

# Facilitating Collaborative Learning in 3D Virtual Worlds

*A Qualitative Meta Study*

Kristine Sletten Sommerseth



Master Thesis

Department of Education

Faculty of Educational Sciences

UNIVERSITY OF OSLO

02.06.2014

**TITLE:**

Facilitating Collaborative Learning in 3D Virtual Worlds. A Qualitative Meta Study

**WRITTEN BY:**

Kristine Sletten Sommerseth

**EXAM:**

Master in Pedagogy, program:  
Knowledge, Education and Learning  
(Kunnskap, utdanning og læring).

Specialization: Learning, Technology and  
Work. (Læring, teknologi og arbeid).

**SEMESTER:**

Spring 2014

**KEYWORDS:**

Collaborative learning, computer-supported collaborative learning, 3D virtual worlds,  
SecondLife, simulations, formal and informal learning.

© Kristine Sletten Sommerseth

Year: 2014

Title: Facilitating Collaborative Learning in 3D Virtual Worlds. A Qualitative Meta Study

Author: Kristine Sletten Sommerseth

Publisher: Reprosentralen, University of Oslo (<http://www.duo.uio.no/>)

# Summary

This master thesis serves to investigate how collaborative learning can be facilitated in 3D virtual environments. The objective was to see how 3D virtual worlds could be applied when conducting collaborative learning, both formal and informal. I was also interested in reflection as a part of collaborative learning processes, and chose to integrate this into my research questions:

1. How can 3D virtual worlds, like SecondLife, facilitate collaborative learning?
2. How can one use virtual worlds for collaborative learning-purposes in both formal and informal learning situations?
3. In what way can reflection be beneficial to collaborative learning in virtual worlds?

SecondLife is a widely used 3D virtual world, utilized in a variety of learning situations. Its design and layout seem conducive to creating spaces that facilitate collaboration, and supports both formal and informal learning.

I have used a variety of theoretical frameworks and perspectives to structure the thesis, and form the basis for the discussions and conclusions. I have utilized constructivist learning theory to describe the collaborative learning facilitated through virtual environments. This is due to the generous focus on collaboration and team-work throughout this thesis. As collaborative-learning situations enable the creation of shared practices and understanding, I will discuss the perspectives surrounding communities of practice, first coined by Lave and Wenger (Wenger 2000). Computer-supported collaborative learning is a perspective that serves to integrate technology and learning, and I have relied on this to contextualize the examples used, the CAMO-project being one of them. Its objective was to create cultural awareness in military operations, through collaborative simulations in a virtual Afghan village. The other example involved nursing students, who practiced communication skills with fatally ill patients and their relatives. Both examples highlights the opportunities for collaborative learning in virtual environments.

Taking advantage of new technology for learning purposes, could create new possibilities for learning, maybe particularly collaborative learning. This is an important topic, as it could facilitate better and more motivating learning methods.

## **Research Method and Data Analysis**

As this thesis is a qualitative Meta study, I relied on interviewing as my main data collecting method. I interviewed three practitioners within the field of technology and learning. They had earlier collaborated as facilitators in the CAMO-project, and also possessed a variety of experiences with 3D virtual worlds and learning. The data collected was analyzed and categorized through an iterative process. I worked with the transcribed interviews and notes, in several stages to analyze and attain the best categorizations for the data gathered. These five categories included: 1. SecondLife as a Learning Environment, 2. Comparison Between Different 3D Virtual Worlds, 3. Collaborative Learning, 4. Formal and Informal Learning and 5. Dialogue and Reflection. These categories helped me present the most valuable data and formed the basis for the discussion.

## **Findings and Main Conclusions**

The informants and the theoretical framework both supported 3D virtual worlds and the opportunities within these platforms to contain great potential for collaborative work. As collaborative learning requires participants to socially interact and communicate with each other, the suitability relies on the communication options and features within the learning platform. SecondLife and other 3D virtual worlds are often created to serve as arenas for socialization, they are therefore well equipped with the necessary communication tools.

To facilitate both formal and informal learning there are aspects that need to be present. Within 3D virtual worlds there needs to be possibilities to plan and design formally structured exercises, as well as unstructured informal activities. The informants were generally favorable to utilizing virtual environments for informal learning purposes, but disagreed on the formal learning possibilities. However, there are numerous examples of 3D virtual worlds being utilized for formal learning practices, and all the informants have had positive experiences with lectures and seminars conducted virtually.

Reflective practice, most notably known through the work of Donald. A. Schön, proposes the importance of dialogues and reflection sessions, for participants in collaborative learning activities (Schön, 1983). This was a major part of the CAMO-project, and enabled the participants to express, challenge and reflect on the learning experience. The informants were unanimous in their perceived importance of reflection, to attain the most valuable learning outcome. They saw this as an important aspect of collaborative learning.

# Acknowledgements

Writing a master's thesis has been a long and emotional journey. I have been fortunate enough to be surrounded by a good group of people to support me throughout this process. I would therefore like to thank my supportive fellow students, who have helped me stay motivated through the entire semester. They have given me new insight and encouragement to continue writing.

I would also like to thank my parents and friends who have supported me with kind words and coffee breaks when I needed distractions. They have also contributed with pointers and tips, to which I am very grateful. A special thanks to my supportive boyfriend, who helped me review the entire thesis over the course of one week.

Lastly, I would like to thank the Department of Education, the Faculty of Educational Science, and my guidance counselor, Anders Mørch, for the opportunity to study and write about the topics that interest me the most.

Kristine

Oslo, 02.06.2014

# Table of content

## Content

Summary .....	IV
Acknowledgements .....	VII
Table of content.....	VIII
1 Introduction .....	1
1.1 The Reason for Choosing this Topic .....	2
1.2 Research Questions.....	2
1.3 Structure of the Thesis.....	3
2 Literature Survey.....	4
2.1 The CAMO-project.....	4
2.2 Communication Skills in Hospice Training .....	7
3 Theoretical Frameworks.....	10
3.1 Constructivism.....	11
3.2 Formal and Informal Learning .....	12
3.3 Mediating Artefacts .....	14
3.4 Computer-Supported Collaborative Learning .....	16
3.5 Problem Based Learning .....	18
3.6 Community of Practice.....	19
3.7 Reflective Practice.....	21
4 Technology.....	23
4.1 Web 2.0.....	23
4.2 3D Virtual Worlds .....	24
4.3 SecondLife as a Platform for Learning.....	25
5 Research Method.....	28
5.1 Qualitative Research.....	29
5.2 Data Collection .....	30
5.2.1 Population and Sample.....	31
5.2.2 Interview.....	31
5.2.3 Kvaales Seven Stages of Interviews .....	33
5.3 Data Categorization .....	35



5.4	Validity and Reliability .....	36
5.5	Ethics and Ethical Considerations .....	38
6	Data and Analysis.....	39
6.1	SecondLife as a Learning Environment .....	40
6.2	Comparison Between Different 3D Virtual Worlds .....	44
6.3	Collaborative Learning .....	46
6.4	Formal and Informal Learning .....	50
6.5	Dialogue and Reflection .....	54
7	General Discussion.....	57
7.1	Collaborative Learning .....	57
7.2	3D Virtual Worlds, Formal and Informal Learning .....	60
7.3	Reflection and Collaborative Learning.....	63
8	Summary and Conclusions.....	66
	References .....	68
	Appendix I: NSD Application.....	72
	Appendix II: Consent Form.....	74
	Appendix III: Interview Guide.....	75
	Appendix IV: Sample of Transcriptions .....	76

# 1 Introduction

In this thesis, my aim is to investigate how to facilitate collaborative learning when using 3D virtual worlds. Learning methods that incorporate collaborative learning and problem-solving, are often based on a constructivist approach. Constructivist theory entails a belief that one constructs knowledge and practices in the surrounding social environment. Constructivism will also be the basis for the learning perspective in this thesis. I have used additional perspectives and terminology throughout the research process. These include problem-based learning, informal and formal learning, computer-supported collaborative learning etc. To exemplify the facilitation of virtual worlds for learning purposes, I will rely on the CAMO-project and a project conducted at the University of Colombia, concerning communication skills in hospice training. The CAMO-project was a joint effort conducted by the Norwegian Army to promote cultural awareness in military operations in Afghanistan. The communication skills in hospice training, involved training nursing students to conduct end-of-life conversations with dying patients and their relatives. Both projects were conducted in the 3D virtual world, SecondLife.

The thesis is a qualitative Meta study, and I have relied on interviewing as the main method of data collecting. My sample consists of three informants who are all skilled practitioners within the field of technology and learning. They come from different backgrounds, and have varying experiences with facilitating learning in virtual environments. However, they did collaborate on the CAMO-project, and share a common experience of the implementation of the CAMO-project. The informants will hopefully be able to contribute with different perspectives on the topics of this research. I will use the data gathered from the interviews as well as literature reviews and other theoretical frameworks to be the basis for the analysis, discussion and conclusions.

## **1.1 The Reason for Choosing this Topic**

I chose to write about utilizing virtual environments for learning, because I am fascinated by the possibilities of facilitating collaborative learning with new technology. The concept of using gaming-like platforms and other 3D virtual worlds for learning purposes is an interesting and creative idea I believe will be useful in many aspects of learning. Utilizing new technology for collaborative work and problem solving in teams, could potentially have a positive effect on the learning outcome. I have experienced and observed lectures in classroom settings in the 3D virtual world, SecondLife. These experiences enabled me to see the potential of how one could apply SecondLife for learning purposes. To exemplify this, one can create learning environments by building virtual campuses' and conducting classes and lectures for students online. As the world is constantly evolving technologically, I marvel at the possibilities in the future.

There are many opportunities for facilitating new and varied learning methods when working with virtual worlds. Simulations and team-based problem-solving are two of these. By applying new technology, one might be able to be more considerate to individual preferences. One could easily alter the learning methods and the degree of collaboration within an activity. To some extent, I hope to be able to highlight a few positive outcomes of using 3D virtual worlds to facilitate learning.

## **1.2 Research Questions**

The research questions that I have designed are based on my desire to investigate how 3D virtual worlds can serve as collaborative learning environments. I am especially interested in how one can facilitate collaborative learning, in both formal and informal learning situations within virtual environments. I will also discuss the importance of reflection in collaborative

learning, focusing on how reflection could elevate a learning experience and outcome. My research questions are as follows:

1. How can 3D virtual worlds, like SecondLife, facilitate collaborative learning?
2. How can one use virtual worlds for collaborative learning-purposes in both formal and informal learning situations?
3. In what way can reflection be beneficial to collaborative learning in virtual worlds?

## **1.3 Structure of the Thesis**

I will structure the rest of the thesis in order to best present the theories, perspectives and aspects that will benefit the analysis and data needed to discuss the research questions. The first chapter presents learning perspectives that are relevant to the learning situations confronted in a virtual environment. These include informal and formal learning, mediating artefacts and constructivist approach for learning. I will continue to account for the terms computer-supported collaborative learning, problem-based learning, communities of practice and reflective practice. I will use these perspectives to discuss the learning methods most valuable for collaborative learning, especially in a virtual environment. The next chapter will include aspects of technology that is beneficial to my thesis and for understanding 3D virtual worlds. The research method chapter will clarify the process of planning for and conducting the interviews. It will also clarify how I gathered the data necessary to conduct the analysis and discussion. In the data and analysis chapter, I present the collected data and explain its content through extracts and descriptions. In the last part of this thesis, I will discuss my findings based on theory and informant-gathered data, and draw conclusions based on the discussion.

## 2 Literature Survey

In this chapter, I will present a summary of two projects conducted in SecondLife. This is a survey of earlier research, already reported in literature, used to exemplify how one can furnish 3D virtual worlds for learning purposes. I read through the articles and extracted the information I found to be most valuable in this context. I have chosen not to go into depth into every part of the articles, but rather focus on the learning results, and how the participants in the projects experienced the learning situation.

### 2.1 The CAMO-project

The CAMO-project was an experiment aimed to promote cultural awareness in military operations in Afghanistan. It focused on different aspects of Afghan culture such as gender, customs and religion. The project was a joint effort between the Norwegian Defense University College, Norwegian University of Science and Technology (NTNU), Norwegian Military Academy, Bjørknes College and the University of Oslo amongst others. The project took place in the fall of 2011, in the virtual world SecondLife, created by LindenLabs (Prasolova-Førland, Fominykh, Darisiro, Mørch, and Hansen, 2013). SecondLife is a virtual world where the user is able to change and create environments to suit the requirements of the task at hand. Professors at NTNU built an Afghan village, aimed to serve as the virtual location for the CAMO-experiment. To obtain a realistic environment, they used elements from real-life places in Afghanistan, where Norwegian forces had been stationed. This became the learning site for the experiment. Creating a realistic village posed some challenges, especially regarding the feel of a real Afghan town. Achieving the crowded feel one would realistically encounter, proved troublesome, as there was a limited amount of users logged in at the same time. Another obstacle in creating a real-life environment was the limited body language, gestures and mobility features of the avatars. Avatars are the virtual

embodiments of the participants within the SecondLife platform (Prasolova-Førland et. al., 2013).

The CAMO-project mainly focused on cultural aspects of the Pashtun group in Afghanistan, however the different tasks could be fairly easily modified to suit different requirements as well as other cultures within the country. The project had some main learning goals: understanding the specific socio-cultural motives for action (or non-action), understanding enemy mindset, exerting influence on the population, improving interaction with other actors in the area of operation and justifying own actions (Prasolova-Førland et. al., 2013, p. 4). To reach these goals, the cadets simulated a variety of scenarios that involved a wide range of cultural aspects. Every assignment came with descriptions and cues, and included an introduction, a so-called mission order, presented through short movies. They were thematically varied, involving tactics, gender, religion, socializing and language. The reusability is again evident, as these scenarios could be adjusted and used for training civilians, or even transformed to suit other cultures and countries. Underneath is a screenshot from the day of the experiment. It depicts a scenario in which a local female has been injured and needs assistance from the Norwegian forces.



Figure 1: Screenshot from the one of the simulations during the CAMO-project, November 2011.

The reason for conducting the simulations in a virtual environment could be credited to the importance of being able to engage in activities that involve role-playing and perspective taking. Collaboration and a high level of communication and social interaction seem to have been critical, as the cadets were organized in teams. A platform was needed that could support communication within the team and collaboration in a realistic setting. SecondLife was an already created virtual world that met the requirements for the execution of the project, and was suitable for collaborative activities. Other important factors that contributed to selecting SecondLife were low cost, short development time and reusability (Prasolova-Førland et. al., 2013).

The cadets expressed that the experiment was engaging and interesting, and served as a novel and motivating learning experience. However, it was not equally beneficial to all participants. There were limitations within the SecondLife platform regarding communication features, and the organization of the teams and the scenarios also affected the learning situation. A selection of the cadets were stationed as scouts and lookouts to secure a specific area, and had no contact with the rest of the team and its members. In SecondLife, one's avatar has to be positioned in close proximity to the other participants, in order to hear speech. The scouts spent the duration of the project in solitude, and did not receive any information about how the rest of the team progressed in the simulation. For these cadets there was little or no room for active participation and they consequently felt excluded from the group. They stated in their feedback that they did not experience any substantial learning outcome (Prasolova-Førland et. al., 2013). The cadets found the mini-scenarios to be different in regards to the learning results. They felt that some of the scenarios worked better than others, and provided unequal levels of learning (Prasolova-Førland et. al., 2013). The SecondLife platform also posed some challenges, and the experiences with the virtual environment were not exclusively positive. In the feedback, the cadets expressed that the lack of more extensive body language and gestures was a negative factor that affected how they read the situation and the emotions of the other participants. They found the SecondLife platform to be otherwise user-friendly, fun and a generally a motivating experience (Prasolova-Førland et. al., 2013).

## 2.2 Communication Skills in Hospice Training

Another example of facilitating SecondLife as a virtual learning environment, is the Columbia University-project. It involved medical students' ability to communicate with relatives and patients in a hospice in Arizona (Lowes, Hochstetler and Paek et.al., 2013). The project was initiated as an alternative to real-life role-playing. The hope was that communicating virtually with patients and next of kin, would relieve some of the stress that students experienced when practicing face-to-face role-playing. There were three main scenarios included in the simulations, and the students portrayed nurses conducting end-of-life conversations with patients. During the simulation a doctor, who also had the role of facilitator, interrupted the sessions to guide the students as mistakes happened (Lowes et.al., 2013).

The students expressed that they felt uncomfortable during face-to-face role-playing sessions in class, and conducting the simulations in a virtual environment was meant to relieve these negative attributes (Lowes et.al., 2013). By adapting the role-playing to a virtual environment, the facilitators expected the students to be more at ease, and that it would enable the students to get into character. The students had previously expressed that role-playing in class did not feel realistic, and they felt tense when the rest of the class was observing. The facilitators created a replica of an actual hospice in Arizona, which served as a more realistic and life-like setting for the simulations (Lowes et.al., 2013). The students were previously used to conducting role-playing sessions in conference rooms and spaces that were unpractical and uncondusive to the situation. Using the virtual hospice was consequently a better fit and in some ways a more useful environment. Some of the advantages were of a logistical manner, especially concerning the participants', doctors' and students' ability to be in different locations during the simulations (Lowes et. al., 2013). This enabled those involved to participate in the simulation without having to travel to a specific location. Underneath is a screenshot from the project where a student is interacting with a patient.





*Figure 2: Screenshot gathered from SecondLife during a simulation, Lowes et. al., 2013.*

During the project, the students experienced different degrees of virtual activity. Some of the students conducted all the role-playing in SecondLife, whereas others only performed parts of the role-playing virtually. The students who used SecondLife were generally favorable towards it, although that seemed to depend on the amount of time spent working in the virtual environment. The students who exclusively participated in virtual simulations, were more favorable towards using SecondLife and virtual simulations, than the ones who had completed the training through a combination (Lowes et. al., 2013). The students who exclusively used SecondLife also seemed to assess their own learning outcome as greater than their counterparts. This is presented in the table underneath, that illustrates the difference between students who used virtual simulations and the ones who did face-to-face role-playing (Lowes et.al., 2013).

Table 1: *Percent reporting that they felt “very well” prepared to discuss end-of-life care decisions with a patient as a result of the HOV experience.*

	In-person (n=68)	Virtual (SL) (n=41)
Very well	21%	54%
Moderately well	54%	44%
Not very well	13%	2%
Not well at all	12%	0%
	100%	100%

When viewing the results, there seemed to be a general agreement that utilizing SecondLife for role-playing was preferable compared to face-to-face role-playing. This especially after the technical difficulties were resolved, and when the students had completed at least three scenarios. The students who exclusively took part in virtual simulations were much more positive towards the scenarios and role-playing in general, despite the fact that there were no significant difference regarding the grades of the topics included. A large sample of the students who only did face-to-face role-playing stated that role-playing was their least favorite activity (Lowe et al., 2013). This could suggest that conducting simulations in a virtual environment did in fact relieve some of the stress that the students expressed in the beginning of the experiment.

### 3 Theoretical Frameworks

In this chapter, I will account for the most relevant theoretical frameworks, perspectives and concepts, and these will determine the context for the thesis. My aim is to clarify the most important aspects within these perspectives and theoretical frameworks. I will include constructivism, formal and informal learning, mediating artefacts, computer-supported collaborative learning, problem-based learning, communities of practice and reflective practices. These concepts will form the basis for the discussion, in addition to the collected data.

Learning is a broad term in which many aspects are included. Historically there are three main directions within learning theories: behavioristic, cognitive and constructivist. The behavioristic learning theory focuses on learning through reinforcement. The reinforcement could be of a positive or negative nature, and will either way affect the learning outcome. Behaviorists believe that the learner is affected by outer stimulus, and they deem that this will also affect the student's motivation. They conceive repetition and extensive practice to be beneficial methods for achieving the best learning results. Considering this, the main focus of behaviorists is to find a valuable way to reinforce learners in a positive manner. According to behaviorists, this could potentially lead to the best possible learning outcome and change in behavior (Lai, 2006). Cognitivists however, believe that learning occurs through the individuals own role, understanding and motivation. This will in turn also affect the individual's insight in the learning situation. Metacognition is considered an important term in cognitivist learning theory. It constitutes an ability to gain a degree of insight in ones learning processes. Metacognition requires internal motivation, in addition to openness and willingness to learn new subject matter, skills and knowledge (Lai, 2006). The last perspective is the constructivist learning theory. It was developed by famous pedagogue Jean Piaget, and states that learning occurs through intellectual activity, and not by simply absorbing information. He believed that learners must experiment and observe the world to create and develop new understanding and knowledge (Beetham & Sharpe, 2013). In this

thesis, I will rely on constructivist theory to explain and discuss how to best facilitate learning by using 3D Virtual worlds.

## 3.1 Constructivism

Constructivism is a theory of knowledge, first coined by Jean Piaget, who proposed that learning, understanding and comprehension is created through active processes. This process relies on the participants to create hypothesis and develop new understanding through activity. Intellectual activity is prioritized. In constructivism one does not simply absorb knowledge, but construct knowledge through activity, personal experimentation and observation. This often takes place through problem-solving activities that includes feedback from others and social interaction (Beetham & Sharpe 2013). A similar theory, coined by Berger and Luckmann, is social constructivism where one construct one's own reality through a process between the individual and a social system (Kriz, 2008). This process is carried out through communication. "In this regard, cognition is always partly subjective and shared social representations of reality via communication." (Kriz, 2008, p. 664). Constructivist processes are dependent on social interaction and communication. The created knowledge and practices are therefor often subjective, as it relies on communal and shared knowledge and activity.

Constructivism have two main perspectives, social and individual. Individual learning is acquired through active exploration of the world surrounding the person. It leads to internalization of new concepts and skills, often integrated into pre-existing knowledge possessed by the learner (Beetham & Sharpe, 2013). In constructivism, one is typically more concerned with the internalization process, and how new knowledge is integrated into the persons existing schema. Schemas are categorizations of information, organized in schemas internally within an individual. Cognitivists are not necessarily preoccupied with change in behavior caused by the learning. For the learner to be able to acquire the new knowledge,

there are aspects that need to be present. The learner has to be active in both constructing and integrating new or existing concepts. There has to be opportunities for reflection in the learning situation, and the learner has to possess some degree of ownership of the task at hand (Beetham & Sharpe, 2013). Within constructivism, there are requirements regarding the learning situation. It is important that the learning situation adequately promote environments that facilitate communication and interaction between participants. The learning environment also has to encourage experimentation and new discoveries, and the teaching must be adapted to already existing skills that the learner possess. There has to be some degree of interaction and meta-cognitive skills (ability to understand how one learns) present (Beetham & Sharpe, 2013).

The social perspective entails achieving understanding through communication and collaboration. The social environment is an important factor in the social perspective of constructivism, where both teachers and peers are massive contributors to the learning outcome. This includes developing shared understanding through dialogue and social interaction. The focus on communication and collaboration is believed to better the learning outcome for the learner, because they are able to acquire knowledge that is unattainable through individual activity. This is based on Vygotsky's theory of the zone of proximal development, where the student is able to learn new knowledge through the aid of peers or teachers. The learners involved have to possess a shared ownership of the task for it to be successful; this also includes a shared responsibility and peer-evaluation (Beetham and Sharpe, 2013).

## **3.2 Formal and Informal Learning**

Dividing learning into formal and informal categories, is one way of distinguishing between learning that takes place in a formal learning environment, and those that do not. Formal learning is planned and goal-oriented. It often takes place in classrooms, schools and other

institutions and have predetermined expected outcomes. As it includes traditional learning situations, most people have had experience with this through schooling. Formal learning is therefore often misinterpreted as any form of learning. Informal learning, on the other hand, is often overlooked which could be credited to the fact that it is not organized or planned, and thus not as clear and tangible as formal learning. Informal learning is learning that happens spontaneous without a specific set of learning goals. It can occur at any place or social setting; and includes any learning that is accidental and unintentional (Hager & Halliday, 2006).

Hager and Halliday (2006) argue that both formal and informal learning are important and not in any way mutually exclusive. Although it is possible to learn and develop solely through informal learning situations, they claim that today's complex society demands formal learning for understanding social practices. Despite this, Hager and Halliday (2006) are critical to the fact that too much learning is formal. As stated earlier, neither form of learning is mutually exclusive, and informal learning can simultaneously occur in a formal learning setting (Hager & Halliday, 2006). Hager and Halliday (2006) argue that there is an imbalance between the two forms of learning. They argue that it is necessary to not only value formal learning, but also the informal, which occur in a wide variety of situations. This is exemplified through describing how the society that one is born into affects children, and is often initiated through informal learning practices. Continuing this example, one could also see this occurring in workplace learning, where employees are integrated into a small society through informal learning processes. Whenever learning is applied for the purpose of utilizing the knowledge through activities, it is not necessarily well suited for formal learning (Hager & Halliday, 2006).

According to Folkestad (2006) there are four different categories that could help to separate formal and informal learning. These categories include the situation, learning style, ownership and intentionality. The situation tells us where the learning occurs. In formal learning situations for example, the learning will often take place in a classroom or a pre-planned venue. Whereas informal learning could happen at any location: on the playground, at a café,

or simply through discussions around the dinner table. The learning style involves what methods you apply in the learning activity. If there is a clear and organized method, it will most likely be a formal learning situation. In informal learning, the method could entail an unplanned dialogue or a board game with no intention of learning. Ownership deals with aspects like who decides when the learning should take place, how it should be and what degree of self-regulation there is. In most formal learning activities, there is a facilitator, often a teacher or counselor, who plans and facilitates the learning situation. However, if the learning happens spontaneous with no facilitator present, then it is most likely an informal learning situation. The last and final category has to do with intentionality, this involves whether the learning is an intentional and planned occurrence or if it happens at random (Folkestad, 2006). All of these four categories help us determine whether the learning situation is an informal or a formal one. I suspect it will be easier to determine and recognize a formal learning situation, as the aspects seem to be much more tangible and measurable.

### **3.3 Mediating Artefacts**

The Russian pedagogue Lev Vygotsky developed the socio-cultural learning perspective. It states that learning occurs in social settings and through social interaction and communication with others (Conole, 2013). Socialization and interaction are perceived as critical elements to facilitate learning. Vygotsky proposed that the ability to interact through language is what separates humans from animals, and he saw social interaction as especially important for human cognitive development (Conole, 2013). In the socio-cultural perspective Vygotsky emphasizes the importance of mediating artefacts. According to Vygotsky the artefacts need to be shared between members of a society before they can be internalized within the individual (Conole, 2013). Mediating artefacts are often categorized as signs or tools, these tools help to mediate humans' social environment. They can take many forms, e.g. language and speech. Mediating artefacts are not necessarily static, but rather reusable and attributed with different values according to the learning activity in which they are utilized.

Artefacts can serve as guides and affect the process of designing learning activities (Beetham & Sharpe, 2013). These might involve learning design tools or design concepts. The activities designed on the basis of mediating artefacts, are new learning designs in themselves. They can be shared and repurposed by other learning facilitators. By utilizing the artefacts for design purposes, one can improve and evolve the process of designing learning. Thereby basing the design on artefacts and not exclusively on beliefs and preconceived notions. It can also enable the planners to focus more on the activity rather than the content, and move away from this unilateral focus. Because the mediating artefacts often are explicit, they will be easier to discuss and share with others, thus increasing the possibilities for improving the practice of designing learning activities (Beetham & Sharpe, 2013).

Mediating artefacts could be especially beneficial if they are transferable to other learning situations. One could see a case as a mediating artefact, but these might be difficult to repurpose, as they are often contextually set (Conole, 2013). Cases used for learning purposes, have the potential to be suitable artefacts as they contain a rich context that can be utilized during a learning activity. This can be exemplified through the CAMO-project as well as the experiment for communication skills in hospice training. These two both contained a rich context and structure that aided the participants and affected their implementation of the assignments. There are varieties of mediating artefacts, objects like computers and virtual worlds can also be perceived as such. Using virtual environments affect the context and situation and can thereby mediate participants' behavior in a learning activity (Beetham & Sharpe, 2013). 3D Virtual worlds can therefore be perceived as a tangible and concrete artefact.



## 3.4 Computer-Supported Collaborative Learning

Computer-supported collaborative learning, abbreviated CSCL, is a method of computer-mediated learning. CSCL involves two or more people who collaborate through computers where learning is the main objective (Mørch, 2012). Collaborative learning involves knowledge sharing and knowledge construction in groups. An important aspect of CSCL is that knowledge construction occurs in the social world rather than within the individual (Mørch, 2012). According to Hoppe, Ogata and Soller (2007) it is key that the participants in CSCL practice rich social interaction through collaboration. The social interaction contains patterns and information about several important aspects of the participants learning outcome, including what roles they have, their level of engagement and the degree of shared understanding. The participants are required to be more than observers, but also contributors to finding novel ways of solving problems and creating new solutions and ideas. Social interaction is a main factor through this process; the ability to ask questions, discuss and interact with other participants not only affects the learning outcome, but could also have consequences for long-term social interaction skills (Hoppe et.al., 2007).

Utilizing gaming as a learning method, has many advantages with a variety of ways to implement learning. Gaming provides a setting where the participants are able to engage in different tasks and assignments, all within the gaming platform. This has the potential to be both engaging and motivating for the participants. It could enable educators to create and exploit varied forms of learning. One of the most important factors with gaming as a learning method, is that the learning facilitates group learning and problem-solving. According to Kriz (2008) gaming as a learning methodology has many advantages, particularly as it is an active form of learning which could affect the students' degree of engagement. It facilitates learning by exploring and viewing different sides of human actions and behavior. Gaming and other forms of CSCL is heavily based on constructivism as a learning theory, where the participants create their own knowledge, practices and actions as a team and in collaboration with others (Kriz, 2008).

Collaborative learning is a key aspect of CSCL and there are some that state that collaborative learning facilitates critical thinking and reflection. This could be credited to teamwork and the opportunities for discussions with fellow learners. Collaborative learning can take place in what is called communities of practice. The term was first coined by Lave and Wenger in 1991. Communities are based on a shared understanding of the specific subject that the members have in common. Collaborative knowledge creation between members of a community is a requirement (Moreno-Ger, Burgos and Torrente, 2009) Collaborative learning and its outcome is dependent on the behavior of the individuals in their group as well as their level of interaction. According to Hoppe et. al. (2007) collaborative learning has to involve a high degree of social interaction between the participants of a learning activity. The level of interaction and the quality of it will affect the learning outcome. Social interaction is not the only factor that could affect the outcome. External factors such as group composition and learning context could greatly affect the group dynamic, and how well the participants are able to solve their assignments. The group composition might include aspects like skills, gender and behavior, and can purposely be designed for the best learning outcome.

There are several beneficial aspects of collaborative learning. It enables the participants to engage in discussions, where challenges can be resolved. Collaboration can also motivate students to gain new understanding and insight into different topics and problems. Knud Illeris (2012) states that interaction between the learner and the social world is an important part of learning, and that the level of participation could greatly influence motivation as well as the end result. According to Gokhale (1995) collaborative learning could also enhance critical thinking. This is credited to the level of interaction and discussion between the members of a group. Taking responsibility for one's own learning as well as other members', can lead to a higher level of group-work engagement. Gokhale conducted research on the advantages of collaborative learning at the Western Illinois University, in Macomb, Illinois. The students who participated in the research commented that they felt collaboration created opportunities for discussions and was helpful when learning new subject matter. The participants aided each other to gain understanding of novel concepts and enabled them to comprehend unfamiliar perspectives. Many also stated that the group-work stimulated them to think. Another positive consequence of collaborative learning was that the researchers were

able to create a learning environment that the students experienced as relaxed and easy-going (Gokhale, 1995).

### **3.5 Problem Based Learning**

Problem-based learning, abbreviated PBL, entails learning through problem solving. In PBL one does not believe that the learners learn one objective reality, but rather that they adjust their existing reality as new knowledge is obtained (Kriz, 2008). This is comparable to the constructivist view of how one acquires knowledge and learning. PBL has become a preferred learning method for many educators. Although it has not, according to Allen et. al. (2011), been proven scientifically to be a better method for learning subject matter. Despite this, it has been well received within the medical field where it is commonly used for training students. The students are divided into teams where they have to gather and organize previous knowledge and form a plan of action depending on the delegated assignment (Allen et.al., 2011). Although research seem to indicate that PBL is not necessarily a better learning method, if measured by test scores and grades, there are other long-term advantages. Students who have been exposed to PBL seem to be able to utilize their knowledge after graduation, in a better way than their counterparts (Allen et.al., 2011). Other advantages of PBL involve improved skills in team-work abilities, negotiation, discussion, reading and writing (Allen et.al., 2011). For PBL to reach its potential it is crucial that the students interact and engage in a manner that prevents groupthink. Groupthink occurs when a group is persuaded to follow the thoughts of a single person, and the group is unable to collaborate on the task at hand (Allen et.al., 2011). A high level of communication and social interaction may involve working with several ideas and interpretations simultaneously. Allen et al. (2011) argue that PBL could increase student engagement by focusing on social interaction and promoting discussion and exchanging opinions, and could even have a positive effect on the students' ability to create social networks.

The students' roles in PBL can be quite different from the traditional classroom learning environment. The students have greater responsibility for how the learning situation unfolds and their actions could affect both the learning outcome as well as the situation and process. The role of the students also affect how the educators guide them. As the main responsibility and plan of action is shifted from the educator to the student, educators take on the role as counsellors and guides. The educators observe the students' interaction, discussion and problem-solving. They should only intervene and aid the students, if they are confused and in need of assistance (Allen et.al., 2011). Planning a learning situation mainly consists of finding adequate problems for the assignment, with clearly formed learning goals (Allen et.al., 2011). They will also leave room for trial-and-error, to motivate the students to solve the problems in collaboration. «PBL problems may intentionally pose cognitive challenges by not providing all the information needed, thereby motivating a self-directed search for explanations.» (Allen et.al., 2011, p. 23).

## **3.6 Community of Practice**

The term communities of practice, is used in a variety of ways. I will account for two of these; a community in which knowledge and meaning is created through practice, or a group where the purpose is to facilitate the creation and sharing of knowledge. Communities of practice involves collaborative activity within a group of people, who come together to develop and share practices (Beetham & Sharpe, 2013). “It emphasizes on the need to learn to achieve a desired form of participation in a wider community.” (Beetham & Sharpe, 2013, p. 23).

Communities of practice are communities in which a specific area of knowledge is created and shared. According to Wenger (2000) communities of practice are building blocks of social learning systems, in that they are containers of the competences in each system (Wenger, 2000). There are three elements that are included in communities of practice; 1. collective understanding between the members, 2. members are mutually engaged and

interact together and 3. communities of practice have to create shared understanding through a common language, routines and artefacts etc. (Wenger, 2000). Wenger exemplifies this through what he calls purple-in-the-nose. This was an incident which demonstrates quite clearly how shared language and understanding is critical to a community of practice. Wenger explains how he had been drinking a bottle of wine with a friend, and had not been aware that he was in fact a wine expert. As his friend elaborated on the excellent wine and the different aspects of it, Wenger realized that even though they were drinking the same wine, their experience of it was vastly different. His friend had through a community of practice constructed his own reality and knowledge about wine, which was not relatable to Wenger's. Purple-in-the-nose was how his friend described the wine, and even though Wenger did know the words separately and could understand them, he was not able to comprehend them in this context (Illeris et. al., 2009). Direct participation between members of a community, creates and enables many opportunities for learning, and several communities of practice may be entwined.

For a community of practice to be a successful one, with growth and development potential, there are several aspects that need to be included. The first is enterprise (the level of learning energy), and involves willingness to continue to develop new knowledge, and be open to new shifts within the field. It is important for the communities to continue forward and not stagnate, and to continue to strive to better themselves (Wenger, 2000). Another important aspect is mutuality, which entails information about the members of the community as well as trust in each other to contribute to the development of the practice. Social interaction and communication is key in creating environments for mutual collaboration. In addition to facilitate further development within the field, in which the community belongs. This also includes knowing where and who to contact and thereby knowing the members adequately to communicate productively (Wenger, 2000). The last aspect mentioned by Wenger (2000) is repertoire, the degree of self-awareness. The degree of self-awareness depends on the communities ability to take into consideration the effects that their repertoire may cause the field or practice. They must be aware of other movements in the field. "Being reflective on its repertoire enables a community to understand its own state of development from multiple

perspectives, reconsider assumptions and patterns, uncover hidden possibilities, and use this self-awareness to move forward” (Wenger, 2000, p. 230).

Wenger elaborates in the book *Lærings teorier* (Illeris et. al.,2009) how he sees communities of practice in many different levels. He exemplifies this with an incident from Canada. Children with disabilities were experiencing difficulties with being included and integrated into workplaces. A variety of experts on the area, gathered at a convention and it became evident to Wenger that the groups of people who attended were in themselves small communities of practice. On the one hand there were the parents of the children involved, pedagogues, experts and the children themselves. Within this particular area there were several and separate communities of practice (Illeris, Jarvis, Wenger, Engestrøm, Mezirow and Ziehe, 2009). Combined the small communities of practice were a part of a bigger one.

### **3.7 Reflective Practice**

Reflective practice is a way of reflecting on a learning process by taking a step back and contemplating on the experience. Donald A. Schön is one of the advocates for this practice, perhaps most noteworthy, through his book *The Reflective Practitioner, How Professionals Think in Action*, published in 1983. The book introduced new perspectives on how one could facilitate learning, by focusing on problem-solving and problem-setting in activities (Schön, 1983). This was particularly important to Schön as he believed that problem-setting can affect the learners ability to choose what the objective and goals are, and what means one should apply to reach these goals. Reflective practice serves to reflect on things experienced in the immediate environment, and can potentially provide new understanding to things that have previously been overlooked during an activity (Raelin, 2002). This is used to provide a basis for further learning and new experiences. The reflection, often called dialogues, should be performed in safe environments, where there are valid opportunities for open discussions and finding solutions to problems that are not evidently clear. The reflection should be continuous

throughout the exercise both before and after. For the reflection to be beneficial one must be open to objecting one's own thoughts to open investigation by sharing assumptions and thoughts (Raelin, 2002).

According to Raelin (2002) there are several elements that clarify the importance of reflection. Reflection enables opportunities for awareness of our own actions and thoughts. Reflection with others creates possibilities to think and ponder over our own beliefs and assumptions. It can also facilitate awareness concerning the reasons for why we behave and act the way we do. If we are not open we are at the risk of repeating the same mistakes and getting stuck in old patterns of thinking. Another factor is that people often fail to do what they had initially planned. There is a lack of correlation between what they said they would do, and what they actually do. Reflection and dialogue could prevent this, and make one more aware of what one does compared to what one says. People are often biased regarding their beliefs and what they choose to act upon, and many have already predetermined what information they believe in. This can lead to the avoidance of certain sets of data and disbelief in them, or simply ignoring them altogether. Reflection through interaction with peers is one way of avoiding the risk of this happening. By talking openly, peers could challenge one's earlier opinions and create openings for novel thinking and changes of perspective. The last perspective mentioned by Raelin (2002) is the practice in which we rely on pre-existing experiences and knowledge. Getting caught up in earlier experiences and thoughts could prevent new behavior and action. This might be due to people looking for similarities in situations instead of differences. Basing one's actions on similarities could be a risky move, as there might be more differences than similarities. Reflection could once again be a contributor to avoid this from happening.

# 4 Technology

In this chapter, I will present some key technological elements that are vital to 3D virtual worlds. I will present a short review of the concept of Web 2.0 and explain what a 3D virtual world entails. Lastly, I will explain how SecondLife could be used as an environment for learning and contextualize the technology aspects of this segment.

## 4.1 Web 2.0

Web 2.0 is a term coined in 1999 by Darcy DiNucci and was meant to describe a novel way of using the World Wide Web. It is a new way of using websites that are less static than traditional websites, this includes blogs, social networks and wikis (Wikipedia). Web 2.0 gives the user the ability to not only read but also contribute by writing, and in social networks also “tagging” and bookmarking. The users are in this perspective both active participants and contributors. Web 2.0 has created new possibilities for participatory activity, and enables users to affect the content within websites.

Web 2.0 opened for new opportunities for users to contribute to both the material and the content of websites. Wikipedia is an example of this, where users can edit and change the content in the articles included on the site. This reveals a unique aspect for the users, freedom. They have the freedom to use and change content within the sites, and in social networks people are able to express their views, and post, bookmark and tag as desired. Freedom poses new challenges, as one could alter the content purposely and destructively. There are however some ways to report users who are not behaving in a socially accepted manner (Wikipedia). In some instances users will modify content with incorrect data by accident. This is a negative side effect of the participatory user focus in Web 2.0.



There are some key aspects of Web 2.0 that in many ways sums up the different features that are included (wikipedia). The first one is folksonomy, this will allow users to classify and arrange information by their own choice. Another aspect is Rich User Experience, this enables users to write and contribute to the information available, thus elevating the user to a contributor. One could also contribute by evaluating and commenting on the information available on the websites. This information sharing could affect the accuracy of the material, and contribute positively to an ongoing development and improvement. This would also enable the users to add new information and categories, as is quite common on wiki sites. The information added and edited by the users are available to everyone and could be edited, reused or altered by others, and is a concept called basic trust. For this concept to work and be utilized, there should be a level of mass participation. The more people who use and contribute to the different sites the more it could potentially evolve and be further developed (Wikipedia).

## **4.2 3D Virtual Worlds**

3D Virtual worlds are spaces created online where numerous players or participants can interact and engage in the activities within the platform. There are several subcategories of 3D virtual worlds. One type of virtual world is massively multiplayer online world (MMOW), these are worlds that could support an enormous amount of people to be online in the same world synchronous (at the same time) (wikipedia). Another 3D virtual world concept is collaborative virtual environments, these are created with collaboration and interaction as the main purpose and goal. The last category I will mention is the massively multiplayer online real-life games, these worlds contain the ability for the users to engage in the world through multiple roles, as their avatars are changeable and more dynamic (wikipedia). The users or players in 3D virtual worlds often engage through selected avatars, ranging from humanoid looking creatures to vehicles and other objects. This is dependent on the different avatar

selections that exist within the particular virtual world. Depending on the specific world, the user have the ability to engage, create and perceive the world through their avatars. Virtual worlds may have different gestures and movement options for the avatars. Some aim to be as life-like as possible whereas others are created as fantasy worlds, where gaming is the main objective. Virtual worlds may not necessarily be gaming platforms, SecondLife for instance, is not created for gaming purposes and strives to be more realistic. This becomes evident through their platform design, in which they use replicas of real-life places and cities.

The communication and interaction between the users often vary from texting, speech and gesturing (wikipedia). Virtual platforms are often designed for interaction and communication, and it is not uncommon to use these for socialization purposes (wikipedia). The communication features available could affect the user's experience of the particular world. Users frequently create communities within the virtual environments with common language inside jokes and cultures. These can in some aspects be seen as communities of practice as they create and develop their own theories, practices and cultures. The virtual world can in this instance be perceived as a form of mediating artefact.

### **4.3 SecondLife as a Platform for Learning**

SecondLife, abbreviated SL, was created by Linden Labs in 2003 and is a 3D virtual world. It is an easily accessible platform, where everyone with internet access has the ability to participate and engage (SecondLife). SL has many different features that enables users to build, create and engage in the online world. The participants choose avatars that enables them to navigate and communicate with others within the world. There are many different avatar options including a variety of appearances; the majority are humanoid, like vampires or humans, but one could also choose avatars that look like vehicles or animals. The users interact and engage in conversations via their avatars. There are a variety of options for communicating, including speech (via microphones and headsets), text-based chatting and

gesturing. SL has a register of gestures that represent the different emotions one would like to exhibit. They receive some criticism on the lack of more extensive gesturing options. Users also experience difficulties comprehending and reading the avatars gestures and emotions. This deemed a concern for the participants in the CAMO project (Pasolova-Førland et. al., 2013). The avatars have a register for moving which includes walking, running and flying.

SL was not created as a gaming or learning platform. Here the creators of SL explain its qualities and areas of application. "It's a space where you can be whoever you'd like, build and sell whatever you can imagine, and have fun with others from all over the globe while you explore unique virtual environments, listen to live music performances, play games, shop in the world's largest user-generated virtual goods economy, and much more"

(<http://lindenlabs.com/products/second-life>). Despite SL not being created as a gaming platform, it has many game-like qualities. The layout of SL is similar to classic gaming platforms, although it might be conceived as more realistic and less fantasy-inspired compared to other platforms, e.g. World of Warcraft. Many places in SL are replicas of real-life cities and towns. Inhabitants of SL can navigate through cities that exist in real life, and even utilize these to learn about the particular place. The users are also able to create their own cities and places, and can act as architects, designing houses, cities and landscapes. SL supports creating objects, these can be applied in a variety of ways, or even sold. On the SL website, examples of this involves producing clothing lines, which can be sold or shared between users (SecondLife). Being able to design and construct places, promotes new opportunities for creating learning environments, and even copying real-life campuses and towns. This is exemplified by the West Virginia University campus, where real-time classes are being conducted in virtual classrooms. The following screenshot is taken in SL of the West Virginia University campus. It depicts the campus and some of its houses, complete with their own student lounge.

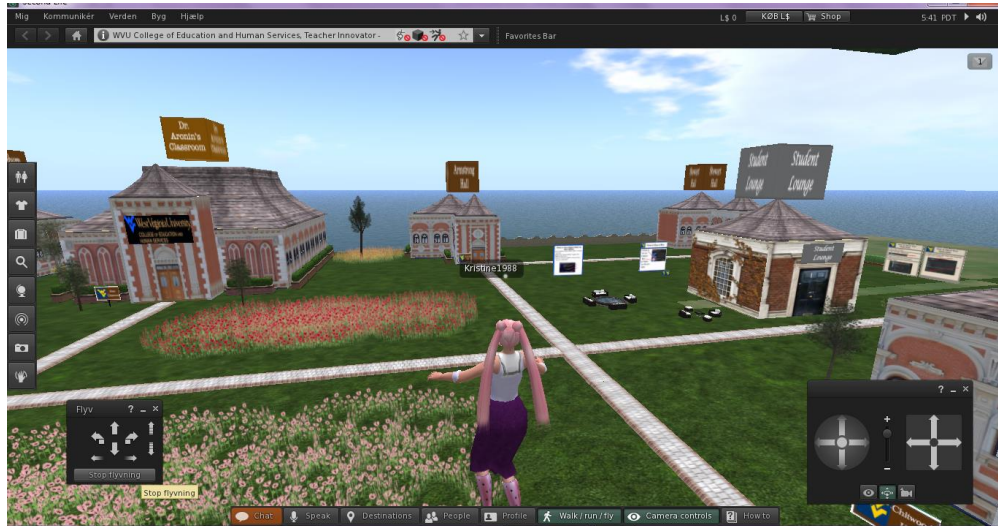


Figure 3: Screenshot taken while I visited SecondLife at the West Virginia Campus in May 2014.

There are major advantages to using virtual worlds like SL as a platform for learning. By utilizing virtual campuses and other spaces, scheduling classes and having lectures is an easy and affordable way to organize a class. SL has applications to restrict the accessibility of specific areas. The screenshots taken at the virtual campus were possible due to the open access avatar I used, the campus is otherwise closed to users not connected to the university of West Virginia. Underneath is another screenshot of the inside of one of the virtual rooms used as classrooms. There are boards along the walls that the lecturer can use to post presentation and subject matter. By double-clicking on these, the boards become enlarged and works, much like a power point presentation.

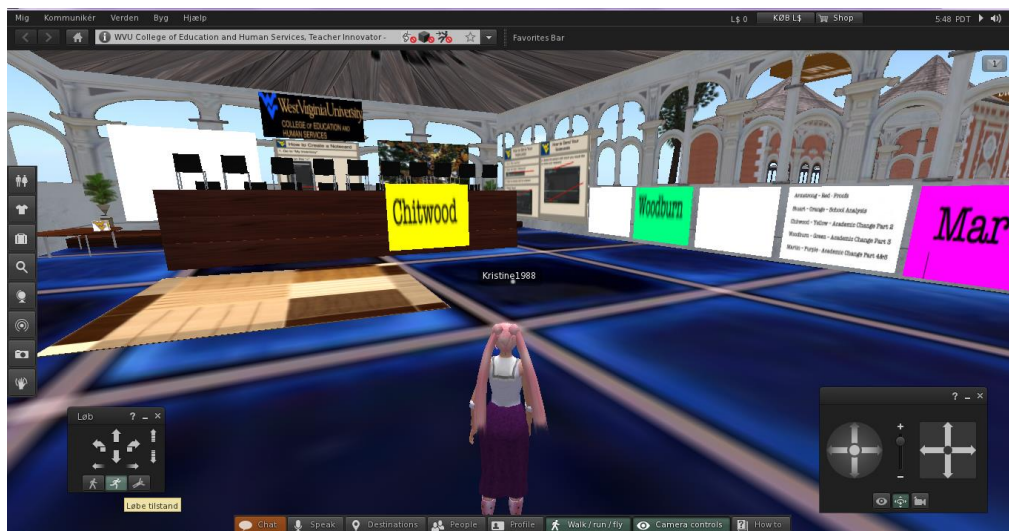


Figure 4: Screenshot taken inside a classroom on the West Virginia Campus, taken in May 2014, SecondLife.

# 5 Research Method

In this chapter, I will account for the data collecting method used for this thesis. I gathered data through interviews with three informants, who had all previously been involved in the CAMO-project. I collected data that would enable me to answer the research questions regarding the usage of 3D virtual worlds for learning purposes. My main objective was to receive insight into the informants' opinions and observations, regarding collaborative learning in virtual environments. This included their views on how virtual worlds can be used as facilitators for new methods of teaching and for future purposes like simulation training. I also suspect that facilitating virtual worlds for collaborative learning might be useful for both formal and informal learning situations.

My research has been a study on how one goes about facilitating computer-supported collaborative learning in 3D virtual worlds. I exemplified this through the CAMO-project by the Norwegian Armed forces, as well as the project regarding communication in hospice training. I collected the data through interviews and I have used previously written reports of the projects, as well as aspects of theories to further enlighten the topic. I have relied on a qualitative approach on research, throughout my data collecting, categorization and analysis.

In my questioning of the informants, my objective has been to get their views and beliefs out in the open. This is an important part of qualitative research, as I am not only trying to gather objective data, but also investigate subjective thoughts and experiences in depth. Their understanding and experiences of their work with learning and technology as well as the CAMO-project, contain valuable information for my thesis.

## 5.1 Qualitative Research

There are two main methods when conducting research, qualitative and quantitative.

Quantitative research involves collecting data that is measurable by giving numeric values to the bulks of data the researchers collect. This often involves using questionnaires or collecting data which already has a value. This is historically speaking the most accurate form of research and was long believed to be the only reliable research method. Quantitative researchers pride themselves of being objective in their research. Their goal is to gather information and conclusions that are generalizable to a population (Abusabha & Woelfel, 2003). They criticize qualitative research for being biased and for influencing the research with misconceptions and pre-existing perspectives and opinions (Abusabha & Woelfel, 2003).

Qualitative research method is often perceived to be the counterpart of quantitative research. Qualitative research started as individual investigations and did not gain respect as a method for many years (Wertz, Charmaz, McMullen, Josselson, Anderson, and McSpadden, 2011). It is often used when conducting social scientific studies. Qualitative research is said to strive to capture life as-is, in the moment and often from a subjective stand (Abusabha & Woelfel, 2003). In qualitative studies, the researchers often emerge themselves within the topic they study. Supporters of qualitative research criticize quantitative research for arranging and categorizing human feelings, by administering values to the different emotions (Abusabha & Woelfel, 2003). Thereby reducing complex human emotions to numeric values.

In addition to interviewing, I reviewed articles referred to as literature survey. This entailed finding and reading articles and subject matter that was relevant for my thesis. I especially took great advantage of articles written about other projects and experiments executed in 3D virtual worlds. This gave me greater insight into how one could facilitate different learning situations in virtual environments. I applied these articles and the included screenshots, to exemplify the usage of virtual worlds. I did this by reading them and studying the tables and

results presented. This abled me to compare and contrast the examples and the theories that I have used in this thesis. The documents and articles gave me the opportunity to study projects and theories that have already been explored and conducted. This made it easier to not only develop an adequate interview guide, but also provided me with basic knowledge that enabled me to understand the informants' responses. The examples will be used in part to add new perspectives and experiences into my discussion and conclusions. In addition to interviewing and literature survey, I read a variety of textbooks and articles to help me better understand the theoretical framework and perspectives I have applied. Finding documents that were conducive to my thesis was a process that started with using simple search engines on both public and internal sites. I particularly found it useful to access the internal university library site that enabled me to find professional and relevant articles, and even book chapters from reliable sources. I also spent time on the university campus library studying textbooks that would help me clarify the different theoretical perspectives. Selecting and gathering the most relevant articles and textbooks could at times be challenging. This however, helped me to gain an understanding of how one can retrieve relevant and conducive textbooks and subject matter.

## **5.2 Data Collection**

I have chosen interview as my main data collecting method. The interviews were semi-structured and my main goal was to explore the participant's experiences and opinions of utilizing 3D virtual worlds as platforms for learning. Particularly formal-, informal- and collaborative learning. The interviewing process was organized in a seven-step process, based on Kvale's seven stages of interviewing, which I will review in a later segment of this chapter.

## **5.2.1 Population and Sample**

The process of finding and choosing the appropriate informants was initiated by my interest in the CAMO-project. I was able to get in touch with three facilitators of the project, who had extensive experience with technology and learning. Due to their shared experience in the CAMO-project, I knew that they were familiar with the SecondLife platform. The three informants come from different backgrounds, where the first is a professor and works with learning and technology. She has conducted research in several 3D virtual worlds, and was able to contribute with descriptions of a variety of examples and projects in which she has been involved. The second informant is a consultant whose field of specialty is learning. He was also a facilitator in the CAMO-project and is otherwise an experienced pedagogue. My third and final informant works with technology and learning, and how one can use and facilitate learning through the use of new technology. As I am using the CAMO-project as an example of how to utilize virtual worlds for collaborative-learning purposes, I found these participants to be especially useful for my research. Their collective experience with both technology and learning was the main reason for the choice of informants.

## **5.2.2 Interview**

The interview layout is based on a semi-structural interview where the participants had the opportunity to speak freely within the boundaries of the specific topic. I did not have very a strict time schedule, and this affected the questions and how freely the informants could elaborate on their experiences within the topic. I tried to take into consideration what the participants found most interesting to talk about, but at the same time trying to collect the most relevant data for my thesis.

As I knew the informants all worked and had experience within the field of technology and learning, I had the advantage of a common vocabulary. I asked open questions regarding learning, collaborative-learning and formal/informal learning, and what these terms entailed



to each of the participants. By clarifying the informants own descriptions of the terminology, I was able to gain insight, and I avoided having to elaborate or explain the different vocabulary. My impression was that the informants experienced little or no confusion regarding the topics and terminology that were discussed. My hope was that the topic and questions in my interview guide would motivate the informants, and engage them to provide the most valuable data possible.

My interview guide contained approximately 20 questions, depending on the participants and interviewing situation. They were arranged in three categories: learning, 3D virtual worlds and formal and informal learning. The interviews were conducted in Norwegian, and the original interview guide can be found in Appendix III. A translated sample of the interview guide is shown underneath:

#### On Learning

1. What does learning mean to you?
2. What does collaborative-learning mean to you?
3. What is your opinion on collaborative-learning? Is it your belief that learning through collaboration is a good method for learning?

#### On SecondLife and 3D Virtual Worlds

4. What does virtual worlds mean to you?
5. Have you ever used virtual worlds? Which ones?
6. What is your impression of SecondLife as an environment for learning?
7. Do you have any concrete experiences using SecondLife as a learning-platform?
8. What is your opinion on SecondLife (or other virtual worlds you have encountered) as an environment for collaborative-learning?
9. Do you have any examples of a particularly good collaborative-learning experience?
10. During the CAMO-project, what was your opinion of the degree of collaboration between the participants? Do you have any examples?

#### Formal and Informal Learning

11. Have you heard the terms formal and informal learning?
12. In your particular workplace situation, what form of learning do you think is valued most?
13. Which form of learning (formal/informal) do you prefer? Which form is most suited for learning in your opinion?
14. How can virtual worlds facilitate both formal and informal learning in your opinion? Any form more suited for using virtual worlds?

15. In your experience, which form of learning has been used the most, when utilizing virtual worlds as platforms for learning?

### **5.2.3 Kvales Seven Stages of Interviews**

Kvale has developed a seven-stage layout for working with interviewing processes (Kvale, 2007). The seven stages of interviewing are: thematizing, designing, interviewing, transcribing, analyzing, verifying and reporting. Thematizing is the first step of interviewing and involves determining the theme of the interview. In my case, this would include the main hypothesis and research questions. To thematize the interview one needs to clarify the purpose of the study and determine what data is relevant. One would also need to study the theories and pre-knowledge of the topic one is investigating. Designing entails constructing a plan for how to subtract the information and knowledge, needed to answer the hypothesis. It is important to find an appropriate method for how one should implement the interviews and get acquainted with different methods and techniques. I have taken into consideration the tips and pointers in Kvales (2007) book, and attempted to design a clear and well-constructed research proposal. I have read relevant literature in advance of my work with developing the interview guide. When designing the interview I considered the different factors that could influence the participants. The participants might be cautious and apprehensive in an interview setting, and I tried to minimize the risk of poor communication by showing an interest in the participant's views and opinions.

I planned to conduct the first interview via Skype, as we were located in different cities. Skype would enable me to record the interview with video and audio. This caused some problems, especially due to technical errors with the informants' recording device. Her microphone did not work, and I suggested to either postpone the interview or conduct it via telephone. We chose the latter, and the interview progressed without any further hiccups. The initial technical issues were however time consuming, and might have added to my own nerves, as it was my first interview. I had however prepared for such an event, and had

already tested the recording equipment on my computer. This to my relief worked excellently, and I did not encounter additional difficulties with recording the interview. Having to do an interview via phone affected my ability to read the informants expressions, but as the informant was open and talkative, this was not a major obstacle. The other two interviews were face-to-face and I arranged the meetings at locations where the informants would be comfortable. One was in the informants' workplace office, and the other on campus at the University of Oslo. Experiencing both telephone and face-to-face interviews gave me the opportunity to prepare for two different types of interaction. I had to be more aware of my body language and eye contact when conducting face-to-face interviews, and I also had to be more restrictive when taking notes. I wanted the informants to feel comfortable by making sure I was attentive and that I listened actively. Because of this, I took fewer notes and tried to be more observant towards my informants, and focus less on my computer. On my telephone interview however, this was not a factor, as I could type alongside the interview without disturbing the informant. In addition to face-to-face and telephone interviews, I sent e-mails to two of the informants to gather additional information. This was regarding the topic of dialogue and reflection, as I had not been able to retrieve adequate data during the interviews.

Designing the interviews also included writing the interview guide or script. I chose to do a thematic script, with the different topics as guidelines for the entire interview. Dynamically speaking I also had to take into consideration that the informants experienced the interviewing situation as positive and engaging. While scripting the interview guide I focused on finding short and understandable questions that would be easy for the informants to comprehend. I posed open questions where the objective was to gain insight into their interpretations on terms like learning and collaborative-learning. I also focused on using terminology that would be understandable, which was achieved by using my previous knowledge of the participants and their background. This was an easy task, as all the informants were familiar with the concept of learning and technology. I tried to practice active listening, as it is a vital part of an interview. To gather useful data I took an interest in how the informants felt about the questions and the topic. I practiced conscious observing of the informants in an active way, as

I did not want to miss an opportunity to gain insight into their subjective opinions and feelings.

Due to my inexperience as an interviewer, I tried to be as prepared as possible for any unplanned obstacles that might occur when preparing for, and executing the interviews. One of the most important factors in interviewing is actually collecting the appropriate data that is needed for the research. Poorly prepared interviews with little or no reflection beforehand might lead to data that is not worthwhile. (Kvale & Brinkmann, 2009). I spent time prior to the interviews, discussing this with fellow students and in classes to minimize the risk of gathering poor data.

Transcribing the interviews was a time consuming but fairly easy process. I did however have some difficulties transcribing the first interview that was recorded via telephone. The speech was not always audible and I had an eager informant who talked rapidly and varying between Norwegian and English language. This also caused some challenges when translating segments of the transcript to use in the analysis and data chapter.

### **5.3 Data Categorization**

After the process of transcribing the interviews, I had to organize and categorize the collected data. I chose to read through the transcriptions before choosing five main categories. They are as follows: 1. SecondLife as a Learning Environment, 2. Comparison Between Different 3D Virtual Worlds, 3. Collaborative Learning, 4. Formal and Informal Learning, and 5. Dialogue and Reflection. I read and studied the interviews one by one, to find the best representation of data for each category. The amount of useful data for each of the categories was vastly different, as the informants had varying interests, and were more or less talkative in the different segments of the interview. I was however able to extract relevant data from each

informant for every category, but one. I solved this by sending e-mails to the two informants who had not provided adequate data, regarding the remaining category: dialogue and reflection.

The data collecting was an iterative process, which entails a repetitive approach. I read through the transcriptions several times to find the best possible categories and data. Conducting the data extraction in several cycles, helped me to view the transcriptions with a critical eye, and made me familiar with every section of each interview. This process of iteration could be referred to as a bottom-up process. In a bottom-up process, the aim is to view the data before processing it into a higher state, or a more general idea. By working with the transcriptions in repetitive cycles, I was able to process the data and create the categories and find the most beneficial extracts to represent each category.

## **5.4 Validity and Reliability**

Validity is the extent of truth or strength of the data that is collected. In a nutshell, validity has to do with making sure one actually gathers the correct data that can answer one's research questions (Kvale, 2007). It involves the degree of credibility of the research results and the conclusions that is drawn. Validity is not fixed and is relative to the purpose of the research and the circumstances. In this perspective, there is no absolute objective truth (Maxwell, 2013). According to Maxwell (2013) ultimate validity in qualitative research is no requirement, but rather serves as a tool to distinguish between valid and credible data, and deceptive data. Threats to validity, serves as reminders and check-lists of areas where one might have been wrong, and where the data is unreliable. As my research is a small qualitative Meta study, there are some limitations of my ability to test the validity. Internal validity is the level of credibility of the conclusions within the research. Internal validity serves to question whether the conclusions are drawn on the basis of the correct hypothesis (Maxwell, 2013). For this to be possible, it is important that one understands and sees the variety of the informants, the situation and the data gathered. One needs to open and unbiased.

Construct validity, which involves a shared understanding of the terminology used, is one area of validity I was able to assess through the interviewing and data-gathering.

I tried to minimize the risk of threats to construct validity by structuring the interview in a way that allowed the informants to explain how they perceived the different terms and topics. I did this by asking the informants to elaborate what the different terms implied, and gave them the opportunity to speak freely. In my impression this worked well, as I was able to determine whether there was compliance between my interpretation of the term and theirs. In the interviews, I also tried to use universal language that wouldn't require much explaining and elaborating. My hope was that this would alleviate some of the risks of threats to construct validity. As my participants were familiar with the virtual world SecondLife there was little need for explaining the usage or the different elements included in the platform. They all knew of the learning platform and had used it previously. They were also familiar with vocabulary that was relevant to educational science and pedagogy.

Reliability in research tells us whether the data collected is reliable. It does not necessarily have to be correct or truthful but it has to be consistent. If you measure or investigate with different samples, the results have to be similar for it to be a reliable (Kvale, 2007). In some cases the subjects might give different responses depending on the researcher, the wording of the questions and the time at which the interview is taking place. These are all factors that affect reliability. During my research, I did not have the opportunity to do second interviews, or in any way test the informants' replies, other than reading them in the best way I could. My impression was that the replies expressed by the informants were both truthful and reliable, in the sense that the informants expressed their views openly and consistently.

## 5.5 Ethics and Ethical Considerations

Before initiating the data gathering for my thesis, I sent an application to NSD, the Norwegian Social Science Data Services. The application contained information about my research and data collecting methods, and involved information about how I proposed to protect the privacy of the informants. After the application was granted, I was able to begin gathering the data. There was not a great deal of sensitive information being collected for my research. I wanted to investigate the opinions and experiences of the informants that included theoretical beliefs and persuasions, hence, the information gathered were not of a sensitive nature. I still wanted to protect the informants' identity by anonymizing them in the thesis. After I had chosen the appropriate candidates for my interviews the participants all received e-mails that explained my research questions and purpose of the study. It was completely voluntary to participate, and they signed an informed consent form that contained every detail relevant to their roles as informants. The participants are anonymous and they had the option to drop out as informants at any given time. The data collected was saved in separate documents, containing no information about the identity of the informants. As I only had three interviews, I was able to store and distinguish the data without difficulties. All the data collected was deleted after the thesis was completed.

# 6 Data and Analysis

In this chapter, I will present the data that I collected through interviews with the three informants. As mentioned in the research method chapter, I conducted one interview via telephone and the other two face-to-face. I chose five categories to represent the data and information I gathered from the informants. To choose the appropriate categories I read through the transcriptions from all three interviews and systematically looked for the most valuable information. Based on the transcribed interviews I chose the following five categories: 1. SecondLife as a learning environment, 2. Comparison between different 3D virtual worlds, 3. Collaborative learning, 4. Formal and informal learning, and 5. Dialogue and Reflection. I will now analyze each category and include both extracts from the interviews as well as my descriptions of these extracts. I will not discuss or compare the extracts and data gathered at this point, but try to present the data as truthfully and objectively as possible.

For each category, I gathered extracts from the transcriptions and will present those most valuable to this thesis. The extracts have been translated from Norwegian to English, as I conducted my interviews in Norwegian. I have tried to be as sincere to the original extracts as possible to avoid that anything gets lost in translation. In the table underneath, I will describe the different notions that I have used in the extracts. The original transcriptions can be found in appendix IV.

Table 2: *Table containing the signs I have used in extracts from transcriptions.*

<b>Sign</b>	<b>Description</b>
< . >	Used when words are spoken slowly
...	Used to describe a pause
(h)	Used to describe laughter
((...))	Used to describe comments
(?)	Used to describe a word that is inaudible



## 6.1 SecondLife as a Learning Environment

I wanted to investigate how my informants saw possibilities for using SecondLife as a learning environment, and how they viewed SL as a platform for learning. The first informant is an experienced user of a variety of 3D virtual worlds. She has also worked with SL on several occasions for an extended period of time, including being a facilitator in the CAMO-project. This is what she expressed:

*Yes, that's <eh> it is well , there are many, many opportunities, and it's <eh> it, considering that, when you consider, the physical approach, you know, opportunities to build new understanding, several projects supporting specializations of various concepts of <eh> for example, yes. ... so... very large opportunities in the direction, and <eh> role-playing that is... That's very ... also we had, we had in Second Life, CAMO for example, we have managed hospitals <eh> we had , we had nurses who practiced patient communication , to be a step further. (Informant 1, extract 1).*

In this extract, the informant describes how she sees many opportunities for learning in SecondLife, especially when exploring new understanding and learning. She has participated in several different projects in SL, and perceives role-playing to be a learning method that is beneficial in SL. She mentions an example of an experiment where nursing students practiced patient communication in a virtual simulation. She continues to explain about how SL could be used as a learning environment, and how its design enables creating and facilitating flexible spaces for learning.

*Another thing, Second Life is in a way not designed specifically (?) Has several tools... not designed with learning in mind, so <eh> therefore, yes. It can be, Yes, there are plenty of positive and negative sides, it's kind of a positive thing that there are several possibilities. One does not have the limitations <eh> yes, not restricted by how classrooms should be. Will be inspired by both the gaming world and... <Yes> all, all the diversity, it is in a way, it is not... it is not designed as learning in a way. Creating things yourself and facilitate... for it to... Use of resources in terms of both teachers and <eh> facilitate for students... worked with gifts even though they have... it is often said in feedback that it is quite time consuming... but it evolves, and we are working on and we... and working with... for example (?) make it easier to... navigate and make it more intuitive (Informant 1, extract 2).*

SL was not created specifically as a learning environment, yet it has several good aspects pertaining to its layout and design. SL was created as a world where the inhabitants could immerse themselves in the world and experience a community where one could create, build and socialize. Although it was not created as a learning environment per se, it has some advantages regarding the platforms learning possibilities, compared to traditional classrooms. SL can in many ways be described as similar to a gaming world but without goal oriented tasks, it is diverse and has great opportunities for creating and building objects and spaces. It is commonly believed to be quite time consuming to create and work with the SL platform, but it is still being developed in order to make navigating and building more intuitive.

I asked the second informant whether or not he perceived SecondLife and other virtual 3D worlds to be well suited for learning. He works as a consultant, specializing in learning and was involved in the CAMO project.

*No, there are more aspects to it. One is with regards to the technical usage... and we saw in the CAMO project, a massive generation gap, i.e., when going back to watching video footage from... the experiment. (h) So it's almost like watching an avatar that suddenly starts to go backwards or disappear into the sky or something then you can assume that people are over 30. These defense college cadets we had them in for training before the experiment when they were getting familiar with Second Life and that's all they needed. To manage the technical avatar control, <mm> But it also tells me...to... use Second Life and other virtual worlds you will very quickly encounter a generation challenge. Those who are used to them... who have fast fingers and have played some computer games. And all the others who have not done any, it limits the kind of universal usage of these types of worlds... I've played some computer games and ...quite familiar with computer applications, yet I struggle with... (h) getting it to work (Informant 2, extract 1).*

The informant describes how the technical difficulties and challenges of using virtual worlds may inhibit users. In the CAMO-project he experienced that the participants had different challenges and skills due to their age. When he saw participants who had poor avatar control and management, the user would almost certainly be over the age of 30. The cadets however had gone through short training sessions in SecondLife, and this was all that was needed for them to properly use and work with the platform. The majority of the cadets were used to playing similar 3D computer based games and were fluent with the usage of the technology

and avatar management. This generation gap that the informant experienced, could in his opinion be a potential problem for universal usage of 3D virtual worlds. He continues to explain how he struggles with understanding and using all the available technology within the virtual world of SL, even though he has a great deal of experience with computers.

The second informant continues to explain how his experiences in SecondLife affect his ability to use it as a learning environment.

*But <mm>, but with this experience, from this it was, extremely difficult to make... scenarios... experiments that may involve many people and <eh> here we had, yes, it was supposed to be a Norwegian force of 15-20 men who went in, and we could not be 20 men who were part of it, so some were deployed as guards and stuff. And their avatar was only really there to look at the sand and rocks. They could not hear (h) Yes, it is an experience that the army has taken into consideration, small, small groups, and if you do not have a role where you are very close to the action. Or is an active part of it... so it has no value. And we heard this as well during the reflection moment afterwards with... Of course, those who had been an active part, they were... enthusiastic and would discuss and the others were actually becoming slightly annoyed (h) And wanted to go home, (h) They had lost the motivation. Damn, stopped an hour to glance at a rock on a display screen. (h) That was no fun (h) Yes, we had two implementations of it, so there was some rotation, but we never managed to get everyone engaged. We never managed to engage all 20, a key stage in the experiment was when they ventured into... into the house of the village chieftain, you've seen the movies? Anyway there is one scene pretty far into the game and they are going into the chief's house and the chieftain has three men with him, and there is only room for four Norwegians and one of those was an interpreter from the school for language and intelligence that played interpreter, and there was room for three academy cadets. What do the other 17 do then? (h) They went to peek in the window, (h) but not everyone could do that, they were far from what happened, so... you are not able to engage everyone. (Informant 2, extract 2).*

The informant describes how it was difficult to create scenarios that would involve every cadet. There were between 15-20 participants at a time, and there were several cadets who were stationed as guards and lookouts for securing areas. These participants could not be close to the action so to speak, as they could not actively participate in the simulation and tasks. They became demotivated and slightly annoyed at the whole situation, and they expressed during a debriefing session after the completion of the experiment that they would

rather go home. Even though the facilitators of the project tried to rotate, so that every cadet had the opportunity to participate in the simulations, there were still some that felt left out. One example of this was when the cadets received a task that involved finding the village chieftain's house. There were 20 participants but only three could venture into the building. The 17 who were left behind, attempted to look through windows. This was however impossible for all 17 to do simultaneously. Having the cadets staring into windows would also affect the realism of the scenario, as this would be a highly unrealistic occurrence.

The third informant works with learning and technology, and has been an administrator on several projects involving virtual worlds and simulations, including the CAMO-project. He was asked the same question regarding the usage of SL as a learning environment.

*Second Life... for me... represents a simple and accessible, that is a kind of low-threshold <eh> accessible platform. Where everyone basically have the ability to access... as long as you have a computer with a browser and internet then you are, then you're ready to go online. SecondLife represent different environments and activities... there are both the serious players but there is also very much built around the interests... yes , with various activities, so other words, if I were to describe Second Life with my own words I would say that there is diversity with various services and information channels <and> ... And the information providers. And it is clear Second Life is well in my... in my opinion Second Life is incredibly well-suited for social interaction. It is... it allows for a lot of possibilities <eh> of learning in particular... and I am thinking particularly of ... language-learning... What we use for cultural awareness... in Second Life. For example, an English student in the Norwegian school, you have the opportunity to go in there <to> listen to native English for free. So sitting in a room listening to a lecture or listen to two English men or two native -speaking English people talk like that, which is an example... I know in other worlds. So we've got some more... more so, for example, using Second Life to other activities, such as Statoil and other companies to offshore training and how to evacuate the platform for example. (Informant 3, extract 1).*

Informant number 3 describes how he perceives SecondLife to be an easily accessible platform that is user friendly. The platform can be accessed with a browser-enabled computer with internet access. There are several opportunities for activities and information sharing within the environment, which can be tailored to a variety of interests and needs. There are many opportunities for learning and the platform is especially well adapted for social

interaction and collaboration. One example of this is language learning, where students from Norway who participate in English classes are able to venture into the virtual classroom and listen to lectures where native English speakers communicate. Another example is the Norwegian oil company Statoil, who have used SecondLife for offshore training to simulate and train for evacuations of platforms in case of fire or other disasters.

## 6.2 Comparison Between Different 3D Virtual Worlds

In this category, I have collected the information about the experiences that the informants have had in other 3D virtual worlds, apart from SecondLife. I asked them to elaborate on their experiences and how the other 3D virtual worlds are different to SecondLife.

*...in short ActiveWorld is less prevalent, it is less advanced, Second Life intervals easier to get started. For example, they had... group... students who built a babel tower together. You know babel tower from the bible? One group was from Finland and one from Taiwan, they had never met before and they only had an hour to... meet each other and, get to know each other and, the environment and... Building babel tower and... It worked, so when (?) Easier to initiate and start building especially. <so> again it is a bit more primitive classically and yes but , yes but Second Life , is much more advanced, and...much more opportunities and... selection of design objects and... buy and sell. With the avatars it is close to Active World, but it is slightly bigger, and we also have Vacademia and... Then we had the advantage (?) With second life is the more lightweight, terms of usage and broadband, and creating. So it's in a way easier... if you don't have a good computer to get started. (Informant 1, extract 3).*

In this extract, informant number 1 talks about another 3D virtual world, Active World, which is less advanced compared to SL, and easier to initiate and get started with. She describes that there were students from Taiwan and Finland who met in Active World to work on a task together. The students did not know each other beforehand, and were given a time limit of one hour to greet and get to know the platform by building a biblical babel tower. The task was successfully completed within the time limit. She describes that Active world in some respect is easier to create and modify, as its design is more primitive and classical. SL on the other

hand is much more advanced and has greater possibilities for building and creating objects, which you could even sell and buy. She presents another 3D virtual world, Vacademia, which is in many ways more lightweight in that it does not require the same broadband connections as many other 3D virtual worlds. She continues to explain how Vacademia and Olive, two other 3D virtual worlds are, compared to SecondLife.

*Regarding learning, and... several classrooms... that kind of hints and post-its and brainstorming and common , and common mind board where you can write something together... to... but it is... we have a project... like none other currently have. The 3D recording, record an entire 3D session... classroom session, but not as in Second Life, it gets full 3D so that you can... record, even in the past , in a way to add new... you can post new... add voice, that kind of voice comments, add more... notes and everything. You can save this again, to obtain new opportunities for... for...for example analyzing classroom...analyze RPGs I mean , I think classrooms not only that you keep pictures of it but you can adapt some... Then and there, and add comments there and then there is something unique, that... no other system currently have...so that's how you have the opportunity to, drawback is that again is limited width to build things, just like one can do in Second Life. Very cheap and very accessible...Olive is... has... more advanced graphics, and it also has better character control , i.e., characters in Second Life has very limited register of... body movements and...So different, registry is much larger in Olive, but it also makes it more difficult to work with. (Informant 1, extract 4).*

Informant 1 continues to explain about the Russian 3D virtual world, Vacademia, and its abilities. In Vacademia one is able to record complete 3D sessions which can be viewed on a later occasion. One could also add comments, voice-overs and even record past lectures and sessions. The platform has several elements like mind boards and post-its, that are placed within the platform, and can be applied in different learning situations. The last 3D virtual world she mentions is Olive, which is a more advanced world with greater avatar control and gestures compared to SL. The downside with Olive is that it is more difficult to use, as it is much more technologically advanced.

The second and third informant also mentioned other 3D virtual worlds, mostly gaming platforms.

*Like I said, World of Warcraft, Minecraft and the others are a little more adventure based. Yes, they have a little more... more exciting element to it. Thus, you do things to achieve something. Thus it is like hierarchical approach... to cultivate the soil, making active activities to rise in... in the hierarchy. But in Second Life, you need to in a way. Pay first to be able to buy. Investing in this. (Informant 2, extract 3).*

*And <then>, Second Life's a little more, <that> ... you must invest in a business like way. It is a little different business idea. Games you usually buy it one time and you can play as much as you want, but then you already have other players, right. So-called non-player characters in the game. But in Second Life you have to in a way create everything from scratch. If you want to build of course. If you want to build your own. There is as I have mentioned other places you can search through. (Informant 3, extract 2).*

The second informant describes that gaming platforms, like World of Warcraft and Minecraft are more adventure based. One has to complete a variety of tasks to improve one's ranking. This is a more hierarchical approach, which is very different from SL where the user is not performing tasks to reach a goal or rise in ranks. He views SL as a different concept where one invests in the world by building and creating. The third informant also compared SL to gaming platforms, and perceives SL to have a slightly different business idea. When gaming, one usually buys the game once and can play as much as one would like, in SL however, one has to create or build to be able to use all the elements of the platform. One also has the opportunity to access other spaces and places in SL that have already been created, if one is not interested in creating from scratch.

## **6.3 Collaborative Learning**

I asked the informants how they perceived SecondLife and other 3D virtual worlds in terms of platforms for collaborative learning. I will now present an extract of what they responded.

The first interview I conducted was via telephone, it was recorded by a recording device on my laptop. In addition to recording I took notes during the interview. Here is what my informant responded when I asked about possibilities for collaborative learning in 3D virtual worlds.

In this extract informant 1 talks about the advantages of being able to meet and collaborate with other people despite of different locations.

*... And that is... that one... can be gathered through across, and, not just in Second Life... several examples... projects in ActiveWorld students from Norway, Australia and they worked on joint projects, for example again building a Babel Tower or playing theater. And it is obviously, and so we had Second Life, we had projects with students from the University of Hawaii. Also my students went there and...to their campus and learned about Hawaiian culture and... danced, danced hula. Their students, Hawaiian came to us and reviewed the project to my students and class, and it would be very expensive to achieve in real-life. Often we had instances where we got... lectures from... people from various EU projects with our students present and they can kind of... talk together, these are great opportunities in terms of both... people gathered... in one place... and in a way giving, major, major levels of presence than, when used in kind of Skype and, or similar. And in addition... one can... also share information. (Informant 1, extract 5).*

The informant mentions an example of being able to work in collaboration despite of being located in different places. In the virtual world, Active World, students from Norway and Australia collaborated in an effort to build a biblical Babel Tower. This was possible despite the varying locations of the participants. The informant continues to talk about other projects in SecondLife. She explained how students from the University of Hawaii participated in a project, where students from Norway and Hawaii could explore each other's campuses and interact with each other. The Norwegian students went to virtual Hawaii and were given hula lessons and a virtual tour of the campus. In addition to this, the Hawaiian students came to virtual Norway and reviewed a project in a Norwegian class. The informant also mentions the added financial benefits of using virtual worlds, as there was no need to travel and travelling costs were thereby eliminated. The informant describes instances where her students were able to attend lectures from administrators of various EU projects. The students were allowed



to talk and interact during the lectures. This is an example of a setting where one can see great potential for many people to come together in one place, and where there will be a higher degree of presence than Skype or other similar services. This also facilitates information sharing between people. She continues to talk about the advantages of using SecondLife for collaborative learning purposes.

*...in a way that is also different than if you just put files on a Google Docs or, like that one goes to a room and a bookcase <and> take the information that you need, and then sorted by information so that... so it makes sense... and so one can... one can... shape rooms on the basis of need. For example, one needs... a classroom then you can build a classroom, if you need one...there are different ways to... facilitate different... modes and... modes of collaborative learning, to build what you need in that instance (Informant 1, extract 6).*

Another advantage that gives opportunities for collaborative work is the ability to build and shape rooms and spaces as one sees fit. One can create whatever is necessary to cater to the needs at hand, and it will enable users to create spaces ideal for collaborative learning.

The second interview was conducted on campus at the University of Oslo, in a quiet group room. The informant and I spoke face-to-face while I recorded and took notes on my laptop. I asked him the same question, what possibilities he saw for collaborative learning in 3D virtual worlds.

*The other possibility is that you can bring people together who don't have the... opportunity to be present in... we did this, this experiment was a bit special... because we were at the Military Defense School and really all participants sat divided into two different rooms, Norwegian soldiers sat in a room and... and those who played Afghans...sat in a different room. In this sense they were all together in one place, but we could have really been spread everywhere. And for the Army, among other things, would have been a, one great opportunity. For they will have the opportunity to be in several places in Norway at the same time or... collaborative practice, training, and do not have to travel to come together (Informant 2, extract 4).*

The informant describes the positive aspects of being able to be in different locations during a collaborative learning situation. He uses the CAMO-project to exemplify this. They were at the Norwegian Defense College, where all the participants were located on campus. They

were divided into two rooms. The cadets sat in one room, and the participants who portrayed local Afghans were in another. Even though they were all in the same area, they could have been located wherever and still be able to engage in the project. He describes how this could perhaps be especially beneficial to the Norwegian Army, as they could do drills and exercises with personnel stationed throughout Norway. This would facilitate collaborative practices and training, and eliminate costs and additional resources for travelling.

I conducted my third interview at the office of my informant. I used an audio recorder and took notes on my laptop. I asked him whether he saw 3D virtual worlds as good environments for collaborative learning.

*But it's a lesson and conclusion in a way. It was like a discovery we made in a way, that our scenario was not open enough and conclusive enough for all the cadets we had. Beyond that, I think it worked very well there was good cooperation and they communicated very well and had excellent collaboration, is my impression. I've witnessed episodes of two ((cadets)) who sat in two different places and have, have bumped into each other right. So they have physically been doing and... and therefore. They moved, and were like, like whoops, he just sat on my lap! (Informant 3, extract 3).*

The third informant also applies the CAMO-project as an example of collaborative learning in SecondLife. He elaborated on the simulations and mini-scenarios which he felt were not open enough. This resulted in some of the cadets feeling left out, and were not able to actively participate. In spite of this, he felt the collaborative work and cooperation between the participants worked excellently. He goes on to explain how two cadets who were not close to each other, but interacted through their avatars in SecondLife, were startled when one accidentally sat on top of the other. He explained that the cadets responded physically when this happened, as if it had occurred in real-life. He sees this as an example of how virtual worlds can be so life-like that they are able to immerse themselves in the virtual world and situation.

## 6.4 Formal and Informal Learning

This category involves how the informants saw possibilities for formal and informal learning in 3D virtual worlds. The first interview was conducted via telephone and I will now present some of the extracts.

*Yes, in a way that's... opportunities for both directions... formal if you think... if you consider the traditional, where one has classrooms and... And show slides and... show slides and... in a way it's a little bit... old-fashioned thinking, so it's silly to in a way... using virtual things for the same as using regular classroom, you have to somehow take all possibilities of... for... the virtual environment that is extra, that we don't have in real-life (Informant 1, extract 7).*

The informant describes that there are opportunities for both formal and informal learning situations in 3D virtual worlds. Using 3D virtual worlds as informal learning environments, creates a variety of opportunities that are not present when using traditional classrooms. To take advantage of the different applications within the 3D virtual world, one has to utilize the virtual environment to its fullest. This entails not using it in the same way as one would use classroom environments. The elements that are not accessible in real-life, should be utilized to get the most out of the environment and learning situation. The first informant continues to talk about how the difference between formal and informal learning might be more fluctuating.

*Yes, so then perhaps greater opportunities in terms of... but it's kind of gradual transition between... between formal and informal learning. Because also... one has, one has tried to make it more casual in... they come in very strange avatars, and they are somehow more frivolous in terms of language. And they do not sit nicely during the lecture and just... flying around in the air, and... yes. They make jokes and statements they would never make in the classroom. So it... that line is very... it makes the divide... more fluctuating. (Informant 1, extract 8).*

The informant describes how the transition between formal and informal learning is not always clear and cutthroat. The transition seems to be much more gradual and using 3D virtual worlds, one can create informal situations quite easily. In an example she states that her students seemed to be more frivolous when interacting and communicating compared to

regular classroom situations, this included making jokes and other humorous statements. They also chose odd and unhuman-like avatars, which made the situation less formal. This would also apply when it came to how they chose to sit during virtual lectures. This behavior shows that the line between formal and informal learning situation is not fixed but rather more fluctuating.

The informant continues with an example of a setting where SecondLife was used in an unusual way, in an exam situation.

*...and that we more abled to... facilitate other learning questions than traditional , like when you have a teacher with... lot of students there and, for example, I just... remembered... for example, very formal learning situation... like exams. We had one like that, we had a... test-exam in Second Life. It was my... former doctoral student who is now a postdoc and he had... an exam in a specialized course. ...and it's common to have an examination in... that, with a teacher and an examiner and we saw this was all about virtual worlds and learning, why can we not do it in Second Life? The faculty were thinking in a different direction. They have, they somehow did not understand why we should use this method for an exam, they said if, if you can prove that this student is who he purports ...and... considering... to satisfy the faculty, and, and do everything formally, we had to it like... We were all logged into Second Life, both I, the examiner and the student. But we were kind of seated in a large room in different corners of it, so there wouldn't be so much echo. (Informant 1, extract 9).*

The first informant describes how one could facilitate more untraditional learning methods in virtual environments, and she remembered an example of an exam. The exam, which would usually be conducted in a very strict and formal environment, was instead executed in SecondLife. The student, who was a former doctoral student, had a specialization course which included virtual worlds and learning. They started pondering over the possibility of conducting the exam in SecondLife due to the content of the course. They did however meet some resistance from the faculty administration who were skeptical and worried about cheating. They came to an agreement were the student, the informant and the examiner all logged into SecondLife while sitting in the same room. This abled them to prove that the student was who he claimed to be. They were positioned in different corners of the room to prevent any distracting echo.

The second informant was asked the same question, whether he saw possibilities for using 3D virtual worlds for both formal and informal learning situations.

*... So...in... in preparation for the experiment, we did a couple of trials...including the hard traditional classroom teaching in Second Life, ((name removed)) had a small lecture there. ...where we sat 8-10 people and then asked questions, and had study groups and we tried to have informal discussions, like campfires somewhere in Second Life where we were sitting around it. ...where people could not handle their avatar, one was sitting in the middle of the fire...he does not understand how to move his avatar afterwards, it is very funny but then you lose focus. Oh shit, it's got to be so painful to sit. Then it is more about how people handle the technicalities...that is the focus and not the topics that we wanted to discuss, but, I think in general, that virtual worlds have the potential, that is for social interaction, but it is action in the term of things you do, things you do or action in terms of dialogue. And if it were about teaching, I would much rather have used an advanced conferencing system. Conference systems specially designed for it, so it's not there, SecondLife, etc. are never going to be an alternative to the type of distance learning. The creating of meeting places for people and activity simulating, experimentation, that is where the potential lies, which I think is pretty major. When they are able to get the technology to work better. (Informant 2, extract 5).*

The second informant explained how they conducted a couple of trials before they initiated the CAMO-project. He gave an example that depicts some of the opportunities for formal learning in virtual worlds. They had a small virtual lecture, with 8-10 participants. After the lecture they conducted a round of questions and answers. They also formed study groups and arranged different informal study sessions. This included an attempt to have a study session around a bonfire, which was not very successful. The students had difficulties with their avatar movements, which created humorous settings, rather than any useful learning situations. He concludes by saying that virtual worlds have the potential for social interaction and learning through activities, that involve dialogue and communication. The informant was not exclusively positive to 3D virtual worlds. He describes that he would much rather use advanced conferencing systems instead of SecondLife for various learning situations. He describes that he is much more positive to SecondLife, when one uses it as a learning environment that includes active participation, like simulations and experimentation. This is

however according to my informant, dependent on the technology and how well it can be developed.

I asked the third informant whether he perceived 3D virtual worlds to be adequate environments for both formal and informal learning situations in 3D virtual worlds.

*I have... I have some difficulties in seeing quite how my experience in Second Life, in regards to formal learning. Yet. You could possibly use it as an aid. Like implementing activities that somehow in the next round. Like, for example, group work, projects, social interaction which then supports the formal processes, learning processes, that ends up with formal activity in the physical space. But, for the informal I think it is better. Infinite range of possibilities. This is what I mentioned that you can... so...I see a combination perhaps. Most of all As a combination. Formal in the way where you go to the formal world of, for an informal interaction and learning, and let you... but an important prerequisite right, would be to make sure that, that you can be influenced. ... so if, unless you... are willing to learn or be influenced by others, there might not be any point <to> go through a discussion or group or... a virtual world for that matter.(Informant 3, extract 4).*

The informant does not quite see how his experiences in SecondLife could constitute valuable formal learning situations. He views 3D virtual worlds as being used as support or aid to a formal learning situation. He exemplifies this by discussion groups and other forms of group work. These types of activities could aid a formal learning situation in real-life. He continues to explain how he perceives SecondLife and other virtual worlds to be better suited for informal learning situations, or perhaps a combination of the two. He states very clearly that for this to be possible one has to be open to new insight, and that one is in the right mindset to be influenced by the new information. If this mindset is not present, using virtual worlds might be pointless, especially if one wants to conduct group discussions or other forms of group work.

In this extract, I asked the third informant if he had attended lectures in SecondLife or other virtual worlds, and how this sort of formal learning session had worked in his experience.

*I think it could work quite well. I've even been to a conference with several thousand participants. So you tend to have a fearful attitude towards it, but apart from that I think it works very well. It is important is that you make some rules in terms of who speaks and... so <that> that <that> people don't... start to talk at each other, and difficult to distinguish who is talking and so on. And for my part so <so> if I had the choice between say, okay, now you should start studying in Trondheim you can choose to use Second Life? I would say "Yes" instead of traveling to Trondheim or Blindern ((University of Oslo)) for that matter. It seems that I... for me it works just as well <but> I must have a mindset that tells me why yes, I am actually willing to learn. (Informant 3, extract 5).*

He describes how he himself has attended a conference with several thousand participants and how that had been a positive experience. He continues to describe how many people are fearful towards technology, but apart from this fear, the lectures and conferences he has attended had worked well. It is important to have some ground rules about who should talk at a given time. This is to avoid any confusion as to who is talking, and preventing people from talking at the same time. The informant reveals that if he were to begin studying he would choose to attend classes via SecondLife (or other 3Dvirtual worlds), instead of actually going to real-life classes. This would save him traveling time and costs. He again specifies that one is required to have the right mindset, and that one is ready and motivated to learn.

## **6.5 Dialogue and Reflection**

This category revolves around the concept of reflection and reflective practice. I asked the informants how they valued reflection, especially collaborative reflection after a learning activity. Here are some extracts from their responses.

*Just that, but back to what I talked about initially learning's four rooms, for if it had just been the experiment, then the experiment would only be input or raw material, but for this to turn into learning you need to enter the reflection room. And I think that if we had stopped after the experiment and said fine, this was exciting, it would have given a very limited... learning outcome for those who participated. The learning occurred in the... where we had a joint review session afterwards, and one of the ((name removed)), have you met him? Okay, there is in some ways really he who...*

*largely created the learning for those involved. So in the joint review session we went through some sequences of the experiment , and... role playing and so he tries to, how to assess this, how do you do it? Are you happy, could things have been done differently? And he made them see things within the communication that they probably would not have seen by themselves. (Informant 2, extract 6).*

*... so here I think we were really dependent on the reflection, the controlled reflection afterwards. With a person like ((named removed))... who could talk, and had the basic knowledge about the reality that we tried to simulate. He has been to Afghanistan and faced the civilian population. He knows what kind of cultural barriers you may face when communicating with these... So without it ((reflection session)), I think... purely pedagogically speaking it would have been a waste. Being able to go back and show a sequence of perhaps two minutes. “Okay, this was the first house you came to, there was a woman... “ “-an Afghan woman in burqa , what did you do?” And then play that sequence and have them engaged, “yes, was this good? Did you not handle this in a good way? What did we do wrong? What could we have done differently?” And then he comments and asks questions to... so it, it was completely crucial. (Informant 2, extract 7).*

The informant reminds me what he told me about learning and how it can be viewed as a four-room process. The first room, or step, is that the learner has to be motivated to learn. The second step involves that there is the presence of new information and knowledge. The knowledge has to be processed by the individual in the third step. The last step of the process is reflection. He describes that the CAMO-project in itself only consisted of raw material, and did not in itself facilitate learning. If they had completed the project after the simulations, the learning outcome would be scarce, as it was necessary to facilitate reflection. In this reflection session, the participants were asked questions that regarded their experiences, behavior and actions. They were also asked to ponder on what worked well and what elements created difficulties and challenges. It was important to use this reflection session to ask critical questions about the execution of the project to help them communicate, and make the participants see what happened within the simulations. The informant did not believe that this insight could have been achieved without the reflection session, after the completion of the project. He continues to explain that the man who was in charge of the reflection session had great knowledge about the Afghan culture, as he had been stationed there several times and



had met with the local population up close. As the projects main goal was to create cultural awareness of Afghan culture, he had great insight into the theme and topics and was therefore qualified to lead the reflection. The reflection session included viewing recordings of the simulations and letting the participants view and gain insight over their own actions and communication during the assignment. The informant goes as far as saying that the CAMO-project would be a total waste had it not been for the reflection session at the end.

I had not been able to get a satisfying answer about the importance of reflection during my interview, I thereby chose to send an e-mail to ask follow-up questions about the importance of reflection in learning situations. This was the response I got from the third informant.

*Yes, I believe it is very important to set aside time for self-reflection, but also debriefings sessions where there are several people involved. In CAMO we saw that while playing/ scenario unfolded, it got pretty intense and (perhaps at times a bit too intense), and it was only in group discussions afterwards that one could articulate action... behavior and reflected (out loud) around these things. I think one should in general, allocate more time for reflection after learning sessions where each student or the group can put the "context" into words.(Informant 3, extract 6).*

The informant describes that he believes that reflection and debriefings after the completion of a project is important. Both individual and collaborative reflection. During the CAMO-project he experienced that the sessions and simulations got pretty intense and that it was necessary to form groups to communicate through dialogues, and reflect after the completion. He states that he believes that reflection should be a greater part of learning in general, and that educators should allocate time for this to happen. These sessions could give the students the opportunity to put the context into words, and communicate their experiences. The first informant gave a very short reply, where she expressed that reflection is important in a learning situation.

*Yes, definitely, reflections are important to the learning outcome. We conducted reflection sessions/debriefings in several projects, e.g. after the completion of the role-playing with the cadets in the CAMO-project, and with nursing students in a virtual operating room-project (Informant 1, extract 10).*

# 7 General Discussion

In this chapter, the objective is to discuss the research questions. I will base the discussion on the data gathered from the informants, and use the theoretical frameworks and perspectives to compare and contrast. I will structure this chapter by discussing one research question at a time. The research questions are:

1. How can 3D virtual worlds, like SecondLife, facilitate collaborative learning?
2. How can one use virtual worlds for collaborative learning-purposes in both formal and informal learning situations?
3. In what way can reflection be beneficial to collaborative learning in 3D virtual worlds?

## 7.1 Collaborative Learning

In this section, I will discuss the research question: *how could 3D virtual worlds, like SecondLife, facilitate collaborative learning?* The discussion will be based on the literature and theories I have presented earlier in the thesis, as well as the data collected from the informants. All three of them perceived SecondLife and other 3D virtual worlds to be an opportune environment for collaborative learning.

Based on the data gathered from the interviews, there seem to be a consensus that collaborative learning might be the most beneficial method for learning when conducted in virtual environments. Several of the informants expressed that they assessed SecondLife to be an exceptional learning environment for collaborative learning. Both the informants and the two projects I reviewed earlier, revealed that social and active participation are elements that could be easily achieved in 3D virtual worlds. For learning to be collaborative there are certain elements that need to be present. For collaborative learning to be successful, the participants are required to actively participate and engage themselves in the learning

experience. According to Beetham and Sharpe (2013) the learners need to obtain a shared ownership and responsibility of the situation. When implementing collaborative learning in virtual environments, the participants are able to share the learning experience, and thereby affect how the situation unfolds. Although I see great possibilities for creating learning designs that enables the participants to share ownership, there are potential pitfalls. In 3D virtual worlds, the number of participants included, could affect the ability to communicate and engage the whole group of learners. This is expressed by the third informant. *“It was like a discovery we made in a way, that our scenario was not open enough, and conclusive enough for all cadets we had. Beyond that, I think it worked very well, there was good cooperation and they communicated very well and had excellent collaboration...”* (Informant 3, extract 3). The virtual environment did not support or facilitate active participation for the amount of cadets that were involved. Because the simulation consisted of 20 participants, they experienced that several of the cadets were excluded from the simulation, due to lack of communication possible in SecondLife. Speech was only audible to those who were standing in close proximity to the speaker. In this sense, the SecondLife platform was not technologically adequate for the number of participants involved. The informants expressed that the difficulties concerning speech and communication will be resolved as the technology and features within the virtual platform are further developed.

An advantage with SecondLife and other 3D virtual worlds that is cohesive to collaborative learning, includes being able to participate in activities despite of locations. Informant 2 expressed that this feature facilitates opportunities for long distance training, group works and other activities that involve two or more participants. *“Norwegian soldiers sat in a room and... and those who played Afghans... sat in a different room, in this sense they were all together in one place, but we could have really been spread everywhere”* (Informant 2, extract 4). The ability to meet virtually enables participants to co-create and engage through social interaction. Learners and participants are able to meet and communicate through avatars and even build and create in collaboration with others. The first informant who had participated in several projects involving 3D virtual worlds and collaborative learning, exemplified this. In these projects, the participants came from a variety of places and countries. This includes a collaboration between the University of Hawaii and a Norwegian

class. *“Also my students went there and... to their campus and learned about Hawaiian culture and... danced, danced hula”* (Informant 1, extract 5). The Norwegian students experienced the Hawaiian culture virtually, which would have been near impossible to achieve in real-life. Evidently, this feature creates possibilities for collaborative experiences.

The ability to conduct problem-based activities, is an advantage when applying 3D virtual worlds as learning environments. One element of PBL involves the student’s ability to attain a greater degree of responsibility for the learning outcome, and influencing the learning situation (Allen et.al., 2011). They are in this sense, free to work together to solve tasks and problems, without interference from instructors or teachers. When utilizing 3D virtual worlds for learning purposes, the learners are able to simulate an entire case by collaborating to solve the given problem. This is exemplified by the CAMO-project, where the cadets acted out scenarios and assignments in SecondLife. They solved the assigned tasks through discussions and collaborative decision-making. Another element within PBL, is that learners should rely on pre-existing knowledge to decide which course of action one should take (Allen et.al., 2011). This can be exemplified by the two projects presented earlier. In the CAMO-project, the cadets had to rely on their previous knowledge on how to conduct military assignments, and in collaboration plan out the implementation of the tasks. The nurses involved in communication skills in hospice training, also applied previous knowledge regarding patient care, to solve the assignment.

In the example of the CAMO-project the cadets could be perceived as being part of a small community of practice. Their collaboration and team effort is comparable to the concept of communities. In communities of practice, the members collaboratively share and create common language, practices and artefacts that make up the community (Wenger, 2000). The cadets involved in the CAMO-project already had a common language (with military abbreviations and vocabulary) and shared the artefact, SecondLife, as the tool for facilitating the learning activity. In addition to shared artefacts, they created practices during the simulations, regarding how they could conduct themselves in the event of military operations in Afghanistan. In this respect, one can see the mediating artefacts to be both the language used, but also the virtual world in which they created their practices. Wenger (2000) states

that there are elements that need to be present within a community of practice, collective understanding between the members, being one of them. Social interaction and communication needs to be possible for there to be collective understanding. According to Hoppe et.al. (2007), it is required with a high degree of social interaction, for collaboration to reach its full potential. In my opinion, this could be achieved within a virtual environment through speech, chat and gesture features. In communities of practice, it is crucial that the members share a level of mutual engagement and interact together (Wenger, 2000). This is similar to how one would view PBL, where collaboration is the main objective. I have reviewed examples where creating learning environments in 3D virtual worlds was achieved. I find it more than plausible that virtual environments can facilitate excellent learning situations, conducive to collaborative work. However, one needs to take into account the amount of participants involved, especially in simulation training and other scenario-oriented learning situations.

## **7.2 3D Virtual Worlds, Formal and Informal Learning**

In this section, I will discuss the research question; *how can one use virtual worlds for collaborative-learning purposes in both formal and informal learning situations?* When viewing the data gathered from the interviews, there seems to be a general agreement that 3D virtual worlds, like SecondLife, are most useful in informal learning situations. I will account for the most relevant data collected from the informants, and discuss this by using the theoretical frameworks and perspectives presented earlier.

It is debatable whether there exists a clear and definite divide between formal and informal learning in practice. It can be challenging to separate the two, as expressed by the first informant. *“Yes, so then perhaps greater opportunities in terms of... but it's kind of gradual transition between... between formal and informal learning.”* (Informant 1, extract 8). Hager and Halliday (2006) also expresses that the two forms of learning are not mutually exclusive, and unplanned learning could occur within the frameworks of a formal learning situation. Utilizing 3D virtual worlds for simulations based on a PBL perspective, creates many opportunities for both formal and informal learning to occur. In the examples of

communication training as well as the CAMO-project, there would be informal learning happening simultaneously with the planned exercise. Evolving leading- and social skills, and other more or less tangible ones, could be the result of informal learning happening within formal learning situations. This informal learning develops alongside the formal, and is an example of how the two forms of learning can be present despite of the other.

Both the second and third informant agree that virtual worlds are not the best environments for facilitating formal learning situations. The second informant would much rather take advantage of professional conferencing systems, in the event of lectures and other distance learning programs. He describes that the real potential for learning in virtual spaces is through social interaction and simulations. *“the creating of meeting places for people and activity simulating, experimentation, that is where the potential lies, which I think is pretty major.”* (Informant 2, extract 5). Although they both seemed adamant that informal learning should be the main focus when using virtual environments, they both had experienced lectures and other similar formal learning situations, with positive outcomes. The third informant in particular had conflicting views on the matter. He stated that he did not perceive formal learning to be suitable in virtual environments, yet he later expressed that his own experiences with seminars, including one with thousand participants in SecondLife, had worked excellently. When viewing the categories for formal and informal learning, by Folkestad (2006), I see great potential for utilizing virtual environments for facilitating formal learning situations. There are many features within virtual worlds, that enable participants and users to create a desired space. In this sense, I find it plausible that virtual environments can be utilized for almost any form of learning.

The first informant was more positive to the notion of creating environments for formal learning within 3D virtual worlds. She expressed that conducting lectures and other classroom activities, was a good way to apply the many aspects of virtual environments. She mentioned an example, in which she had conducted an exam in SecondLife. An exam, which is usually an extremely formal situation, was carried out virtually where the student conducted the examination via his avatar within the virtual habitat. She also perceived 3D virtual worlds to be quite suitable for classroom learning. She was positive to the applications regarding objects

and mind boards, and the ability to apply the interchangeable bulletin boards positioned throughout the SecondLife platform. In the screenshot underneath, the bulletin boards are visible. One could upload presentations and other subject matter on to these, and create a real-like classroom environment.



Figure 5: Screenshot taken on Akershus Fortress, depicting a classroom-like environment, taken in May 2014, SecondLife.

Hager and Halliday (2006) argue that formal and informal learning is not necessarily mutually exclusive. This could be exemplified by the CAMO-project, which had planned and designed learning goals, and would indicate that the project was a formal learning situation. Yet the informants all categorized the project as being an informal learning experience, and there were elements of learning that occurred that were not necessarily planned for. According to Hager and Halliday (2006), learning where the objective is to acquire a skill to be utilized for an activity, is well suited for informal learning methods. CAMO is an example of a learning situation where the intention is to acquire a skill that will be utilized in practice. The cadets were to attain skills that would help them identify and deal with aspects of Afghan culture, while being stationed in the country. This includes handling situations as they are happening, rather than analyzing them in an office space. In this respect, using virtual worlds for learning abilities that are meant to be utilized in practice, the CAMO-project was conducted in an appropriate manner. This would include the other example with communication training for

nursing students as well. In this project the nurses trained on communication through role-playing with patients, a skill meant to be applied in practice, and also contained elements of informal learning.

The informants expressed that it is important to take advantage of all the technological possibilities within the virtual environment. The first informant was adamant that using the virtual environments in the same way as one would use a regular classroom, would be a waste of resources and would not exploit all the applications within its design. Facilitating both formal and informal learning within virtual environments, requires that one exploit the variety of applications within the platform. By reviewing the information gathered and the projects presented earlier, I find it plausible that both formal and informal learning could adequately be facilitated in virtual environments. Although the informants had conflicting views on the matter, they all had experienced positive aspects of both learning forms.

### **7.3 Reflection and Collaborative Learning**

In this segment, I will discuss the research question: *in what way can reflection be beneficial to collaborative learning in virtual worlds?* Donald Schön (1983) states that reflection throughout a learning process aids the learner to speculate and contemplate on the learning situation, as was the view of all of the three informants. I will now discuss the data collected from the informants compared to the theoretical framework I have accounted for earlier in this thesis.

The second informant strongly believed that one must integrate reflection, for a learning situation to be beneficial. The informant expressed that through reflection one is able to open up for dialogues between the participants of a learning activity, and help them view and discuss the context and communication within the activity. He suggests that reflection should be an integrated part of all learning. The CAMO-project, in which he was a facilitator, would have been an unsatisfying experience regarding the learning outcome, had it not been for the



reflection sessions. *“So in the joint review session we went through some sequences of the experiment... how do you do it? Are you happy, could things have been done differently? And he made them see things within the communication that they probably would not have seen by themselves.”* (Informant 2, extract 6). This is a testimony to how the informant believes that reflection enabled the cadets to observe and learn through dialogue. He saw that using reflection by encouraging dialogue between the participants enabled them to see things from new perspectives, and in addition gave them the opportunity to investigate the communication that had taken place during the simulation. This is closely connected to the perspective of reflective practice (Schön, 1983).

One could assume that the CAMO-project included a safe and open environment to reflect, and that the cadets had the opportunity to adequately express their views and opinions regarding the simulations. This is key to facilitate open-ended discussions and dialogues, and help the participants to express themselves as unrestrained as possible (Raelin, 2002). The advantages of reflection, mentioned by Raelin (2002), included several aspects. One of these is that reflection could minimize the risk of repeating mistakes and being unable to change ones perspectives and behaviors. In the CAMO-project, where the objective was to train for military operations in Afghanistan, minimizing risks for repetitive and static behavior could be an important factor. Repeating mistakes in a potential hostile situation could be dangerous in many instances, and being aware of one’s behavior could potentially save one’s life. Using reflection to contribute to self-awareness, seems like a beneficial and important aspect of learning in general, but maybe even more so in dangerous situations that the cadets potentially could experience if they were to be deployed.

The first and third informants were also convinced of the importance of reflection for a learning situation, and had practiced this for several of the projects in which they had been involved. The ability to facilitate a more in-depth analysis of a learning activity through reflection, could also lead to advantages in new learning situations. Dialogues have the potential to minimize the risk of repeating mistakes and reusing old behavioral patterns (Raelin, 2002). After the completion of a learning activity, dialogue and reflection can contribute to further the learning and help the learners gain new insight over one’s own ideas

and pre-existing knowledge. Reflection through dialogue requires collaboration and engagement (Raelin, 2002). In collaborative learning situations, reflection can serve as a natural and beneficial closure and could affect the learning outcome. All three informants perceived reflection to be essential to learning, especially in collaborative learning. Using 3D virtual worlds as a forum for dialogues and reflection, requires that the technology support social interaction and communication. In my opinion, this seems plausible, and one could apply virtual environments for dialogues and reflection sessions in collaboration with others. It is also worth mentioning, that collaborative work is believed to enhance critical thinking. According to Gokhale (1995), reflection is a natural part of collaborative learning.

## 8 Summary and Conclusions

In this thesis, I have investigated how collaborative learning is possible through the use of 3D virtual worlds. I have exemplified collaborative learning in virtual environments by focusing on two cases. The CAMO-project (role play in military training) and communication skills in hospice training, involved collaborative learning through simulation and mini scenarios. These examples helped me to visualize how one could conduct collaborative learning in virtual environments. For the conceptual framework for analysis, I have relied on aspects of constructivist learning theory, formal and informal learning, as well as problem-based learning. I have also made use of concepts and techniques such as community of practice and reflective practice to further investigate varying aspects of collaborative activity and learning. To understand the context surrounding 3D virtual worlds, I have briefly explained the most relevant technological aspects, including the notion of Web 2.0 and the 3D virtual world, Second Life.

I have relied on interviews as primary data source and the basis for the discussion. The three informants were chosen on the basis of their background in training and educational technology, and have contributed with interesting and reliable data. To answer the three research questions, I first of all discussed them based on the data collected through interviews, but also on the conceptual framework (a set of concept sand perspectives) accounted for earlier in the thesis.

When asked about the possibilities for collaborative learning in 3D virtual worlds, there seemed to be a general agreement that virtual environments are suitable for collaborative learning situations, requiring synchronous (same time) interaction. The informants were generally positive and saw opportunities for experimentation enabled by social interaction, and problem based learning in the virtual habitats. From a constructivist point of view, virtual environments could be conducive to facilitating learning situations, where creating shared

knowledge and practices is the main objective. One of the technological advantages with utilizing virtual environments to facilitate collaborative learning, is that participants can engage and interact through avatars and computers. This does not require people to meet in the physical world, but rather socially interact in a virtual setting.

The informants in my study did not share the same view on what formal learning entails in a virtual environment. They agreed that facilitating informal learning situations through 3D virtual worlds, created a variety of opportunities, but they did not perceive them in terms of formal learning. It might seem as though the context and their experiences with technological obstacles (like communication problems) have affected how they perceive the ability to facilitate both forms of learning in virtual environments. However, the literature reports many examples of formal learning situations organized entirely in 3D virtual worlds. Campuses are being replicated in miniaturized virtual worlds to conduct lectures and online classroom activities. Because formal and informal learning can happen simultaneously, I find it plausible that both forms of learning can be conducted in virtual environments like SecondLife. Having myself experienced virtual lectures of a professor at West Virginia University's department of special needs education, I see great possibilities for formal learning staged within virtual worlds.

The data indicates a general agreement of the importance of reflection as a critical component of a learning environment. All three informants expressed this as a key eye opener provided by the CAMO-project, and as a technique for boosting the learning outcome for the cadets. Their expressed views on this topic are closely related to the theory of reflective practice, and seem to support their beliefs and practices on the importance of reflection in learning situations. They all mentioned the CAMO-project and how critical the reflection sessions had been to investigate and discuss the simulations through collaborative dialogues.

# References

- Abusabha, R. & Woelfel, M. L. (2003). Qualitative vs Quantitative Methods: Two opposites that make a perfect match. *Journal of the American Dietetic Association*, 2003, Vol.103(5), 566-569.
- Allen, D., Donham, R. and Bernhardt S. A. (2011). Problem-based learning New Directions for Teaching and Learning. *Wiley Periodicals, Inc* 2011, Issue 128, 21-29. Retrieved April 23, 2014, from <http://tinyurl.com/ofdjkk7>
- Beetham, H., & Sharpe, R. (2013). *Rethinking Pedagogy for a Digital Age*. Routledge, New York.
- Conole, G. (2013). *Designing for Learning in an Open World*. Springer.
- Folkestad, G. (2006). Formal and informal learning situations or practices vs formal and informal ways of learning. *British Journal of Music Education*, Volume 23, Issue 02 / July 2006, 135-145 Retrieved March 30, 2014, from <http://journals.cambridge.org/action/displayFulltext?type=1&fid=449103&jid=BME&volumeId=23&issueId=02&aid=449102>
- Gokhale, A. (1995). Collaborative Learning Enhances Critical Thinking. *Journal of Technology Education*, Volume 7, number 1. Retrieved April 12, 2014, from <http://scholar.lib.vt.edu/ejournals/JTE/v7n1/gokhale.jte-v7n1.html>
- Hager, P., & Halliday, J. (2006). *Recovering Informal Learning. Wisdom, Judgment and Community*. Springer, The Netherlands.
- Hoppe, U. H., Ogata, H., and Soller, A. (2007). *The role of Technology in CSCL. Studies in Technology Enhanced Collaborative Learning*. Springer, New York.

Illeris, K. (2012). *Læring*. Roskilde Universitetsforlag, Roskilde, Denmark.

Illeris, K., Jarvis, P., Wenger, E., Engestrøm, Y., Mezirow, J. and Ziehe, T. (2009). *Lærings Teorier. 6 Aktuelle Forståelser*. Roskilde universitetsforlag, Frederiksberg.

Kriz, W. C. (2008). A Systemic- Constructivistic Approach to the Facilitation and Debriefing of Simulations and Games. *Simulation Gaming*, 2010 41: 633. Sage Publications.

Kvale, S. (2007). *Doing Interviews*. SAGE publications. London.

Kvale, S. & Brinkmann, S. (2009). *Interviews. Learning the craft of qualitative research interviewing*. SAGE publications. Thousand Oaks, California.

Lai, L. (2006). *Strategisk Kompetansestyring*. Fagbokforlaget Vigmostad & Bjørke AS, Bergen

Second Life (2014). *Linden Labs*. Retrieved March 10, 2014, from <http://lindenlabs.com/products/second-life>

Lowes, S., Hamilton, G., Hochstetler, V. and Paek, S. (2013). Teaching Communication Skills to Medical Students in a Virtual World. *The Journal of Interactive Technology and Pedagogy*. Retrieved March 24, 2014, from <http://jitp.commons.gc.cuny.edu/teaching-communication-skills-to-medical-students-in-a-virtual-world/>

Maxwell, J. A. (2013). *Qualitative Research Design an Interactive Approach*. SAGE Publications, Washington DC.

- Moreno-Ger, P., Burgos, D. and Torrente, J. (2009). Digital Games in eLearning Environments. Current Uses and Emerging Trends. *Simulation & Gaming*, SAGE Publications.
- Mørch, A. I. (2012). Information seeking and collaborative Knowledge Creation: Exploring Collaborative Learning in Customer Service Work and Software Product Development. In Goggins, S., Jahnke, I., Wulf, V. *CSCL at work: Case Studies of Collaborative Learning at Work. Computer-Supported Collaborative Learning*. volume 14. Springer Heidelberg.
- Prasolova-Førland, E., Fominykh, M., Darisiro, R., Mørch, A. I. and Hansen, D. (2013). Preparing for International Operations in a Cyberworld: an Extended Description of the Norwegian Army Example. *Special Issue of Transaction on Computational Sciences Journal*, Springer.
- Raelin, J. A. (2002). "I Don't Have Time to Think!" Versus the Art of Reflective Practices. The Society for Organizational Learning and the Massachusetts Institute of Technology.
- Schön, D. A. (1983). *The Reflective Practitioner, How Professionals Think in Action*. Basic Books Inc. USA.
- SecondLife. (2014). *SecondLife*. Retrieved March 1, 2014, from <http://secondlife.com/>
- Virtual Worlds (2014). *Wikipedia*. Retrieved May 1, 2014, from Wikipedia [http://en.wikipedia.org/wiki/Virtual\\_world](http://en.wikipedia.org/wiki/Virtual_world)
- Web 2.0. (2014). *Wikipedia*. Retrieved April 12, 2014, from Wikipedia [http://en.wikipedia.org/wiki/Web\\_2.0](http://en.wikipedia.org/wiki/Web_2.0)

Wenger, E. (2000). *Communities of Practice and Social Learning Systems*. Copyright SAGE publications, (London, Thousand Oaks, CA and New Delhi).

Wertz, F. J., Charmaz, K., McMullen, L. M., Josselson, R., Anderson, R. and McSpadden, E. (2011). *Five ways of doing qualitative analysis. Phenomenological Psychology, Grounded Theory, Discourse Analysis, Narrative Research and Intuitive Inquiry*. The Gilford Press: New York, USA.



# Appendix I: NSD Application

Norsk samfunnsvitenskapelig datatjeneste AS  
NORWEGIAN SOCIAL SCIENCE DATA SERVICES



Anders Mørch  
Institutt for pedagogikk Universitetet i Oslo  
Postboks 1092 Blindern  
0317 OSLO

Havald Høitages gate 29  
N-5007 Bergen  
Norway  
Tel: +47 55 58 21 17  
Fax: +47 55 58 96 50  
nsd@nsd.uib.no  
www.nsd.uib.no  
Org nr: 985 321 884

Vår dato: 04.02.2014

Vår ref: 37357 / 2 / NSD

Deres dato:

Deres ref:

## TILBAKEMELDING PÅ MELDING OM BEHANDLING AV PERSONOPPLYSNINGER

Vi viser til melding om behandling av personopplysninger, mottatt 29.01.2014. Meldingen gjelder prosjektet:

<i>37357</i>	<i>CAMO project</i>
<i>Behandlingsansvarlig</i>	<i>Universitetet i Oslo, ved institusjonens øverste leder</i>
<i>Daglig ansvarlig</i>	<i>Anders Mørch</i>
<i>Student</i>	<i>Kristine Sletten Sommerseth</i>

Personvernombudet har vurdert prosjektet og finner at behandlingen av personopplysninger er meldepliktig i henhold til personopplysningsloven § 31. Behandlingen tilfredsstiller kravene i personopplysningsloven.

Personvernombudets vurdering forutsetter at prosjektet gjennomføres i tråd med opplysningene gitt i meldeskjemaet, korrespondanse med ombudet, ombudets kommentarer samt personopplysningsloven og helseregisterloven med forskrifter. Behandlingen av personopplysninger kan settes i gang.

Det gjøres oppmerksom på at det skal gis ny melding dersom behandlingen endres i forhold til de opplysninger som ligger til grunn for personvernombudets vurdering. Endringsmeldinger gis via et eget skjema, <http://www.nsd.uib.no/personvern/meldeplikt/skjema.html>. Det skal også gis melding etter tre år dersom prosjektet fortsatt pågår. Meldinger skal skje skriftlig til ombudet.

Personvernombudet har lagt ut opplysninger om prosjektet i en offentlig database, <http://pvo.nsd.no/prosjekt>.

Personvernombudet vil ved prosjektets avslutning, 01.08.2014, rette en henvendelse angående status for behandlingen av personopplysninger.

Vennlig hilsen

Katrine Utaaker Segadal

Marte Byrkjeland

Kontaktperson: Marte Byrkjeland tlf: 55 58 33 48

Vedlegg: Prosjektvurdering

Kopi: Kristine Sletten Sommerseth [kristine.sommerseth@gmail.com](mailto:kristine.sommerseth@gmail.com)

Dokumentet er elektronisk produsert og godkjent ved NSDs rutiner for elektronisk godkjenning.

Avdelingskontor / Contact Office

OSLO NSD, Universitetet i Oslo, Postboks 1095 Blindern, 0316 Oslo. Tel: +47 22 85 52 11. [nsd@nsd.uib.no](mailto:nsd@nsd.uib.no)  
TRONDHEIM NSD, Norges teknisk-naturvitenskapelige universitet, 7491 Trondheim. Tel: +47 73 59 39 07. [kjg@nsd.uib.no](mailto:kjg@nsd.uib.no)  
BERGEN NSD, Universitetet i Bergen, 5017 Bergen. Tel: +47 55 64 43 36. [nsd@nsd.uib.no](mailto:nsd@nsd.uib.no)



Prosjektet er meldt inn som et samarbeidsprosjekt. I informasjonsskrivet er det imidlertid oppgitt at det kun er veileder og student som har tilgang til personopplysningene. Ettersom det ikke skal utveksles personopplysninger, forstår vi det slik at prosjektet og behandlingen av personopplysninger kun skjer ved Universitetet i Oslo.

Formålet med dette prosjektet er å se på effekten av forsvarets CAMO prosjekt. Data innhentes gjennom intervju.

Ifølge prosjektmeldingen skal det innhentes skriftlig samtykke basert på skriftlig informasjon om prosjektet og behandling av personopplysninger. Personvernombudet finner informasjonsskrivet tilfredsstillende utformet i henhold til personopplysningslovens vilkår.

Innsamlede opplysninger registreres på privat pc. Personvernombudet legger til grunn at veileder og student setter seg inn i og etterfølger Universitetet i Oslo sine interne rutiner for datasikkerhet, spesielt med tanke på bruk av privat pc og mobiltelefon til oppbevaring av personidentifiserende data. Vi anbefaler at koblingsnøkkelen oppbevares adskilt fra det øvrige datamaterialet i prosjektperioden.

Prosjektet skal avsluttes 01.08.2014 og innsamlede opplysninger skal da anonymiseres, og lyd- og video-opptak slettes. Anonymisering innebærer at direkte personidentifiserende opplysninger som navn/koblingsnøkkel slettes, og at indirekte personidentifiserende opplysninger (sammenstilling av bakgrunnsopplysninger som f.eks. yrke, stilling, alder, kjønn) fjernes eller grovkategoriseres slik at ingen enkeltpersoner kan gjenkjennes i materialet.

# Appendix II: Consent Form

## Forespørsel om deltakelse i forskningsprosjektet

### *Tilrettelegging av samarbeidslæring ved bruk av 3D- virtuelle verdener.*

#### **Bakgrunn og Formål**

Formålet med denne masterstudien er å se på hvordan man kan tilrettelegge samarbeidslæring når man benytter seg av 3D-virtuelle verdener. Jeg vil benytte meg av forsvarers CAMO-prosjekt som et eksempel på slik læring hvor den virtuelle 3D-verdenen SecondLife ble brukt som læringsarena.

Masteren gjennomføres ved universitetet i Oslo, ved institutt for pedagogikk.

Utvalget er basert på deltakelse i CAMO-prosjektet samt erfaring med læring og bruk av virtuelle verdener og teknologi.

#### **Hva innebærer deltakelse i studien?**

Som informant for denne studien gjennomføres et intervju med studenten, som vil vare mellom 30-45 minutter. Spørsmålene vil omhandle læring i virtuelle verdener samt CAMO-prosjektet.

Det vil bli tatt notater og lydopptak av intervjuet.

#### **Hva skjer med informasjonen om deg?**

Alle personopplysninger vil bli behandlet konfidensielt.

Studenten og veilederen er de eneste som har tilgang på personopplysninger.

Det blir laget navneliste med koblingsnøkkel til intervjuene, og disse vil lagres adskilt fra øvrige data. Det vil derfor ikke være mulig å gjenkjenne personen ut i fra dataene som benyttes i publikasjonen.

Prosjektet skal etter planen avsluttes den 01.08.2014

Alle personopplysninger og eventuelle opptak fra intervjuene blir slettet ved prosjektets slutt.

#### **Frivillig deltakelse**

Det er frivillig å delta i studien, og du kan når som helst trekke ditt samtykke uten å oppgi noen grunn. Dersom du trekker deg, vil alle opplysninger om deg bli anonymisert

Dersom du ønsker å delta eller har spørsmål til studien, ta kontakt med Kristine Sommerseth, telefonnummer 470 70 409, eller Anders Mørch, telefonnummer 480 21 736.

Studien er meldt til Personvernombudet for forskning, Norsk samfunnsvitenskapelig datatjeneste AS.

#### **Samtykke til deltakelse i studien**

Jeg har mottatt informasjon om studien, og er villig til å delta

-----  
(Signert av prosjektdeltaker, dato)

# Appendix III: Interview Guide

## Intervju guide

### Innledning

1. Velkomst: avklare navn og hvor jobber du og hva slags bakgrunn har du?

### Om læring

2. Hva legger du i begrepet læring?
3. Hvordan tror du man lærer?
4. Hva legger du i begrepet samarbeidslæring?
5. Hva synes du om samarbeidslæring? Tror du man lærer bedre gjennom samarbeid?

### Om SecondLife og virtuelle verdener

6. Hva legger du i begrepet virtuelle verdener?
7. Hva slags typer av virtuelle verdener har du vært borti?
8. Hva var ditt inntrykk av SecondLife som en læringsarena?
9. Hvordan vil du sammenligne SecondLife med andre virtuelle verdener du kjenner?
10. Hvilke konkrete opplevelser har du av SecondLife som læringsarena? Eksempler på hvordan det har blitt brukt?
11. Hvordan synes du at en læringsarena som SecondLife (eller andre du har vært borti) fungerer som en arena for samarbeidslæring?
12. Har du eksempler på tilfeller hvor samarbeidslæring fungerte godt i virtuelle verdener/SL?
13. Har du eksempler på tilfeller hvor samarbeidslæring fungerte dårlig?
14. I CAMO-prosjektet, hva synes du om nivået av samarbeid? Har du eksempler?

### Formell og uformell læring

15. Har du et forhold til begrepet formell og uformell læring?
16. I din arbeidssituasjon hvilken form for læring tror du er mest brukt?
17. Hvilken læringsform foretrekker du? Tror du man lærer best gjennom formell/uformell læring?
18. Hvordan tror du virtuelle verdener kan bistå til formell og uformell læring?
19. Hvordan vil du plassere CAMO prosjektet i forhold til formell og uformell læring?
20. Har du noen eksempler på uformelle lærings situasjoner der man har brukt virtuelle verdener?
21. Har du noen eksempler på formelle lærings situasjoner der man har brukt virtuelle verdener foruten om CAMO?

### Avslutning

22. Noen spørsmål til slutt?
23. Hvis jeg i ettertid har behov for å avklare noe, eller stille et oppfølgings spørsmål, har du mulighet til å besvare mail fra meg?

# Appendix IV: Sample of Transcriptions

A selection of the Norwegian transcriptions from interviews 1, 2 and 3.

Sign	Description
< . >	Used when words are spoken slowly
(1.0)	Used to describe a pause in seconds
(h)	Used to describe laughter
((...))	Used to describe comments
(?)	Used to describe a word that is inaudible

## First Interview

Informant I = I

Interviewer = K

- K: ja <ehm> Først så kunne godt tenke meg å vite litt om <eh> Hvor du jobber og hva du jobber med og hva slags bakgrunn du har. Sånn utdannelse og sånt.
- I: ja, da <eh> (?) <eh> doktorgrad i datateknikk(1.0)
- K: <eh> ja
- I: så <eh> jobber jeg normalt med <eh> virtuelle verdener og virtuell virkelighet.
- K: akkurat.
- I: og så samarbeidslæring
- K: og samarbeidslæring ja(1.0) <eh> ja, (1.0) skal vi se <eh> <hmm> Da passer jo du egentlig veldig, veldig godt som informant(1.0) <eh> jeg kommer også til å se en del på samarbeidslæring <ehm> skal vi se. Hva legger du i begrepet læring? Hva betyr læring for deg?
- I: Ja, det <eh> veldig <eh> forskjellige teoretiske tilnæringer og <eh> og <eh> ja, jeg ser på læring <eh> <eh> (?) sosialt perspektiv (2.0) det er <eh> (1.0) det på en måte det(1.0) <eh> det <hm> Det(1.0) det på en måte så mye.
- I: det er noe som er (1.0) da tenker jeg også på <eh> <eh> mye på tilnærming til <eh> til venture ((engelsk) at <eh>man <eh> <eh> beveger seg på en trajectory ((traktorier –engelsk bane)) fra <eh> <eh> for å si det sånn(1.0) apprentice til mester og <eh> at man <eh> <eh> ja, at man <eh> gradvis tilegner seg kunnskap i samarbeid med andre i (1.0) community- communities of practice til å begynne med.
- I: for å snakke om de <eh> perspektivene(1.0) på en måte(1.0) å se på hva er læring, det er på en måte så bredt. Det er noe man kan snakke om i all evighet dette her, men jeg jobber mest med det grunnlaget som jeg sa <eh> jeg baserte meg primært på <eh> på Wenger sitt perspektiv, og tanke på læring og sosial aktivitet(1.0) <eh>
- K: Ja
- I: Det er selvfølgelig som et hav av <ehm> og man kan se forskjellige syn på læring som dråper i havet (2.0) alle mulige tolkninger.
- K: Absolutt, det er det som er litt interessant og derfor jeg gjerne vil vite hva du tenker om det (1.0) for det er jo tusen forskjellige måter å definere det på.
- I: Det finnes (1.0) hva skjuler den metaforen til Wenger (2.0) e- som er (?) fine. Veldig vakkert med traktorier(1.0) at man <eh> <hm> både med enkeltmennesker og communities beveger seg om læringstrektorier i (?) med hverandre.
- K: Ja, <ehm> <mm> Skal vi se(2.0) ja(2.0) <ehm> så du har jo ganske forstått at du har jobbet en del med virtuelle verdener?
- I: til å begynne med jobbet jeg primært med active world
- K: <mhm>

I: og så (1.0) nå <eh> jobber jeg primært med to typer (1.0) SecondLife og Vacademia – russisk prosjekt som virtuell verden som er laget spesielt for læring.

K: Akkurat.

I: Jeg vet ikke om du har vært borti det før? Det er vacademia.org.

K: <eh> nei det har jeg ikke vært borti.

**Ny tid: 06:54**

I: Det (??) sjekke ut, det er på en måte SecondLife det er ikke laget for læring primært, det er laget for <eh> ja (1.0) på en måte <eh> som <eh> ja som, samhandling og spill og alt mulig. Det er ikke laget spesielt for læring

K: akkurat(1.0) <jah> spennende <mm> ja, <mm> hva var, hva er ditt inntrykk av SecondLife som en læringsarena?

I: <eh> ja, det er jo <eh> det er vel (1.0) det er jo mange, mange muligheter <eh> og det er jo <eh> det med, med tanke på at, når man tenker på (1.0) den fysiske tilnærmingen(1.0) vet du muligheter for å bygge nye forståelse, flere prosjekter støtter spesialiseringer av diverse konsepter av <eh> for eksempel(1.0) ja <eh> hvis du har vært sett på våre (2.0) for eksempel mobilisering av datamaskin og programmering av forskjellige konsepter... i - <eh> CCW om awereness (1.0) communication så <eh> så resulterer i forskningsprosjekter(1.0) så <eh> veldig store muligheter i retningen(1.0) og <eh> rollespill som er <eh>

K: <Mhm>

I: Som er veldig... <eh> også vi har (1.0) både (2.0) hos oss vi hadde det som andre steder i SecondLife, CAMO for eksempel(1.0) vi har administrert sykehus <eh> som vi har (1.0) vi hadde sykepleiere som trente på pasientkommunikasjon (1.0) som skal <eh> steget videre.

K: Akkurat, Ja.

I: En annen ting, SecondLife er på en måte ikke laget <eh> spesielt(?) har flere verktøy <eh> ikke laget med læring i tankene, så <eh> derfor, jah. Det kan være (1.0) Ja, det det er på en måte pluss og minuser det er på en måte pluss at man har flere muligheter(1.0) man har ikke den begrensingen <eh> ja, er fanget av hvordan klasserom skal være (1.0) bli inspirert av både spillverdenen og <eh> <jah> all, all den mangfoldet (2.0) det er på en måte den er ikke <eh> <eh> det er ikke laget som læring på en måte <eh>. Lage ting selv og legge til rette <eh> for at det skal <eh>

**Ny tid 10:30**

I: Ressursbruk med tanke på både lærere og <eh> legge til rette for studenter som <eh> <eh> jobbet med gavene selv om <eh> de har (1.0) det er vanlig tilbakemelding at det er ganske tidkrevende <eh> men det utvikler seg(1.0) og vi jobber videre og vi <eh> og jobber med <eh> for eksempel (?) gjør det enklere å <eh> navigere og gjør det mer intuitivt.

**Ny Tid: 14:02**

I: Noe som vi på en måte har] <eh> Jobbet mye med i den retningen <eh> også et stort EU prosjekt som har holdt på(2.0) det er laget et(2.0) det å lage serious games.

K: Ja

I: også virtuelle verdener i unity basert <eh> Jeg vet ikke om du har hørt om gaming community?

K: <eh> jo, jeg har vært borti det.

I: Det man blant annet hadde sånn simulering med <eh> ja <eh> for eksempel en <eh> en office(1.0) <eh> en bonde som blir, som må overtales <eh> som må selge sitt land(1.0) sånn klinisk prosjekt(1.0) der trener forskjellige <eh> teknikker <eh> å <eh> å overtalingsteknikker med communication skills <eh> ja(1.0) du kan se på targets (?) targets.org (1.0) det tror jeg at, det er linken <eh> <eh> og da(1.0) den der <eh> tilnærming til læring som er <eh> på en måte ganske ny.

K: ja?

I: det er på en måte threshold concept, der på en måte <eh> det kort fortalt det er mange som har slags aha opplevelse sånn at man <eh> sånn at man plutselig går over en threshold.

**Ny tid: 17.15**

K: Akkurat... det må jeg nesten undersøke, det høstes veldig spennende ut <eh>. Skal vi se. <eh> ja! Men da hopper jeg litt tilbake til SecondLife jeg hvis det går bra.

I: Ja.

K: Jeg lurte på om du kunne <eh>. Hvordan du vil sammenligne SecondLife med andre typer virtuelle verdener du har vært borti, som kanskje er litt <eh> litt mer utviklet som plattformer for læring?

- I: Active worlds, jobbet (?) litt <eh> doktorgrad og <eh>det hvis man (1.0)) kort og godt Active World mindre utbredt(1.0)) den er mindre avansert(1.0)) SecondLife intervals(1.0)) mer enklere å komme i gang(1.0)) For eksempel(1.0)) de hadde <eh> gruppe(1.0)) elever <eh>som bygget sammen et babeltårn
- K: ja
- I: du vet babeltårn fra bibelen?
- K: ja
- I: en gruppe var fra Finland og en fra Taiwan(1.0)) de hadde aldri møtt hverandre før og de hadde bare en time på å <eh> møte hverandre og <eh>bli kjent med hverandre og <eh> miljøet og <eh>. Bygge babeltårn og <eh>. Det gikk, så da (?) enklere å sette i gang og begynne og bygge spesielt
- K: ja
- I: <eh> <så> igjen det er litt mer primitivt klassisk sett og ja, men, men SecondLife ja(1.0))mye mer avansert, og <eh> mye mer muligheter der og <eh>valg på design objekter og <eh> kjøpe selge og <eh>
- K: ja
- I: det med avatarer det ligger nært med active world, men det er litt, det er større, og så igjen har vi det med Vacademia, og <eh>. Da hadde vi fordelene <eh> (??) med secondLife er den er mer(1.0)) lettvektig, med tanke på bruk og bredbånd, og opprette.
- K: Akkurat
- I: så det er på en måte enklere <eh> hvis man ikke har så god datamaskin for å sette i gang.

#### Ny tid 20:22

- I: sett opp mot læring(1.0)) og <eh> flere klasserom <eh> <eh> sånne pekere og sånne post-its og brainstorming og felles (1.0)) og felles mindboard der man kan <eh> sammen skrive noe(1.0)) å <eh> men det som er <eh> vi har et prosjekt <eh> som ingen andre for tiden har (2.0)) det 3D opptak(1.0)) ta opp en hel 3D sesjon <eh> klasseroms-sesjon (1.0)) men ikke som i SecondLife (1.0)) det blir full 3D sånn at man kan <eh> spille inn(1.0)) selv (2.0)) i fortida(1.0)) på en måte legge til nye <eh> du kan legge inn nye <eh> legge inn stemme(1.0)) sånne stemmekommentarer(1.0)) legge flere <eh> notater og alt. Du kan du kan lagre dette på nytt (1.0)) du kan få nye muligheter for <eh> for <eh> for eksempel analysere klasserom.
- K: ja
- I: analysere rollespill jeg mener(1.0)) jeg mener(1.0)) klasserom ikke bare at du har utklipp av det men du kan bearbeide litt <eh>. Der og da og legge til kommentarer der og da (1.0)) det er noe helt unikt (1.0)) som <eh>. Ingen andre systemer for tiden har.
- K: akkurat
- I: så <eh> det er sånn du har mulighet til (1.0)) ulempen er at igjen (2.0)) Det er begrenset bredde for å bygge ting (1.0)) Ja slik som man kan gjøre i SecondLife. Der har man muligheter for å bruke kinnect <eh> for eksempel (2.0)) fange inn bevegelser <eh>forelesninger (1.0)) har forelesninger(1.0)) som man kan bruke kinnect (2.0)) du vet kinnect?
- K: <ja>
- I: Veldig billig og veldig tilgjengelig <eh>

#### Ny tid 22:50

- I: Det er sånn at på en måte det er direkte overført fra foreleser og til hans avatar(1.0)) og <eh> egne <og>-
- K: Ja
- I: Men også både nå <eh> nå vi jobber med <eh> med SecondLife og <eh> Vacademia så <eh>det er for tidlig å bruke det med <eh> og så har vi også jobbet med å bruke(1.0)) begge(1.0))
- K: <eh ja>Kjempebra(1.0)) <eh> Ja, <eh>, så lurte jeg på om du, om du har noen konkrete opplevelser eller eksempler <eh> hvor i SecondLife ble brukt som <eh>læringsarena.
- I: Ja, du har jo masse eksempler på det(1.0)) det er jo <eh>masse virtuelle campuser.
- K: <mm>
- I: <eh> også <eh> masse <eh> nesten alle, alle <eh> alle fagområder, som jeg kan tenke meg finnes det eksempler så (1.0)) i det siste jeg har vært interessert i medisin, masse virtuelle sykehus og <eh> der man har sånne <eh> visualiseringer for eksempel (1.0)) de har 3D simulering av kraniet(1.0)) med nervesystemet(1.0)) kraniet.
- K: oi!

- I: sånn for eksempel(1.0)) har sånne <eh> fødeavdeling og <eh> et sånn dukke(1.0)) et slags <eh> agent der man kan trykke på liksom se på <eh> på hjerterytmen og slikt. Det bruker mye til <eh> sykepleierutdanningen i verden også <eh>
- K: akkurat
- I: spesielt i USA og <eh> Australia så det brukes blant annet til trening til et sånn spennende prosjekt, til <eh> hospice opplæring.

**Ny tid 26: 16**

- I: det er prosjekt i, i York, og der de <eh> det er <eh> de har som begrep sin opplæring(1.0)) og de på en måte, må <eh> må snakke med alvorlig syke pasienter
- K: ja
- I: med døende syke pasienter(1.0)) kreft og(1.0)) tidligere gjorde de det i (2.0)) med rollespill <eh> på mange måter i klasserommet(1.0)) men de synes det var veldig <eh> og vanskelig å snakke (1.0)) og rollespill og sånne ting.
- K: ja
- I: sånn at hele klasserommet da(1.0)) de synes det virker mye bedre i SecondLife og <eh> og samtaler.
- K: akkurat, så de synes faktisk det er lettere å-
- I: <hm>?
- K: ja så de synes det faktisk var lettere å, å snakke i-?
- I: ja, det er lettere og gjøre det hvis man på en måte er mer <eh> anonym bak avateren og snakke(1.0)) snakke sånne alvorlige problemer, som død og kreft og-
- K: <mm>
- I: hvor lenge man har igjen av livet(2.0)) og slike ting
- K: ja
- I: og så en kommentar til CAMO(1.0)) det er også <eh> US Army har en ganske stor <eh> <eh> i SecondLife med både klasserom og <eh> litt sånn battlefields og det <eh> visualiseringer og <eh> en irakisk landsby med checkpoint exercise og alt(1.0)) hvis man snakker om <eh> metodologi <eh> veldig store prosjekter som <eh> går på language learning ((språktrening)) <eh> i SecondLife(1.0)) igjen med tanke på rollespill.
- K: <mm>
- I: og så alle biologi og fysikk(1.0)) det finnes på en måte prosjekter der man kan <eh> leke seg med <eh> ja forskjellige eksperimenter, og ja, for eksempel modell av den her (2.0)) DNA molekyl og (1.0)) og <eh> forskjellige <eh> forskjellige fysikklover man kan <eh> eksperimentere med(1.0)) sånne partikkelbevegelser(1.0)) så det er jo(1.0)) <eh> jeg kan jo snakke om det i timevis.

**Ny tid 28: 42**

- K: ja, da har jeg masse gode eksempler <eh>skal vi se <eh> hvordan, hvordan det er tilrettelagt for samarbeidslæring da? Nå har du jo nevnt litt dette her med, med rollespill <eh> og sånne ting men er det(1.0)) hvordan synes du det fungerer <ehm> i SecondLife(1.0)) er det mye utfordringer med det?
- I: <eh> ja, det er jo <mm> alt er(1.0)) det er både og det med samarbeidslæring det som er mine og andre sine, i klasserommet, studentene har <eh> mye enklere å uttrykke sine <eh> meninger og så stille dumme spørsmål.
- K: ja
- I: <eh> typisk gjenganger å stille spørsmål i SecondLife(1.0)) eller de andre vil tro at i klasserom live? Og det er jo det med <eh> det at man <eh> kan samles gjennom tvers av (2.0)) og, det gjelder ikke bare SecondLife <eh> har flere eksempler <eh> prosjekter i Active World studenter fra Norge, Australia og de jobbet på felles prosjekt(1.0)) for eksempel igjen bygge Babeltårn eller spille teater.
- K: <mm>
- I: og der er det åpenbart(1.0)) og så vi hadde SecondLife vi hadde prosjekter med studenter, fra University of Hawaii
- K: ja
- I: også mine studenter dro dit og <eh> Til deres campus og lærte om Hawaiisk kultur og <eh> danset til og med, danset Hula
- K: (h)
- I: du vet Hawaiisk dans?
- K: ja, (h)
- I: Deres studenter(1.0)) Hawaiiske kom til oss, og evaluerte prosjektet til mine studenter og, klasse, og det blir veldig dyrt å få til i virkeligheten.



- K: det er klart det
- I: også ofte vi hadde tilfeller der vi fikk <eh> foredrag fra <eh> folk fra diverse EU-prosjekter med våre studenter til stede og de kan på en måte <eh> snakke sammen, det er jo store muligheter med tanke på både <eh> folk samlet <eh> i på et sted(1.0)) og på en måte gi, store, store nivå av tilstedeværelse enn, når man på en måte brukte Skype og, eller lignende. Og pluss at man <eh> <eh> man kan <eh> også dele informasjon <eh>
- K: Ja
- I: <eh> på en måte som er også annerledes enn hvis man bare legger filer om på en Google Docs eller ja, sånn(1.0)) da. Da også delen er at man endte med <eh> kanskje litt vanskeligere å med dagens teknologi og <eh> krever mer båndbredde og navigere ut, men samtidig navigasjon er, informasjons- blir mer intuitivt at man beveger seg på samme måte i 3D som man gjør i virkeligheten.
- K: <mm>
- I: at man går til et rom og til en bokhylle <og> tar den informasjon som man trenger, og da informasjon sorteres etter slik måte at <eh> slik at det gir mening <eh> og så man kan <eh> man kan <eh> forme rom ut ifra behov <eh>kan <eh>. For eksempel man trenger <eh> et klasserom da bygger man klasserom hvis man trenger. Et annet stilling så gjør man det. <eh> det er forskjellige måter man kan <eh>. Tilrettelegge forskjellige <eh> moduser og <eh> modus i samarbeidslæring(1.0)) Det å bygge det man trenger for øyeblikket.

#### Ny tid 32:43

- K: ja <mm> og det, det er jo viktige ting men hvordan(1.0)) hvordan synes du kommunikasjonen fungerer da? Jeg har jo selv, selv vært i SecondLife jeg har ikke prøvd noen andre former for virtuelle verdener, men <eh> jeg synes jo det var litt utfordrende med, med kommunikasjon. <eh> inimellom, å få til «speak» og de tingene. Hvordan (1.0)) hva(1.0)) hva er din erfaring av det?
- I: <eh> ja, det er jo <eh> problemer det med lyd, det er det hovedproblem for tiden <eh> men det er også jobbet med å gjøre noe med det(1.0)) det med ikke kroppskommunikasjon, ikke-verbal kommunikasjon
- K: ja
- I: selv om det finnes alle disse(1.0)) <eh> «gestures» så det er noe som vi prøver <eh>å jobbe med <eh> da vi jobbet med sykepleiere vi skal på en måte se på avatarens til pasientene.
- K: <mm>
- I: og det, på mimikken(1.0)) hvor viktig, de er redde eller, eller hvorvidt, på en måte lese av deres <eh> <eh>stemning, og det samme i CAMO for så vidt altså ikke (?) er veldig viktig for kulturforståelse.
- K: ikke sant.
- I: Problemet i SecondLife er blant annet <eh> fordi man må manipulere alles bestemte reaksjon og <eh>. Det er ikke alltid lett for andre å observere den mimikken som avaterene viser(1.0)) men det er grunn at enklere med oppdateringsdrift, det vil bli mye enklere og man kan se mer direkte den andre, avataren, og det skal vi nå teste snart, så spent hvordan det blir.

K: ja

#### Ny tid: 34:30

- I: lurer på hvordan det blir
- K: ja, det blir spennende
- I: ja, på en måte, ikke-verbal kommunikasjon det er på en måte en av de store problemene for tiden. Men også, <eh> det med det man har, som man ikke har her, i den, i den virkelige verden, kommunikasjon ved manipulasjon med stedobjekter, man kan enkelt bygge noe.
- K: <mm>
- I: og, da hadde blant annet de studenter fra Taiwan de var ikke så flinke på engelsk, og da er det ofte enklere <eh> enklere for å bygge <eh> noe <eh> da denne babelkonstruksjonen for å vise hva de mener enn å forklare dem på engelsk.
- K: ja
- I: men det er også virkelige muligheter som virtuell system har for bygging, men det med 3D objekt manipulering det er en viktig del som bare, jeg tror det blir mere og mere <eh> viktig fremover.
- K: ja
- I: det da avhenger av at teknologien blir bedre
- K: ja, mm. <eh> skal vi se(1.0)) Men hvordan er det i ActiveWorld? Hva er det, er det mulig å, å er det mimikk å, å gestikulering og sånt der eller?

I: Ja, det i begrenset omgang med at man kan sånn <eh> for eksempel vinke eller danse eller slikt. Avatarene <eh> tror har blitt bedre nå, men <eh> <eh> da jeg brukte det sist, det var på en måte avataren, avataren (??) blitt verre enn med SecondLife fordi det gradvis har forbedret seg.

K: akkurat

I: men det er ting der <eh> som er svakere enn i SecondLife.

K: ja <mm> skal vi se <ehm> ja! Var du til stede den prosjektdagen for CAMO <eh> når CAMO-prosjektet ble gjennomført?

I: ja

K: Ja, hva synes du om, om på en måte nivået av samarbeid der mellom kadettene? Fungerte det, fungerte det greit?

I: <eh> <eh> ja. Jeg ble på en måte <eh> kjent for å være pessimist, men det gikk bedre enn jeg trodde dagen.

K: ja

I: men en <eh> en ting som, som står skrevet i CAMO- artikkelen som går på samarbeid at, det var flere <eh> flere av kadettene som var på en måte utelatt fra samarbeidet, og det var noe som vi, som på en måte planla det som <eh> du er ikke militær du er sivil, og de tenkte ikke det skulle skje, og da kadettene ble satt til å vokte perimeter.

K: ja

I: så det er slik som man gjorde når man virkelig kommer i en vanskelig jobb(1.0)) og de ble stående der og de <eh> hadde i begynnelsen problemer med å <eh> være med på det som <eh> på det rollespillet.

K: ja

I: noe som vi nå prøver å <eh> gjøre noe med <eh> det nye prosjektet som nå er, har med CAMO å gjøre er at <eh> er at en masterstudent, hun nå har befolket landsbyen med byene, det er sånne agenter som går rundt å gjøre enkle å lese av situasjonen

K: akkurat

I: der man trenger mindre <eh> menneskelige spillere for å på en måte befolke landsbyen, og da kan man også de, som står og ikke gjør noe, i bakgrunnen, ha noe å gjøre(1.0)) jobbe med <eh> interakte med disse agentene istedenfor menneskelige <eh> <eh>spillere.

K: akkurat. Hvordan fungerer det, hvordan kan, kan de kommunisere med de gjennom språk eller hvordan fungerer det?

I: ja, det er(1.0)) det er noe som man jobber med nå, mesteparten av agentene de bare går der, på en måte og men <eh> du kan lese av en del <eh> med tanke på situasjonen <eh> om det er kvinner og som er kvinner som er tilstede og eller det er flest menn, og så <eh> man kan lese av og <eh> hvorvidt det er taliban i landsbyen eller hva er sikkerhet i området.

K: okay.

I: <eh> du kan lese av kulturell informasjon på en måte, hvor disse kvinnene beveger seg, du kan se for eksempel kvinnene ikke <eh> <eh> de flokker seg med andre kvinner de går ikke helt nære, de går ikke helt nære mennene eller moskeene eller kirkegården, så det er sånne kriterier, som man kan lese av.

K: Ja

I: men hun jobber nå, hun masterstudenten min med <eh> mulig med en enkelt interaksjon, med disse <eh> nye agentene(2.0)) men vi får se hva vi får til.

K: ja

**Ny tid: 39:49**

K: ja <eh> skal vi se <ehm> ja. Da har jeg litt sånn spørsmål om formell og uformell læring. <ehm> for jeg lurer litt på hvordan, hvordan du ser for deg <ehm>, eller hvordan du <ehm> tenker at virtuell <eh> virtuelle verdener kan bistå til både formell og uformell læring?

I: <eh> ja, det på en måte det er jo <eh> muligheter <eh> for begge retninger <eh> formell hvis man tenker <eh> hvis man tenker på det tradisjonelle at man har klasserom og <eh>.

K: <mm>

I: og vise slides og <eh> <eh> vise slides og <eh> Det er på en måte litt <eh> litt <eh>. Gammeldags tenkning, så det er dumt å på en måte <eh> bruke virtuelle ting til det samme som man bruker vanlig klasserom, man må jo liksom benytte hele muligheten for <eh> for <eh> det virtuell miljø som er ekstra, som vi ikke har i virkeligheten. Og da <eh>

K: <mm>

I: <eh> ja, så da kanskje større muligheter med tanke på <eh> men det er på en måte glidende overgang mellom <eh> mellom formell og uformell læring.

- K: ja
- I: fordi også <eh> man har, har jo prøvd å få det mer uformelt i <eh> de kommer i veldig merkelige avatarer, og de er på en måte mer løssluppet med tanke på språket.
- K: ja
- I: og de sitter ikke pent under forelesningen og bare <eh> flyr rundt i lufta, og <eh> ja. De kommer med spøk og uttalelser de aldri ville kommet i klasserom
- K: <mm> (h)
- I: så den, den <eh> grensen er veldig <eh> den gjør grensen <eh> mer flytende.
- K: <mm>
- I: og at man i større grad kan <eh> tilrettelegge andre lærings spørsmål enn, tradisjonelt, at man har på en måte lærer med <eh> mye med studenter der og, og for eksempel jeg bare <eh>, kom på <eh> for eksempel veldig formell lærings situasjon.
- K: Ja
- I: <eh> som eksamen. Vi hadde en sånn, vi hadde en <eh> prøveeksamen i SecondLife.
- K: oi
- I: Det var min <eh> tidligere doktorgradsstudent, som er nå postdoc og, han hadde <eh> en eksamen i fordypningsemne.
- K: okay
- I: og det er jo vanlig at man har eksamen i <eh> som, som er med lærer og sensor og vi så dette handler om virtuelle verdener og læring hvorfor kan vi ikke gjøre det i SecondLife?  
Det var på en litt annen kant med fakultetet. De har, de liksom skjønnte ikke, hvorfor vi skal bruke disse eksamensformen(1.0)) de sa at hvis, hvis, kan du bevise at denne studenten er den han gir seg ut for.
- K: ja
- I: og <eh> med tanke på <eh> for å tilfredsstille fakultetet, og, og gjøre alt formelt, så måtte vi gjøre slikt at <eh> Vi var alle logget inn i SecondLife, både jeg, sensor og studenten. Men vi satt på en måte i et stort rom i forskjellige hjørner av det, så det ikke blir så mye ekko.
- K: akkurat!
- I: og så studenten han <eh>, han <eh>, ikke bare svarte på han <eh>, han ikke bare svarte på spørsmål han <eh>, men han også laget sånn visualisering av sin doktoravhandling. En slags 3D struktur. Og inne han jobbet mye med <eh>, med større campus, han viste direkte «okey her – er det han jobber med, altså her« <eh> er <eh> forskjellige læringsrom og her forskjellige studentprosjekter, som han på en måte kunne vise direkte. Pluss vi hadde, vi hadde gjester (??) fra Kina. Som kunne etterpå, etter den formelle eksamen var over, kunne starte diskusjon og <eh> stille han spørsmål til doktorgrad, av doktoravhandling. Så der på en måte <eh> typiske eksempler på formelle går over <eh>. I uformelle og hvordan på en måte-
- K: ja
- I: man må kjempe med formelle krav, fakultetet og med nye muligheter som virtuelle verden gir. For å få til noe nytt.
- K: <huh>, det, så utrolig spennende, har du, har du vært med på det flere ganger eller var det kun den ene gangen?
- I: nei, det var den ene gangen fordi det var så <eh> vanskelig å kjempe med fakultetet.
- K: ja
- I: så det på en måte, orket ikke å, så det var den <eh> studenten med virtuelle verdener så <eh> ja, så ikke flere <eh> hvis jeg får et nytt student som <eh> så ville jeg kanskje ta opp det på nytt.
- Ny tid: 45:12**
- I: kjempe på nytt, men det er veldig utmattende og <eh> avklare med fakultetet og <eh> -
- K: det, det kan jeg tro på. <ehm>, ja. Hvordan <ehm>, med CAMO-prosjektet, <ehm>, vil du si at det var mere formelt eller uformelt? Den læringen som tok sted.
- I: Det, det er jo en blanding.
- K: <mm>
- I: Jeg vil kanskje si at det var <eh> igjen hvordan man, <eh> det er spørsmål om hvordan man strengt talt definerer det formelle og uformelle, men jeg tror liksom det var <eh> det gikk mer på det uformelle plan, men det var stilelementer og det var sånne, og som du kanskje så på tilbakemeldinga at flere av de, <eh>følte seg emersed ((fordypt)) liksom i, i spillet.
- K: ja

- I: så jeg tror det gikk over på det mer uformelle plan og <eh> det er også noe som <eh> det er selvfølgelig frigjørende med tanke på at forsvaret er veldig formelle i det meste de gjør.
- K: <mm>
- I: mye mer <eh> litt mer elementer av lek og <eh> og jeg satt, jeg satt sammen med de som styrte, de som <eh> spilte afghanerne, og det var folk fra språk og etterretningsskolen, også de gir liksom rom under prosessen og <eh> Snakke med barnestemmer.
- K: (h)
- I: sånn at de snakker med barnestemmer, sånn at <eh> barn kommer å skulle be om godter <eh> så det er liksom litt lekende element(1.0)) spøk og <eh> -
- K: ja
- I: og <eh> og så husker jeg <eh> lignende når jeg var ute med <eh> syke <eh>, med sykepleierne, de liksom <eh> skulle spille scenarier og det var liksom en gruppe som spilte, og andre observerte. Og det var så mye latter og spøk og <eh> vanskelig å ta opp lyden så <eh> det på en måte viser at <eh> ja, det er en annen atmosfære enn man vanligvis har i klasserom.
- K: ja, <eh> skal vi se, skal bare skrive ferdig notatet her jeg. <eh> Skal vi se, da begynner jeg egentlig å, å ha fått svar på det meste jeg lurte, eller har lurt på <eh>

## Second Interview

**Informant II = II**

**Intervjuer = K**

- II: jeg heter-----, jeg jobber som selvstendig konsulent, <eh> <hm> med tittelen læringsarkitekt, det vil si at jeg er <eh>, inne å designer og <eh>, gjennomfører ulike typer læringsprosesser i organisasjoner. <Ehm>, og av bakgrunn, så <eh> har jeg en egentlig siviløkonom, med en del tilleggstudium i pedagogikk, med læring i ulike sammenhenger, både i høyskolesystem og forlag og <eh>, som selvstendig konsulent.
- K: <Jah>
- II: Så i det, CAMO-prosjektet for forsvaret så <eh> var jeg leid inn som konsulent av forsvarets høyskole for å <eh> for å utvikle prosjektet og <eh>, detaljene i denne, denne, det eksperimentet som vi gjennomførte, forsvaret kaller det for et eksperiment,
- K: <mm>
- Ny tid: 02:47**
- II: <ehm> <ehm> læring, <ehm> som handler om at læringens tid <eh>, rom, <ehm>, <eh>, <ehm>, er veldig nøye med å skille mellom læring og informasjonsoverføring.
- K: <mm>
- II: For at veldig ofte så <eh> eller reduseres læring som ren informasjonsoverføring fra noen som vet til noen som ikke vet, men den er ikke en tilstrekkelig betingelse for læring, <hm>, så jeg har denne metaforen om læringens fire rom som for at mennesker skal lære, først må motiveres for det, <hm>, de skal gjerne ha, i det, noen ny informasjon, noe som de ikke visste fra <eh>, fra før <eh>, men det trenger ikke være i form av direkte informasjonsoverføring, det kan være i form av utforsking,
- K: <mm>
- II: Erfaringsdeling mellom deltakere, så skal læring handle om bearbeiding <eh>, gjennom ulike typer oppgaver, instruksjoner og så videre, og så refleksjon.
- K: Ja
- II: <eh>, hvor det kan få anledning til å bearbeide det man har vært gjennom og <eh>, peke videre ut ifra hva, <ehm>, ut ifra den prosessen de har vært gjennom
- K: Ja

II: Og overskriften handler egentlig my om at læring er en prosess, og består av mange elementer som skal på plass, <eh> Før et menneske kan lære.

K: <mm>

II: Og ikke bare bli informert, de skal bearbeide, de skal ha det på plass i verdensbilde inne i holde i kunnskap du har fra før.

**Ny tid:10:00**

II: ja det er i hvert fall to ting, <ehm>, men altså, <ehm>, for å fremst så er en virtuell verden for meg en <eh>, en <eh>, nei, vi skal ta et skritt tilbake, <ehm>, virtuell, <eh>, <eh> nei, virtuell verden er et sted hvor du som deltaker kan, interagere med en annen type omgivelse,

K: <mm>

II: <ehm> men det kan både være en <eh>, altså en type spill basert <eh>, simulering.

K: <mm>

II: Eller det kan være som tilfellet CAMO hvor <eh> det bak alle skikkelsene er virkelige personer

K: Ja

II: <hm>, så kommer til forsvaret så faller inn i den første kategorien

K: Mye spill og (??)

II: Ja, spill er et hardt merke å sette på, for da tenker jeg med en gang på noe som er moro eller som er mye action

K: <mm>

II: Men en del av simulatorene som forsvaret bruker er jo ikke <ehm> spill basert i den forstand, at du skal vinne, nedkjempe-

K: Det er vel det som er serious games er det ikke det?

II: Serious games er vel kanskje det som er merkelappen på det. De som er mest avanserte på det i Norge er veldig bra på det global sammenheng også, Kongsberg defence som har en, underavdeling som lager sånne avanserte simulatorer, systemer <eh>

K: <mm>

II: kan gå inn å trene og <eh> krigføring (h)

II: Den andre muligheten er at du kan bringe sammen folk som ikke har <eh> mulighet til å være tilstede, i <eh> nå kjørte jo vi, i dette eksperimentet ble jo litt spesielt (2.0) fordi vi var på krigsskolen og egentlig alle deltakerne satt fordelt på to forskjellige rom, norske soldater satt på et rom, og <eh> og de som spilte afghanske, <eh>, satt på en annet rom, sånn sett var alle samlet på ett sted, men vi kunne jo egentlig vært spredd overalt

K: Ja.

II: Og for forsvaret blant annet, ville jo det vært en, en av de store mulighetene

K: <mm>

II: For de vil ha mulighet til å være flere steder i Norge på samme tid eller <eh>, samhandlingsøvelse, trening, og slipper å reise for å komme sammen

K: Ja, absolutt mange muligheter der, <mm> <ehm>, hvilke <eh> <hm>, hvilke andre typer virtuelle verdener har du vært borti? <mm>, utenom SecondLife som var det som ble brukt på CAMO?

II: <mm> Ja egentlig bare, jeg har ikke brukt aktivt, men jeg har prøvd. <eh> det er en annen en <ehm> som ikke er gratistjeneste som SecondLife <ehm> finne navnet på den.

K: <mm>

II: altså en mer avansert.

K: okay

II: men den vet jeg ikke om det er noen i Norge som har brukt, jeg har ikke hørt om det.

**Lang pause – 19:12**

II: olive.

K: olive ja.

II: og <eh> US Army bruker den mye.

K: <mm> jeg har faktisk hørt om den.

II: Og ser <eh> en, <eh> en annen en som heter WonderLand, men det er en opensource <eh> løsning,

K: <mm>

II: <Ehm> forsvarrets forskningsinstitutt, <ehm> rapport, mulig at den er litt <eh> utdatert, men, men, fordi jeg har hatt noen eksperimenter med dette.

K: Med olive?

II: <eh> med virtuelle verdener,

K: Kan du si noe om hvordan ditt inntrykk var av SecondLife som en læringsarena? Fungerte den godt, <eh> på den måten?

II: Nei det, det er jo flere aspekter ved det. Det ene er det som går på teknisk bruk <ehm>

K: <mm>

II: og der så vi jo i CAMO prosjektet veldig generasjonsskille, altså, går tilbake å ser på videoopptakene fra <eh>, eksperimentet.

K: ja.

II: (h) så er det nesten som du ser en avatar som plutselig begynner å gå baklengs eller forsvinner til værs eller et eller annet så kan du gå ut ifra at personene er over 30.

K og II: (h)

II: Disse krigsskolekadettene vi hadde de jo inne på en trening før eksperimentet når de skulle bli kjent med SecondLife

K: <mm>

II: og mer trengte de ikke

K: nei.

II: å klare det tekniske avatarstyringen, <mm> Men det forteller meg også <eh> å skulle <eh> bruke SecondLife og andre virtuelle verdener der vil du veldig fort møte en generasjonsutfordring.

K: ja

II: De som er vant til de, <eh> Som er kjapp i fingrene som har spilt en del dataspill

K: <mm>

II: Og alle de andre som ikke har det, det begrenser jo en slags allmenn bruk av den type verdener

K: <mm>

II: <ehm> jeg har, spilt litt dataspill og <eh> ganske fortrolig på data, men likevel strever jeg med å- (h)

K: det gjør faktisk jeg også litt

II: å få til å fungere

K: (h) <hm> hvordan synes du de fikk til <ehm> samarbeidslæring? Altså hvordan følte du at nivået av samarbeid var under <eh> under eksperimentet eller prosjektet?

II: Det <hm> <ehm> du må skille mellom altså det, det var en læring i flere faser, hvor selve eksperimentet-

**25:56**

II: Bare det, men tilbake til det jeg snakket innledningsvis om læringens fire rom, for hvis det bare hadde vært eksperimentet så er jo eksperimentet en input eller et råstoff, men for at det skal bli læring av dette så må du inn i refleksjonsrommet.

K: <mm>

II: Og jeg tror at hadde vi stoppet etter eksperimentet og sagt fint, dette var spennende, så ville det gitt en meget begrenset <eh> læring for de som deltok.

K: <mm>

II: Læringen skjedde i den altså, <eh> hvor vi plenumsgjennomgangen etterpå, og en av de ((navn fjernet)), har du møtt han.

K: Nei, han ble ikke aktuell likevel, mest sannsynlig iallfall.

II: Okay, det er litt egentlig så han som (2.0)) langt på vei skapte læringen for de.

K: Okay

- II: Han <eh>. Er offiser, han har doktorgrad i sosialantropologi, <eh> han er halvt pakistansk, og han har vært som etterretningsoffiser i Afghanistan og Pakistan i ti år-
- K: Okey
- II: Så i plenumsgjennomgangen så gikk vi gjennom enkelte sekvenser i eksperimentet, og <eh> rollespill og så går han inn å prøver å, hvordan vurdere den denne, hvordan takler dere det? Er dere fornøyd kunne ting vært gjort annerledes? Og han fikk de til å se ting i kommunikasjonen som de nok ikke ville ha sett selv.
- K: Nei
- II: <eh> så <eh> så her tenker jeg at vi var dønn avhengig av å ha den refleksjonen, den styrte refleksjonen etterpå.
- K: <mm>
- II: Med en person som ((Navn fjernet)), <ehm> som nettopp kunne snakke ut ifra en kunnskap om den virkeligheten som vi forsøkte å simulere.
- K: Ja
- II: Han har vært i Afghanistan og møtt sivilbefolkningen.
- K: Ja
- II: Han vet hva slags kulturelle barrierer du kan møte når du skal kommunisere med disse
- K: Ja
- II: Så uten den, så tror jeg <eh>, rent pedagogisk det hele ville vært ganske bortkastet
- K: <mm>, hvor lenge? Hvor lenge satt de sammen og snakket i plenum?
- II: En time iallfall, kanskje en og en halv –to
- K: <mm> ja.
- II: og det er jo kunne gå tilbake, for de gjorde jo et opptak av hele simuleringen, det er jo egentlig to simuleringer med litt skifte.
- K: ja
- II: det å kunne gå tilbake og vise en sekvens på kanskje to minutter
- K: ja
- II: okay, dette var det første huset dere kom til, der var det en kvinne-
- K: ja
- II: -en afghansk kvinne i burka, hva gjorde dere?
- K: <mm>
- II: Og så spille denne sekvensen og få de med på en sånn, ja var dette bra? Løste det ikke bra? Hva gjorde vi gærent? Hva kunne vi gjort annerledes?
- K: Ja
- II: Og så kommer han inn å kommenterer og stiller spørsmål til, <eh> så det, det var helt avgjørende
- K: Ja, da fikk man også muligheten å trekke seg litt tilbake og observere det man selv har vært med på også, så ja-
- II: <mm> Men, men det med erfaring, fra dette var jo et <eh>, ekstremt vanskelig å lage <eh> scenarier <eh> eksperimenter som kan involvere mange personer, og <eh> her hadde vi jo, det skulle jo være en norsk styrke på 15-20 mann som gikk inn, og vi kan ikke være 20 mann som var med på dette, så noen ble jo utplassert som vaktposter og sånt.
- K: <mm>
- II: Og deres avatar sto jo egentlig bare der å kikka på sand og stein.
- K: Ja
- II: De hørte jo ikke (h)
- K: Ja, jeg har jo lest rapporten så jeg har fått med meg at det var litt tekniske utfordringer der.
- II: Ja, så det er erfaring som forsvaret har lagt seg på mine, små, små grupper, og hvis du ikke selv har en rolle hvor du er veldig tett på det som skjer.
- K: Ja

II: Eller er aktiv inne i denne så <eh> så har det ikke noe verdi.  
 K: Nei  
 II: Og det hørte vi jo også på den den, refleksjonsstunden etterpå med David. Selvfølgelig de som hadde vært tett på de var, <eh> oppglødde og ville diskutere og de andre var egentlig blitt litt sure (h)  
 K: Ja  
 II: Og ville gå hjem, (h)  
 K: Ja, forståelig det.  
 II: De hadde mista motivasjonen.  
 K: Ja.  
 II: Faen stoppa en time å kikka på en stein i skjermen.  
 K: Ja, (h)  
 II: (h) Det var ikke noe moro det (h)  
 K: Nei, så det ble ikke rullert på det heller?  
 II: Jo, vi hadde to gjennomføringer av det, så det ble noe rullering, men vi klarte aldri å engasjert alle.  
 K: Ja  
 II: Vi klarte aldri å engasjere alle 20, en av nøkkelscene i eksperimentet er når de skal inn i <eh> inn i huset til høvdingen, du har sett filmene?  
 K: Nei, jeg har faktisk ikke sett filmene, jeg har bare sett bilder og slides.  
 II: Okey, jeg har faktisk filmene.

### Ny tid 32:12

II: Det iallfall en scene ganske langt ut i spillet og de skal inn i høvdingens hus og høvdingen har med seg tre menn, og der er det bare plass til 4 norske og en av de var en tolk fra skole for språk og etterretning som spilte tolk, og der var det plass til tre krigsskolekadetter, hva gjør de 17 andre da? (h)  
 K: Ja, (h)  
 II: De gikk bort for å kikke i vinduet, (h) men det kunne ikke alle gjøre, de var langt unna det som skjedde, så <eh> du får ikke engasjert alle.  
 K: Nei  
 II: Du gjør ikke det.  
 K: <mm> <ehm> i Olive <ehm> har du vært med på sånne type <eh> type eksperimenter eller prosjekter der?  
 II: Nei, jeg har bare sett opptak av eksperimenter, ikke vært med å.  
 K: Nei.  
 II: <eh> designet gjennomførte eksperiment.

### 37:13

II: <eh> altså hvis du ser på, på hvor, hvor <eh>, læring skapes og ny kunnskap utvikles i arbeidslivet, så er det jo <eh> har det jo vært anslag at 80% av dette skjer uformelt.  
 K: <mm>  
 II: Og da er det jo et paradoks, at <eh>, vi bruker penger og oppmerksomhet rundt de minst betydningsfulle 20%, så <eh>, jeg har til tider vært en misjonær for at bedrifter skal tenke mer på hvordan de kan understøtte uformell læring.  
 K: <mm>  
 II: og da ikke bare å formelt organisere det, lage gruppemøteplasser, men også legge til rette for, <eh>, at det skal skje, <ehm>, nå går vi jo litt utenom CAMO, men vil bare vise seg et (h) for noen år siden så var det en HR – direktør i en av Aker administrasjonene.  
 K: <mm>  
 II: var at, <eh> <mm>, den viktigste læringsarenaen i den Aker (?) som hun jobbet i, det var ute i møtet med omverdenen. Altså det er her de jobber sammen med <eh>, underleverandører, med kunder, med <eh>, samarbeidene selskaper og så videre.  
 K: <mm>



- II: og de utvikler nye løsninger for kunder i prosjektet, som går fra , <eh> og oppover, men dette er da boundary ((grenser)) som de kaller det, grenselandet mot omverdenen.
- K: <mm>
- II: inne et eller annet sted er bedriften, så du kan si at den <eh> den store utfordringen når det gjelder læring i akersystemet er å få den nye kunnskapen i prosjekter her ute inn i organisasjonen inn og spredt i andre prosjekter.
- K: Ikke sant <ehm>, nå har du forså vidt gitt litt eksempler, men hvordan tror du virtuell, ja, virtuelle verdener kan bistå til både formell og uformell læring, du har jo forså vidt nevnt dette for CAMO også.
- II: <mm> <ehm> altså <eh> i <eh> i forberedelser til eksperimentet så gjorde vi en del forsøk-
- K: <mm>
- II: -blant annet med hard ordinær klasseromsundervisning i SecondLife, (fjernet navn) hadde jo en liten forelesning der-
- K: (h)
- II: -hvor vi sitter 8-10 stykker og så stiller spørsmål, og hatt kollokvier og vi forsøkte å ha mer uformelle diskusjoner, sann leirbål et eller annet sted i SecondLife hvor vi skulle sitte rundt.
- II:K: (h)
- II: hvor folk ikke kunne håndtere avataren sin, han ene sitter midt i bålet.
- II:K: (h)
- II: han skjønner ikke hvordan han skulle flytte avataren sin etterpå, det er veldig morsomt men da mister du også fokuset.
- K: (h)
- II: «Oi faen, det må jo være innmari vondt å sitte» [Da blir det mer om hvordan folk håndterer det tekniske og morsomhetene rundt det-
- K: Ja.
- II: -som blir fokuset og ikke det faglige som vi skulle diskutere, men, jeg] (1.0)) tror i utgangspunktet altså, at virtuelle verdener har et potensiale, det er jo for samhandling, men, det er , handling i form av ting du gjør i ting du gjør eller handling i form av dialog.
- K: <mm>
- II: <ehm>
- 43:20 Ny tid**
- K: absolutt
- II: og ville det vært snakk om undervisning ville jeg mye heller ha brukt et avansert konferansesystem,
- K: <mm>
- II: konferansesystem som er spesialdesignet for det, så det er ikke der, SecondLife og lignende blir aldri noe alternativ til den type fjernundervisning.
- K: nei
- II: det å lage møteplasser mellom mennesker og handle simulere, eksperimentere, det er der potensiale ligger, der tror jeg at det er ganske stort.
- K: ja
- II: når de bare får teknologien til å fungere bedre.
- K: ikke sant.
- II: ideen og teknisk begrensing, i at figurene er veldig flate, de har ikke noen mimikk, de har ikke- (2.0)) de har begrenset repertoar av kroppsspråk <ehm> og teknologien er ikke stabil.
- K: <nei>
- II: selv når vi gjennomførte det på krigsskolen som har veldig bra teknisk infrastruktur, så <eh> opplever vi jo at det var flere som falt fra underveis, plutselig har de ikke lyd, micen fungerer ikke eller <ja>

## Third Interview

### Informant III = III

#### Intervjuer = K

- K: jeg tror også det. Hvis det er greit for deg så begynner vi bare. Ja! Da lurte jeg først på om du bare kan fortelle hva du heter, hvor du jobber og hva slags bakgrunn du har, utdanning og sånt.
- III: mitt navn er: ((navn fjernet)) Jeg jobber ved forsvarshøgskole og er prosjektleder. <eh> Jobber stort sett til daglig med teknologirettet aktiviteter og prosjekter. <eh> Bakgrunn min er. <eh> ingeniør, pedagog <eh> og nå også student på BI
- K: ja
- III: har da <mm>. Jobbet mye innenfor utdanningssektoren. Blant annet undervist
- K: <mm> ja! Takk. <ehm>. så lurer jeg litt på <eh> hva du legger i begrepet læring.
- III: <hm> læring for meg handler <eh> det nesten struktur. det at <eh> at du faktisk klarer å <eh> strukturere informasjon for mottak og i neste omgang omsetter det i handling altså. Omsetter det i kunnskap altså form av ferdigheter. Endring av atferd i neste omgang
- K: ja
- III: det er egentlig det det handler om for mitt vedkommende. Det jeg definerer læring for å være
- K: hvordan tror du man lærer best? Hvilke ja.
- III: der tror jeg vi har ulike preferanser
- K: <mm>
- III: noen av oss lærer <eh> av og lese og er litt av den typen. Andre er litt mer audiovisuelle. det kommer litt an på person
- K: ja
- III: men jeg tror alle må ha et minste. <eh> felles forutsetning for å lære <eh> (3.0)) og det være seg få type rom og nødvendige ressurser i form av tilrettelegging ikke minst (2.0)) og at man kan få, ja vi ser at hvis du skal lære en fagbok da. så må du ha tiden som trenger å lese dette gjennom og reflektere. Så må du få ro til å lese det.
- K: <mm>
- III: eller diskutere det for eksempel i sammen med andre, i en gruppe. <ehm> noen lærer best ved å ha en sånn problembasert tilnærming, sant, hvor du konkret knytter til den case, så det er -
- K: <mm><mm>. <eh> Skal vi se. Hva legger du i begrepet samarbeidslæring?
- III: Samarbeidslæring det jeg så nå. Dette med problembasert læring og gruppe - <mm>. Læring altså samhandling, det ligger for meg i det at man lærer gjennom å samhandle og samarbeide med andre, så, for meg ligger det at man, man, man legger til rette at folk kan samprodusere, samhandle og deretter lære noe. <eh> som et resultat eller et produkt av det samarbeidet.
- K: <mm> (2.0)). <ehm> skal vi se, ja! Nå fikk jeg jo litt sånn innblikk i hva du tenker om læring. Så tenkte jeg å høre litt om dine erfaringer med virtuelle verdener.
- III: jeg har vært borti SecondLife naturlig nok, et som heter WonderLand. jeg har vært borti <eh> World of Warcraft (2.0)) som egentlig både er spill og virtuelle verden. Det siste jeg har vært borti er vel <eh> minecraft. som er beregnet for barn. Men, men allikevel det er også en virtuell verden.
- K: absolutt
- III: og så kjenner jeg da til <eh> hva heter den (4.0))
- K: det er helt greit (h) <ehm> skal vi se. Minecraft?
- III: ja.
- K: den har jeg ikke hørt om.
- III: det spiller datteren på 8 år, så den, det er spennende. (h)
- K: (h) skal vi se (2.0)) ja <ehm> hva er ditt inntrykk av SecondLife som en læringsarena? Hvordan kan man seg benytte seg av det?
- III: SecondLife <eh> for meg (2.0)) representerer en enkel og tilgjengelig, altså en slags lavterskel <eh> tilgjengelig plattform. <eh> som alle har i utgangspunktet mulighet til å <eh> aksessere (1.0)) bare du har en pc med nettleser og internett så er det, så er det på en måte klar til å gå online.
- K: <mm>
- III: SecondLife representerer ulike miljøer og aktiviteter (2.0)) det finnes jo både seriøse aktører men også veldig mye som, bygget rundt interesser <eh> ja, med ulike aktiviteter, så <eh> altså hvis jeg skulle

beskrive SecondLife med mine ord så vill jeg sagt at det ligger mangfold med ulike tjenester og informasjonskanaler <og> <eh>

K: <mm>

III: Og informasjonstilbydere. <eh> og det er klart SecondLife er vel i min <eh> i mine øyne så er SecondLife en utrolig bra for samhandling.

K: Ja

III: det er (3.0)) det åpner for mye muligheter <eh> innenfor læring spesielt. <eh> og da tenker jeg spesielt på <eh> for eksempel språkfag innenfor

K: <mm>

III: Det som vi bruker (1.0)) kulturforståelse <eh> for i SecondLife har du ikke sant, for eksempel en engelsk elev i norsk skole, har du mulighet til å gå inn der <å> gratis høre på native engelsk.

K: <mm>

III: Altså sitte i et rom å høre på en forelesning eller høre på to engelskmenn eller to native talende engelskmenn snakker sånn, som er et eksempel

K: <mm>

III: <ehm> så vet jeg jo i andre verdener. Altså vi har jo litt mer <eh> mer så for eksempel bruker SecondLife til andre aktiviteter (1.0)) som for eksempel Statoil og andre selskaper til offshoretrening og hvordan evakuere plattform for eksempel

K: Okay

III: Eller hvordan slukke brann på plattform

K: <mm> har de også da?

**Ny tid: 09:47**

K: (2.0)) laget?

III: laget eget.

K: ja. <mm> <eh> Hvordan <eh> vil du sammenligne SecondLife med andre virtuelle verdener som du har vært borti? Som en læringsarena?

III: <ehm>.som sagt World of Warcraft, Minecraft og altså de andre litt mer eventyrbaserte.

K: spillbaserte?

III: ja, de har litt mer <eh> mer spenningselement i seg. altså du gjør noe for å oppnå noe.

K: <mm>

III: altså det er sånn hierarkisk tilnærming (2.0)) du dyrker jord, du gjør aktive aktiviteter for å stige i <eh> i hierarkiet. Men i SecondLife så må du på en måte. For det første betale for å kjøpe. Investere i dette her.

K: <mm>

III: Og <så>, SecondLife er vel litt mer, <at> <eh> du må investere rent sånn forretningsmessig. Det er litt annet forretningsidé.

K: ja

III: spill så kjøper du gjerne spille en gang så kan du spille så mye du vil, men da har du ikke sant (2.0)) allerede andre aktører sant. Såkalte non-player characters inne i spillet. Men i SecondLife må du på en måte skape alt fra bunnen av. Hvis du ønsker bygge vel og merke. Hvis du ønsker å bygge eget. Det finnes som sagt andre du kan søke.

**Ny tid: 11:22**

K: jeg har for så vidt innom og bare sett på <eh> på de som ligger åpne <så> <mm> hva med dette der <eh> Wonderland?

III: Wonderland

K: Wonderland.

III: Wonderland bygger på nesten samme teknologien som SecondLife og er opensource i tillegg (1.0)) åpen nettverk. Ligger på samme nivå når det gjelder grafikk. <eh> bare at den er opensource.

K: ja, men det er et spill eller er det mere?

III: nei, det er også tilsvarende (2.0)).

K: det er tilsvarende, ja. <hm> ja, <eh> ja, har du noen konkrete eksempler på <eh> på hvordan SecondLife har blitt brukt som læringsarena. og da kanskje utenom CAMO?

K: (h) artig. <ehm> ja, hva tenker du om SecondLife hvis du skal tenke på samarbeidslæring? Hvordan synes du det er tilrettelagt for akkurat <eh> samarbeidslæring?

- III: Altså jeg, ja, det er klart. Det første som mange får problemer med når de skal brukes SecondLife er jo de tekniske utfordringene, ikke sant. Nå har ikke jeg aldri hatt så store problemer, men jeg har jo vært i en situasjon hvor det har vært. Blant annet ((navn fjernet)) har sittet å (h).
- K: (h)
- III: Sittet og ikke kommet inn på Mac'en eller (2.0)) ikke sant!] Så det er <eh> nå kommer jeg ikke inn ikke sant, nå må jeg skifte maskin ikke sant. Det har en tendens til å fort smitte over på resten av kollegiale eller -
- K: Ja
- III: Gruppen som ønsker å sam- samhandle.
- K: <mm>
- III: Men når det er på en måte sagt, <eh> så synes jeg at SecondLife er såpass virkelighetsnært, at man faktisk kan få en følelse av at man kan, altså <eh> den virkelighetsnær opplevelse.
- K: <mm>
- III: At man kan nesten forestille seg å være der og være i virkeligheten
- K: Ja.
- Ny tid: 15:40**
- III: jeg har jo vært vitne til episoder til to som sitter to forskjellige steder og har altså (1.0)) vært borti hverandre ikke sant. Så har de fysisk drevet og altså. Flyttet på seg, sånn oi oi, nå satt han på fanget.
- K: (h)
- III: For det er såpass virkelighetsnært.
- K: <mm>
- III: Men det krever litt trening og sette seg inn i avatarens-
- K: Ja
- III: <eh> ja.
- K: <mm> <eh> skal vi se <ehm> merker du om det er noe, om det er noe forskjell på alder på de som har vært med på det? Er det sånn at de som er litt yngre takler det bedre eller ? <eh> dette med det tekniske tenkte jeg.
- III: Ja, ja det blir <eh> merket av <eh> under gjennomføringen vi hadde.
- K: <mm>
- III: var jo a de yngre gruppene tok det veldig fort.
- K: ja.
- III: de trengte nesten ikke opplæring.
- K: <mm>
- III: mens da jeg først begynte å referere til noen enkelte ha problemer med å komme online (1.0)) er gjerne folk i en viss aldersgruppe <eh> og har også en tendens til å svartmale. de snakker negativt om.
- K: ja
- III: og da har man igjen sånn at ryktene sprer seg. Nei, det der egner seg ikke, det blir tungvint, det fungerer ikke. Mens de yngre er nok litt mer openminded og åpensinnet og kaster seg i det
- K: ja
- K: Hvordan synes du samarbeidet mellom kadettene fungerte der?
- III: <ehm> jeg synes samarbeidet med kadettene fungerte utmerket (1.0)) det som på en måte <eh> var jo at <eh> at det scenariet vi hadde lagt opp til gjorde at ikke alle kadetter ble involvert
- K: <mm>
- III: Men det er jo et lærdom og konklusjon på en måte. det var sånn et funn som vi gjorde på en måte (1.0)) at scenariet vårt var ikke åpent nok (1.0)) og konkluderende nok til alle kadettene vi hadde med. Utover det synes jeg det fungerte veldig bra det var godt samarbeid og de kommuniserte veldig bra og samarbeidet utmerket det er mitt inntrykk
- K: <mm><mm> <eh> ja. <ehm> da skal jeg gå litt over til formell og uformell læring kan du forklare litt <hva> hva ditt forhold til de begrepene er, hva du tenker om det?
- III: ja altså (3.0)) formell læring er <jo> ligger jo i ordet formell at det er gjerne i settinger som, som det var på skolen på benk der det er noen som har definert noen rammer. <eh> nå kan læring skje. <eh> gjerne en av instituttet tid til selvstudie <og> det er rett og slett en formell setting, mens uformelt er vel <eh> det som jeg tror skjer veldig mye av det er all den læringen som skjer mellom oss når vi samhandler når vi, holdt på å si, når vi ser på hverandre. når vi <ehm> spill
- K: <mm>
- III: <eh>, aktiviteter, alt er jo <eh> uformell læring

K: Ja

III: Altså i min, i min <eh> etter min mening <så> så er jo betydningen av uformell læring mye større. Men i den virkelige verden så vektlegges det ikke så stort. Man klarer ikke <eh> tror jeg skyldes at man ikke har systemer eller, eller aner ikke verdien av det. Eller klarer å måle det.

K: <mm>

III: Altså hvis ikke du kan holdt på å si. Bachelor grad eller ta en eksamen eller noen har definert at ja, du skal svare på de spørsmålene nå så pass eller fail så er det liksom. Liksom ikke læring

K: Nei.

III: Og det, det er det som er problemet i dag. Og spesielt i forhold til arbeidsplasser. veldig mye av det er jo uformell

K: Ikke sant

III: Det opplever man jo daglig ikke sant, det lærer ting man

**Ny tid: 21:23**

III: Observerer man ser ting.

K: <mm>

III: som egentlig neste omgang <eh> bunner i at man endrer (1.0)) holdning eller <eh> syn på ting.

K: <mm>

K: Det er vel kanskje at det blir litt abstrakt. Det er som du sier, det er ikke målbart. Så det blir vanskelig å ta tak i.

III: det tror jeg er helt riktig.

K: hvordan tror du at virtuelle verdener kan bistå til både formell og uformell læring?

III: jeg har <eh> jeg har vel egentlig litt vanskelig for å se helt hvordan med min erfaring i SecondLife til formell læring. Foreløpig. For du kan nok (3.0)) bruke det til å støtte. Altså gjennomføre aktiviteter (1.0)) som på en måte i neste omgang (1.0)) altså for eksempel. gruppearbeid, prosjekter, samhandling som da støtter opp under formelle prosesser, læringsprosesser (1.0)) som bunner opp i gjennom formell aktivitet, i det fysiske rom.

K: ja

III: men. For det uformelle så synes jeg at det er bedre (2.0)) Uendelig mange muligheter. Der er det som jeg nevnte at du kan <eh> så <eh> jeg ser en kombinasjon kanskje. Mest av alt

K: Ja

III: Som en kombinasjon. Formelle at du går til den formelle verdenen (1.0)) for å få en uformell samhandling og læring, og la deg <eh> men en viktig forutsetning ikke sant, vil jo være å sørge for at all at du lar påvirkes

K: Ja

III: <eh> så hvis (2.0)) hvis ikke du <eh> er villig til å lære eller påvirkes av andre, så er det kanskje heller ikke noe vits i <å> gå gjennom diskusjon eller gruppe eller <eh> en virtuell verden for den saks skyld

K: Nei, må være åpen

III: Ja, man må la seg påvirke og la seg <eh> -

K: <mm> <eh> da regner jeg nesten med at du vil plassere CAMO prosjektet mer på, på uformell læring da?

III: ja, ja det vil jeg gjøre. (1.0)) Absolutt. <ehm> altså CAMO prosjektet så vi vel som en. som sagt som en lavterskel tilgjengelig (1.0)) enkel tilgjengelig plattform

K: Ja

III: Og da kan man gjerne si <ja> det er en uformell læringsarena det er riktig

K: skal vi se <eh> har du . har du vært inne i SecondLife og sett på sånne forelesninger og sånt som har foregått der? Hvordan synes du det fungerer?

III: jeg synes det kan fungere ganske bra. Jeg har til og med vært på konferanse med flere tusen deltakere

K: Okey

III: Men det som skjer da igjen, så er det <eh> det som er generelt viktig er det at hvis du har dårlig erfaring med tekniske <eh> utfordringer

K: <mm>

III: Så pleier du å ha en skrekkeholdning til det (2.0)) men bortsett fra det så synes jeg det fungerer utmerket bra. Det som igjen er viktige er at man lager noen kjøreregler i forhold til hvem snakker og <eh> slik <at> at <at> ikke folk <eh> havner og snakker i munnen på hverandre, og vanskelig å skille hvem som snakker også videre

K: Ja

III: Men utover det så synes jeg forelesninger fungerer utmerket  
K: <mm>  
III: Og for mitt vedkommende så <så> hvis jeg hadde valget mellom si okey, nå skal du ta studie i Trondheim kan du velge å bruke SecondLife? så ville jeg sagt <ja> istedenfor å reise til Trondheim, eller til Blindern for den sags skyld (1.0)) for det at jeg <eh> synes (1.0)) for meg fungerer like bra <men> da må jeg ha en innstilling til at ja, jeg er faktisk villig til å lære  
K: Ja  
III: Innstilling er veldig viktig tror jeg  
K: <mm>ja. man må være motivert og klar <mm>  
III: ja