Assignments in Asia, where students are to challenge their teacher, do not tend to succeed, while in Europe students would not enjoy a course where you are to be passive. The cultural differences have to be considered when course materials and teaching methods are developed (EIU, 2003). The traditional teaching models must be changed and adapted to the information age. For e-learning to succeed citizens need to search information and develop knowledge for their own curiosity.

In developing countries where developed curricula are few, it is common that resources are obtained from other countries and modified or adapted for the use in developing countries. When resources and even specialists originate from a developed country there is a risk that sensitivities in the host country are not addressed, with the consequence that

the curriculum will not be following the developing plan and will therefore not be in accordance with the country's e-learning needs and objectives (Al-Rawas, 2001).

Culture is a wide concept that includes several aspects. Culture in the context of this thesis includes the objective of reaching all kinds of groups in a population by, for example, adapting the education so that it is available for all. It also considers the cultural context that e-learning is embraced in. Finally culture includes the extent of embracement of IT and e-learning in the general population.

3.5.5 Technology advances

Technology advances include the latest trends within e-learning. In the field of e-learning technology innovations have expanded the area remarkably. The concept of stand-alone computer content has developed and come to include advanced management, delivery and collaboration technologies, providing improvements of the capabilities of e-learning. In the 1990s, when networking expansions and Web advances helped to increase the IT innovations, a range of new products and services in the e-learning field emerged (see figure 3). Most important of these innovations was the development of the *Learning Management Systems* (LMS) (Barron, 2002). LMS is software that organises, manages and reports on the interaction between learner and content as well as learner and instructor. For instance it manages students registrations, stores test results and measures the performance of the learners. A *Content Management System* (CMS) is a software application that handles version managing, workflow and publishing for the content of huge websites. A CMS, however, does not satisfy all the needs within the e-learning field (E-learning site).

The newest trend in e-learning technology innovations is Learning Content Management Systems (LCMS) which uses the benefits of learner administration capabilities from LMS and the benefits of the content creation (which is not possible in an LMS) and storage capabilities from a CMS. An LCMS creates, stores, collects and delivers e-learning content and offers the benefits of granularised learning that users can repurpose for different contexts and personalise for individual learners by using learning objects (ibid.). Learning objects are elements of computer-based instructions based on the object-orientation in computer science. The basis of object-orientation is to create components (objects) that can be reused in multiple contexts. Learning objects often have additional metadata, that contain information about the objects, such as the creators of the learning object, medium or format and pedagogical objective. The richer the metadata is, the easier it is to discover what learning objects can be combined successfully. Rich metadata also helps obtain a correct sequence of resources more easily. Learning objects without accurate metadata will be nearly useless outside their original application. Learning objects are prioritised since they promote a culture of reuse; more time can be spent on teaching and using the learning objects instead of creating the content (Jacobsen, 2001). As the technology develops there will be an increasing opportunity to mix and match learning modules from institutes among the world (EIU, 2003).

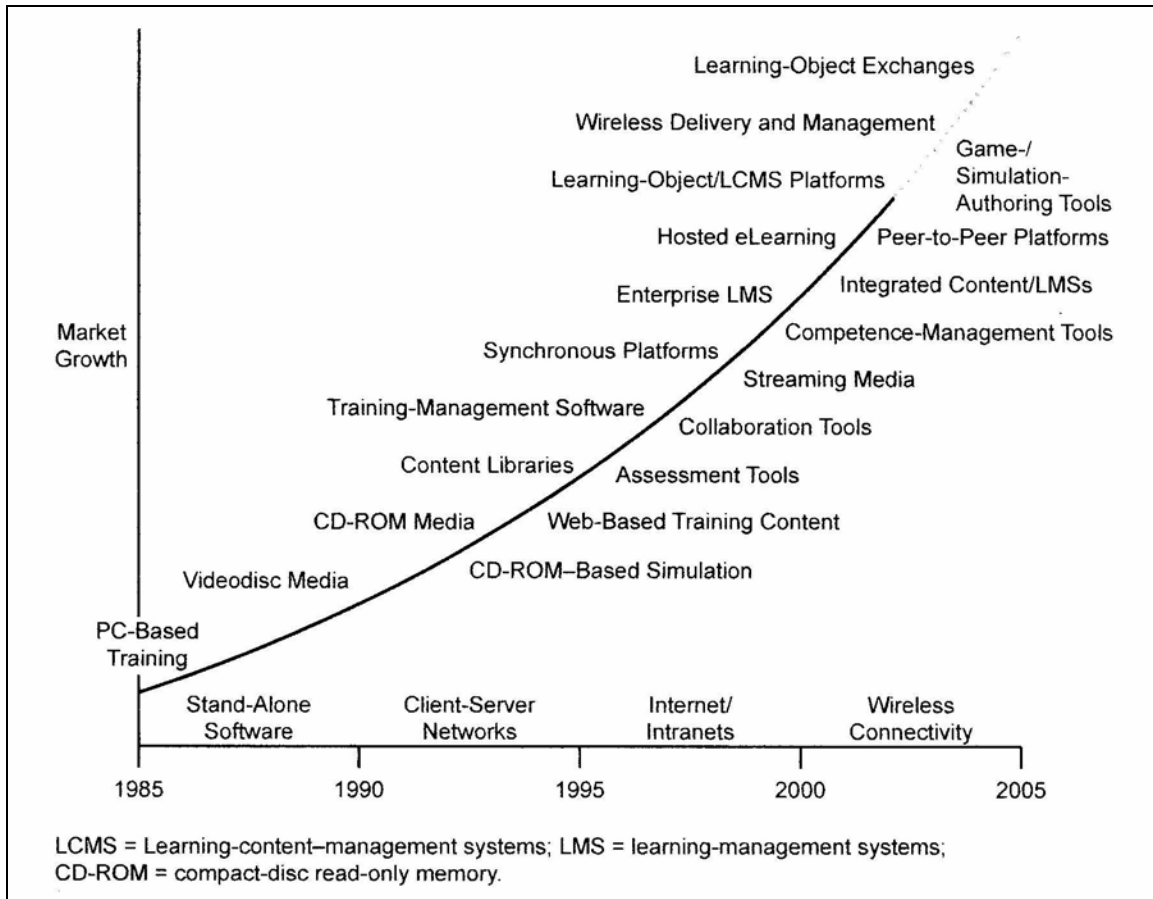


Figure 3: Technology evolution in e-learning (Barron, 2002)

To make it possible to collect learning objects from different sources and to ensure that people will find the right materials at the right place and time, standards are needed. Using standards to generate indexes for learning objects with consistently constructed metadata, means that the learning object and the metadata will be searchable and reusable. Standardisation is essential to the long-term success of e-learning, since the market of educational digital content will grow (ORMEE, 2003). To provide universal access to e-learning, the material must be catalogued and organised in standardised manners. The better the content conforms to standards of e-learning organisation and cataloguing the easier it is to build modular content that can be reused (EIU, 2003). Standards are helpful not only for students who are offered a consistent environment, but also for educators who might be sceptical of using computers in education, unwilling to change work practices or fearful due to unfamiliarity (Al-Rawas, 2001).

Another promising improvement in e-learning related to reusability is open educational resources (OERs). OERs refer to open course content and open source software and the principle of sharing courseware. By sharing building blocks of open course content learning objects can be reusable (Daniel, 2005b).

Mobile learning (m-learning) is another new technological innovation in the field of education. Various types of mobile devices can be used in the education sector in order to further educational opportunities in remote areas. M-learning combines two new technologies: WiMax and Pocket PC. WiMax provides wireless local area network connection with IP multimedia services such as web content, streaming video and wireless links to video projectors. The Pocket PC enables simultaneous audio and video and can use satellite or wire line connectivity, as well as a DVD to deliver content. M-learning can enable teachers and learners to overcome constraints of resources that are common in remote and developing communities. In the Asia-Pacific region common problems with some e-learning formats are high costs for desktop computers, wire line, broadband connection as well as for installation, maintenance, storage and repair. With m-learning, the WiMax bandwidth can reach rural areas, even in areas of rough terrain. Satellite technology enables data to be accessible in remote areas in which teachers do not have access to libraries or teaching material. The devices are affordable, and the cost of maintenance, storage and repair is low. M-learning can be used by persons without requiring a high level of IT literacy and training (UNESCO, 2005b).

I have chosen to use technology advances as an additional component in my framework since this includes the latest technological trends within the field of e-learning. Embracing trends is essential in order to become successful in e-learning. New concepts, such as learning objects, are determining factors in the development of e-learning as this will affect the country's ability to cooperate internationally. Using the most recent technology gives the country a chance to act both as consumers and producers in an international market.

3.5.6 Cluster

Clusters are interconnections of companies and institutions that are geographically related to each other. For example clusters include suppliers of inputs, manufacturers of complementary products as well as governmental institutions and universities. A cluster often contains members that encourage both competition and cooperation. Rivals that compete in winning and keeping customers often coexist with co-operators since they operate in different dimensions and among different members. The quality of the local business environment strongly influences the cluster. For example there is no need for companies to invest in logistical techniques if the transportation infrastructure is of low quality (Porter, 1998). Within the field of e-learning well-developed content is for instance not useful in an environment with low bandwidth. Some companies can be strongly affected by the legal system or corporate tax rates and to compete effectively they need well-educated employees (ibid.).

Productivity, innovation and formation of new businesses are the three main ways in which the cluster strengthens competition. The innovation within a cluster is strengthened by companies' ability to gain an overview and to be familiar of the market. Companies within a cluster can for instance in an early stage learn about evolving technology, component availability and marketing concepts. By frequent face-to-face contacts, learning about the market facilitates. The innovations within a cluster often lead to rapid acting by the companies since local suppliers and partners can ensure a good match with

the customer. Clusters often expand as soon as it has taken form, which in turn influences the government as well as public and private institutions (ibid.).

Clusters are not very common in developing countries, and a formation usually starts at the basic level when improving education and building capacity in technology. Despite the increasing globalisation of the markets, the local networks are important. E-learning is no longer merely a part of the academic field. Private industries have come to understand the importance of providing knowledge within the organisations and to utilise the benefits of e-learning. Governmental institutions realise the importance of education as they face the knowledge-based society. It has become crucial for every entity; businesses, government and institutions and they all play an important role and are dependent on each other. The lines between public and private investments become vaguer as they all play significant roles. Companies are becoming as important as the universities within the field of education as well as universities are becoming important to local businesses (ibid.). A close relationship between corporations, industries and government agencies are essential for countries to become successful in e-learning (EIU, 2003).

In order to develop successful e-learning in a country or a region clusters are essential. The reason why I have chosen to add cluster as a component in my framework is because countries that are high ranked in the e-learning readiness ranking tend to have a high degree of collaboration between government and the private sector (EIU, 2003). I believe that the concept of cluster within the field of e-learning strongly improves the overall quality of e-learning, which in turn affect the national success of e-learning.

4 Thailand

In this chapter I describe the background of Thailand, national ICT strategies and other relevant information about the country. This is followed by a description of the net university. As a final point, information related to the country, as well as to the net university, is described within the earlier presented framework.

4.1 General information

Thailand is located in the central part of South East Asia bordering to Burma, Laos, Cambodia and Malaysia with a land area of 511,770 sq km. The country is divided into 76 provinces where every province is subdivided into districts, sub-districts and villages (NECTEC, 2005). Thailand has been a monarchy since 1932. The population amounts to 65 millions of which approximately 9 millions live in the capital city of Bangkok. The official language is Thai and the secondary language is English (The World Fact Book). In the Human Development Index (HDI) presented by the United Nations Development Programme (UNDP), where life expectancy, educational attainment and adjusted real income, is measured Thailand is ranked 73rd among 177 countries (UNDP, 2005).

4.1.1 Education in Thailand

About eight percent of the Thai adult population lack basic reading and writing skills. Two thirds of these are female (UNESCO, 2005a). A new constitution, announced in 1997, states that all Thai people have equal rights to free basic education for twelve years, which will help raising the educational level of the citizens of Thailand (Makishima & Suksiriserekul, 2003). There has been an increasing improvement of the literacy rate the past few years and there is a good chance that Thailand will reduce the illiteracy rate by 50 percent in ten years (UNESCO, 2005a).



Figure 4: Map of Thailand (World Fact Book)

4.1.2 ICT in Thailand

In 2000 a special committee was founded in order to develop a national IT policy in Thailand. The policy was called e-Thailand or IT2000 and became IT2010 in 2002. The policy is founded by the National Information Technology Committee Secretariat (NITCS) and describes in what way IT can create opportunities for the development of the country. IT2010 consists of five e:s: e-Government, e-Commerce, e-Industry, e-Education and e-Society. There are three main objectives for e-Education. One is to give teachers, professors and students opportunity to learn how to use IT in order to gain information and knowledge on their own. Another is to link schools, universities and libraries electronically, making it possible for students and teachers to access knowledge in distance. The last objective is to use IT and distance education to educate all citizens. IT2010 is developed in order to fulfil the 9th National Economic and Social Development Plan (Suktrisu).

Several ministries are working to improve e-learning, ICT and education in the country. One of The Ministry of Science and Technology tasks is to transfer foreign scientific and technological expertise to the country. They are also working for an improvement of information services to increase the knowledge level within science and technology. The Ministry of Information and Communication Technology has objectives that include improvements of the infrastructure, development of school networks, in order to increase students' ICT competence and enhancements of the accessibility of ICT. The Ministry of Education is working with implementation of ICT in the education, developing ICT in the courseware and improving the quality of the education using ICT. A national ICT Master Plan for the year of 2004-2006 from The Ministry of Education has four major strategies, including the use of ICT to improve teaching and learning as well as to enhance the educational management and service effectiveness, the personnel training and ICT equipment provision for all educational levels (ibid.).

4.2 Thailand Cyber University

To increase the education opportunities in Thailand, the Office of the Commission on Higher Education proposed the Thailand Cyber University. TCU increases opportunities for people who want access to higher education and make it possible for universities to share e-courseware with others. The courses will be free of charge for students to attend (Karnjanatawe, 2005). Many universities in Thailand already offer online courses, but generally only to their own students. The difference with TCU is that it offers courses for the public. TCU is a project working hand in hand with the goal to move Thailand towards a knowledge-based society and to share academic resources within the country (Boonruang, 2005). TCU will be the central agency for coordinating the universities and academic institutions in order to develop online courseware. Together with seven universities the Commission provide online education to the public (TCU). Chulalongkorn University, Chiang Mai University, Kasetsart University, Silpakorn University and Naresuan University participate among others in the project (Boonnoon, 2005).

4.3 Connectivity

IT connectivity is growing rapidly in Thailand. Due to a major project initiated by the Ministry of Information and Communication Technology in 2003 the PC-penetration increased remarkably. The goal of the project was to make low-cost PCs, equipped with open-source software, available to the public. The project launched a greater competition in the PC market when manufacturers outside the project had to cut prices in order to stay market competitive. The percentages of households with computers therefore increased from about five per cent in 2001 to nearly eleven per cent in 2004. However, the digital divide within Thailand is still present, household and business establishments with computers still being concentrated to Bangkok. Areas outside Bangkok have less access to computers and the northeast part has the lowest computer rates for households (NECTEC, 2005).

Thailand has a relatively high penetration of mobile phone users. A huge growth in the number of mobile phone users occurred in the year of 2001 and 2002. Since then the increase has been more stable, but as many as 36 per cent of the population were mobile phone users in 2004. Similar to the PC-penetration, the use of mobile phones is most concentrated to Bangkok (*ibid.*).

In the development of Internet in Thailand, the academic sector, and especially the universities played a main role (Gray, Kelly & Minges, 2002). In 2004 the number of Internet users was estimated to about twelve per cent of the population. The use of Internet is concentrated to the central parts of Thailand. Most of the Internet users are Bangkok citizens, and the people in the north do not have as good opportunities to access information via the Internet. However, the expansion of the number of Internet users has recently been apparent in all regions outside Bangkok. There is no apparent division of gender in Thailand but there is a clear diversity in the ages of Internet users. More than half of the Internet users are aged 15-24. Elderly population represent only about three per cent of the Internet users (NECTEC, 2003).

One barrier for increased Internet penetration in Thailand is the language. There is not enough content available in Thai language, and in order to use the benefits of Internet some degree of English fluency is required. The majority of Thai Internet users have some English skills, but many users express language as a problem. About five per cent of Thai people speak English. Another complication regarding the language is that the Thai written language has its own set of characters. The Thai language requires almost 90 different letters on the keyboard (compared to 66 on an English keyboard), which causes problems from fitting Thai to computer hardware and software. The slow increase of mobile Short Message System (SMS) penetration is also partly caused by the lack of Thai language support in mobile handsets. Some Thai people therefore send SMS messages from computers connected to the Internet. Major foreign IT companies are developing Thai language support and portals. One main development that might assist Thai Internet users is the creation of a web site translator. NECTEC and NEC of Japan have developed a translator that translates English web sites or text into Thai. Efforts have also been made to expand English language training in primary and secondary schools. Thailand

faces the dilemma of whether to increase Thai content or expand English language learning among its citizens, or to aim for both of these options. Many Thai web sites today have English menu choices mixed in with Thai text (Gray, Kelly & Minges, 2002).

Demand for fast Internet access has recently increased in Thailand, and has been met by leased lines and, in a few cases, Integrated Services Digital Network (ISDN) lines. However, the quality of ISDN is not high and leased lines are relatively expensive, which creates demands for more reasonably priced alternatives. Cable modem and ADSL have also been used in order to provide high-speed access. Despite this, there is a great lack of speed, which also is the main complaint among Thai Internet users. Demand for broadband applications, particularly games, is also growing. There are several reasons why the expanse of broadband is being delayed. High costs are partly related to the Thai telecommunication market forbidding Internet Service Providers (ISPs) from providing improved infrastructure (Gray, Kelly & Minges, 2002). The Communications Authority of Thailand holds a monopoly over international Internet connections. The leasing of Internet lines in Thailand costs six times more than in Hong Kong and four times more than in Japan (EIU, 2003). Due to a perception among ISPs that the Thai people are not yet ready for broadband, the ISPs are unwilling to make high investments. However, the revenues that ISPs obtain by providing leased lines would probably decrease if mass broadband products would be introduced. A common reason for Internet users moving from dial-up to broadband access is to avoid metered telephoned usage charges. The fee for dial-up Internet use in Thailand is fixed, which means that a change of Internet speed would not be for economic reasons (Gray, Kelly & Minges, 2002). Although the connectivity in Thailand is growing, the accessibility is still one of the main issues in ICT for education in Thailand (Boonyamalik).

In order to enable secondary schools throughout the country to have access to the Internet, the National Electronics and Computer Technology Center (NECTEC) initiated the SchoolNet project in 1996. About 5000 schools were connected to the network in 2003. SchoolNet promotes self-studying and is used as a medium for knowledge exchange among schools (Makishima & Suksiriserekul, 2003). The Telephone Authority of Thailand and the Communication Authority of Thailand supported SchoolNet by allowing on-line connections at local call rates throughout the country. However, since some schools are still not equipped with basic utilities such as telephone lines and electricity these schools have no access to the Internet. Since the competitiveness among the Internet providers has increased and modern technology has become more available this is only an issue in the very remote areas (Waitayangkoon).

In 1997 Ministry of University Affairs initiated the Inter-University Network (UniNet). UniNet is an educational fibre-optic network linking universities in Thailand to the Internet. It was proposed in accordance with the Thai government policy to provide better opportunities for education to local people regardless of regional belonging. The development of UniNet has four objectives:

- 1) To join all the universities and colleges in the network

- 2) To develop self-access learning centres within the universities (such as electronic libraries)
- 3) To develop courseware, databases and instructions via video conferencing that can be used by all universities
- 4) To enhance personnel development to enable research and management of new technologies (Makishima & Suksiriserekul, 2003).

All 74 private and public universities in Thailand are connected to the Internet. Similar to the other universities TCU will be using UniNet to provide education (Karnjanatawe, 2005). In 2001 the SchoolNet and the UniNet were joined in a National Education Network (EdNet). EdNet develops IT infrastructure, e-learning and e-library centres, produce electronic media for teaching and learning, develop human resources for ICT and research and develop the international connectivity. EdNet was initiated in line with the goals of the national IT policy (Makishima & Suksiriserekul, 2003).

4.4 Capability

A main issue in Thailand is the shortage of qualified computer teachers, IT graduates, researchers and IT technicians. Much of the investment focuses on hardware and little on the improvement of ICT literate teachers (Boonyamalik). When there is a primary focus on the delivery of technology, the pedagogic is often forgotten and weakened (Interview 2, J. Lundquist). Teachers are trained in new technologies and new learning approaches but the quality is low and the number of teachers who pass the training is small. Many courses have no maintenance plan because they are not used repeatedly or annually in a studying program. In addition, content makers and programmers usually work at universities for a limited period of time. Maintaining the content is therefore more difficult than starting a new project (Interview 3).

A standard for measuring study credits in every course curriculum will be composed in TCU so that credits from an online course can be transferred to other institutions. Standards and guidelines for online education will also be set up to ensure the quality of the educations (Karnjanatawe, 2005).

4.5 Content

A big part of digital material and services, such as e-learning, e-library and e-books, are developed in Thai language in order to provide learning material for all people. This material is often translated from an English original, which means that the sources become secondary when they are adapted and modified by authorities (Waitayangkoon). About three years ago the use of English was the major barrier against adoption of imported e-learning resources. This is, however, being surmounted more and more as content in Thai has become increasingly available (Kawachi, 2005). Since the next generation will use digital material and services more efficiently there is a greater chance

that they are more used and trained to use technology, the new communication and the language (Waitayangkoon).

The available e-learning programs in Thailand are not easy to adapt to different types of learners. E-learning for school students ought to be more interactive and involve learner participation. In order to design interactive e-learning expertise of developers in instructional design, with the knowledge of different delivery approaches, contents and activities appropriate for certain areas and learners are needed. However, the cost for this is high and the development time consuming (ibid.).

TCU will help the universities share resources like courseware, lecturers and library materials. At TCU it is possible to access information and digital collections over the Internet from an electronic library. The e-library called Thai Library Information System contains a reference database where seven international databases of academic journals are included. The union catalogue is a database that contains catalogues of universities and higher educational institutions' libraries, which can be used for analysis, searching and lending. In the digital collection you can find theses and research articles from national libraries. The e-journals and an e-book directory include links to free online material. TCU is also meant to be a learning resources sharing centre where students and teachers are able to transfer information (TCU).

The universities within TCU will be paid for the courseware since the government provides grants for producing content. Many universities in Thailand can apply the grants for producing the content. No guidelines are specified in the grants but in some cases universities cooperate with private companies in the development of the courses. Recently, a template for content makers has been discussed. Currently most of the content in the courses at TCU is poor since the universities in Thailand have no experience in designing e-learning content. There is a shortage of staff that is skilful in producing contents and programming LMS. Money and time is also very limited since the difficulty of making contents is underestimated (Interview 3).

4.6 Culture

In Asia, work-related skills are usually better valued and have a higher priority than critical learning skills. There is a tendency among students in Asia to avoid analytic argument, theorising, hypothesising and questioning. The learning of critical thinking skills are often seen as an unnecessary part in Asian education (Kawachi, 2005). Asian students are often familiar and comfortable with a learning style with a one way communication from teacher to student. This is due to the cultural belief that the teacher is the most learned and therefore must be respected and valued for his knowledge and abilities. This is a value that is inherent in individuals from their early schooling days and continues throughout their lives. These cultural differences are important to consider when designing and delivering online courses. In early stages of a course Asian participants might not be comfortable with a large amount of freedom but instead prefer to be explicitly told what they are expected to do and why (Abdon & Raab, 2001).

TCU will be providing more educational opportunities for Thai people by increasing knowledge both in urban and rural areas and regardless of economic status. Since TCU is free of charge and open for everyone many more Thai people have the possibility to obtain a higher education (TCU).

4.7 Technology advances

The government in Thailand has set up e-learning as one of the urgent agenda issues, focusing on a development of digital content for teaching and learning at all levels. LMSs are usually available in both imported and local packages, and they are in line with the requirements of standards making contents and objects reusable and sharable between systems (Waitayangkoon). Sharable content is a main topic in the field of e-learning in Thailand (Ministry of Education).

An LMS will be developed by Chulalongkorn University to provide a CMS and a student management system. The subject that has been developed by the universities will be handled in the same system and in the same database (Boonruang, 2005). The system can manage student time, attendance, courseware guidelines, meetings and examinations. The LMS will be given free of charge to organisations who want to develop their own training courses (Karnjanatawe, 2005).

TCU support the universities in areas such as e-learning objects, e-courseware, collaborative courses and supplement courses. It also provides them with a virtual library containing e-books, e-journals and e-theses (Boonruang, 2005). It is possible to build a course by using material from the Learning Resource Centre, but additional contents and tests must be made. A data centre for interchanging content in Thailand might be developed in the future. Standards are required in the development of the courses (Interview 3) and a standard for hardware requirements will be composed (Karnjanatawe, 2005).

4.8 Cluster

The NITCS has taken several initiatives to increase the number of skilled ICT workers and encouraged them to stay in Thailand. Its main project is the Software Park set up by NECTEC in 1997. In the Software Park building, located in Bangkok, 43 software companies are established. Companies are provided with a LAN and high speed Internet access at reduced prices. There is no corporate income tax for the first eight years and rents are financially supported. The Software Park also provides start-up companies with facilities. The objective is to stimulate the development of the Thai software industry by attracting local and international partners and to provide them with sophisticated infrastructure and technologies. The Software Park also organises professional training seminars and other activities aimed at bringing Thai and foreign companies together for collaboration. The Software Park allows Thai companies to visit similar businesses in

other countries. One of the problems of the project is that it was created just a few months before the financial crisis in Thailand. Funding has therefore been limited and there is not enough financial support to expand. Despite these barriers, NECTEC hopes to attract even more businesses and to improve the country's software market by the Software Park. Several universities collaborate with the private sector and receive research and development funding from private companies as well as from NECTEC (Gray, Kelly & Minges, 2002).

5 Sweden

In this chapter I describe general information about ICT and education in Sweden. A short presentation of the Swedish Net University is followed by empirical data about Sweden structured by the earlier presented framework of e-learning components.

5.1 General information

Sweden is located in Northern Europe, bordering to Finland and Norway with a land area of 410,934 sq km. It is a monarchy with a population of nine million people. The capital city is Stockholm and the country consists of 21 counties where the southernmost province is called Skåne (The World Fact Book). In the human development index report presented by the UNDP, which measures achievement of life expectancy, educational attainment and adjusted real income, Sweden is ranked at 6th place among 177 countries (UNDP, 2005).

5.1.1 Education in Sweden

Sweden has a literacy of 99 percent (The World Fact Book). According to the Swedish Education Act, all children and young people shall have equal access to education, regardless of gender, where they live, or social and economic factors. There are nine years of compulsory schooling from the age of seven and all education throughout the public school system is free. Alongside public schools there are independent schools, which are open to all. Ministry of Education, Research and Culture is responsible for issues regarding most of the areas within education as well as youth policy, culture and media (Government Offices of Sweden).

Sweden has a close collaboration with the European Union (EU) in the field of education. As early as in 1989 the credit system called The European Credit Transfer and Accumulation System (ECTS) was introduced in order to increase student mobility in Europe. A credit system is a systematic way of describing an educational programme by attaching credits to its components. The definition of credits



Figure 5: Map of Sweden (World Fact Book)

in higher education systems can be based on for example student workload, learning outcomes and contact hours. ECTS is the only credit system that has been successfully tested and used across Europe. It makes study programmes easy to read and compare for students and it helps universities to organise and modify their study programmes (European Commission, 2006).

In 1999 Sweden, together with 29 other European countries, joined the Bologna Declaration in order to develop a European collaboration within higher education, to promote students mobility and to increase the comparability between the European education systems and in the labour market (Government Offices of Sweden).

5.1.2 ICT in Sweden

The Ministry of Industry, Employment and Communications is among other areas responsible for handling government business in IT. In the IT policy it is declared that Sweden is to become an information society for all. This includes an accessible information society with a modern infrastructure and IT services with benefits for the public regardless of gender, age or geographic residence. The three sub goals of the IT policy are collected from the Government Offices of Sweden's web page and articulated as follow:

1. "IT must contribute to a better quality of life and help improve and simplify everyday life for people and companies.
2. IT must be used to promote sustainable growth.
3. An effective and secure physical infrastructure for IT, with high transmission capacity, must be available in all parts of the country so as to give people access to, among other things, interactive public e-services" (Government Offices of Sweden).

5.2 The Swedish Net University

The Swedish Net University is a collection of IT-supported distance courses which are available in a database at the webpage. The Swedish Net University was founded in March 2002 and the courses are provided by 35 universities or colleges. The net university offers 2 600 courses and almost 100 education programs in different areas (The Swedish Net University). The number of students at the net university increased from 2003 to 2004 with 5 037 people. 37 900 students were registered at the net university in the fall of 2004. According to the seats of learning the number of students will continue to increase in the future (National Agency for Higher Education, 2005).

The Swedish Agency for Networks and Cooperation in Higher Education has a close cooperation with the universities in order to develop relevant support of high quality. The agency informs and advertises courses via the web gate and promotes the development of IT-supported distance education. The agency also coordinates activities within the

Swedish Net University and promotes exchange of knowledge and experiences (Interview 1, A. Fredriksson).

5.3 Connectivity

Sweden has a matchless IT infrastructure (EIU, 2003). In an international comparison Sweden is one of the countries that have the highest rate of Internet users. About 75 per cent uses Internet at least once a week. More than 90 per cent of all people aged 16-44 used the Internet during the first quarter of 2005. The most common tasks when using the Internet is to seek information concerning goods or services and to send and receive e-mail. In many areas the Nordic countries are the most developed in the EU concerning access to and use of IT (Statistics Sweden, 2005). Sweden and its neighbour countries have a great benefit of the high frequency of mobile phones and broadband connections that characterise the region (EIU, 2003). According to a survey in 2005 almost everyone have a mobile phone and everyone have access to TV at home (Statistics Sweden, 2005).

The government in Sweden is behind the e-learning advances in the country. An initiative within EU called eEurope 2005 Action Plan promotes development of broadband Internet access as well as e-learning programmes. Thanks to government initiatives Sweden's relatively low PC-penetration rate in 1998 increased to become the world's highest rate today (EIU, 2003). Over 80 per cent have a PC at home and almost as many have access to the Internet at home. However, older people are fewer than younger ones regarding access to computer and the Internet (Statistics Sweden, 2005).

5.4 Capability

In order to discover international trends within e-learning an international committee at the Swedish Agency for Networks and Cooperation in Higher Education was founded. The committee follows literature, papers and journals within the international field of e-learning. Their task is also to write reports and notices about the Swedish distance education and to participate in international conferences in order to inform about e-learning in Sweden. International contacts are invited to Swedish universities and to the agency in order to contribute with new views in the distance education (Interview 2, J. Lundquist). The committee participates in a number of EU-funded projects in the field of open and flexible learning (Swedish Agency for Networks and Cooperation in Higher Education).

About a couple of years ago there was a tendency to merely deliver education electronically without considering the pedagogic in the Swedish distance education. This tendency is slowly becoming vaguer as there is a coming attempt to work with both technology and pedagogy in the distance education. Using the technology as a tool without forgetting the pedagogic aspects will increase the learning effect and the quality of the course (Interview 2, J. Lundquist). In order to improve the teachers' IT-pedagogic competence at the universities and to enhance the quality and the development of IT-

supported distance education, a one year optional master program has been taken out. The courses are net-based and intend to provide knowledge about techniques and methods that support net-based education (Swedish Agency for Networks and Cooperation in Higher Education).

The credits of a course at the Swedish net university are the same as credits from a traditional course. Each college or university has their own way to design and deliver the courses and are responsible to assure the quality of the courses (The Swedish Net University).

The Swedish Agency for Networks and Cooperation in Higher Education works for a support of learning throughout life. There is an increase of blended learning within IT-supported distance education allowing the border between traditional campus education and IT-supported distance education to become vaguer. More IT-supported education is integrated into traditional education when students for example deliver and gain material via technological services (Interview 1, A. Fredriksson). This is an apparent trend in Sweden but has been even more apparent in other European countries, such as France and Italy. A reason why the blended learning approach is not as expanded in Sweden is the lack of time to change some of the campus-based education using the technology tools. The willingness and understanding is wide but with a large workload there is no room for new tasks in order to adapt the campus-based education (Interview 2, J. Lundquist).

5.5 Content

The net-based courses available at the Swedish Net University are developed at the collaborating universities. The Swedish Agency for Networks and Cooperation in Higher Education has started projects in order to facilitate and improve the development. Guidelines that can be used in the development process are available at the agency's web page but they are not compulsory to use (Interview 1, A. Fredriksson). The course workshop available at the Internet is a supporting tool in the development of net-based courses and can be used when planning of the course. Knowledge and experiences within net-based education as well as design and structure of courses are available at the webpage. It is also used as a tool for ensuring the quality of the course resulting in satisfied students and teachers (The Swedish Agency for Networks and Cooperation in Higher Education).

150 of the 2 600 courses at the Swedish Net University are using English as the educational language, but there is an intention to increase the number of courses in English in the future (The Swedish Net University).

5.6 Culture

In Sweden there is a strong willingness to integrate Internet into all sides of daily life. There is a greater enthusiasm for IT in northern Europe than in the southern parts.

Scandinavians are eager to welcome the information society and the Swedes are among the most active consumers of online government and financial services. Internet-enabled mobile phones are often used to buy things like books, food or clothes online and to use different services (EIU, 2003).

Western students are often comfortable with the online learning environment and like the fact that in online learning much of the control passes from the teacher to the student. But with this power also comes additional responsibilities. Online students must be largely responsible for their own learning by setting realistic goals, reflecting on understanding and seeking guidance from peers as well as instructors. In the Western view the education aims to develop reflective critical thinking skills in the students. Western students usually reflect on and articulate their own practices and are open to contradictions (Kawachi, 2005).

The groups of people studying at the Swedish Network University are traditionally underrepresented in higher education, such as elderly people, people with children and people living in remote areas. Compared to the campus-based educations the Swedish Net University recruits more people from untraditional groups of students. The number of courses in higher education has increased remarkably after the foundation of Swedish Net University and the IT-supported courses have become more popular than the traditional distance education (The Swedish Agency for Networks and Cooperation in Higher Education). Recently the government proposed new tasks for the Swedish Agency for Networks and Cooperation in Higher Education. Broader recruitment is one of these tasks. Broader recruitment includes a larger focus on the general population and mainly to those who have a large geographical or timely distance from universities as well as to those who have a great social distance to university studies (Interview 1, A. Fredriksson). In order to make the Swedish Net University accessible for as many as possible the web page has been developed according to international guidelines from *Web Accessibility Initiative* (WAI). WAI is a standard for publishing information on the web allowing people with disadvantages such as colour-blindness to use the page by considering for example colours, contrasts and text sizes (Interview 4, N. Cuturic).

5.7 Technology advances

There are no standard LMS used by all universities in Sweden. Most universities have developed or bought their own LMS, but some cooperate with the purchasing. A project initiated by the Swedish Agency for Networks and Cooperation in Higher Education called SLUSS aimed to create a specification that describes functionalities required in an LMS for all universities and university collages. This specification can then be used by the universities and university collages when developing LMSs. There is a hope that the seats of learning will collaborate in the development of LMSs so that the number of LMSs will decrease in the future (Interview 4, N. Cuturic). Every course has its own webpage from where it is possible to send or collect working tasks or communicate with peers and teachers (The Swedish Agency for Networks and Cooperation in Higher Education).

Several institutions in Sweden have their own databases of courses containing different types of information about education. In 2001 the Ministry of Education and Science initiated an attempt to create a strategic plan for the development of methods and techniques based on open standards within the educational system. A specific activity was to enable different information producers, such as universities and folk high schools, to create and publish files describing the courses and programs offered on their own websites. These files would then be collected in order to build a national catalogue. The catalogue consists of two principles:

- An information model describing the course information
- A national information service collecting and distributing the course information files

The information model has been created by a group of representatives from different authorities where the Swedish Net University is one of the participators (The Swedish National Agency for School Improvement). The model of metadata is called EMIL (Education Information Mark-up Language) and contains structured information of courses or programs within the educational system. The model will facilitate exchange of information about education. It is based upon already existing models. Three different files describe the course with information about the course itself, about the provider and about the course events (Interview 4, N. Cuturic).

The national information service is an information hub that collects and distributes EMIL-files. The course catalogues at the Swedish Net University will be using information contained in EMIL-files. Today, course files are gathered from the universities and university colleges by the National Agency for Higher Education, which then pass on information to the other agencies. This system is the fore runner and source of inspiration for the more ambitious EMIL-concept (Metamatrix). Before developing EMIL there was an international search for similar models in order to find a model to reuse. When no models were found the decision of constructing one in Sweden was taken. Within the project of EMIL there is an international collaboration with Denmark and Norway among others. EMIL is developed in order to be used as a standard model within EU (Interview 4, N. Cuturic).

A learning object database is provided by the Swedish Agency for Flexible Learning, CFL. Their goal is to provide resources that support research and development of flexible learning. One free service provided by CFL is a course hub, which is a learning object database on the Internet. The course hub contains different learning resources which are available for teachers to build their own material for a specific course (The Swedish Agency for Flexible Learning).

5.8 Cluster

Private companies, public institutions and universities have founded a network for e-learning in the province of Skåne. Within the network local businesses inform about the market and new technologies. Universities share their knowledge and public institutions describe their work. The cooperation promotes a sharing of experiences and the goal is to develop the county of Skåne to become a competent region of e-learning, both as consumers and producers. By gaining contacts, setting Skåne in a national, European and international perspective and participating in conferences, the members of the network work for an improvement of e-learning in the region. The network has a website which contains information about the members, meetings and activities (Nätverk för e-lärande). The members are categorised into three different groups in table 2 below.

Table 2 Members of Nätverk för e-lärande (Nätverk för e-lärande)

Companies	Universities	Others
Good World AB	Högskolan Kristianstad	Kristianstads kommun
Interactive Institute	Lunds universitet	Malmö stad
Lernia	Malmö högskola	Nationellt centrum för flexibelt lärande
Liber Hermods Region Syd		Region Skåne
Luvit Ab		
Sigma Education		
Tetra Pak AB		

6 Comparison

In this chapter the information about the countries and the net universities that have been described in the previous chapters are contrasted. Firstly, general aspects about the countries and the net universities are compared. This is followed by a comparison of the different areas within the earlier presented framework for e-learning. In the end of the chapter an overview of the comparison is presented.

6.1 General information

Thailand has a geographically larger area and a larger population than Sweden. In the human development report presented by the UNDP Thailand is ranked 73rd while Sweden is ranked 6th. Both countries have specific ministries within ICT, IT and education in order to improve the issues within the countries.

Regarding the net universities in Thailand and Sweden different circumstances need to be considered in the comparison. Since the Swedish Net University was founded about four years earlier than TCU, the number of students, number of courses and collaborating universities are not as high in Thailand. Studying at universities in Sweden is free of charge for both campus-based and net-based educations. This is not a general rule in Thailand where some educations are fee-based. The courses at TCU, which are generally free of charge, are therefore a great opportunity for Thai people. Table 3 shows a comparison of overall information about the net universities.

Table 3 Comparison of general information

	Thailand Cyber University	The Swedish Net University
Year of foundation	2006	2002
Number of registered students	7 175 in 2006	37 900 in 2004
Number of courses	127	2 600
Number of collaborating universities	6	35
Other	Free of charge	Free of charge

6.2 Connectivity

Although IT connectivity in Thailand is growing rapidly the country is still in need of improvements in order to reach the high level of infrastructure in Sweden. The well established IT infrastructure in Sweden provides the country with better opportunities to

expand e-learning. As a whole Sweden has better Internet connections and higher speed than Thailand, even though Thailand is on its way to improve this. The connections in Sweden are widely spread throughout the country, while in Thailand the connections are concentrated to the Bangkok area. Although the IT infrastructure is relatively well developed in the Bangkok area several rural areas around the country need to be improved. Thailand is facing barriers in the development of Internet usage, such as lack of content in the Thai language, which might delay the development of the connectivity. This is a problem that is not as apparent in Sweden. Other factors, such as the fixed fee for dial-up Internet use in Thailand, which might lead to a low demand of broadband, are also hindering factors for Thailand to move forward in the development of the infrastructure. Several proposals have been initiated by the Thai government in order to improve the IT connectivity. As in Sweden all Thai universities are connected to the Internet. Below statistics of IT connectivity in Thailand and Sweden has been summed up in order to give an overview of the contrasts between the countries.

Table 4 Comparison of connectivity

	Thailand 2004	Sweden 2005
PC at home	11 %	80 %
Internet users	12 %	More than 90 %
Owners of mobile phones	36 %	More than 90 %

6.3 Capability

The shortage of educated teachers is a huge problem in Thailand. Many of the teachers do not have the pedagogical and technological competence that is required in the field of e-learning. Little focus on pedagogic is an apparent problem in net-based education in Thailand. In Sweden the pedagogical aspects have come to play a greater role in the net-based education. In Sweden there is an awareness of pedagogical possibilities as well as an understanding of the benefits of using net-based education in traditional education. This understanding is not as apparent in Thailand. Greater focus on hardware and technology causes less focus on pedagogic in Thailand.

In both Sweden and Thailand credits from the net universities can be transferred to be used in other universities.

6.4 Content

Alike the Swedish Net University, TCU provides resources of many kinds making it possible to collect information from different sources and databases. However, to be able to browse the web for international web pages some skills of English are in most cases required. Thai people with little or no English skills are limited to browse only Thai web pages. Since many Thai people lack English skills this is a large limitation when

searching for information on the Internet. This is a problem that is not as apparent in Sweden since English is widely taught in schools.

In both Thailand and Sweden the net-based courses are developed at the universities. There is a possibility to use guidelines in the developing process in Sweden and this will also be possible in Thailand in the future. The lack of knowledge of how to develop courses in Thailand has led to content with low quality for several courses.

6.5 Culture

There are relatively big cultural differences between the learning environments in Thailand and Sweden. Thailand belongs to an Asian culture where the teacher is respected and where work-related aspects are higher valued than critical thinking skills. Questioning and reflecting are not as common in Asian culture as it is in Western culture. In contrast, a more independent work style is more developed in Western learning culture which Sweden is a part of.

6.6 Technology advances

Overall both Thailand and Sweden are far ahead in technology advances. The concept of learning objects and sharable content which can be seen as the most recent technology advancements within the field of e-learning are considered or used in both of the countries.

For TCU a standard LMS has been developed to be used among all the collaborating universities. It is possible to build a course by using material from Learning Resource Centre, but additional content and tests must be made. There is no standard LMS for all the Swedish universities. Several authorities have initiated a project where course information will be described. An already existing learning object database is provided by the Swedish Agency for Flexible Learning. The database contains different learning resources which are available for teachers to build their own material for a specific course.

6.7 Cluster

The concept of cluster within the field of e-learning has become central in Sweden. One of the networks in the province of Skåne is Network for e-learning where representatives of companies and universities are collaborating. The concept does not yet seem to be established to the same extent in Thailand. The Software Park in Bangkok is a way of promoting innovation and collaboration even though this is not specific for e-learning. However, the idea of matchmaking that promotes collaboration is a part of the cluster concept. Since it has been difficult to gain information about clusters in Thailand I have

not been able to create a clear opinion of whether the concept is used or not. That is also why a comparison is difficult to provide.

6.8 Summary of comparison

The table below will give a short summary of the comparison described in this chapter in order to gain a quick overview of the differences and similarities between the countries.

Table 5 Summary of comparison

	Thailand	Sweden
General information	65 million people. Land area of 511,770 sq km. Ranked 73 rd in the HDI ranking.	9 million people. Land area of 410,934 sq km. Ranked 6 th in the HDI ranking.
Connectivity	Infrastructure concentrated to the Bangkok areas.	High connectivity all over the country.
Capability	Little focus on pedagogical aspects.	High awareness of pedagogical aspects.
Content	Language problems since English is the language used on most Internet sites.	No language barriers since English is widely taught in Sweden.
Culture	Asian learning culture that is not in line with educational trends.	Western learning culture that is more aligned with educational trends.
Technology advances	Several trends within this area are adapted.	Several trends within this area are adapted.
Cluster	Incomplete information about clusters in Thailand.	E-learning clusters operating on regional, national and international levels.

7 Discussion on study findings

In this chapter I discuss the study findings that were presented in the previous chapter. The chapter is structured in the same way as the previous one, starting with a discussion of general information about the countries. This is followed by discussions about information related to the countries and the net universities within the framework presented above.

7.1 General information

Factors that affect the success of e-learning in the highly ranked countries in the e-learning readiness scale often go hand-in-hand with economic development. Even though this is not the general rule many of the countries in the top of the ranking are rich countries (EIU, 2003). Considering economic and social development in the countries Sweden has better opportunities than Thailand to become successful in e-learning. The number of years a university has been operating might influence the overall quality of the university. The opportunities to develop and improve the university are greater when a university has been operating for a longer period of time. Considering this, the Swedish Net University has had a longer time for developing and improving quality within different areas.

7.2 Connectivity

In order to improve e-learning in Thailand I believe that the connectivity needs to be developed. E-learning tends to develop fast in countries where government initiatives within the infrastructure are evident (EIU, 2003). Swedish government initiatives have lead to a better connectivity with a larger PC-penetration rate. The several initiatives within the Thai government that has been taken in order to improve the IT connectivity in Thailand are therefore a great chance for the country to improve its currently low connectivity.

The connectivity is however not only determined by government initiatives. When considering geographic aspects many of the smaller countries in the e-learning readiness scale are among the highest ranked countries. Countries with a smaller geographical area are more able to implement nationwide infrastructure projects. Singapore, which is the first country in the world to have nationwide broadband coverage, is an example of this. South Korea, another geographically small Asian country, is also among the top ranked countries in the scale (EIU, 2003). The geographically large area of Thailand is a

disadvantage in this matter. There is a relatively well developed infrastructure in the Bangkok area but the connectivity does not reach the rural areas.

Although the PC-penetration and Internet usage are of great importance for countries to become successful in e-learning, this might not be the only way to improve the connectivity in a country. As an alternative e-learning technology, such as mobile learning, move forward, connectivity might be developed with other kind of technologies. Just because PC-penetration and Internet usage are success factors for Sweden's top ranking does not necessarily mean that Thailand needs to take the same action in order to reach high quality infrastructure. Since the mobile phone usage is more widespread in Thailand than PCs and Internet usage, mobile technology might be a good alternative for a better connectivity.

However, before improving the connectivity in Thailand some important problems have to be solved. Since several households and schools in rural areas still lack basic utilities such as electricity and telecommunication, Thailand need to handle this before improving IT infrastructure. The success of e-learning is therefore strongly dependent on the general development of the country as basic utilities are necessary also in rural areas in order to utilise e-learning all over the country.

7.3 Capability

New learning trends within the field of e-learning create new demands on learners and teachers. The traditional way of teaching and learning is changing as new educational trends appear. As the learning environment is becoming more learner centred and individualised, the roles of the participators are changing. The teacher will be coaching rather than giving instructions, encouraging the students to learn on their own. In turn, the demands on the learners increase as they need to be more enterprising in the learning process. In order to follow these trends it is essential to change the whole view of education. The view of learning and teaching needs to be in line with the idea of regarding learning as an important part, not only in a lifelong perspective, but also across life. In order to change the traditional views of learning both teachers and learners need to be well prepared. Teachers need to be educated in pedagogical and technological areas that are used in net-based education. They need to rethink their roles as instructional teachers and they need to be prepared in the new learning environment. The lack of the pedagogical aspects in the Thai net-based education is an important problem in Thailand. Considering and improving teachers' pedagogical and ICT skills would probably have a great effect on the net-based education in Thailand. However, a paradigm change of this kind is a long process. The view of learning needs to be changed gradually. The awareness of these new trends seems higher in Sweden and is probably facilitating the changing process.

7.4 Content

Preferably, different groups of participants take part in the development process of e-learning content. By involving learners, teachers, designers and ICT specialists in the process, several different aspects are considered, which increases the chance of creating content with high quality. The learner participation, however, might not be in line with Thai culture, where teachers are often not questioned by their students. There is a risk that learner participation in Thailand might not provide as large an effect as in countries with other cultures as this is in contrary to the culture.

Since the English language dominates on the Internet, and e-learning materials often are in English (EIU, 2003), language is a great barrier for Thailand. Even though the amount of content in Thai has increased during the last years the problem of obtaining international sources still remains. This is a problem that Sweden has not faced to the same extent. The same goes for the Asian countries South Korea and Singapore, which are the top ranked Asian countries in the e-learning readiness scale (see section 3.3). As in Sweden, English is widely taught in school in these countries (World Fact Book), which increases the availability of international resources. In order to make Internet and e-learning content available to the general population in Thailand there are two alternatives. One is to make efforts increasing English skills among Thai people. The other is to develop more content in the Thai language. However, one alternative does not have to exclude the other. Although both of the alternatives require large efforts, I believe they are both necessary in the future development of e-learning content in Thailand. Supporting the first alternative of increasing the English skills among Thai people would be a long process. During this process a large number of people without English skills would not be able to access information in English. And since there is a dominance of the English language in ICT only those who understand English can become self-learners. The second alternative of increasing content in Thai language would leave Thailand outside the international market of sharable content which is seen as a coming trend in the future of e-learning. In order to be able to use and share content, English skills will be necessary. I believe that efforts being made on increasing English skills, as well as increasing Thai content, would attain the best results.

7.5 Culture

Overall there is a strong enthusiasm among Swedish people to involve Internet in their daily lives. Scandinavians are eager to welcome information society and Swedes are among the most active consumers of online government and financial services. This is a facilitating factor when extending e-learning in a country. In the new learning environment, where the teacher will be managing knowledge rather than to disseminating information, the role of the teacher is changing. The traditional view of learning and teaching is more in line with Thai culture where the teacher is seen as the most knowledgeable, most respected and most valued person for his knowledge and abilities. Therefore, the new learning environment might not be suitable neither for learners nor for teachers in Thailand. The Western countries are in a way in a more advantageous position

since the culture of critical thinking and self-acting are more aligned with the new educational trends. Considering the cultural issues, it might be preferable for the Thai people to use more hand-holding in an early stage of a course with Asian participants (Abdon & Raab, 2001). However, for promoting the future lifelong learning, developing countries need to become more aware of the importance of developing skills in critical thinking.

The Swedish Net University has more successfully reached traditionally underrepresented groups in higher education, such as elderly people, parents and people living in remote areas, than the campus-based universities. The broadened recruitment is a continuing process of this success. In Thailand TCU is giving opportunities for more people to attain higher education since the university is free of charge and available from anywhere. In order to reach traditionally underrepresented groups in Thailand, TCU might regard the Swedish broadened recruitment as an idea to follow. Since the traditionally underrepresented groups in Sweden have increased due to the net-based education, the chances of reaching these kinds of groups in Thailand might increase with the opening of TCU.

7.6 Technology advances

According to the material I have received, technology in Thailand seems to have a central role in the field of e-learning. The concept of sharable resources, which is an important trend in technology advances in e-learning, has been adopted at TCU. It is already possible for teachers to use available resources in order to build a course. Technology advances in Thailand seem to be well considered. With a large focus on technology there is however a risk that other aspects within the field of e-learning are lower prioritised.

7.7 Cluster

A widespread use of clusters in a country strengthens the ability to produce e-learning of high quality, which in turn will affect the country's position on an international market. Countries that produce e-learning of low quality will not be able to compete on the international market. Instead these countries will be forced to import e-learning since their own products are not of as high quality as the competitors'. From this point of view a country that is not strong enough in producing e-learning will be forced to act as consumers on the international market. Consequences like this might be prevented by the use of cluster which has a strengthening effect on the e-learning products.

The extension of clusters in Sweden is probably an important factor for the high ranking in the e-learning readiness ranking. The collaboration between industries, public institutions and universities favours innovation, development and success within the field of e-learning. Since I have had problems finding information about e-learning clusters in Thailand it is difficult to make a comparison with Sweden. It is however important to underline the importance of creating clusters in order to improve and develop e-learning.

Therefore, regardless of the current cluster environment in Thailand, it is strongly recommended for Thailand to make efforts on developing e-learning clusters. In order to reach national success in e-learning more than individual operators are needed.

8 Conclusions

This chapter concludes the discussions and the study findings. Recommendations for the future development of Thailand Cyber University are also presented. This is followed by reflections of the study and the thesis as well as a presentation of suggestions for further research.

8.1 Concluding remarks

From my point of view there are some apparent issues that are hindering Thailand to become better in e-learning and higher ranked in the e-learning readiness scale. In order to improve e-learning readiness in Thailand I believe the issues described below should be considered.

The IT infrastructure is currently too low to reach the whole population in Thailand. Efforts made on improving the connectivity by increasing PC-penetration, Internet usage, broadband connections or alternative solutions like mobile technology, would increase the availability and thereby also approve access for e-learning in rural areas. In contrast to Thailand, the infrastructure in Sweden is well developed, which is one of the reasons why Sweden is top ranked on the e-learning readiness scale.

Too little focus on pedagogical aspects in Thailand is causing low quality of the net-based courses. An increasing focus on pedagogic in net-based education would probably be meaningful for the embracement of e-learning in Thailand. In order to achieve this, teachers need to be informed and educated. In Sweden, there is a greater awareness of these aspects, which probably increases the quality of the courses.

The Thai language is causing great problems for e-learning in Thailand. This is a barrier that some countries, such as Sweden where English is widely spoken, never face. For Thailand, however, this is a problem that needs to be considered in order to join the international e-learning market and to take part in the international material.

Another issue that Thailand is facing is culture. The strong emphasis on learners in the new educational trends does not go hand-in-hand with Thai culture. This is obvious in the new roles of learners and teachers as well as in the development process. A new learning environment where the roles are questioned and changed can cause confusion for both learners and teachers. These issues, that Western countries like Sweden do not face in the same extent, might be hard to handle since they are based on strong traditional views that take time to change. However, with an awareness of the cultural differences I believe the

learning environment can be adjusted so that it meets the needs of the new educational trends.

In order to improve e-learning on a national level and become higher ranked at the e-learning readiness scale every issue described above need to be considered. Successful e-learning on a national level is therefore dependent on high quality of all the components in the strategy.

If the e-learning issues on a national level are not considered, I believe TCU will not have the strong effect as could be possible. TCU is dependent on an improvement of the more country-related issues that are described above. With low connectivity TCU is open only to those who have access to computers and Internet connections, leaving a big part of the population with no access. Without pedagogical aspects I believe net-based courses will not have the chance to break through and succeed. If the language problems remain, many Thai people will be limited to use only the content that has been translated to Thai language. And finally, without an awareness of the differences between the new learning trends and Thai culture these new trends can never be adapted. However, if the national problems are being considered I believe there is a great chance that TCU will improve the e-learning readiness in the country since it offers possibilities that most other Thai universities are not able to offer.

8.2 Recommendations for the future development of TCU

When contrasting TCU with the Swedish Net University I would suggest Thailand to consider a few areas in order to create a successful net university of high quality.

TCU is well prepared for the concept of sharable content but language can be a barrier in an international context. In order for TCU to utilise the sharing of learning objects in an international manner, Thailand must be able to use the English language that is widely used on the e-learning market. Without this ability Thailand will not be able to become an actor on the international market. As the role of consumer Thailand needs to be able to use e-learning content in English. As the role of producer on an international market they need to produce e-learning content in English.

From my point of view, efforts on the pedagogical aspects within TCU need to be made. Pedagogical aspects affect the overall quality of the course which in turn will affect the number of students who will return to the net-based courses. The pedagogical weaknesses can be met by a better focus on teachers' skills. Educating teachers in pedagogic as well as technology and English will probably affect the quality of the courses at TCU. In order to develop courses with high quality at TCU I believe learner participation in the development of the content would be facilitating. Considering the Thai culture in the development process would most likely also contribute to better courses at TCU. If TCU is not participating in an e-learning cluster I would also suggest them to cooperate with companies and other public institutions in order to improve e-learning. I also believe that an improvement of the connectivity is necessary for TCU to succeed, but since this is a

problem on a national level TCU is dependent on this being improved all over the country.

8.3 Reflections on the study

After conducting the study, critical reflections on the methods have been done. Since the study has been conducted in Sweden there I have had a few problems of getting contacts in Thailand. I have tried to get in touch with people within the field of e-learning or within TCU in Thailand by contacting different organisations, ministries and universities but the response was lower than I expected. However, since a large amount of information is available on the Internet, most of the areas I wanted information about have been covered. Since my framework (see section 3.5) was created in order to be applicable also in countries outside this study, I found it necessary to include all the six components in this thesis despite the lack of information about clusters in Thailand. As cluster is as an important factor for successful e-learning I have chosen not to exclude this component.

Since I have studied general e-learning theories that are not specific for any country the framework and the method that have been used in this study are suitable also for other countries. The result of this study is hopefully useful for other countries with situations similar to Thailand. Presuming that other developing countries in Asia for example have similar problems with connectivity and culture, the result of this study might be useful for other countries.

Due to the facts that I have been limited to use sources in English and that many web sites about Thailand are written in Thai, there might be available sources that are more updated than the ones I have used in this study. I have however clarified what year the source is published in order to let the readers create their own opinion of the material.

8.4 Suggestions for further research

While conducting this study I have realised that the information within the field of e-learning is enormous. Since e-learning is a relatively new area, a number of suggestions for further research within this field can be found. The comparison I have made in this study is focusing on Thailand and Sweden. Studying other countries in the same comparative manner would be of great interest since each country faces different barriers and issues. While conducting this study I gained an overall view of e-learning by studying all of the e-learning components in my framework. Focusing on only one or a few of these components, and possibly also examine if some of these areas are more critical for the success of e-learning than others, are other suggestions for further research.

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Interview 1, Ann Sofie Fredriksson, 2006-01-20

Interview 2, Janerik Lundquist, 2006-02-15

Interview 3, Anonymous, 2006-03-05

Interview 4, Nenad Cuturic, 2006-01-24

10 Appendices

Interview 1

Ann Sofie Fredriksson, Informatör vid Myndigheten för nätverk och samarbete inom högre utbildning 2006-01-20

Intervjuguide

Jag läser det systemvetenskapliga programmet i Lund och skriver nu min magisteruppsats i informatik om e-learning readiness, nätuniversitet mer specifikt, och har som avsikt att göra en jämförande studie mellan Sveriges nätuniversitet och Thailands nätuniversitet. Från nätuniversitetets webbplats har jag fått tillgång till en del information, men jag är nu i behov av att komplettera denna. Därför vänder jag mig till dig med ett par frågor.

Frågorna kommer främst att behandla utvecklingen av kursmaterialet och lärarnas roll i nätkurserna. Jag skulle gärna använda en högtalartelefon som gör det möjligt att spela in samtalet så att jag lättare minns vad som sägs. Är detta okej med dig? Tycker du att det är okej att jag refererar till denna intervju och använder ditt namn i min uppsats?

- Enligt nätuniversitetets webbplats arbetar du som informatör med nätuniversitetets marknadsföring, information och webbpublicering. Kan du berätta lite mer specifikt vad du arbetar med?
- Vem utvecklar innehållet för kurserna på nätuniversitetet?
- Finns det några riktlinjer för utvecklingen av innehållet?
- Används tillgängligt material?
- Vilken är målgruppen för nätuniversitetet?
- När ni dessa studenter?
- Ges lärarna som undervisar i nätburna kurser någon form av utbildning för denna typ av undervisning?
- Har pedagogiken i nätkurserna anpassats så att den lämpas för nätburen utbildning? -I så fall, på vilket sätt?
- Hur tror du att nätuniversitetet kommer att förändras och utvecklas i framtiden?
- Är det okej om jag skriver ut intervjun och ber dig läsa igenom denna för att kontrollera att innehållet stämmer med det du sagt?
- Är det okej om jag återkommer till dig om jag behöver komplettera informationen jag fått idag?

Summary of interview 2006-01-20 via telephone

Ann Sofie Fredriksson arbetar som informatör vid Myndigheten för nätverk och samarbete inom högre utbildning. Hon arbetar främst med marknadsföring, information och webbpublicering. From den 15 januari 2006 har Myndigheten för Sveriges nätuniversitet fått nytt namn. Nu heter de istället Myndigheten för nätverk och samarbete inom högre utbildning. Myndigheten för nätverk och samarbete kommer att förkortas till Myndigheten i detta dokument. Namnskiftet gav Myndigheten nya uppdrag, vilket även påverkar Ann Sofie Fredrikssons arbetsuppgifter. Myndigheten har blivit alltmer riktad mot allmänheten, främst till människor som befinner sig långt ifrån högskolor geografiskt eller tidsmässigt, samt till dem som har ett stort socialt avstånd från högskolestudiemiljöer, det vill säga de som kommer från en så kallad studieovan miljö. Myndighetens uppdrag är att nå dessa grupper. Det uppsatta målet att inom 25 år få 50 % att studera på högskolenivå eftersträvas. För tillfället studerar cirka 45-46 % på högskolenivå.

En annan uppgift inom Myndigheten är målet av livslångt lärande. Ann Sofie Fredriksson menar att det fortfarande finns tankesätt som grundar sig i att en utbildning leder till ett och samma yrke under hela yrkesverksamma period. I detta tankesätt fortsätter till exempel en utbildad lärare att vara lärare livet ut. Till skillnad från detta betonar istället det livslånga lärandet ett ständigt lärande, vilket Ann Sofie Fredrikssons karriär är ett exempel på. En utbildning inom journalistik kan efter ett livslångt lärande leda till en tjänst som informatör. Myndigheten arbetar för ett stöd av det livslånga lärandet.

Ann Sofie Fredriksson menar även att det sker en ökning av så kallad blended learning, det vill säga att gränserna mellan traditionell campusutbildning och IT-stödd utbildning kommer att bli allt svagare. IT-stödd utbildning integreras på så sätt i vanlig utbildning, genom att till exempel material lämnas och hämtas med hjälp av teknologiska tjänster.

Kursutvecklingsarbetet för kurserna sker på högskolorna. Myndigheten har en mer övergripande uppgift i kursutvecklingen där olika projekt som till exempel handlar om hur olika typer av examinationer kan användas i olika områden, ska hjälpa högskolorna att underlätta och förbättra utvecklingen av kurserna.

Myndigheten tillhandahåller ett antal riktlinjer för att utveckla IT-stödda kurser. I rapporten Kvalitet i IT-stödd distansutbildning ger Myndigheten regelrätta råd som är några i mängden av alla de riktlinjer som finns att följa vid utveckling av IT-stödda kurser. Tydlighet och struktur i kursinformation tror Ann Sofie Fredriksson är extra viktig för IT-stödda kurser. För människor som väljer att studera med denna typ av utbildning och som kanske har ett långt avstånd till högskolan, är tider, eventuella sammankomster osv. extra viktigt. De IT-stödda kurserna tror Ann Sofie Fredriksson kräver mer planering än de traditionella campuskurserna. Hon hänvisar samtidigt vidare till universitetslärarförbundet samt Gunnel Wännman Toresson och Brittmarie Oia vid Myndigheten för vidare information om pedagogik och planering av IT-stödda

distanskurser. Se även Myndighetens projekt: Breddad magisterutbildning med inriktning mot IT-stödd distansutbildning, 40 poäng.

Ann Sofie Fredriksson tror att behovet av IT-stödda distanskurser ökar. En undersökning utförd av Myndigheten visar att fler människor vill studera på högskolenivå med IT-stödd utbildning. Av dem som vill eller kan tänka sig en IT-stödd utbildning har det skett en ökning från 68 % år 2003 till 74 % år 2005. Behovet finns, sedan är det högskolornas uppgift att utveckla kurser med hög kvalitet så att studenterna blir nöjda och återkommer. Se rapport.

Interview 2

Janerik Lundquist, ordförande i Internationella kommittén inom Myndigheten för nätverk och samarbete för högre utbildning 2006-02-15

Intervjuguide

Jag läser det systemvetenskapliga programmet i Lund och skriver nu min magisteruppsats i informatik om e-learning readiness, nätuniversitet mer specifikt, och har som avsikt att göra en jämförande studie mellan Sveriges nätuniversitet och Thailands nätuniversitet. Från nätuniversitetets webbplats har jag fått tillgång till en del information, men jag är nu i behov av att komplettera denna. Därför vänder jag mig till dig med ett par frågor.

Frågorna kommer främst att behandla internationella trender inom nätbaserat lärande. Jag skulle gärna använda en högtalartelefon som gör det möjligt att spela in samtalet så att jag lättare minns vad som sägs. Är detta okej med dig? Tycker du att det är okej att jag refererar till denna intervju och använder ditt namn i min uppsats?

- Kan du börja med att berätta lite mer specifikt vad du arbetar med i den internationella kommittén?
- Hur arbetar ni för att upptäcka trender inom nätbaserat lärande?
- Vilka är de senaste trenderna inom nätbaserat lärande internationellt?
- Hur arbetar ni för att förmedla dessa internationella trender?
- Har ni något samarbete med Thailand?
- Har du någon kontakt i Thailand som arbetar med e-learning?
- Har du något tips på vart jag ska vända mig för att få kontakt med någon i Thailand?
- Hur tror du att nätbaserat lärande kommer att utvecklas i framtiden?
- Hur tror du att nätuniversitetet kommer att förändras och utvecklas i framtiden?
- Är det okej om jag återkommer till dig om jag behöver komplettera informationen jag fått idag?
- Är det okej om jag skriver ut intervjun och ber dig läsa igenom denna för att kontrollera att innehållet stämmer med det du sagt?

Transcription of interview 2006-02-15 via telephone

PN: Petra Nilsson

JL: Janerik Lundquist

PN: Först, vill du börja med att berätta lite kort om vad du arbetar med?

JL: Jag är sedan några år tillbaka engagerad i nätuniversitetets internationella kommitté. Det är ett nytt namn på myndigheten från och med nu men vi kan kalla det nätuniversitetet i den här diskussionen. Jag har varit med i den internationella kommittén sedan den startade och är numera dess ordförande sedan ett och ett halvt år tillbaka ungefär.

PN: Som jag har förstått det arbetar ni för att upptäcka trender.

JL: Ja, bland annat. Uppgiften är ju att vara känselspröt ut i världen när det gäller distansutbildningen på olika sätt. Och vi ska också följa litteraturen och tidskrifterna på området, skriva notiser och rapporter om det på olika sätt. Vi ska få ut svensk distansutbildning i omvärlden genom att delta i olika sammanhang. Jag sitter själv i en styrelse för de här frågorna i Europa till exempel och ger då svenska impulser och initiativ till det man ska diskutera på ett europeiskt plan. Vi åker på konferenser där vi uppträder i kommitténs namn och så att säga försöker hålla omvärlden uppdaterad på vad vi gör i Sverige. Sen försöker vi bjuda in internationella personer som kan bidra till olika infallsvinklar på distansutbildning, på universitet och högskolor eller på myndigheten.

PN: Är det bara europeiskt eller är det även i andra länder?

JL: Nej, det är hela världen vi bevakar.

PN: Kan du säga sammanfattningsvis vad som är de senaste trenderna inom nätbaserat lärande?

JL: Det är inte möjligt att säga så, därför att olika världsdelar har olika trender och är olika långt framme när det gäller utveckling så att det är en omöjlig fråga att svara på på det sättet. Det finns ingen världstrend utan olika länder och olika världsdelar är olika långt framme och har olika förutsättningar för distansutbildning över huvud taget. Olika förutsättningar för att använda teknik till exempel. Om man bor i Afrika så finns det inte elektricitet och då kan man ju inte använda den typen av teknik över huvud taget. Och går man till Indien så finns det en PC-penetration som är under 1 % så då är det väldigt få som har tillgång till en dator, så det är så olika.

PN: Senaste trenderna i Sverige och Skandinavien, vad kan du säga om det?

JL: Ja, man försöker ju i alla fall i Sverige att arbeta medvetet med både en teknisk och en pedagogisk och en didaktisk syn på distansutbildning så att man inte bara levererar utan att man försöker sätta in det i ett learning environment. Så att man får en helhetsupplevelse som student, att man använder tekniken som ett redskap men inte som det enda, utan man jobbar mycket med den pedagogiska utformningen för distanskurser så att deltagarna på något sätt får stor möjlighet att ersätta campusupplevelsen med en elektronisk upplevelse så att läreffekten blir så att säga maximal. En trend som jag ser i Sverige är att när vi började en gång i tiden, så sent som för några år sedan, var det väldigt mycket en fråga om att leverera. Leverera bra saker och ting elektroniskt men sen inte medvetet pedagogiskt alla gånger. Det här har man börjat förstå vikten av mycket mera nu.

PN: Det här med att man ska få in lärandet i vardagen, är det något som kommer?

JL: Javisst, vi har ju en väldig kraft i Sverige när det gäller att göra campus som ett lärcentrum om vi uttrycker det så, dvs. att man låter distanstekniken och verktygen användas också på campusutbildningen. Den trenden ser man kanske ännu mera utomlands numera faktiskt än i Sverige. Vi har rest runt i Italien, Schweiz, Tyskland, Frankrike och Indien, men tar vi Europa så länge, ser vi en väldigt stark trend att använda distansutbildningens möjligheter fast på campus och där tycker jag att vi i Sverige inte har samma kraft just nu som man t ex har i Frankrike och Italien. Men sen gör de det rätt taffligt i och för sig i Italien och Frankrike, men i alla fall förstår man möjligheten. Däremot har Schweiz kommit mycket längre tyckte vi, det vi såg i alla fall, när det gällde att låta distansteknikens möjligheter och distanstekniken i sig finnas på campus. De hade gjort mera medvetna satsningar, långsiktiga satsningar, i Zürich t ex.

PN: Varför har vi inte kommit så långt med det i Sverige?

JL: I Sverige är det ju så här att det är vissa universitet och högskolor som har låtit distansutbildningen bli en stor del av verksamheten. Andra har nått sitt tak och har inte något behov av att jobba utanför campus och tycker att man har fullt upp på campus med det man har och att man inte kan ta på sig andra uppgifter idag. Jag menar, går du till de stora universiteten så är det många av dem som har väldigt lite aktiviteter på distans, medan de små högskolorna har väldigt stor andel av utbudet på distans, beroende på att de kanske måste ha det för att nå upp till takbeloppet och få sina pengar. Det är sådana här saker som är inblandade också. Det är nog en vilja hos alla, eller kanske en förståelse från alla, att det här är viktigt och nödvändigt men en del har alltså inte utrymmet att växla in campusutbildningen mot distansutbildning så tydligt.

PN: Du sa att ni har föredrag och bjuder in kontakter och sådär men hur arbetar ni mer rent praktiskt?

JL: Vi är ett stöd till Myndighetens generaldirektör. Kommittén ska förse myndigheten med input. Vi ska få ut det på olika sätt på myndighetens hemsidor, på Högskoleverkets hemsida, sprida rapporter mm. Vi skriver ett antal rapporter varje år som vi låter gå ut till universitet och högskolor och hur mycket de läses vet jag inte men de finns i alla fall tillgängliga. Så att vår uppgift är att se till att vi förmedlar vad vi har sett och hört på olika sätt. Nu kommer vi att ordna ett stort symposium i april om tematiska nätverk. Så vi tar på oss olika uppgifter. Vi tänkte hålla ett stort symposium där vi skulle föra samman rektorerna från Indien och Sverige för att diskutera bryggor mellan Indien och Sverige när det gäller distansutbildning.

PN: Jobbar ni med Thailand?

JL: Nej, det gör vi inte just nu. Jag såg att du skulle göra den jämförelsen. Däremot känner jag till en del om Thailand, men vi jobbar inte med det i kommittén.

PN: Har du något sådär direkt du kan säga om Thailand?

JL: Ja, för dem är det väldigt mycket av delivery. Och över huvud taget i de länderna så är väl pedagogiken i den högre utbildningen rätt undanskuffad och det är mycket av leverans, både i klassrum och på distans. Det var kanske elakt sagt, men lite grann så är det.

PN: Har du några kontakter i Thailand?

JL: Nej, men du skulle kunna gå via Världorganisationen som finns i Norge, ICDE, International Council for Distance Education. I Norge finns huvudsekretariatet; Reidar Roll eller Ana Perona. De har koll på varenda distansutbildande enhet i världen med personnamn och sådant.

PN: Jättebra. Och sen till sist, hur tror du att nätuniversitetet kommer att utvecklas och förändras i framtiden?

JL: Det är väldigt svårt att sja om det, därför att som det är idag så är det ju en portal, det är ett paraply som annonserar ut det svenska utbudet av distanskurser. Vi driver ju ingen egen verksamhet. Den nya myndigheten skapades ju den första januari med ett nytt namn, där ordet nätuniversitetet är borttaget. Den myndigheten får ju större ansvarsområde och jag vet inte hur distansutbildningen kommer att bli inom ramen för den nya myndigheten. Man kan väl säga att mycket av det här ska ju vara institutionaliserat nu på olika högskolor och universitet, det ska vara en del av den dagliga verksamheten. I den mån det är det eller inte kan vi tvista om men tanken är väl att det inte ska behövas så mycket av myndighetsutövning just för att driva fram, distansutbildning ska komma inifrån. Men sen kan det ju behövas en samordning att på något sätt tala om för samhället vad det finns för distanskurser för man är ju inte beroende av tid och rum när man läser på distans, dvs. man kan i Lund gå en kurs som ges i Luleå. Men hur ska man få reda på det? Ska man söka på varenda hemsida i hela Sverige eller ska man ha den här samlade bilden, portalen, som nätuniversitetet har? Den tror jag är oerhört värdefull. Och den kan också utökas med internationellt levererade kurser som på olika sätt är lämpliga för Sverige, som vi inte har i Sverige redan. Så det tror jag är en stor uppgift. Sen tror jag att det är viktigt att Sverige syns internationellt på det här området, alltså kommitténs funktion tror jag är oerhört viktig, att vi representerar Sverige i olika sammanhang. Det har jag ju märkt själv. Jag har hamnat i den inre kretsen i styrelsen för något som heter EADTU, European Association for Distance Teaching Universities, och det är en oerhörd påverkan man har på utvecklingen i Europa t ex genom att sitta positionerad på ett sådant sätt där svensk syn och svenska åsikter kan komma fram. Så jag tror att vi som myndighet måste ha kraft och ork att fortsätta med den verksamheten. EDEN är en annan sådan organisation där vi bör vara representerade och ICDE också i olika sammanhang. Där är jag också med för att Sverige ska få ut sitt budskap och inte blir isolerat, men också ta hem impulser från omvärlden till Sverige. Det här är en lång process, det är en process som pågår under en lång tid naturligtvis och det växer fram genom inre kraftfält. Men det måste finnas där. Myndigheten måste fortsätta med den här verksamheten vi har haft hittills. Så kan jag sammanfatta hur jag ser min roll, kommitténs roll och nya myndighetens roll.

PN: Men ni tittar på alla områden, pedagogik, teknik osv.?

JL: Ja det gör vi. Kommittén är sammansatt så att det är erfarna pedagoger, det är folk som är duktiga på det tekniska området, det är de som har samhällsanknytning på olika sätt i kommittén och det är studenter med också, så att det är en bra kommitté, den är väldigt bred. Man kan få olika impulser från varandra i kommittén. Om vi åker ut på en studieresa kan vi titta med olika ögon på saker och ting och sen sammanfatta till en helhet. Så just nu sitter jag och skriver på en frankrikerapport. Vi gjorde en resa i Frankrike i höstas där vi var på ett antal besök och vi gör en sammanfattning av läget i Frankrike just nu. Likadant gjorde vi i Italien för några år sedan och Tyskland, Schweiz och Indien har vi också utvärderat. Så vi har lite sådana här saker på gång. Det där vet Ann Sofie Fredriksson på Myndigheten allt om, om du vill ha några av våra rapporter.

Interview 3

Anonymous, programmer at Chulalongkorn University, interview via e-mail 2006-03-05

Dear Sir/Madam:

My name is Petra Nilsson. I am master student of Department of Informatics, Lund University, Sweden. I am writing my master thesis about e-learning and net universities and I intend to make a comparative study of the Swedish Net University and Thailand Cyber University, TCU. I am therefore very interested in information about TCU. I have found some information at the TCU webpage, but I need some more complete material for my thesis. I would appreciate if you could help me with the following.

- What are your working tasks at TCU?
Programmer (now I'm not in the TCU team)
- Who develops the content of the courses?
The government provides grants for making content. So many universities in Thailand can apply the grants for producing the content. Some courses were made by the universities incorporated with private companies.
- Are there any guidelines to follow when developing net courses at TCU?
No guidelines are specified in the grants. Recently, SCORM standard is required and a template for content makers is discussed.
- What kind of courses is free at the TCU?
Last year almost all courses are free. They prepared for a studying programme with Bachelor or Master degrees. Students must pay for receiving the degrees.
- Does the Learning Resource Center contain whole courses or only parts of courses?
Some courses or topics are linked to (URL) universities in Thailand.
- Is it possible to build a course by using material from Learning Resource Center?
Possible (additional contents and tests must be made)
- How do you assure the quality of the course?
Most contents are poor because the universities in Thailand have no experience in designing e-learning contents. The money and time is very limited due to the reason that the difficulty of making contents is underestimated. There is a lack of staffs who are skillful in producing contents and programming LMS.
- What is the "quality control unit" of the TCU?
There is no committee who is responsible for evaluating the content.

- Are the teachers trained in new technologies and new learning approaches? If so, how?

Yes, but I have doubt about the quality. In fact, the number of teachers who really pass the trainings (if we evaluate) is small.

- Do all the universities use the same LMS?

No. A variety of LMS is used in Thailand, for example, TCU, Moodle, ATutor, Blackboard, IBM LMS, etc.

- It says on the webpage that internationally accepted educational standards are used. What kind of standards are these?

I guess SCORM standard.

- With whom does the TCU collaborate with in order to improve the quality of the courses?

Many courses are made without a maintenance plan because they are not used repeatedly or annually in a studying programme. In addition, content makers and programmers work in universities for 2-3 years. So maintaining the content is more difficult than starting a new project.

- What is the target group of TCU?

At the moment, I think the target group is not clear. The government is not the owner of studying programme (providing degrees). So the government plays a role of connecting the universities and providing infrastructure for developing e-learning. TCU is a government national project; it is not a project in a university.

- How do you think Thailand Cyber University will develop in the future?

Data center for interchanging the content in Thailand.

Interview 4

Nenad Cuturic, IT-ansvarig vid Myndigheten för nätverk och samarbete inom högre utbildning 2006-01-24

Intervjuguide

Jag läser det systemvetenskapliga programmet i Lund och skriver nu min magisteruppsats i informatik om e-learning readiness, nätuniversitet mer specifikt, och har som avsikt att göra en jämförande studie mellan Sveriges nätuniversitet och Thailands nätuniversitet. Från nätuniversitetets webbplats har jag fått tillgång till en del information, men jag är nu i behov av att komplettera denna. Därför vänder jag mig till dig med ett par frågor.

Frågorna kommer främst att behandla teknologin inom nätuniversitetet. Jag skulle gärna använda en högtalartelefon som gör det möjligt att spela in samtalet så att jag lättare minns vad som sägs. Är detta okej med dig? Tycker du att det är okej att jag refererar till denna intervju och använder ditt namn i min uppsats?

- Enligt nätuniversitetets webbplats arbetar du som IT-ansvarig med den tekniska delen av webbportalen, kommunikation och lärplattformar. Kan du berätta lite mer specifikt vad du arbetar med?
- Enligt nätuniversitetets webbplats utvecklas kurserna med hjälp av riktlinjer från Web Accessibility Initiative. Vad innebär dessa riktlinjer?
- På vilket sätt stödjer riktlinjerna utvecklingen av kurserna?
- Om jag har förstått det rätt använder för tillfället varje högskola en egen lärplattform. Stämmer detta?
- Projektet SLUSS har som uppgift att ta fram en gemensam kravbild för en lärplattform. Är tanken att en gemensam lärplattform ska användas av alla högskolor i framtiden?
- Jag har läst om EMIL-projektet på nätuniversitetets hemsida. Medverkar du i detta projekt?
- Vad är tanken med EMIL-projektet?
- Kommer innehållet som utvecklas i EMIL att kunna användas i internationella sammanhang?
- Vad tror du är de största förändringarna i framtiden för den tekniska delen av nätuniversitetet?

Tack så mycket för att du ställde upp med en intervju! Det betyder mycket för min uppsats!

Summary of interview with Nenad Cuturic 2006-01-24 via telephone

Nenad Cuturic arbetar bland annat med inköp av utrustning, upphandlingar och deltagande i projekt på Myndigheten för nätverk och samarbete inom högre utbildning. Han är delvis engagerad i det pågående EMIL-projektet och i första delen av SLUSS-projektet som nu är avslutat. Tanken med SLUSS var att ta fram en gemensam kravspecifikation för att beskriva vilka funktionaliteter som kan vara relevanta för lärosätena. Att bara att ta fram en kravspecifikation är en lång process som kräver väldigt stora resurser. Därför finansierar och driver Myndigheten för nätverk och samarbete inom högre utbildning denna gemensamma del. Förhoppningen är att varje högskola som utvecklat sin egen lärplattform ska kunna samarbeta och komma överens om åtminstone en gemensam lärplattform att fortsätta utveckla tillsammans istället för att sprida resurser på många små lärplattformar som inte är tillräckligt ekonomiska.

Angående lärplattformar har de flesta universitet eller högskolor antingen upphandlat själva eller utvecklat en egen lärplattform. Eftersom varje högskola är en egen myndighet så har man i stort sätt frihet att välja. Det finns dock en del lärosäten som har valt att samarbeta. Exempelvis har några högskolor samarbeta genom gemensamma upphandlingar och vissa högskolor har lagt ut en drift av systemet på en högskola som de använder tillsammans.

För tillfället finns det olika typer av söktjänster när det gäller utbildningsinformation från grundskolenivå till högskolenivå i Sverige. AMS har en egen kursdatabas för sina arbetssökande där man kan söka utbildningar för att vidareutbilda sig, Högskoleverket har ansvar för högskoleutbildningar, kommunerna har olika utbildningar och CFL har utbildningar för vuxna och distans. Det finns en uppsjö av olika söktjänster med utbildningsinformation på olika håll, vilket har lett till ett behov av att samordna beskrivningar av utbildningsinformation. Projektet EMIL bygger en gammal modell som sedan anknöts till XML. Därefter har olika typer av information lagts till så att man lättare kan beskriva högskoleutbildningar. Efter en internationell kartläggning visades det att det inte fanns någon modell som gick att återanvända. Inom EMIL-projektet sker ett samarbete med Danmark och Norge och några andra europeiska länder. Troligtvis kommer EU någon gång i framtiden acceptera detta som en europeisk standard. beskriva just kursinformation och då är det ett antal element som beskriver olika delar, exempelvis kursnamn, typ av dokument alltså t ex vilken version av XML det är, och massa olika andra delmoment exempelvis vem som står för utbildningen, kontaktinformation, antal träffar och en mängd olika typer av information som kan beskrivas där. Och då finns det tre olika filer, det är education info, det är information om själva kursen, education provider det är information om utbildningsanordnare och education event, då är det kurstillfällena alltså om det är på våren eller hösten eller distans eller kvällspass osv. Informationen delas upp i tre filer och dessa filer publiceras på webben av utbildningsanordnare och hämtas in i olika typer av kursdatabaser.

Web Accessibility Initiative är en standard som anger på vilket sätt information ska publiceras på webben så att den är tillgänglig för funktionshindrade. För färgblinda som inte ser grönt och rött så kan det vara väldigt dålig kontrast och skapa problem för

användarna. Fasta typsnitt som har ett visst antal punkter och som inte går att förstora är ett annat problem för vissa. Det som publiceras på webben är inte alltid tillgängliga för alla. Genom att följa WAI-standarden till en viss nivå kan det underlätta för funktionshindrade så att samtliga användare kan ta del av informationen. Det finns också krav från regeringen att offentliga webbplatser ska följa WAI-standarden. Så allt nytt som tas fram ska följa WAI.

Abbreviations and concepts

Blended learning - classroom time supplements online material.

CBT - Computer-Based Training makes it possible to learn by utilising special training programs on a computer often equipped with CD-ROMs, which makes the education more viable with the benefits of interactivity.

CMS - Content Management System is a software application that handles version managing, workflow and publishing for the content of huge websites.

HDI - Human Development Index is presented by the United Nations Development Programme (UNDP) and measures life expectancy, educational attainment and adjusted real income.

ICT - Information and Communication Technology

ISP - Internet Service Provider

IT - Information Technology

LCM - Learning Management System is software that organises, manages and reports on the interaction between learner and content as well as learner and instructor. For instance it manages students registrations, stores test results and measures the performance of the learners.

LCMS - Learning Content Management Systems which uses the benefits of learner administration capabilities from LMS and the benefits of the content creation and storage capabilities from a CMS. An LCMS creates, stores, collects and delivers e-learning content and offers the benefits of granularised learning that users can repurpose for different contexts and personalise for individual learners by using learning objects.

Learning objects - elements of computer-based instructions based on the object.

M-learning - Mobile learning provides wireless local area network connection with IP multimedia services such as web content, streaming video and wireless links to video projectors as well as simultaneous audio and video.

SMS - Short Message System

TCU - Thailand Cyber University

UniNet - Inter-University Network an educational fibre-optic network linking universities in Thailand to the Internet.