Overcoming the Barrier: Virtual Learning

The Impact of learning in Second Life in Higher Education

Acknowledgements

Master thesis in Business Informatics

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Abstract

Traditional education have for long been remaining without major changes made to the actual system. Up until very recently, there has been reluctance towards making fundamental and dramatic changes to the system, but as societies change and develop by mirroring on past experiences, new minds and new ways of thinking emerge suggesting changes and new developments. Consequently, new educational approaches such as e-learning and virtual learning have emerged.

Lately, technology has been transforming and developing than ever before and the demand for modifying accordingly to new technology has become a prerequisite for all industries and institutions. Already with e-learning, a derived concept is worthy of notice. Authenticity, meaning validity and accuracy, has been imposed as one major issue when it comes to e-learning, and also v-learning.

The main goal of this thesis is to present answers and suggestions to the following research questions:

➢ What value does a virtual education method create for the students?

➢ What implications are there for an education through Second Life and what is the significance of such an environment?

➢ What are the main auxiliary instruments or tools that enhance authenticity and the achievement of high presence in a virtual environment?

This research adopted an inductive approach using a qualitative research. The characterizations of knowledge used were descriptive knowledge, normative knowledge, explanatory research and evaluating research for the respective research questions. As a result of collaborating with Kalmar University, Sweden's first Second Life course *"Oral Production"* was observed and to intensify the results, an interview was held with the course's lecturer. The results were thereon analyzed and scrutinized based on the Empirical Findings, Theoretical Framework – consisting of mainly pedagogical theories and of articles concerning virtual learning environments.

The conclusion of this research entails the answers for the research questions. An education via a virtual environment is a development of e-learning, which is an enhancement of a traditional physical education. All students are persuaded to be active and par-

ticipate in learning, which also promotes interconnectedness between students and teacher. Students can do role-playing and do presentations without feeling embarrassed about their "real" identities being represented. Main auxiliary instruments include virtual presentation boards, audio to communicate with each other and the avatar to direct the speech. Additionally, to enhance high presence in a virtual environment, involving all students with creative exercises seems to be another means in achieving high presence in a virtual environment.

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1   Introduction

Provided in this section is a background and a problem discussion about virtual learning and education in general. Followed by the research questions is the purpose, defining the aim of this study as well as positioning of the study, defined terminology and a disposition of the thesis.

1.1   Background

Traditional education style have for long been remaining without major changes made to the actual system. This has provoked many creative thinkers and futuristic minds such as academics to think of alternative educational approaches which have deemed the current system as a system that needs change; to create new systems that promotes new ways of teaching and opening up for ultramodern possibilities and techniques. Up until very recently, there has been reluctance towards making fundamental and dramatic changes to the system, since this has made many conservative people anxious and ambiguous. Moreover, as societies change and develop by mirroring on past experiences, new minds and new ways of thinking emerge suggesting changes and new developments. The notion of knowledge is one example presently perceived as never ending – the acquisition of knowledge never ends and we have new ways of learning and behave differently while learning compared to older times.

Very recently, though, changes to alternatives have emerged and surfaced within the field of education. Learning through the internet (i.e. Net University), e-learning, and v-learning (i.e. virtual learning) are some of the new learning methods that have challenged the traditional learning methods. With these new methods, thanks to the latest technology, new and potential approaches to learning also produce new ways of thinking, learning and practical undertakings. New opportunities arise and new perspectives are given a chance to provide for distinctive alternatives where the consumer (i.e. students and teachers) have more power and freedom to create favorable environments. Furthermore, it is more likely for the consumers to prefer such environments if they have the right to choose, opposing to a sole traditional education which is mandatory.

1.2   Problem

Having a traditional education system – the physical lectures directed by an educator or professor in usually a one-way communicative manner – which has not been altered radically or changed fundamentally also means that we have an education system which is established and solid; we are used to the education system and even though problems arise within the system, we feel that it is secure and dependable. However, even when new methods arise that diverges from the traditional methods to improve present manners, new methods are deemed to be ambiguous and vulnerable since these methods not only challenge the traditional education system; it also comes with new approaches and methods which have not yet been tested as much to be considered as secure and stable. Furthermore, the feeling of being present in a classroom or lecture hall has been one of the main characteristics of teaching and learning. Altering fundamental concepts and features towards new technology therefore, may possibly worry many people that do not see change within the education system as a necessary step or a demanded change.

Lately, technology has been more revolutionizing than ever and the demand for modifying accordingly to new technology has become a necessity in order not only to conquer, but actually maintain in any industry. Whether it is business, institutional, governmental or educational, all elements are forced to adapt to inevitable changes that the latest technology is

providing. But what is the limit for technology? In fact, as it seems now, technology might be limitless with no boundaries for creating and discovering new technological features. This opens up to new and endless opportunities for new education systems. How far is it possible to broaden virtual education prospects? How far does virtual education technology reach currently, as of today?

Already with e-learning, there has been a derived concept worthy of notice. Authenticity, meaning validity and accuracy, has been imposed as one major issue when it comes to e-learning – and also v-learning. To what degree is v-learning authentic? How real can one experience education through a virtual environment? Is v-learning as developed in terms of feeling reality as traditional education? If not, what are the differences? These are some questions that are positioned within the ambiguousness of v-learning. A preferable trait of v-learning might therefore be to achieve a high sense of presence from students and involved teachers. Furthermore, it is important to rate the sense of presence that is experienced through v-learning since it can then highlight the differences and/or similarities between presence in traditional education. Additionally, the question regarding replacing traditional meetings through education emerges. How important is the fact of meeting physically in educational environments? If e-learning and v-learning can compensate such needs, can new learning means replace traditional education? These issues cannot be resolved unless there is clarification concerning how students and teachers experience virtual learning.

It is also advisable to identify what different aspects have to be considered in a virtual environment that does not necessarily have to be considered in a traditional environment. Consequently, differences may also justify the implications and reasons for having new learning methods, such as virtual learning. Other differences include course compatibility – are there specific courses that are compatible with v-learning and other courses that would be difficult or impossible to manage? What auxiliary means would be sufficient in that case? Course structure is another element that might distinguish not only course compatibility, but also whether or not course structure is diverse depending on the education method. Previous studies have highlighted these issues separately and in different contexts and some of these studies may be found under the section *Positioning and Use of Previous Studies*.

Subsequent to the questions mentioned above, the thesis will mainly answer and clarify three of the issues brought up, whereas the remainder of the questions will act as a supplement and will thereby not be considered as main points in this thesis. This is for methodological reasons to ensure the order and the relevance of the research questions which are formulated into the purpose of this thesis. For interested parties, researching the remainder questions is a suggestion which can broaden and provide clearer insight as well as providing research with a varied focus in the subject area.

The main goal of this thesis is to present answers and suggestions to the following research questions:

➢ What value does a virtual education method create for the students?

➢ What implications are there for an education through Second Life and what is the significance of such an environment?

➢ What are the main auxiliary instruments or tools that enhance authenticity and the achievement of high presence in a virtual environment?

1.3   Purpose

The objective of this thesis is to clarify the topic of virtual learning by presenting its core values and impact, and providing a solution of tools that can enhance the virtual environment's authenticity in terms of education by means of primarily using descriptive knowledge, explanatory research and normative knowledge.

1.4   Delimitations

Since a big portion of virtual education takes place in Second Life which is one of the most popular virtual world environments (Sah & Kanunjna, 2008) only Second Life will be investigated. Furthermore, observations are done via collaboration with Kalmar University's *"Oral Production"* course, since Kalmar University is Sweden's first and presently only University conducting a course in Second Life, and will therefore be examined for this thesis. Furthermore, since JIBS is considering to conducting a research method course via Second Life and that is partly how the topic and interest of the thesis theme emerged, this thesis is specialized and focused on JIBS' as its main stakeholder. Therefore the research findings will be based mainly on JIBS and the school's ability to implement and run courses through Second Life.

1.5   Positioning and Use of Previous Studies

As mentioned previously, this thesis is from a University/higher education perspective. Essentially, the main positioning of this thesis will be seen from JIBS' perspective. Since the direct stakeholders of a University mainly include teachers and students, the observations will be separated into three parts – behavior of the teacher, the students and a general illustration, named as the environment.

To clarify the positioning of this thesis, a variety of previous studies related to the research area have been identified. Firstly, the author's previous thesis *V-business in the 3D Internet* by Franzén & Günes (2008) aims to scrutinize the future outlook for virtual business by identifying the opportunities and drawbacks of selected companies' experiences upon penetrating the market in Second Life. Another study called *Second Life: Second Chance* by Seryte & Storgaard (2007) provides a more descriptive research whereas *Second Life: hype or hyperlearning?* by Cheal (2007) focuses on education in Second Life from a broader perspective, specifically inserting Second Life in an education context. Similarly, Jennings & Collins (2007) studies education in Second Life by looking at the educational institutions that are already surfaced on the platform to identify what educational institutions are simulating and what kind of activities they are running in their article *Virtual or Virtually U: Educational Institutions in Second Life*. In *Implementing Virtual Learning Environments: Looking for Holistic Approach*, Barajas & Owen (2000) characterize illustrates the implementation issues when implementing virtual learning environments, such as cross-cultural and institutional issues. Finally, Keller (2007) concentrates on user acceptance involving the management of Universities in her dissertation *Virtual Learning Environments in Higher Education – A Study of User Acceptance.*

1.6   Definition of Key Terminology

V-learning – Virtual learning, is a developed variety of e-learning, usually in a synchronous learning setting, and improved through special enabled 3D visualization (Franzén & Günes, 2008).

Virtual Learning Environment (VLE) – An educational platform environment which is delivered and enabled by technology through improved special enabled 3D visualization (Franzén & Günes, 2008).

E-learning – Learning that is delivered, enabled or mediated by technology (Mitchell & Honore, 2008).

Blended learning – Learning involving multiple methods and approaches, commonly a mixture of classroom and e-learning (Mitchell & Honore, 2008).

Authenticity – The correct attribution of origin such as the authorship of an e-mail message or the correct description of information such as a data field that is properly named. Authenticity is one of the six fundamental components of information security (PCMag.com, 2008*a*). Trustworthiness and genuineness usually used to identify the person meant to be behind the screen.

Identity (web-based) – also known as Identity management, is a broad administrative area that deals with identifying individuals in a system and controlling their access to resources within that system by associating user rights and restrictions with the established identity (SearchUnifiedCommunications.com, 2008). A web-based identity is a digital identity representing the actual person behind the screen.

JIBS – Jönköping International Business School, an institution of one of the three private Universities in Sweden with special focuses on entrepreneurship, innovation and family businesses. JIBS is a part of Jönköping University.

Virtual Environment – Could be any virtual creation on the internet. It comprises the concepts of virtual reality, virtual world, virtual business, virtual education and additional activity such as chatting, blogging and information access (Franzén & Günes, 2008).

Virtual World – A three dimensional society on the Internet where the user is represented by a third person, a digital alias also called avatar. Socializing and participating in business activities are the main purposes in these worlds. Second Life or close substitutes with the same characteristics will be referred to when mentioning this concept. Further, this concept should not be confused with virtual reality since the level of interaction differs (Franzén & Günes, 2008).

Traditional Education – The most common educational system around the world. Traditional education relies mostly on intellectual learning without including experiential learning and ignores the "personal discovery of meaning". Furthermore, students are allowed little or no democratic involvement in their own education (Bondelli, 2007). Traditional education is usually based on a standardized syllabus produced by the school and/or teacher, i.e. the educator decides the information provided and such a system is usually a one-way communication where the educator informs (knowledge) and the students acquire the information (knowledge). It is usually more concerned with obtaining a degree and/or graduating rather than prioritizing actual learning.

Second Life – Abbreviated as SL, a virtual world on the Internet from Linden Research, Inc., San Francisco, CA, in which "residents" create an identity, meet people, buy land and build their own environment or purchase an existing one. It is a "massively multiplayer online role playing game" (MMORPG), but one that offers users total freedom to create and interact as if they were living another life (PCMag.com, 2008*b*). Second Life is a massive multiplayer universe (MMU) set in a 3D virtual world (WhatIs.com. 2008).

Net University – Offers IT-supported distance University courses, providing a different way to study regardless of different time and place and is usually founded on e-learning principles.

Asynchronous learning – Learning where participants are in different places and communicating at different times (Mitchell & Honore, 2008).

Synchronous learning – Learning from participant in different places but at the same time (Mitchell & Honore, 2008).

1.7   Interested Parties

Interested parties that might find a benefit from the conclusion of this research may include (higher) educational institutions that are considering a blended learning approach/ virtual education implementation at their respective institutions. In addition, these might also be educational institutions trying to figure out what kind of courses that may or may not be compatible to be run through a virtual environment. The outcome of this research may assist and give further ideas about how to initiate and conduct a course through a virtual environment, and perhaps also additional methods of impeding with authenticity issues concerning the students' identities.

1.8   Disposition

Introduction: The thesis opening is initiated by a related introduction to the subject of traditional education and e-learning, followed by a problem discussion, suggesting different specializations of studies that raise interesting questions within the topic. Next, research questions among these issues are picked and narrowed down to the thesis' purpose that is meant to direct the research into the specific given area.

Method: The method fragment presents and argues for the options chosen. These include characterization, inductive versus deductive approaches, as well as quantitative versus qualitative studies. Moreover, validity, reliability and generalization are discussed.

Theoretical Framework: This section of the thesis presents different theories within pedagogy and the acquisition of learning, and is interconnected with the informatics part of the research; including Second Life, e-learning and virtual education via Second Life. This section portrays the different mindsets that have evolved around education and is aimed to acquaint the reader with the various perspectives in order to understand the analyses in more detail.

Empirical Findings: The Empirical Findings presents a framework for the thesis' foundation. It presents the observations, divided into three settings, namely teacher, student and environment perspectives, and the supplemented interview which will act as the core data in the next Analysis section.

Analysis: The findings from the observations and interviews are discussed and further related to the previously mentioned theories as well as to current matters on the subject. In this chapter, the aim of the thesis is to answer the research questions.

Conclusion: Lastly, discussions about the analysis and empirical studies are drawn as conclusions as well as presenting a reflection about the research procedure as a whole.

2 Method

Outlined in this chapter is the research approach and the methodology used when scrutinizing and conducting the study. Also, reliability, generalizability and credibility are discussed whereas characterization of knowledge and the nature of the study (qualitative/quantitative, inductive/deductive, etc) is argued for and the importance of the specific choices are stressed.

2.1 Research Approach

2.1.1 Characterization of Knowledge

Information is limitless and has many different varieties in terms of types of information and what kind of information that is sought and aimed for. Therefore, it is important to characterize, or distinguish different types of knowledge that is gained from information. When a question is asked or hypotheses are stated, the answers might have different implications on the study depending on what kind of knowledge that is pursued for. Ruane (2006) explains the different kinds of knowledge that is existent within research. She specifically identifies four different knowledge categories; explorative research, descriptive research, explanatory research and evaluating research. These are briefly clarified below (Ruane, 2006):

- **Explorative research** – aims to find out a phenomenon or matter that has not yet been discovered, i.e. exploring a field for new findings.

- **Descriptive research** – illustrates a more detailed description of a phenomenon and is usually referred to questions that require detailed facts to provide a clear understanding of the researched field. Descriptive research usually answers a "why" and "what" question.

- **Explanatory research** – explains a phenomenon and answers the "how" questions. This type of research can be referred to cause-and-effect analyses where the aim is to identify and explain certain occurrences.

- **Evaluating research** – directs at determining opportunities and drawbacks or effects of a phenomenon. This type of research is usually of interest when researching the result or outcome of a specific course.

In addition, Goldkuhl (1998) further describes 3 types of knowledge; normative knowledge, value knowledge and predictive knowledge:

- **Normative knowledge** – refers to knowledge as constructed guidelines, rules, recommendations, outline or directions. This type of knowledge directs the researcher and provides assistance and is used as an action-based prescription.

- **Value knowledge** – concerns knowledge that is desirable or required. This type of knowledge develops goals, values, preferences and visions.

- **Predictive knowledge** – relates to understanding that is used to give knowledge about the future, hence predictive knowledge. These include forecasts about specific occurrences and may also be of a descriptive sort, i.e. where the future is described as a result of specific occurrences.

For this research, three types of research can be assessed. First and foremost, apart from justifying the value of a virtual education method, the first research question in this thesis is also aiming for a clear distinction and description of the difference between e-learning and an education via Second Life, in order for the reader to understand the difference between the two environments. Therefore, the knowledge used for the first research question is of a descriptive sort. We are asking the "why" and "what" questions when investigating the answer.

The second research question deals with implications and the value provided through a virtual environment which requires a thorough explanation and answering "how" questions. Furthermore, the research also requires determining the value of virtual environments. Therefore, the knowledge used for the second research question is explanatory research and evaluating research, since two different aspects are covered within the same research question (i.e. explaining implications and determining or measuring the value).

The final research question is seeking to create a guidance, outline, or direction to provide an answer regarding supporting or assisting needs for education through virtual environments. Consequently, normative knowledge was the aim to be used for the third research questions since the goal for the answer for the specific question was aiming to develop assistance to support the previous research questions mentioned above. Instead however, predictive knowledge is used to give a forecast about expected outcomes and development.

2.1.2   Inductive or Deductive Research

In research, there are two primary research methods that determine how to go about conducting the research. These are called the inductive and the deductive research approaches. Ruane (2006) describes the inductive approach as initiating the actual research through the empirical research and continuing the development of new theories after conducting the empirical study, whereas the deductive approach originates from hypotheses and theories from existing studies. These studies are then used to confirm and authenticate the hypotheses through empirical research (Ruane, 2006). Similar to the author's previous research being an inductive research (Franzén & Günes, 2008), this research will also take on the inductive approach since the research is initiated by the empirical studies and remaining to progressing new theories based on existing studies.
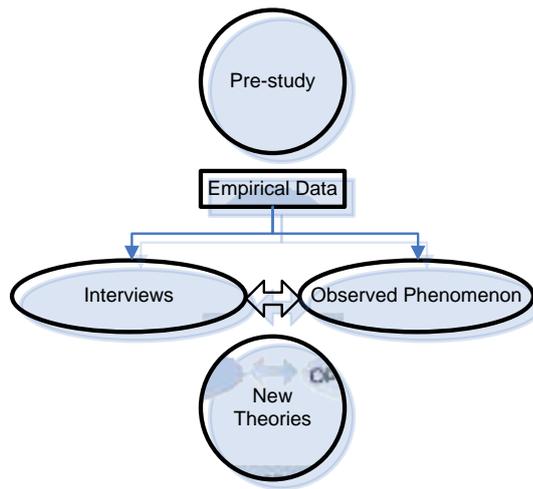
Figure 2-1 Inductive Approach (Franzén & Günes, 2008)

This research is posing questions which are expected to answered through empirical findings. Firstly, as stated in the research question, we are assuming that there are certain differences between traditional physical education and an education via a virtual environment, and we are further assuming that there is a certain value through virtual education. In other words, we are asking what the value is for students. Secondly, we are assuming that there are certain implications for an education through Second Life – basically, we are asking what the connotations are for conducting an education through Second Life as we are asking what value such an environment creates. Finally, we are yet again, assuming that there are assisting tools that develop and improve the authenticity and achievement of high presence in a virtual environment – we are asking what these assisting tools are in our final research question. In the purpose, the final research question is stated as an *"aims to characterize the main supplementary means that increases authenticity and high presence in a virtual environment."*

As this thesis aims to initiate through empirical studies, an inductive approach can be seen as most suited for this kind of research. As described in a previous study by Franzén & Günes (2008), in a hypothesis-deductive approach the researcher derives hypotheses from existing theories and validates them by testing them through empirical research. In the contrary, the inductive approach starts with the empirical research, and from thereon develops new theories (Ruane, 2006). Trochim (2006) characterizes the deductive approach as more a "top-down" approach, where we initiate from the beginning (existing theories/studies of the topic interested), working our way down to hypotheses and empirical studies, resulting in a confirmation. Trochim (2006) calls this process "narrowing down" and hence the "top-down" approach, since we start off very general but as we go along the process, the approach slender down and becomes more specific. Furthermore, Trochim (2006) differentiates the deductive approach from the inductive approach by explaining that the *"inductive reasoning works the other way, moving from specific observations to broader generalizations and theories. Informally, we sometimes call this a 'bottom-up' approach."*

Arguing for the inductive research, the actual setting researched in this thesis as well as specifically education in virtual environments lack theories. In addition, there is yet a lack of research concerning students in virtual educations. Therefore, one can argue that an inductive approach is more suitable for this thesis.

In spite of choosing the inductive approach for this research, it is important to note however that there is a possibility to even conduct a deductive approach. This can be argued because first of all, this research can also be studied through exiting theories about the subject within education and knowledge acquisitions that are already present and that these theories can be used as a confirmation-base to validate and/or deny as well as to answer these research questions. In addition, this thesis also aspires to compare existing theory and apply these theories to learning in virtual environments. On the other hand, this thesis aspires to compare existing theory and apply these theories to learning in virtual environments. The case for this choice is because this research was primarily interested in applying already existing courses and altering them, rather than changing them radically in virtual worlds. In other words, the thesis was focused on using the same thinking as in existing theories, but by broadening the scope of the educational platform setting. However, because of the mentioned lack of existing verified theories and in spite of the author's initial attempt to make this research a deductive research, the ongoing process of the study and its nature have determined the study to be based on an inductive research.

2.1.3 Qualitative or Quantitative Research

The distinction between qualitative and quantitative research seems quite diffuse according to various sources. Fundamentally, quantitative research aims to measure a quantity, i.e. to measure how much there is of a certain entity, whereas qualitative research aims to describe the qualities of a phenomenon (Teorell & Svensson, 2007). However, these descriptions can be seen as vague and falsifying, which is why Teorell & Svensson (2007) provides detailed descriptions of the respective terms. Such include the boundaries between quantitative and qualitative method from a research perspective. Seale (1999) denotes that *"the simplest way in which qualitative social research can be defined is in terms of a negative: it is research that does not use numbers."* Qualitative methods refer to characterization and aims to exploring, insight and understanding of how people understand the world, which is a reference of Pål Repstad. Quantitative methods refer to study that is calculated by for example random sampling, questionnaires or structured interviews with set answer alternatives, measurement of variables and statistical amount (Teorell & Svensson, 2007).

Qualitative research aims to study the object or the phenomenon by the researcher's attempt of researching the phenomenon closer and by putting himself/herself in the studied object's/phenomenon's situation in order to get a closer insight in how the condition appears from the specific perspective. This kind of approach supposes that there are some things that cannot be understood unless the researcher experiences the same condition and see what is observed through the eyes of the studied population – the researcher examines internally. Qualitative methods typically encourage more immediacy to the respondent as opposed to quantitative methods (Holme & Solvang, 1991). However, the mentioned nearness may also impose interpretation errors since the researcher's comprehension might not correspond to the setting or the respondent's perception. This might cause undesirable issues since the researcher's interpretation fails to answer the actual objective (Holme & Solvang, 1991).

In his book *"Analyzing Social Settings"* from 1971, Jan Lofland outlines four methodological principles in regards to qualitative methods and research questions (Holme & Solvang, 1991):

- **Proximity to researched entities** – Physical immediacy is required to meet the entity for real, also meaning social closeness and a foundation for mutual trust.

- **Accurate rendering of occurrences** – The researcher's objective comments are required as well as accurate and genuine representation of incidents and events.

- **Descriptive clarifications** – Descriptive explanations of actions, people and activities are required in order to clarify the relationships of what has been studied.

- **Point-blank citations** – In order to present a sufficient understanding, complete and point-blank verbal and written citations or quotations are required to demonstrate the individual's own expressions (i.e. accuracy).

Quantitative research on the other hand indicates usually that the researcher studies the entities from a distance and observes by not being a part of the study himself/herself. A quantitative approach therefore implies that the research is immensely structured already in the theoretical and problem formulation phase, which makes it a lot easier when arranging the information (Holme & Solvang, 1991).

Specifically, this research will use a qualitative method and there are several justifications for this. The qualitative method was chosen as a result of expectations of the research questions. In other words, the potential types of answers were considered before choosing the type of research to be conducted. The first research question requires a qualitative answer, by asking the difference between two or more entities as well as the value. These cannot be measured by quantity, hence, qualitative research was chosen.

The second research question also requires a qualitative answer by asking implications and significance. Since numbers and figures are too ambiguous to use when valuing these answers, once again, the usage of qualitative research in this thesis became more concurrent. Finally, the last research question, asking the main auxiliary instruments and achievement of high presence suited the qualitative research method since the answers derived from the question would most likely result in a qualitative answer in order to fulfill the purpose and provide with satisfying solutions.

Since qualitative research was used in this thesis, the aim is to explain the process in methodology by basing the foundations on Jan Lofland's *"Analyzing Social Settings"* in 1971 (Holme & Solvang, 1991):

- **Proximity to researched entities**

  During the observations, the author was present in one of the sessions to grasp the feeling and proximity of the setting, teacher and students and experience the activities, even as an outsider, to confirm and comprehend clearly about the environment. In case of presence being hindered, recordings of the sessions were made both by the author and Kalmar University representatives.

- **Accurate rendering of occurrences**

  Observations were made as thoroughly as possible, and this was not significantly difficult since the author did not know the students or the teacher. The author highly prioritized objectivity in order to note down accurate results of the sessions.

- **Descriptive clarifications**

  During the observations, detailed notes were written down in order to ensure accuracy and avoid ambiguousness. In order to confirm and check the written notes' accuracy, the sessions were recorded and therefore possible to re-check and con-

firm actions and activities of people to clarify the relationships of what has been studied.

- **Point-blank citations**

    The interview held with David Richardson was recorded in order to enable citations and quotations by writing down a draft script of the conversation. What is presented in the Empirical Findings section is the summarized draft of the interview including citations and quotations to strengthen and confirm the answers given.

2.2 Data Collection

2.2.1 Observations

Observation is a form of method that has the most intimate relation to the researched entities (Holme & Solvang, 1991). As Holme & Solvang (1991) addresses with observations: *"to observe, as a mundane, day-to-day operation in the field, is to orient one's consciousness and one's actions explicitly to look, to listen, and to ask 'what's happening.' It is to ask one's self: What is the order in, or 'meaning of', what's happening? (Lofland, 1971)."* From thereon, observation is described to be the process where the observer is together with, or directly connected to, the members in the group that is ought to be researched, for a longer or shorter period of time. Because of its nature, observation also means that the researcher becomes dependant to make several choices; many of them being of ethical quality (Holme & Solvang, 1991).

Observations can be open or hidden, meaning that open observations are those where the researched entities – or members – are notified about the observation and have accepted being observed. They are aware of the researcher's plotting of different factors that concerns the group's way to function. Hidden, or closed observations means that the researcher does not get in direct contact with the actors of the research, and that this can also mean that the participants in the group may not know about the research taking place at all (Holme & Solvang, 1991).

In regards to participation, there is an active and passive participation approaches which has different implications on the effects of the studied population. An active participation style signifies that the observant, in this case the researcher, takes on the role as a leader where the observant directs the activity – which also results in an apparent effect on the group. When assessing authenticity of the studied population and the activities, this participation approach is not suitable at all (Holme & Solvang, 1991). However, one should not neglect the advantages of an active participation approach either. Holme & Solvang (1991) exemplifies the advantage of active participation where group reactions in certain situations are important.

In passive participation on the other hand, the observant does not direct the studied population and prefers the group to behave as expected, or as naturally possible, in order to obtain as accurate information on the group's regular behavior as possible. However, as counteract, a passive participation may impede the population's activities (Holme & Solvang, 1991). Therefore, Holme & Solvang (1991) impose that it is important not to differentiate oneself from the group in regards to behavior and expression. It is important to be as indistinguishable as possible to prevent sticking out in the crowd and perhaps avoid being perceived as a member excluded from the group. Moreover, it is vital to consider how the

group perceives the observant – even though the studied population should know about the researcher observing their activities or behavior, the observant should keep in mind that the population should not always be reminded of the researcher observing, suggesting that the researcher should be accepted as a part of the group, rather than an outcast (Holme & Solvang, 1991).

In order to acquire knowledge about virtual world courses, this thesis will take on a "learning by watching" method, meaning that this is the reason why observations were chosen. With observations, the author can take a look at the environment and assemble objective judgments on how the course is conducted at Kalmar University, in order to report back and answer the research questions asked. The reasons for not choosing a sole and in-depth interview with students were mainly because of the perspective aspect of the issue. In other words, no matter how significant the students' perceptions are, the thesis needs not only students' perception but a general environmental and teaching perspective as well.

Moreover, since the environment is still considered as unusual by many, and because the number of students was few, interviews were not held with students. Therefore, this thesis takes on a more holistic view, rather than restricting on a specific perception. Moreover, if observations were not conducted, the answers for the research questions would have been insufficient, considering that these answers would not have fulfilled the delimitations. This is, like mentioned above, because of the restriction of interpretation and differences in opinions depending on what entity (i.e. students) one belongs to. By conducting observations, the author was able to scrutinize and observe from three different perspectives in order to satisfy the thesis' main stakeholder; JIBS for the reason that there are intentions of conducting courses on Second Life. Therefore, a sole student perspective would not have been enough, given that the environment and educator are also very significant aspects of the setting when implementing virtual world education.

2.2.2 Interviews

When determining the interview format, there are a few different types to consider in order to justify for why the specific type was chosen.

"At one extreme is the structured interview, where the interviewer asks the respondent a predetermined set of questions which cannot be changed or restructured. An unstructured interview on the other hand, takes on an opposite approach. In such an interview the respondent is able to talk freely about the topic without any steering or influence from the interviewer (Teorell & Svensson, 2006). In between these two extremes is the semi-structured interview where the formulation of the questions can vary depending on the respondent. The interviewer only uses an interview guide with a few topics and issues that need to be covered (Fisher, 2007). The choice of the level of structure should be guided by the purpose of the research" (Franzén & Günes 2008).

To complement the observations, the course lecturer will be interviewed in a semi-structured interview in order to confirm and validate the observations. Given that the interview will act as a supplement to the observations (Appendix 1), the interview will be of a semi-structured type. This is because even though there are a set of predetermined questions to be asked (Appendix 2), the author would like to give the respondent the chance to contribute more without restricting to the author's questions. This is because the respondent is not only experienced within the field, but there is also a possibility for the respondent to add additional comments which may contribute to the research even further. However, there is also a need of predetermined set of questions in this research, since the thesis

is aiming for getting the research questions, which are specific, answered. In other words, the research is in need of such flexibility.

In addition, Franzén & Günes (2008) explain:

"Moreover, semi-structured interviews will enable adaption to each respondent and interview setting by allowing us to: change formulations of the questions, reorder them, and follow up with new questions if needed. A problem with a less structured approach is the increased difficulty of carrying out the analysis due to the complexity of the information gathered (Holme & Solvang, 1997). Nonetheless, we believe the gains will be superior to this drawback."

When constructing the interview manual, three main themes were considered. Firstly, the research questions needed to be answered, and therefore, there had to be questions that dealt with these (Appendix 2: questions 2, 3, 4). Secondly, in order for questions to assist and supplement the research questions, some of the fundamental issues that were raised in the problem discussion, but not formulated into a research question, were also inserted (Appendix 2: questions 4, 5). Finally, an introduction question asking the reason behind conducting a course in Second Life (Appendix 2: question 1) as well as a concluding question (Appendix 2: question 7) regarding additional comments and regards were formulated. Additionally, the interviewer will also have the possibility to ask other questions during the interview, and these will be presented under the Empirical Findings section, marked with a dash (-).

2.3   Research Credibility

Research is an academic field which is why it also needs to be reliable, trustworthy and legitimate. Owing to its nature, research credibility is not only crucial, but is also a factor that determines a study as an academic and serious research which is valid and reliable. Ruane (2006) segregates validity in to two fields: internal validity and external validity. Internal validity refers to issues within the causal validity concerning if the overall research arrangement or the research design can demonstrate cause-effects if there are existent cause. To achieve internal validity means to be able to show changes within an entity or variable, which is dependant on changes in another entity (Ruane, 2006). However, in observational studies, internal validity is not as relevant, since we are not making changes or causing differences. Instead, we can say that internal validity in this case might have been caused when the author was observing the sessions. In regards to internal validity, the author's presence might have caused an effect, change or difference within the behavior of the students or the teacher. It is difficult to justify such a hypothesis, even though the possibility of such a change is not high. This is because even though the observant was present, the observant was not active, nor was it clear to all students that the author was observing. Even though the author was introduced by avatar-name to the students, the introduction did not include any detail about the research or observations. Therefore, internal validity is not as relevant to this thesis.

External validity refers to the validity issues within the results of the study. This means that even though results may seem sufficient for our study, we need to examine if the results can be achieved in other studies within other environments and groups (Ruane, 2006). In other words, the result of the study should have the capability of being replicated in order to obtain the same results. This will prove its validity, since repeated amount of studies within the same subject will give the same or similar results. To ensure external validity, the author will be as objective as possible when observing the environment, to make sure that

the research becomes valid and solid. One objective of this thesis is to scrutinize as accurately as possible in order to enable the same or similar results achieved in other studies within similar relationships and settings. Therefore, the interview with the course lecturer will be conducted to validate and confirm the author's observations. Questions asked will include and answer the research questions. Even though the interviewee is the educator, therefore has the educator and possibly the environmental perception, the observed entities and the observations become clearer to the reader and also more valid. Unfortunately, because of the lack of time and considerations, interviews with students were excluded. Even though the author is presently a student as well, the external validity would have been higher if interviews with students were conducted to confirm the observations from the students' perspective.

Reliability refers to legitimacy or credibility. Reliability is achieved when the research gives the same result every time it is studied and scrutinized. However, we will have to consider and give exception to intrinsic changes within the studied variable (Ruane, 2006). Consequently, reliability is determined through how measurements are exercised and how accurate the researcher is when arranging the information. Hence, it is natural and important to maintain the dependability and trustiness of information when conducting research (Holme & Solvang, 1991). During the research and its different phases, special consideration has been and will be pertained in order to ensure a high quality research as well as ensuring accurate results. Following up on a previous thesis, Franzén & Günes (2008) denotes that:

"Considerations for these implications have been and will be brought up in pertaining context throughout the text."

Consequently, this thesis will continue along the same lines.

Similar to validity, reliability has also been separated into internal reliability and external reliability. Seale (1999) distinguishes between the two terms; describing internal reliability referring to more to quantitative research, whereas external reliability referring to the duplication or reproduction of entire studies. Furthermore, Seale (1999) describes internal reliability by quoting LeCompte and Goetz (pg 147):

"LeCompte and Goetz (1982) define internal reliability as the degree to which other researchers would match given constructs to data in the same way as original researchers. This is a considerably less ambitious goal than that contained in external reliability, but if demonstrated can aid confidence in the logical consistency with which data analysis has been done."

External reliability affects the credibility of the research, and is therefore related to generalizability. Similarly, Seale (1999) portrays external reliability by, yet again, quoting Lecompte and Goetz (pg 141):

"External reliability can be improved, they say, by addressing five issues. First, a research report should identify the particular status position taken by the research in the field. Partly because of fixed attributes, such as gender and age, but also due to the adoption of particular identities (…) researchers can see some more things but not others. Full details of this, argue LeCompte and Goetz, should be given in a report if replication is to be attempted. Secondly, researchers should say as much as possible about who offered data and, thirdly, the social situations in which this was done. In this way, any attempt at replication might follow up similar contacts. Fourthly, LeCompte and Goetz advocate that a full account is given of the theories and ideas that informed the research, including those which were involved in any coding schemes. The fifth point involves attention to methodological reporting, with a detailed account of all aspects of methods used."

Moreover, generalizability is crucial in order to ensure sampling in a correct manner, for an accurate representation of the studied population in regards to the characteristics that the researcher desires to describe (Teorell & Svensson, 2007). In other words, the sample of the study should represent a general population, in order for validity and credibility to be accurate.

As mentioned earlier, since the interview with the course lecturer will be conducted to validate and confirm the author's observations, as well as asking questions to answer the research questions, the thesis becomes more generalizable since confirmation is made between the author and one of the entities. However, it should be noted that the data and observations might vary depending on the course given, as well as depending on the size of the virtual classroom (i.e. number of students), the teacher's approach and attitude, the status of the students as well as the attitude of the students towards the course and the idea of virtual learning. In spite of these, this research will be striving for the same or similar results when researching in the same or similar conditions

3 Theoretical Framework

This fragment is divided into two parts – the first part consists of studies within pedagogy related to the area of subject, whereas the second part consists of the theory in pedagogy within informatics (e-learning) and virtual environments as a platform for education (Second Life).

3.1 Pedagogy

3.1.1 Situated Learning

Situated learning argues that learning and the grasping of new knowledge is related to one's socio-cultural environment, since learning is an integral and inseparable aspect of social practice (Lave & Wenger, 1999). This concept takes on an approach that emphasizes more on the given environment and social surroundings (i.e. situated – being situated at a specific setting) to contend that an individual with its action and its community (or surrounding) is reciprocally establishing each other as well as being constantly involved with one another. Lave & Wenger (1999) adds that *"the generality of any form of knowledge always lies in the power to renegotiate the meaning of the past and future in constructing the meaning of present circumstances."*

What Lave & Wenger call "Legitimate Peripheral Participation" is a notion which stresses that learning is embedded within activity, context and culture – being unintentional rather than deliberate (Learning Theories Knowledgebase, 2008). Holzinger et al. (2005) gives a brief introduction on situated learning:

"The principle of situated learning is a combination of cognivistic and constructivistic approaches. The specific learning situation plays a central role during the knowledge construction process (…) During a situated learning setting, the mental representation of a concept occurs not in an abstract or isolated from but in connection with the social and material context of specific situation (…) Recent research on human learning challenges the separation of what is learned from how and where it is learned."

3.1.2 Instructivism

University of Worcester (2004) distinguishes Instructivism and Constructivism as mere opposites. Instructivism is the traditional and old-fashioned model of learning, where there is a teacher or master whom directs its student or disciple into learning, but directs the learning specifically according to the teacher's or education body requirement. University of Worcester (2004) elaborates:

"Instructivism is direct instruction by a teacher employing objectives and lesson plans related to an overall curriculum guide in order to teach specific content, customarily using the lecture method. Knowledge is in possession of the teacher and there is explicit teaching of an agreed body of knowledge. Instructivism is also referred to as 'direct instruction', 'master learning', 'explicit teaching', or 'precision teaching'."

Furthermore, University of Worcester (2004) mentions the implications for planning and teaching in the instructivist approach:

"The teacher organizes learning objectives and content beforehand. Material and skills are predetermined and defined in advance of learning. Material is delivered by the teacher, skills and material are learnt by the student. Students are assessed by their ability to remember the material or practice the skill."

Lucas (2002) underlines that instructivism as a hindrance for students' self-awareness:

"For students, there is little room for self-discovery and reflection. In instructivism, real world situations are not the models of instruction, nor are there modifications made for individual learning style; the lecture, in its different forms for primary, secondary and tertiary, is the primary mode of content delivery. Students are aware of expected learning outcomes, and outcomes are easily assessable. Further, students are rewarded for success, as in behaviorism, and failure is not tolerated. The object is to focus on the content itself, not the learner or the learning experience."

3.1.3   Constructivism

Sener (1997) presents the concept of constructivism as:

"…an educational philosophy which holds that learners ultimately construct their own knowledge that then resides within them, so that each person's knowledge is as unique as they are."

That is to say, constructivism and constructivist learning is based on active participation in problem-solving and critical thinking from the students' side concerning learning activities which are founded relevant and engaging. Ideas and knowledge are tested and based on previous knowledge and experience, thereby applied or "built", hence constructivism, i.e. "constructing" (University of Worcester, 2004). This means, essentially, that knowledge and learning is based on past knowledge and learning, and that knowledge and learning is constructed upon other previous knowledge. Hence, constructivism is not concerned with the behavioral aspects of learning, but rather solely on the process of learning (Lucas, 2002). The theory of constructivism is based on that knowledge is constructed by the individual based on psychological processing (Skaalid, 1999). Moreover, Skaalid (1999) denotes:

"Learners are considered to be active organisms seeking meaning. Constructions of meaning may initially bear little relationship to reality (as in the naive theories of children), but will become increasing more complex, differentiated and realistic as time goes on."

Key principles within constructivism are situated or anchored learning, social negotiation of knowledge, and collaboration (Sener, 1997).

Among its key precepts are:

> ➢ *situated or anchored learning*, which presumes that most learning is context-dependent, so that cognitive experiences situated in authentic activities such as project-based learning, cognitive apprenticeships, or case-based learning environments result in richer and more meaningful learning experiences.

> ➢ *social negotiation of knowledge*, a process by which learners form and test their constructs in a dialogue with other individuals and with the larger society.

> ➢ *collaboration* as a principal focus of learning activities so that negotiation and testing of knowledge can occur.

Supporting SciTech (2003) emphasizes the constructivism's idea into four key points:

> ➢ Knowledge is constructed, not transmitted.

> ➢ Prior knowledge impacts the learning process.

> ➢ Initial understanding is local, not global.

> ➤ Building useful knowledge structures requires effortful and purposeful activity.

Furthermore, Jonassen (1994) suggests that there are eight features that distinguish constructivism in regards to learning environments:

- ▪ Constructivist learning environments provide multiple representations of reality.

- ▪ Multiple representations avoid oversimplification and represent the complexity of the real world.

- ▪ Constructivist learning environments emphasize knowledge construction instead of knowledge reproduction.

- ▪ Constructivist learning environments emphasize authentic tasks in a meaningful context rather than abstract instruction out of context.

- ▪ Constructivist learning environments provide learning environments such as real-world settings or case-based learning instead of predetermined sequences of instruction.

- ▪ Constructivist learning environments encourage thoughtful reflection on experience.

- ▪ Constructivist learning environments "enable context-and content-dependent knowledge construction."

- ▪ Constructivist learning environments support "collaborative construction of knowledge through social negotiation, not competition among learners for recognition."

Karagiorgi & Symeou (2005) highlights the individual when describing constructivism:

"According to constructivism, the center of instruction is the learner. Meaningful understanding occurs when students develop effective ways to resolve problematic situations."

Since students develop their own ways in solving issues, constructivism actually promotes creative thinking which in turn encourages motivation, since students get the chance to face the desire and accomplishment innate in problem solving (Karagiorgi & Symeou, 2005). To elaborate on constructivism further, Supporting SciTech (2003) describes constructivism as follows:

"Constructivism argues that children invent or construct their own ideas rather than simply absorbing ideas spoken at them by teachers, or somehow internalizing them through endless, repeated rote practice."

In other words, children absorb new data and information to easier, already accessible concepts in order for them to understand and alter their understanding. During this process, children's ideas expand in convolution and intensity, and with related auxiliary needs children can progress their critical insight into how they reflect (Supporting SciTech, 2003). Furthermore, Supporting SciTech (2003) continues:

"Constructivism emphasizes the careful study of the processes by which children create and develop their ideas. Its educational applications lie in creating curricula that match (but also challenge) children's understanding, fostering further growth and development of the mind."

Therefore, according to the constructivism theory, teaching practice is not based on distributing information, bur rather providing information for an individual to pick up and decode. Consequently, the teacher's role changes from being a dispenser of information to a teacher who arranges and organizes actions that enhance interaction, that challenge the predetermined concepts of students, and that assist students to modify their perceptions, and this can be considered by many as a more challenging and sensitive role for a teaching position (Supporting SciTech, 2003).

OTEC (2002) illustrates *Piaget's Stages of Cognitive Development for Constructivism*:

Approximate Age	Stage	Major Developments
Birth to 2 years	Sensorimotor	Infants use sensory and motor capabilities to explore and gain understanding of their environments.
2 to 7 years	Preoperational	Children begin to use symbols. They respond to objects and events according to how they appear to be.
7 to 11 years	Concrete operations	Children begin to think logically.
11 years and beyond	Formal operations	They begin to think about thinking. Thought is systematic and abstract.

Table 3-1 Piaget's Stages of Cognitive Development for Constructivism (OTEC, 2002).

1. *Assimilation - fitting a new experience into an existing mental structure (schema)*

2. *Accommodation - revising an existing schema because of a new experience*

3. *Equilibrium - seeking cognitive stability through assimilation and accommodation* (OTEC, 2002).

The notion of constructivism can be divided into two aspects – the social constructivism and the cognitive constructivism. Although both viewpoints are a part of the constructivism concept as a whole, the two aspects view constructivism in a diverse manner. Social constructivism (sometimes referred to as socio-cultural constructivism), mostly related to Lev Vygotsky, perceives the teacher as the active role-player in learning as the teacher is the one who assists the learner to develop the learner's mental ability and capacity through discovery. In other words, social constructivism emphasizes on learning as a social and collaborative activity rather than knowledge being "taught" – the learning process and knowledge is constructed and interpreted by the learner (Lucas, 2002).

Alternatively, cognitive constructivism, mostly related to Jean Piaget, perceives learning as an achievement through a range of developmental phases that are constructed upon the previous stage. In other words, the learner builds up comprehension through many motivation channels and the learner is improved through integration, adaptation and stability (Lucas, 2002). Cobb (1994) outlines a table to stress the differences between the social and cognitive constructivism:

	Socio-Cultural Constructivist	Cognitive Constructivist
The mind is located:	In the individual-in-social interaction	In the individual
Learning is a process of:	Acculturation into an established community of practice	Active cognitive re-organization
Goal is to account for:	Constitution of social and cultural processes by actively interpreting individuals	The social and cultural basis of personal experience
Theoretical attention is on:	Social and cultural processes	Individual psychological processes
Analysis of learning sees learning as:	Acculturation, implicitly assuming an actively constructing child	Cognitive self-organization, implicitly assuming that the child is participating in cultural practices
Focus of analyses:	Individual's participation in culturally organized practices and face-to-face interactions	Building models of individual students' conceptual re-organization and by analyses of their joint constitution of the local social situation of development
In looking at a classroom, we see:	Instantiation of the culturally organized practices of schooling	An evolving micro-culture that is jointly constituted by the teacher and students
In looking at a group, we stress:	That the homogeneity of members of established communities and to eschew analyses of qualitative differences	The heterogeneity and eschew analyses single out pre-given social and cultural practices

Table 3-2 Social and Cognitive Constructivism (Cobb, 1994).

3.1.4   Phenomenology

Phenomenology is not an easy concept to grasp, even though there are many books and publications about its philosophical and psychological research. Given that phenomenology is important for the study of this thesis, the concept will be as simplified as possible, using different references to strengthen the core concept and how it is different from other concepts.

Perhaps Smith (2003) gives one of the easiest to understand and a clear definition of what phenomenology is:

"Phenomenology is the study of structures of consciousness as experienced from the first-person point of view. The central structure of an experience is its intentionality, its being directed toward something, as it is an experience of or about some object. An experience is directed toward an object by virtue of its content or meaning (which represents the object) together with appropriate enabling conditions."

Naturally, even having said that the above description is easy to understand and clear as a definition, it is obvious to see that the definition can be somewhat confusing. Giorgi (1985) highlights some of the reasons why there are difficult problems regarding phenomenology:

"(1) Phenomenological thinking is intrinsically difficult, since it goes against the natural tendency of consciousness to go toward things rather than its own processes and it attempts to analyze these spontaneous processes that present themselves as already formed unities even though they are in constant flux: (2) The work of Husserl, phenomenology's founder, which spans almost a half century from his first publication in 1890 until his death in 1938, kept evolving and changing. Indeed, even at this date, not all of his manuscripts have been posthumously published…"

Phenomenology is a philosophical approach, but is also tended to be seen as a psychological approach. It involves the learner and the learner's experience to affect the new knowledge that is being learnt. In other words, phenomenology verifies the situation where there are two individuals learning the same thing with similar background – but that these individuals perceive differently and observe individually – therefore, the outcome will be different respective of individuals. Moustakas (1994) continues:

"The empirical phenomenological approach involves a return to experience in order to obtain comprehensive descriptions that provide the basis for a reflective structural analysis that portrays the essences of the experience. The approach 'seeks to disclose and elucidate the phenomena of behavior as they manifest themselves in their perceived immediacy' (van Kaam, 1966, p.15). The human scientist determines the underlying structures of an experience by interpreting the originally given descriptions of the situation in which the experience occurs."

Marton & Booth (1997) clarifies further that phenomenographic research, which is related to phenomenology, is a way of experiencing something and that the entity of the study is the alternative ways of experiencing the phenomena. The authors stress however, that phenomenography is not a method in itself, but that there are rather methodical elements associated with it, and that it is also not a theory of experience, even though there are elements resulting from it (Marton & Booth, 1997). Instead, Marton & Booth (1997) relate phenomenography as an approach to identifying, formulating and tackling certain sorts of research questions. Additionally, Marton & Booth (1997) points out the following:

"At the root of phenomenography lies an interest in describing the phenomena in the world as others see them, and in revealing and describing the variation therein, especially in an education context (…) This implies an interest in the capabilities for experiencing particular phenomena in the world in certain ways."

3.1.5 Cognitive

As its name suggests, cognitive learning has its roots in psychology. The actual term "cognitive" means *"pertaining to cognition, the process of knowing and, more precisely, the process of being aware, knowing, thinking, learning and judging (…) 'Cognitive' comes from the Latin root 'cognoscere' meaning to become acquainted with. Cognoscere is made up of 'co-' + 'gnoscere' = to come to know"* according to MedicineNet (2004). Therefore in education, the notion of cognitive learning implies that an individual's experiences and previous knowledge has significant impact on new knowledge, much like the constructivist theory. Cognitive learning suggests that it is

the individual's awareness, thinking, learning and own judgment that reforms the data into a meaning, resulting into new acquired knowledge.

Barret Cunia (2007) outlines the brief assumptions and principles associated with cognitive learning. These include the exclusiveness of an individual's learning processes, since an individual's past experiences and knowledge cannot be identical to another; opposing to earlier beliefs, cognitive learning involves the individuals actively through a process; an individual's learning is related to his/her own experiences, therefore mental associations, which are not essentially indicated in explicit behavioral changes; and that learning is a process of relating new information to previously learned information (Barret Cunia, 2007). Furthermore, Barret Cunia (2007) states that people manage and organize their own learning and individuals acquire new information most easily when they can associate it with things they have already learned. Famous theorists such as Vygotsky, Piaget and Chomsky all have some influence in the cognitive theory.

Another, perhaps more simplistic definition of cognitive learning is made by Gielen (2008), describing cognitive learning in the following short sentence:

"Cognitive learning is the result of listening, watching, touching or experiencing."

This description might seem rather vague and unclear if it is not studied into more deeply. As a supplement, Gielen (2008) continues:

"Cognitive learning is defined as the acquisition of knowledge and skill by mental or cognitive processes – the procedures we have for manipulating information 'in our heads'. Cognitive processes include creating mental representations of physical objects and events, and other forms of information processing."

To illustrate the processing of cognitive learning, Grow (1996) provides a figure that describes learning and remembering information from a cognitive perspective.

Learning and Remembering Meaningful Information
A Cognitive Model

① **New information**

④ **Elaboration** of connections between ① and ② increases relationship between new information and prior knowledge.

③ *Working Memory* Connected (=comprehension)

⑤ **Learning** takes place when the new information becomes part of the knowledge network. If elaborated and well-integrated, the new knowledge becomes **meaningful** and **useful.** New knowledge may fit into the knowledge network or modify it.

② **Prior knowledge** in the form of an organized network of cross-referenced shorthand "propositions"--not banks of encyclopedic prose.

⑥ Retrieval of knowledge specifically learned

⑦ Construction of knowledge never specifically learned but inferred from the knowledge network
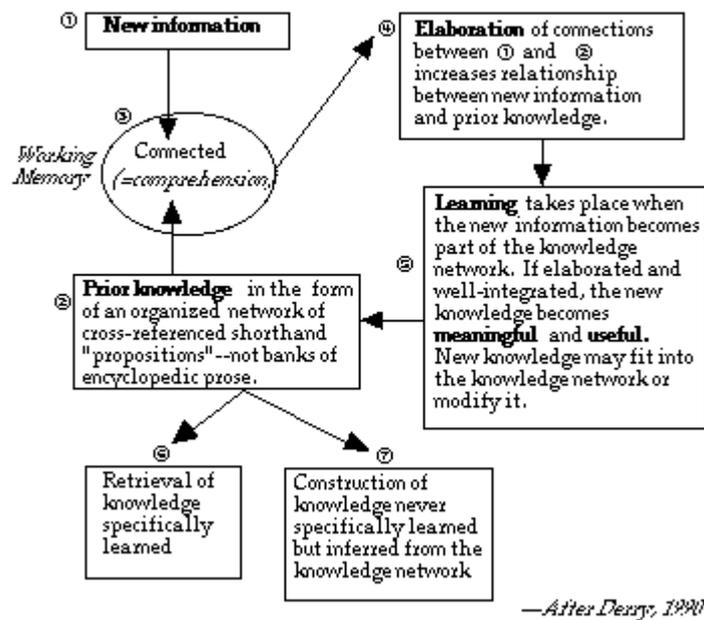
—*After Derry, 1990*

Figure 3-1 Learning and Remembering Meaningful Information – A Cognitive Model (Grow, 1996).

According to the illustration above, new knowledge is emerged first by new information intake, where the information is processed and associated with prior knowledge (i.e. experiences that are stored in an individual's memory). This is then sent to an elaboration phase to increase the relationship between the new in-taken information and the prior knowledge or experiences in the memory. As a result of this elaboration phase, new knowledge is modified and formed into the individual's unique knowledge-toolbox, making this knowledge meaningful and useful. Gielen (2008) stresses that cognitive learning enables us *"to create and transmit a complex culture that includes symbols, values, beliefs and norms."* This can also be seen from a situated learning perspective – emphasizing on the culture, or situated environment, where values have significant influence on the learner. According to these theories, learning is not seen as a one-way retrieval of information – rather that the individual forms his/her own information by applying prior experience, information and value which makes the process of information retrieval unique to the individual. In other words, these theories support the phenomenon of the same material taught to two different individuals being processed and interpreted differently – therefore the knowledge as such is never identical, but rather modified to the individual's understanding and awareness.

3.1.6   Socio-cultural Perspective

According to Hsiao (1996), the socio-cultural perspective is Vygotsky's theory of learning which emphasizes on human intelligence rooting in an individual's society and culture, and that individual cognitive gain occurs initially through two levels; an interpersonal process which is followed by an intrapersonal process. That is to say, the two levels are equivalent to the first process being gaining knowledge from the society and culture followed by an individual level (interpersonal level → intrapersonal level). Much like the situated learning

theory and cognitive theory, also the socio-cultural perspective emphasizes on the importance of the environment – both socially and culturally – having a great impact on learning and retrieval of information. For some researchers, the socio-cultural perspective is seen as a mixture of the constructivist and cognitive theory. However, the socio-cultural perspective can also be seen as a holistic approach, or a blend which involves the constructivist theory, cognitive theory, situated learning theory and phenomenology all together, since the socio-cultural perspective has most of the elements from all the above mentioned theories and approaches.

3.2 Informatics

3.2.1 Traditional Education

Although it is challenging to find a consistent and clear definition, traditional education is the most common education system worldwide and relies mostly on intellectual learning without including experiential learning (Bondelli, 2007). In its most standardized appearance, traditional education is comprised of a physical building – a school (i.e. University), classrooms inside the school, physically present teachers whom are most likely in the role of information transmitters, desks inside the classrooms and students whom are all physically present ready to take notes and/or write assignments and homework for specific subjects in the educational system. Dewey (1998) notes that, "…traditional education is to prepare the young for future possibilities." Furthermore, he continues:

"The main purpose or objective is to prepare the young for future responsibilities and for success in life, by means of acquisition of the organized bodies of information and prepared forms of skill which comprehend the material of instruction. Since the subject-matter as well as standards of proper conduct are handed down from the past, the attitude of pupils must, upon the whole, be one of docility, receptivity, and obedience. Books, especially textbooks, are the chief representatives of the lore and wisdom of the past, while teachers are the organs through which pupils are brought into effective connection with the material. Teachers are the agents through which knowledge and skills are communicated and rules of conduct enforced." (Dewey, 1998).

In his study, Bondelli (2007) also emphasizes that *"the traditional system's reliance on standardized testing lessens the amount of actual learning that is done in schools."* Although numerous of arguments for and against exist, traditional education is what most, if not all, students experience particularly in primary and secondary schools. In higher education, an alternative educational method rather than a shift has become more apparent in the very recent years, such as e-learning and virtual learning as a complement to the traditional education.

There might be several reasons for this occurrence. Higher education has traditionally also been very traditional based with learning mostly done through textbook reading as well as assessments and examinations based mostly on textbooks. However, unlike primary, secondary, or high school, higher education is usually also dependant on experiential learning rather than sole theoretical learning, therefore justifying that new alternative methods might highlight this input to further educate students in a more experiential and practical method. In addition, today's focus is put more on value and value-based learning than ever before, and a basic example of this is the emergence of a value-based Knowledge Economy. Furthermore, Bondelli (2007) argues:

"The traditional educational system is not very effective in actually teaching students to learn. It ignores experiential learning in favor of purely intellectual, which decreases the effectiveness of the learning. It is ex-

tremely dependent on standardized testing, which is not as valuable as they claim and is actually harmful to the actual education. It is authoritarian in nature, which ignores the student's input in deciding how and what they are to be taught."

Commonly used tools in traditional education may include cassette/tape recorder, CD-player and video. In addition, white/blackboards, bulletin boards for announcements, e-mails and other audio devices are some of the many tools that are commonly used.

3.2.2   E-learning

In a study resulting in an article for Ashridge Business School, Mitchell & Honore (2008) cites different authors about e-learning and learning as a process in general, citing learning as a complex process which cannot be restricted to a classroom only. They continue:

"E-learning extends beyond the classroom and consists of material and communication over the internet directly to the learner's PC. This channel has experienced significant growth in recent years appealing to employers, learners and academia. The most commonly quoted benefits are continuous learning, time saved and reduced travel costs."

Hence, e-learning is learning that is not bound to time and classroom attendance – students and teachers may be at different locations on different times. One of the most common types of e-learning today takes the form of distance courses, where Universities have educational platform, often in an intranet, where they upload course material for the student to study individually and complete tasks based on the course material. Therefore, e-learning is also called online learning or "learning from home", where the students have access to the course material on the web, being able to access the course anytime and from anywhere. This also enables flexible learning for students whom might not be able to attend to a classroom – or traditional schooling – for various reasons, therefore missing the opportunity to learn the exact material. In addition, the flexibility of being anywhere physically also opens up for international and global education for students, producing for more opportunities of global education, rather than traditional local education.

World Wide Learn (2008) provides another description of e-learning:

"e-Learning is an umbrella term that describes learning done at a computer, usually connected to a network, giving us the opportunity to learn almost anytime, anywhere. e-Learning is not unlike any other form of education - and it is widely accepted that e-Learning can be as rich and as valuable as the classroom experience or even more so. With its unique features e-Learning is an experience that leads to comprehension and mastery of new skills and knowledge, just like its traditional counterpart. Instructional Design for e-Learning has been perfected and refined over many years using established teaching principles, with many benefits to students. As a result colleges, universities, businesses, and organizations worldwide now offer their students fully accredited online degree, vocational, and continuing education programs in abundance."

E-learning is mostly associated with Web 2.0, which is basically the Internet that we know of. Therefore, e-learning opened up a new way of learning and crossed the boundaries for traditional education. Students and other users get distinctive account information to log in and get access to the online course, both by online and book reading, and complete assignments which are usually handed in either via e-mail or other online mediums, such as through the intranet or other internet platforms.

3.2.3 Second Life

Below are extracts by Franzén & Günes (2008) with reference to a description of Second Life:

"Second Life is a virtual world platform created by Linden Lab in San Francisco and has a rapidly growing population (Telegraph, 2007). It is a 3D internet-based platform where users, also called avatars, can connect with each other through chatting and voicing (Second Life, 2008a). On the Second Life Official website, anyone can download the software for free in order to get involved with one's new identity in one's "Second Life." (...) Activities taking place are limitless, and some include having concerts, seminars/conferences, casino, virtual drinking at virtual bars, teaching and education through Second Life, campaign runs from politicians, etc.

Second Life is built up of islands, just like on a world map, where different places and events take place on the respective islands. Corporations rent or buy islands (private islands) where avatars can visit and take part in events or activities offered by the owners of the island. (...)

(...) Second Life is a platform that tries to resemble the real life as much as possible, and to one's avatar, one might purchase clothes, accessories, new hairdo, etc.

Just like people, the avatars in Second Life usually walk from one place to another. However, avatars can also fly by clicking a fly-button, which transports them to a location faster. Another function, called the teleport function, enables avatars moving from one island to the next. Just as the fly-function, the teleport function is also done by clicking on a button. (...)"

In addition to being used for business purposes, Second Life has also become a new platform for online education. E-learning has taken a step further, enabling virtual education and interaction via avatars, real-time audio to support two-way communication and visual tools that help professors and other educators to enhance creativity in their lectures. As Sah & Kanunjna (2008) phrases, Second Life has a touch of presence, *"a touch of real life in it."* Second Life not only provides new business opportunities but also enables new thinking for distance learning, and also enabling experiential learning by gaming – having avatars in assistance for opening up for new and creative prospects to learn and have fun at the same time. This type of learning can be perceived by many as combining fun and learning to increase motivation since an individual might be in favor of learning for his/her own sake when learning is made fun; not just learning through obligation.

3.2.4 Virtual Learning and Second Life

Recently, there are more Universities trying out virtual learning via Second Life. Among those Universities are also newly established courses by European Universities, even though most of the Universities up until now had been mostly Universities from the United States. Sweden's first course in Second Life was conducted by Kalmar University and the course was called "Oral Production" – a course for students to be able to practice and enhance their oral presentation skills. Therefore, one of the main tools used when having this course in Second Life was audio, i.e. headset and microphone, for the students and teacher to be able to communicate with each other as well as performing oral exercises.

Terdiman (2004) writes about the first college professors who taught classes in Second Life in his article, where one of the professors – Aaron Delwiche – denotes that *"online environment tends to be a little less stuffy than the real-world classroom. Suddenly (the students) got to adopt these ridiculous avatars and interact with each other in a completely different context. They had a lot more fun."*

Moreover, Di Meglio (2007) points out that although Second Life is sometimes seen as a sole game such as the World of Warcraft, *"business school professors and economics researchers are turning to these virtual worlds as dynamic laboratories to shed light on some of the venerable mysteries of economic behavior (…) many economics researchers (…) are suing the virtual environment to test ideas involving staples of economics such as game theory, the effects of regulation, and issues involving money (…) 'Virtual worlds like Second Life give students an opportunity to understand what the purpose of regulation is, why it arises, what forces drive it to look ultimately the way it does', says Bloomfield."*

For this reason, Second Life does not only have to be used as a sole theoretical education medium but also as a test and practical medium where students can also try out tasks in practice, differing from the regular e-learning and traditional "in-the-classroom" learning that we are used to today. Education through Second Life and other virtual worlds in this way, become a multi-platform for theory and practice together and can be used for both purposes, but also individually from each other. That is to say, education on Second Life can also be used only for theoretical or practical basis, but even so, the environment and the uniqueness to the setting may have a different impact on the course, students or even the teacher.

4 Empirical Framework

Outlined in this section are observations of a Second Life-based course given at Kalmar University as well as a complementary interview with the Junior Lecturer that gave the Oral Production course at Second Life. These are the findings of the empirical study.

4.1 Observations

In this thesis, most of the empirical findings will be based on observations made by the author. These observations are made through real-time presence while the course was given as well as recorded sessions by Kalmar University to supplement for the times that the author was not/could not be present in real-time during the sessions. The observations are mainly structured, but also open to unstructured observations when needed. To validate the author's observations, an interview with the lecturer for the observed course will be presented.

Days	No. of Attendants		Lecture time
	Students	*Teacher*	
Day 1 [14/2-2008]	6	1	18:30-20:30
Day 2 [18/3-2008]	4	1	18:30-20:30

Scale used:
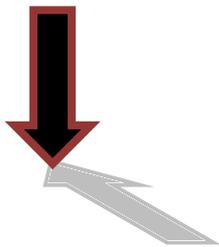
⇩ Not at all

⇔ Slightly

⇧ Highly

4.1.1 Observing Students

Behavior: Students	Was the behavior observed?	Tools used/ exploited	Comments/ Differences
Students participate actively in the lecture	Highly	Audio and Virtual presentation board	Audio were used via headset so that teacher and students can communicate two-way. The virtual presentation board was much like a PowerPoint presentation broadcasted digitally.
Technical restraints prevent students from participating actively	Slightly	Headset	Minor issues such as not being able to hear or temporary faulty sound system which resulted in deficient communication for an instant but were soon resolved.
Students use the virtual material available and make use of it	Highly	Virtual presentation board, audio and virtual presence	The virtual presentation board acted as a guideline for the topic and/or what tasks that needed to be done. Audio was used to communicate and practice the tasks, and the actual presence of the students (i.e. avatars) was used as an identity when speaking to others through positioning the avatars and directing them to other avatars.
There is a significant difference between students in a v-environment and traditional lecture	Slightly	-	The students in a v-environment could be anywhere physically. Also, the students seem to have not been only students, but also regular employees signed up on the course to develop English oral presentations. However, in terms of activities, there are no significant differences between students in a virtual versus traditional environment.

4.1.2   Observing Teacher

Behavior: Teacher	Was the behavior observed?	Tools used/ exploited	Comments/ Differences
Teacher presents the lecture in an exciting manner	Highly	Two-way communication involving students and encouraging them	The teacher's excitement is clear to observe through the course process. Two-way communication is used with students to encourage them to speak by asking them and directing specific questions to specific students.
Teacher involves students in the lecture	Highly	Active, two-way communication	It is highly difficult to become inactive since the teacher involves students in constant interaction, either by assigned tasks (usually working together) or by discussions where students are asked for opinions. The teacher involves everyone in the tasks and discussions.
Teacher keeps the time frame of the lecture	Highly	Punctuality	Disregarding a couple of minutes, the teacher keeps the specific time frames of the lecture and is highly punctual.
Teacher uses visual aids or other aids unique to the v-environment	Highly	Audio and Virtual presentation board	The teacher takes good advantage of the virtual presentation board as well as constantly using audio to reach out to his students. Just like a Power-Point presentation, the virtual presentation board provides with guidelines and topics of discussion which makes it easier for the students to retain the data and topics.
Teacher has prepared the lecture in a different way compared to a traditional lecture	Slightly	Interaction	The difference between a traditional lecture might be the level of interaction that is generally not used in many lectures, though, the actual interaction was not different. Students are encouraged to prepare short presentations to present for their peers or work together in discussions.

4.1.3 Observing Environment

Environment	Was the behavior observed?	Scale (1-5) 1: lowest 5: highest	Comments/ Differences
Authenticity	Slightly	2	The teacher seemed to know and be confident of who he was speaking to. Even though the issue of "posers" might have become an early issue, the teacher seemed to have control over who everyone were.
Presence	Highly	5	A high degree of presence was observed. It felt quite impossible to be inactive as a student, since there were certain expectations of students and the teacher involved everyone. The students also seemed very keen to participate.
Virtual impact	Not at all	1	Surprisingly, no effects of virtual impacts and how this had certain negative effects were observed. In general, however, interactivity in a virtual setting was observed as positive – with not much difference from a traditional lecture.
Course compatibility	Slightly	3	During this course, it became clear that there might be some courses that are more suitable in virtual settings than others. Oral courses and courses that involve a high degree of discussions, for example, could be observed as compatible with virtual courses, since there are high similarities with the observed course. However, would other courses such as mathematics and physics be compatible, for example?
Additional consideration in regards to learning in a virtual environment – what other aspects are there to v-learning that are different from a traditional education?	Slightly	2	Not many differences as one would think. The only senses not involved in such a setting is perhaps "touching" and "mimics". Hearing, speaking and some sense of "virtual" feeling are involved. It is hard to argue that there are more challenges to involve students in a virtual setting.
Any anticipated issues or unpredicted means?	Not at all	1	No, only an unpredicted issue about technology issues. It takes more time to learn about Second Life rather than going to a traditional lecture.

4.2 Interview

Mr. David Richardsson, Junior Lecturer in English at Kalmar University managed the course in Second Life that this thesis bases its findings on. The course was an "Oral Production" course, where students had six sessions through Second Life, using audio as one of the main means for interactive learning. Since the interview was a semi-structured interview, the preset questions are presented through numbering, whereas questions that were brought up during the interview are indented, italicized and marked with a hyphen (-) sign to make it clear for the reader the kind of questions that arose during the interview. The interview below is to support and complement the findings from the author's observations.

Respondent: David Richardsson	Interview: Telephone interview (Skype)
Title: Junior Lecturer in English	Location: Kalmar University, Sweden

Date: 2008-05-07

1. Why did you choose to operate a course in Second Life?

Mr. Richardson notes that he chose to operate a course in Second Life "because he can." He has been involved in ICT-based education for a long time; since 1981 and has constantly been looking for interaction between the development of technology and development of teaching techniques.

"We haven't yet created all the tools that we're going to need for the next wave of online learning; we are in the process of making them."

When Second Life got to a state which he as an educator felt was usable (particularly August 2007 with the audio enabled in Second Life), it was a logical next step since he had access to Kamimo Island. David Richardson wants the technology to be ordinary (it has to fit in with the administrative budgetary context that the University is working with). Second Life is on the cutting edge of the challenges (such as authenticity issues) and therefore Richardson feels it is interesting to test such an environment in practice.

2. What is the difference having a course in Second Life compared to a traditional physical course? What impacts has Second Life had on the given course?

Richardson states that the difference is using a wide variety of tools in his courses, and uses them for what they are good for. Second Life tools also allows for great variety of visual and auditory inputs.

"Other tools are more limited in this context. Second Life is a rich environment. However, not all courses require a rich environment; in fact sometimes a rich environment can be detrimental to the course."

Sometimes, with some kinds of study, Richardson denotes, you can have too much stimulus. Something like Second Life, having a great deal of stimulus could be very useful for certain types of courses and course elements, but for other types of courses and course elements it could be worse. (e.g. spoken English or courses that involve role-playing vs. English phonetics).

- *So in other words, are there specific courses more suited for Second Life?*

"I am just speculating – we don't know yet. But it would be interesting to see if you could take an extremely dry analytical-type course, and run it in Second Life."

3. How do you, as an educator, enhance a high presence among your students when you are conducting your courses in Second Life? How do you encourage them to participate?

"Teaching style and personality seems to have played something of an important role, according to feedback from students. I have been very matrofact and ordinary in everyday with the students, and several of them said that gave them the confidence to overcome and get passed the threshold of 'what am I doing here', and specifically handling the fact that Second Life is good as it is, it is still a bit clunky. The charisma of the teacher seems to be very important. There are also tremendous amount of mileage you can get from course design as well. The idea of immediately linking students up with an American buddy, and sending them off with that buddy, right from the start worked really well. It meant that when students were initially becoming accustomed to the environment, they had someone who wasn't their teacher to be doing it with, and they were doing it on a one-to-one basis. If you're going to make a transition from more conventional tools to something like Second Life, you have got to design the transition."

Figure 4-1 David Richardsson and Pinar Günes on Kamimo Island

4. Have you encountered any authenticity issues and if so, what has been done to improve these issues?

Since Richardson's course is given at a Swedish University, as in all Universities in Sweden, Richardson gets a class list of students' personal numbers, addresses and other personal information. Right from the start that gave him the opportunity to ask questions like "what's the third digit of your four personal numbers". Some of the students, he knew other things

about that he had contact with previously, in that he was able to refer to stuff that they knew about but that a third party would not.

"You could say that these various checks and balances are fallible. You can brief somebody to be able to answer that correctly even though it was not the person involved. This is partly a generic problem with any online course. And if you're going to use this difficulty as a way of saying 'therefore we don't do online stuff at all', you are kind of being dumb because it is quite possible to fool people face-to-face at Universities as well. No system is infallible. It is a problem, but not only specific to online courses. Another thing is – 'would somebody go to those lengths to get a few academic points?' Another question is a continuity thing, somewhat specific to a language course – it is rather difficult to maintain a level of English that you don't have, and to maintain a cover story over six course meetings, especially if you have a course that involves a lot of interactions. These add up to as infallible as you can reasonable expect from a University course."

5. What additional issues or problems have you encountered when using Second Life as an education medium?

Richardson remarks that there have been one or two technical problems, but that they have always been with people who did not actually make it to the world in the first place. People who actually did make it on to the course, have largely been spared, he explains.

"One of the etiquette questions that we have to get straight is to telling people to switch off their microphones when they are not talking because of external interruption."

Apart from that, according to Richardson, a few people had ordinary problems like their work schedules changed and they could not make it to the course. One or two people at times ran into control problems in that their avatars started walking off on their own, but issues such as these were coped with. The very fact of a technical problem does not necessarily make him worried.

6. What extra means do you use while having a course in Second Life that are different from those used at a traditional physical course?

As Richardson mentioned earlier, he uses a wide variety of tools in his courses, and uses them for what they are good for, such a great variety of visual and auditory inputs.

7. Are there any other remarks or comments that you would like to add?

Second Life gave Richardson an extra tool that he did not have before. When it comes to the distributed courses, when students are not/cannot be in physical places, there have been limitations on the types of things we can do.

"We have tools such as Skype, Marratech and Adobe Connect which are great tools when you are dealing with more cognitive, left-brain stuff. But when we want to do more affective activities, we are a lot more limited. So, those kinds of activities have generally had to be done face-to-face. Now there is a means of doing affective activities even when people are not face-to-face. That's going to be a major addition to the toolbox, because it has been something that teachers have been lacking. This is of course a bit weird in the University context because there are plenty of academics who feel that affective learning should have no part in University. I see that as an expression of ideology, rather than scientific statement."

"We are in a position where we are inventing the genre at the same time as we are inventing courses and tools to use within that genre, so there is a various kind of schizophrenic split-personality development going on and I think that is one of the things that makes it quite difficult to get your head around to exactly what is happening with this Web 2.0 stuff. Because you don't actually have a firm base to stand at the moment

from which you can observe it. I am fairly sure that this is going to be an online world where people routinely learn in 3D virtual environments."

- **Do you think that the reason why virtual world education is not so widely spread now is because it might not be seen as serious as a traditional physical course?**

"No, I don't think so. For many University teachers and educators, it is just too weird; they just can't get their heads around it. For me, it is fairly ordinary. I get excited about it, but not more than using other means. I think the problem is not Second Life as such, but rather the whole genre because we are going through a paradigm-shift in education. I think that we are absolutely on the breaking-of-the-wave at the moment"

5 Analysis

This section will provide answers to the research questions by using the Empirical Findings, the Theoretical Framework and supporting articles.

5.1 Traditional education versus Virtual Education

There were no significant changes or differences in behavior between students in a virtual environment and a traditional lecture. The activities were of those that could be executed in a traditional lecture as well. However, it is also important to note that the students for this specific course seemed to be employees signed up on the course to develop English oral presentations. In other words, they seemed to be students and employees.

The teacher was really punctual and kept the specific time frames of the lecture. It was also easy for everyone to come on time, since Second Life has its own time, and the teacher is able to keep track and set specific times based on the Second Life time, rather than local time. This was really effective, since there were students who were at different physical locations.

Whether the teacher had prepared the lecture in a different way compared to a traditional lecture was slightly observed. The sole difference between the two settings might be the level of interaction that is generally not used as much in a traditional lecture. However, the actual interaction between the students and the teacher was not different. For example, students were encouraged to prepare short presentations to present for their peers or work together in discussions, much like the traditional lectures. However, the teacher made sure to involve every student in the lecture. Moreover, there were less than 10 students, which could have made interaction with all students convenient and easier to involve everyone since it did not take as much time as it would have if there were e.g. 40 students.

Cheal (2007) continues: *"Now in Second Life, students can create their own content graphically as well as textually. The immersiveness of virtual worlds allows for exploration and interaction with elements in that world. Simulations, role-playing, creations of educational materials, and testing dangerous situations safely are all possibilities in virtual worlds. All of the higher order knowledge skills from Bloom's taxonomy are possible – applying knowledge (e.g. moving about in Second Life), analyzing (How can I build something realistic with a low prim count?), evaluating (is it best to build a cathedral ceiling to show support systems or to leave it off to allow avatars to fly in?), and creating (use SL building skills to build a complete cathedral). Bloom's learning characteristics correlate well with the exploration and interaction inherent in virtual worlds."*

Furthermore, Richardson states that the difference in having a course in Second Life compared to a traditional educational setting is the usage of wide variety of tools in his courses, since Second Life tools also allows for great variety of visual and auditory inputs, he remarks. He also adds that other tools are more limited in this context, mentioning that Second Life is a rich environment. He justifies: *"You could say that these various checks and balances are fallible. You can brief somebody to be able to answer that correctly even though it was not the person involved. This is partly a generic problem with any online course. And if you're going to use this difficulty as a way of saying 'therefore we don't do online stuff at all', you are kind of being dumb because it is quite possible to fool people face-to-face at Universities as well. No system is infallible. It is a problem, but not only specific to online courses. Another thing is – 'would somebody go to those lengths to get a few academic points?' Another question is a continuity thing, somewhat specific to a language course – it is rather difficult to maintain a level of English that you don't have, and to maintain a cover story over six course*

meetings, especially if you have a course that involves a lot of interactions. These add up to as infallible as you can reasonable expect from a University course."

There were not many differences observed. The only senses not involved in such a setting are perhaps touching and mimics. Hearing, speaking and some sense of virtual feelings/presence were involved. Therefore, it is hard to argue that there are more challenges to involve students in a virtual setting.

Consequently, we could refer virtual learning as a part of cognitive learning, since cognitive learning involves an individual's experiences and previous knowledge having significant impact on new knowledge, suggesting that the individual's awareness, thinking, learning and own judgment reforms the data into a meaning, resulting into new acquired knowledge. However, Gielen's (2008) definition of cognitive learning hinders this correlation:

"Cognitive learning is the result of listening, watching, touching or experiencing."

This is because in virtual worlds, we cannot experience touching. However, if excluding the touching, virtual learning environments can be an effective learning base according to the cognitive learning theory. This is because cognitive learning theory involves past experiences and new knowledge as well as linking one's knowledge with practical experiences. In virtual learning environments such as Second Life, practical experiences are very possible and are also unique which may enhance creativity. Terdiman (2004) quotes Senior Vice President at Linden Lab: *"Their focus is experience (…) It's whatever their individual perspective is. They come into Second Life trying to explore their ideas as they relate to a digital experience."*

The question remaining is, are there significant differences between traditional education and an education via virtual worlds? What are the differences? According to the empirical findings and the theoretical framework, there are no significant differences between the two educational systems. The systems are different in method and they are different in tools, but do not differ in education as such. In fact, virtual education might be seen as an enhancement of traditional education.

Traditional education has for long been dominating, and is still dominating as an educational system around the world. As an alternative, e-learning emerged as a result of rapidly developing technology and the internet-boom triggering new business opportunities through the web. E-learning is a quite recent educational approach where learning is partly or solely based online through intranets and other platforms, where students and teachers communicate via e-mail, Skype or other communication mediums. Students may download the course material and exercises from the internet (i.e. intranet) and complete tasks to hand in, again, usually through the internet. Besides, e-learning is independent of time and place, facilitating flexibility for distance learning. As can be seen, e-learning is a new way of learning – hence, e-learning is an alternative way of learning. Consequently, we can state that e-learning is an enhancement of traditional learning. It is an alternative approach enabling a different way of learning using different tools to acquire knowledge and communicate.

Virtual learning reaches a little further and involves online learning, much like e-learning. However, virtual learning emerged as an alternative way of e-learning, by enabling 3D virtual environments for learning. Instead of communicating via mediums such as e-mail, Skype or MSN Messenger, virtual learning is independent of place but facilitates real-time audio communication as well as representative icons, such as avatars increasing user creativity. Likewise, with virtual learning, it is possible to attend courses and participate online

digitally without physically being present. As a result, we can say that virtual learning is an improvement of e-learning.

This results in a few findings:

- Firstly, virtual education is not a defect of traditional education, but an alternative learning approach which focuses more on interactivity and interconnectedness.

- Secondly, virtual education (especially Second Life) is not by any means a sole replacement for any of the other two, since it is time-dependant for the most of the time. E-learning is a great supplement since e-learning is independent of both time and place.

- Thirdly, traditional education → e-learning → virtual learning is a development chain and has also emphasized on the different notions we have had about learning and knowledge. The meaning of knowledge and learning have changed through time and it is clear to see how we have valued these two concepts over time.

  - Traditional education was more of the instructivism theory. We saw knowledge as a teacher or tutor teaching a predefined set of information, deciding for us what we had to learn. Students were learning to pass exams or fulfill the criteria.

  - With e-learning, our perception of learning changed to the more constructivist and cognitive theories suggesting that learning is individual and the student's past experiences and knowledge have a great impact in new acquired knowledge. Since we valued the individual teaching himself/herself, we enabled distance learning, relying on the individual to learn.

  - Along came virtual learning, and much like with the e-learning era, we still believe in the constructivist and cognitive theories, but now we have also added the socio-cultural aspects and included creativity and situated learning to boost creative practices that give the same or more value to our education. Also, virtual education persuades the student to learn as an individual rather than being instructed, i.e. the individual is responsible for his/her learning through creative learning or role-playing.

- Finally, the next challenge might be to enable a more time independent virtual learning environment.

5.2   Connotation for Virtual Education

The behavior of the students was observed highly, and the communication between the lecturer and the students were ongoing constantly. There were specific times where the lecturer explained topics and the students acquired this knowledge during the time. The lecturer and students used audio through headset and microphone to be able to communicate mutually, two-way and in Second Life, when a person, or avatar speaks, there is a blinking image above the avatar, making it clear and easy to comprehend who is speaking during the time. Visual aids were used for the students and the students were able to follow the presentation through the virtual presentation board broadcasted digitally, much like the Power-Point presentation. In this way, students could feel that they were in a classroom, but with

their avatars instead of themselves. The level of comfortableness was felt among the students, and a reason for this might be because the students are not portraying themselves in person, but have avatars that represent them, at the same time as the students can hide behind the avatar in case of anxiety and nervousness.

Cheal (2007) adds: *"I posed the following questions to the SLED list-serve and from this very informal survey received about 20 answers. How much do you identify with your avatar? Is it you or is it just a way to get around Second Life? Does it look like you? Do you keep changing your clothes and looks? Does your stomach sink when you avatar falls or is it just a clumsy cartoon to you? Most answered that they did identify strongly with their avatars and looked like them with the caveat that the gender was different or they had multiple avatars for different aspects of their personality or that the avatar was a character in a drama or who they wished they were."*

Moreover, all students were actively participating, and this might be because the teacher can track and see the people that are participating and those that are not. From thereon, the teacher can encourage the students that are not as active to contribute by asking a question or simply giving an exercise or a task. This can be a type of situated learning, in regards to challenging the separation of what is learned from how and where it is learned, as well as how participation of all students are important to reduce isolation since situated learning argues that the environment and social surroundings challenge the individual to learn and jointly involving each other. Consequently, students learn individually, rather than being instructed. Students can learn what they want to learn – in a large meaning, they control the knowledge they acquire.

Additionally, Cobb's Social and Cognitive Constructivism table also applies to the student observations. Comparing and contrasting the table, in the observed virtual environment, there seem to be more socio-cultural constructivism involved since, rather than the individual; there is collaboration between students and between students and teacher. This suggests that the students do not only gain knowledge from the teacher, but also from each other.

For example, one of the exercises in the course was to give short oral presentations. Even if the teacher gave advice about how to make an effective oral presentation, while the students were presenting, they were able to grasp and acquire new techniques from each other. Barajas & Owen (2000) denotes that one of the most important issues to consider about before implementing a virtual learning environment is the socio-cultural element:

"a careful consideration for the integration of socio-cultural elements. The apparent accessibility and time and space flexibility of most VLEs are used by market oriented agents to sell this 'educational technology' as 'the panacea' for educational problems and equity issues. However, a closer and more rigorous approach to implemented VLEs makes evident new forms of colonization (English language, pragmatic culture, etc), new forms of exclusions (the need of more expensive tools) and new forms of frustration (everybody can have access to quality courses, the only thing they need is: money, time and the required background).

In addition, Cheal (2007) also highlights:

"The reason that Second Life is important for instructional technology is where it stands in the continuum of learning methodologies from lecture to active/experiential/problem-based/constructivist learning. It is now becoming general thought that lecture-type teaching results in a passive audience, while methodologies developed over the last 20 to 50 years, whether called active learning, constructivist learning or any other more specific term, allows students to be responsible and actively involved and responsible for their own education."

There were a few minor issues regarding the technical aspects, like not being able to hear or temporary faulty sound systems which resulted in deficient communications, only for a while but issues like these were soon resolved. Richardson remarks that the few technical problems have not been significant, and were usually befalling people who could not log in to Second Life in the first place. However, judging from the students' and the teacher's attitude towards these minor issues, there did not seem to be any concerns.

The teacher's excitement was clear to observe through the course process and this was done by using a two-way communication. The teacher involved and encouraged the students to speak by directing specific questions to specific students, as well as giving mostly oral tasks and exercises to students. It was quite difficult for the students to become isolated and inactive since the teacher involved the students in constant interaction through tasks. The teacher also made sure that everyone was involved.

Then, one might wonder if the teacher plays such an important role, how do we find teachers that are enthusiastic about virtual education, and more importantly, how do we find teachers who have the personality or charm in such an environment? Is it enough with a teacher who is enthusiastic about virtual worlds, or a teacher who is super-confident and smart, even pedagogical? It is difficult to differentiate the requisites of what kind of teachers that are best suited to teach in a virtual world environment, since being pedagogical might not be enough. Virtual world educators might have to be more than pedagogical or wise – they might have to have a certain type of personality to attract students to their courses and to fascinate students to participate in the lecture.

Terdiman (2004) quotes Anne Beamish from University of Texas: *"I use Second Life for students to explore ideas about public space and what makes a good public space, (…) Being in Second Life all of a sudden puts them in this different environment, which is similar but different, and it forces them to explore how they think about these things.... When you're in Second Life, because it's similar, but the physics are different, people react differently. And it makes them think more deeply about how one designs public spaces."*

Unexpectedly, there were no negative effects of virtual impacts observed.

5.3   Auxiliary instruments and Enhancing Authenticity

Students were using the virtual presentation board as a guideline and the audio to communicate with the teacher and each other. They were also using their virtual presence, by directing the avatar to the person who was speaking, positioning or walking the avatar to the destined place, whether it was in front of the virtual classroom or anywhere else. The virtual presentation board included tasks and exercises that were expected of students. These were then practiced and executed mainly via audio.

The teacher's usage of visual aids or other aids unique to the virtual environment was observed highly and the teacher took good advantage of the virtual presentation board as well as constantly using audio to communicate and reach out to his students. Richardson remarks that Second Life gave him an extra tool that he did not have before. *"We have tools such as Skype, Marratech and Adobe Connect which are great tools when you are dealing with more cognitive, left-brain stuff. But when we want to do more affective activities, we are a lot more limited. So, those kinds of activities have generally had to be done face-to-face. Now there is a means of doing affective activities even when people are not face-to-face. That's going to be a major addition to the toolbox, because it has been something that teachers have been lacking. This is of course a bit weird in the University context be-*

cause there are plenty of academics who feel that affective learning should have no part in University. I see that as an expression of ideology, rather than scientific statement."

Authenticity ambiguousness was only observed slightly. The teacher seemed to know and be confident of who he was speaking to, just like in a traditional educational setting. Consequently, Richardson does not see authenticity as an issue. He gets a class list of personal numbers, addresses and other personal information which he can use to confirm that he is talking to the specific student. However, he does not see that authenticity is a more serious issue in a virtual learning environment than a traditional environment.

A high degree of presence was observed and it felt quite difficult to feel isolated or inactive since there were certain participating expectations of students and the teacher involved everyone. Moreover, the students also seemed very keen to participate and did not seem bored at all. Richardson denotes that teaching style and personality have played something of an important role, according to the feedback from his students. He emphasizes that the charisma of the teacher seems very important.

During the course, it became obvious to realize that there are more courses suited than others in a virtual environment. Oral courses and courses that involve a high degree of discussion, for example, could be compatible with virtual courses since there are high similarities with the observed course. However, it is difficult to imagine a mathematics or physics course in a virtual environment. There might perhaps be more challenges for such courses. When asked, Richardson is not as certain whether there are specific courses more suited for Second Life. He clarifies: *"I am just speculating – we don't know yet. But it would be interesting to see if you could take an extremely dry analytical-type course, and run it in Second Life."*

6　Conclusion

Finally, this section concludes the analysis and provides solutions to the research questions.

6.1　Research answers

6.1.1　What value does a virtual education method create for the students?

An education via a virtual environment is a development of e-learning, which is an enhancement of a traditional physical education. There are no significant differences in the actual education; just which the methods and approaches differ as well as some tools used might differ.

Virtual education promotes students to be more creative and learn by creativity and practical assignments or role playing. The student learns as an individual rather than being instructed, meaning that the student is responsible and can choose what he/she wants to learn.

Furthermore, students are provided with virtual presentation boards, just like the regular blackboard/whiteboard used in traditional physical education to guide them through what is expected of them and what tasks they are to accomplish. The student can use a virtual education to learn through more creative means, just like "playing a game", but most importantly, learning through active originality and inspiration and use the means provided to make the most out of their own learning. In a virtual education method, students may take the opportunity to make the most out of their learning – a virtual education gives the students their own free will, meaning that students have the responsibility to learn as much as they want to learn and take out of the education.

In regards to the virtual teaching method, the teacher who presents the lecture also has the opportunity to perform the teaching in a more creative, fun and unique manner to inspire the students. However, it is important not to underestimate that the clarity in the objectives provided by the teacher will become more imperative, since teachers and students are physically distanced from each other. Likewise, the enablement of active participation and two-way communication becomes a vital aspect to enhance.

6.1.2　What implications are there for an education through Second Life and what is the significance of such an environment?

All students are persuaded to be active and participate, which also promotes interconnectedness between students and teacher. Students can do role-playing and do presentations without feeling embarrassed about their "real" identities being represented. The students' avatars act as a representation and the student can choose the level of identity exposed. Furthermore, communication is enhanced in virtual worlds, not just with peers but also with the teacher. Creativity is boosted with tools unique to the virtual environment and the significance of such a surreal environment is huge, given that students can have fun while learning.

As observed from the empirical studies, the number of attendees for the course was rather limited. This may imply several points. Firstly, the less amount of students might enhance for active participation and allow the teacher to concentrate on the individuals, compared

to a virtual classroom with more than 30 students taking the same course. On the other hand, though, this may also imply that the interest for such virtual courses are underrated through lack of interest and commitment, as well as this approach not being as widely used and therefore foreign to many skeptical students. For example, a student might wonder the outcomes of such a course and whether or not it will be considered to be as serious as a traditional course.

Secondly, as the technology for virtual classrooms seem at present, it might be fairly difficult to incorporate a large number of students to give them the same focus, participation and value. This can be argued because of the lack of physical teaching, where the teacher can neither verify the students' participation, acquiring of knowledge, as well as checking for understanding. Consequently, a virtual learning environment might at present, be most valuable with a limited number of students.

Thirdly, attending a virtual course also means in most cases, more freedom and independence. This might imply that students feel more unbound to the actual course and might feel open to prioritize other physical activities which may be believed to be more important. Although these assumptions lack evidence and cannot be fully justified, these aspects may be additional questions to work on for future development of virtual classrooms such as those conducted in Second Life.

6.1.3 What are the main auxiliary instruments or tools that enhance authenticity and the achievement of high presence in a virtual environment?

Main auxiliary instruments include virtual presentation boards, audio to communicate with each other and the avatar to direct the speech. To enhance authenticity, nothing specific is required, as Richardson mentioned that there are no significant issues imposing that authenticity problems are worse in virtual environments. Since Swedish Universities get a class list with personal information such as ID, personal numbers and addresses, the teachers can verify their students' identities.

Additionally, to enhance high presence in a virtual environment, Richardson suggests that the teacher's charisma and personality play an important role according to feedback from his students. Also, involving all students with creative exercises seems to be another means in achieving high presence in a virtual environment.

6.2 Discussion

There were a few problems encountered through the process of this thesis. First and foremost, the observations were held quite early in the process, and even though 6 sessions were intended to be recorded, only two of the sessions were successfully recorded. Furthermore, the author was supposed to be present at 3 of the sessions, but failed with the internet connections twice and could therefore only participate once, receiving another recording from Kalmar University.

Since the author became concerned with the observations, an interview was held with David Richardson, the lecturer of the Oral Production course. This helped confirmation of

the observations as well giving supporting answers to unanswered questions and unob-
served entities by the author.

Even though questionnaires were planned for students that had taken a virtual course, the
author failed to find a list-serve on the web to contact students from different backgrounds
to ask them their own opinions about virtual learning. This would also increase the validity
of the study and facilitated the student aspect.

6.3   Reflections

- ➢ The research could have had a different, but an interesting edge if there were more
  than one course observed. Alternatively, similar courses could have been observed
  to increase the validity and generalizability of the study. However, since there was
  only one course in Sweden held in Second Life, the author wanted to avoid com-
  plexity and cultural issues regarding different countries' systems and student identi-
  ties, keeping the scope of the study only on the Swedish University course given in
  Second Life.

- ➢ It would have been interesting to interview a few more teachers involved in virtual
  learning as well as having a questionnaire for students that have taken a virtual
  world course to ask them about the different aspects.

6.4   Further Research

- ➢ What courses are compatible with Second Life teaching?

- ➢ How does the ethnographic pattern look like for virtual education?

- ➢ How do students of virtual education perceive virtual learning? How have their atti-
  tude changed towards virtual learning?

- ➢ What alternative tools can be developed on a virtual world environment such as
  Second Life?

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Appendix 1

Days	No. of Attendants		Lecture time
	Students	*Teacher*	
Day 1 [18/3-2008]			
Day 2 [3/4-2008]			
Day 3 [10/4-2008]			
Total			

Behavior: Students	Was the behavior observed?	Tools used	Comments/Difference
Students participate actively in the lecture			
Technical restraints prevent students from participating actively			
Students use the virtual material available and make use of it			
There is a significant difference between students in a v-environment and traditional lecture			
Punkt E			

Behavior: Teacher	Was the behavior observed?	Tools used	Comments/Difference
Teacher presents the lecture in an exciting manner			
Teacher involves students in the lecture			
Teacher keeps the time frame of the lecture			
Teacher uses visual aids or other aids unique to the v-environment			

Teacher has prepared the lecture in a different way compared to a traditional lecture			

Behavior: Teacher	Was the behavior observed?	Tools used	Comments/Difference
Teacher presents the lecture in an exciting manner			
Teacher involves students in the lecture			
Teacher keeps the time frame of the lecture			
Teacher uses visual aids or other aids unique to the v-environment			
Teacher has prepared the lecture in a different way compared to a traditional lecture			

Environment	Was the behavior observed?	Scale (1-5) 1: lowest 5: highest	Comments/Diffrence
Authenticity			
Presence			
Virtual impact			
Course compatibility			
Additional consideration in regards to learning in a virtual environment – what other aspects are there to v-learning that are different from a traditional education?			
Any anticipated issues or unpredicted means?			

Appendix 2
Interview Manual – Teacher

Name:

School:

Title:

1. Why did you choose to operate a course in Second Life?

2. What is the difference having a course in Second Life compared to a traditional physical course? What impacts has Second Life had on the given course?

3. How do you, as an educator, enhance a high presence among your students when you are conducting your courses in Second Life? How do you encourage them to participate?

4. Have you encountered any authenticity issues and if so, what has been done to improve these issues?

5. What additional issues or problems have you encountered when using Second Life as an education medium?

6. What extra means do you use while having a course in Second Life that are different from those used at a traditional physical course?

7. Are there any other remarks or comments that you would like to add?