Supporting Social Learning and Cultural Awareness in a 3D Virtual World for Military Training

An Empirical Study

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Abstract

This thesis is based on a research project conducted by the Norwegian Armed Forces named CAMO (Cultural Awareness in Military Operations). It is an investigation into how a virtual world can be used to support training in cross-cultural communication and cultural awareness for soldiers who are to be deployed to take part in international military operations. The informants were cadets in training to become officers, stationed at The Norwegian Military Academy. The data for the thesis was collected in a one-day experiment. Second Life, a multi user virtual environment (MUVE), was used as a platform in order to conduct a scenario-based role-play simulation related to cross-cultural challenges. The scenario was structured based on a set of mini-scenarios with accompanying learning goals, containing a selection of critical instances and situations that the soldiers could encounter during a deployment to Afghanistan and therefore should know how to handle. An Afghan village and virtual avatars were modeled in Second Life, and used to stage the role-play.

I have created the following research questions:
1. How can Second Life support social learning?
2. How can Second Life support cross-cultural communication and cultural awareness in military training?

The thesis is structured as a qualitative case study, in which we used a mixed-methods approach to data collection and analysis. Data collection methods were questionnaire, interview and observation. They were chosen to be appropriate in order to investigate how the soldiers learned about cross-cultural communication in a social context and how they evaluated the use of Second Life as a platform for teaching and learning about cross-cultural communication and cultural awareness. The interviews and observations were analyzed partially by using a grounded theory approach during data categorization. A combination of social learning theories was used to create an initial set of categories for the analysis that was later refined in a bottom up iterative process of data categorization. I have triangulated the questionnaire data with the interaction material and the interviews in order to evaluate these sources in relation to one another.

We have found that Second Life supports aspects of interaction and learning in a social context by employing techniques such as perspective taking, reflexive practice and establishing common ground in communication. We also found that Second Life works well as platform for training in cross-cultural communication and cultural awareness by role-play scenarios where virtual representations of cultural artifacts are modeled and incorporate in the scenarios. However, we did come across some constraints that hindered the flow of communication. Finally, at the end, I present some suggestions for improvement to address the constraints.

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1. Introduction

This thesis is organized as a case study based on a collaboration project conducted by The Norwegian Armed Forces, which is named CAMO (Cultural Awareness in Military Operations). In this project the informants were cadets in training, to become officers. They were stationed at the Norwegian Military Academy located at Linderud, which also is where the experiment was conducted. We used the 3D virtual world "Second Life", which is a 3-dimentional multi user virtual environment, as a subject of study. An Afghan village was modeled in Second Life. This virtual landscape were created to conduct a scenario-based role-play where the informants of the study would carry out a simulated mission based on a set of learning goals, with the purpose of investigating the effects this training had on the soldiers knowledge on cross-cultural communication and cultural awareness and to explore how this virtual world can be used to prepare soldiers that is deployed to work in international operations.

I have partially integrated the CAMO projects' inquiry in to my thesis which is *"To obtain first-hand experiences with pedagogical use of the technology (possibilities, usage areas and limitations) within the context of the Norwegian Armed Forces"* (Prasolova et al. 2012). This inquiry is mainly focused on an exploration of to what extent Second Life can support training in cross-cultural communication and cultural awareness, and how this training can be implemented in further education. In addition to this inquiry I wanted to look more closely at how Second Life can be used in a social learning context.

Since the first virtual world was presented online in the 1970's, text-based virtual worlds have steadily evolved in to 3D-multi user virtual environments. These environments are in many cases highly immersive and social. They can offer increasingly realistic graphical representations of real life situations and scenarios through virtual representations. Even though many of these environments are most commonly used for entertainment and social purposes many virtual worlds can serve as educational tools. These virtual environments facilitates synchronous communication through text, sound and sharing of other information, which makes them suited for collaborative learning activities and distance education.

In recent times there has been an increased interest and use of game-based simulations and 3D-virtual worlds in military training. 3D virtual worlds have the capacity of demonstrating situations and concepts that are expensive, dangerous and hard to recreate in real life. These are qualities often sought after in a military context where there may be much wear and tear on equipment or a need to perform exercises that are difficult or dangerous to carry out in a physical context. The Norwegian Military Academy and Norwegian Army Weapon School already uses game-based simulation for tactical and operational training. However, there are other forms of educational needs that should be met, in order to prepare soldiers that are deployed to take part in international operations (Prasolova et al. 2013).

The soldiers who take part in peacekeeping operations will be deployed to foreign countries where they often work alongside military personnel from other parts of the world and where they are in contact with the local inhabitants of different countries in which the support of peacekeeping operations is needed. While the soldiers work in an environment where they are exposed to foreign cultures, they are in a position where they need to acquire cultural knowledge and develop a cross-cultural competence in preparation for the situations where they find themselves in contact with local inhabitants that has a fundamentally different culture than their own (Rubinstein, 2003). In order to be able to help the people affected by war it is essential to understand their cultural background. The foreign cultures that the soldiers come in contact with does often contain a plethora of different cultural features that are different than those of their home country. These features can be physical gestures, traditions and religious traits that the local inhabitants use as tools to facilitate their communication and to maintain their social and religious structures. It is vital that the soldiers act in a culturally sensitive manner in conjunction with the traits of the specific culture that they work with, in order to establish a sense of trust and cooperation with the local inhabitants. This must be done to ensure the safety of all parties involved, both soldiers and the local inhabitants. This creates a need for the soldiers to learn about the variety of characteristics of the culture they will be in contact with while they are engaged in international operations in order to build a repertoire of cultural skills and knowledge to be capable of conducting their work safely and efficiently.

1.2 Research Question

In this thesis I seek to explore which elements virtual worlds like Second Life can add to a learning process that other traditional learning methods may be less suited for. I especially wanted to investigate which forms of interaction and cooperation Second Life can facilitate that promotes learning, and how this interaction can contribute to social learning in the area of cross-cultural communication and cultural awareness in military training. Based on the collaborative and social aspect of Second Life and the frames created in the CAMO project (learning goals and project inquiry) I have created the following research questions:

1. How can Second Life support social learning?
2. How can Second Life support cross-cultural communication and cultural awareness in military training?

1.3 Structure of the Thesis

The rest of the thesis is organized in order to address these research questions
The thesis is organized as follows: The first section gives a short description of the development of virtual worlds and how they are used in present-day education. The following chapter gives a description of the CAMO project; the end goals of the project and how the scenario was structured and carried out. Next I describe the research method used to collect mainly qualitative data, but also some additional quantitative data. Then I go on to describe the theoretical perspectives I use as a foundation for analysis. Next I discuss the findings in perspective of the theories. Finally I give a summary of the findings.

2. 3D Worlds and Educational Games

In this chapter I will give a summary of the development of Multi-User Virtual Worlds and their role in education with an emphasis of the collaborative learning aspects within these worlds.

2.1 Multi-User Virtual Environments

MUVE (Multi-User Virtual Environments) are computer simulated environments that range from text-based multi-user online roleplaying games to graphically rich 3D online multiplayer games and other forms of immersive virtual environments that are not game-based. Dede et al. (2004) recognized certain elements that all MUVEs contain. These are;

- Multiple participants have access to these worlds
- An access to virtual context
- Interaction with digital artifacts
- A representation of themselves as avatars (graphical or text-based)
- A possibility of communication with computer-based agents and other human participants
- The possibility to take part in various kinds of collaborative learning activities.

There are numerous MUVES available for use in an educational setting. Some are designed specifically for educational use, such as Quest Atlantis; a game comprised of learning activities for children of ages nine till sixteen. There are also MUVES created mainly as a platform for social interaction, Second Life being one of them. Among the most popular are Second Life, Project Wonderland and Quest Atlantis (Livingstone et al. 2008).

The use of MUVE's in education has increasingly become a key area of research where educators and researchers have started to explore the learning and teaching possibilities in

several of these virtual worlds (Livingstone et al. 2008). My main focus in this evaluation of MUVE's will be on Second Life, but I will also mention other MUVE's that can be used in education to illustrate how these worlds can be used for collaborative learning activities.

An example of a MUVE simulation that shows how these virtual environments can be used for collaborative learning is the "River City Project" (Ketelhut 2007). This virtual world is a simulation of an American town in the nineteenth century where a highly contagious disease has spread. Students are given the task to work collaboratively to create a hypothesis on why the disease has spread. They get access to documents they can read, photographs, hospital visits and other relevant data. The students can communicate with computer-based agents to get guidance, but they choose on their own which approach they will take to solve the task (Ketelhut 2007:102-103). This study was created to investigate how the student's inquiry skills and their grasp of scientific concepts changed or improved by using this simulation. There were close to 700 students who participated in this study, which were divided in to test and control groups. The students who used the River City simulation showed a greater improvement in both their inquiry skills and knowledge on scientific concepts compared to the control group who only used a paper-based curriculum (Ketelhut 2007).

2.2 Massively Multi Player Online Games

Multi User Dungeons (MUD) is the first version of MUVE's created. The first MUD was developed during the late 1970's by Richard Bartle and Roy Trubshaw at the University of Oxford (Bartle 2010: 23-34). A MUD is classified as a real-time virtual world, which normally is text-based, meaning that everything the players do, see or otherwise experience is by the game conveyed through words. The players also have the option of communicating with other users through text. A MUD environment is typically based on a fantasy world where you are able to take on a role as a fictional character as a knight, warlock or even a goblin where you go out on adventures and encounter monsters to defeat or other mythical creatures. To be able to progress in the "game" the player has to finish quests (tasks), that is related to the storyline (Childress & Braswell 2006:188).
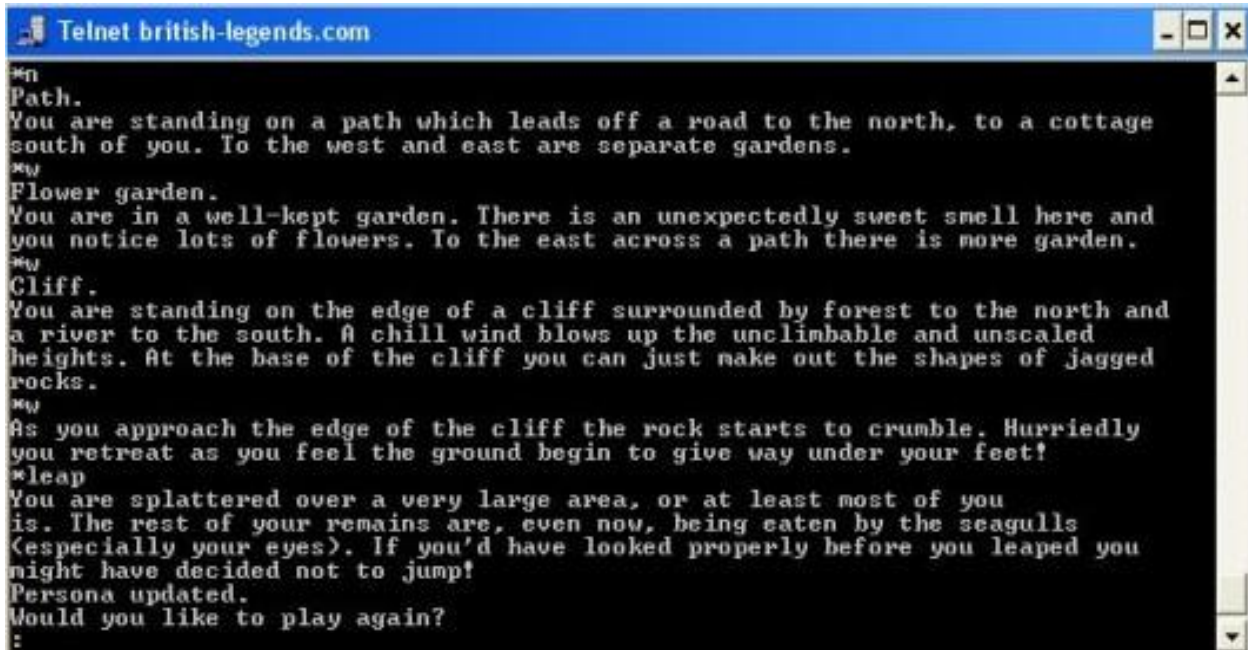
Figure 1: A screenshot of the first MUD, Also called MUD1; http://massively.joystiq.com/2011/04/05/the-game-archaeologist-plays-with-muds-the-history/

With an increased processing speed, broadband internet and improved graphic capabilities in modern computers, MUD's have now evolved into Massively Multiplayer Online Games (MMOG). A MMOG can be defined as a virtual and persistent game environment which is capable of supporting a large amount of players simultaneously (Steinkuehler 2004, Ducheneaut et.al 2006). In MMOG's as in MUD's the player take on the role of a virtual character which they are able to explore a fictional world through, though in MMOG's these worlds are not primarily text-based. There are many different types of MMOG's available in a variety of genres like strategy games, first person shooters and roleplaying games. MMOG's are Web browser-based video games with a rich graphic content where the players often have the opportunity to use detailed avatars that can be customized in numerous ways. The first MMOG to display graphics was a Massively Multiplayer Online Roleplaying Games (MMORPG). The most popular genre within the MMOG's is Massively Multiplayer Online Roleplaying Games (MMORPG) (Steinkuehler 2004).

2.3 World of Warcraft

One of the most popular MMORPG's , created by the video game developer Blizzard Entertainments is called World of Warcraft (WOW). Blizzard reported earlier this year that WOW has attracted 8.3 million subscribers from all over the world. In games like WOW it is possible to progress in the game collaboratively, through group-play functions, where the players can defeat monsters and other enemies together. It is possible to defeat some of these enemies on your own, but to progress in the game, the players have to participate in organized group play to be able to defeat tougher enemies, which are known as "elites" and "bosses" (as shown in figure 2) You can choose what kind of powers and abilities you want your avatar to have. In these situations the players will have different roles or specializations where each player uses abilities that complement the other player's abilities (Nardi & Harris 2006). This type of gaming environment requires the players to develop skills in communication, resource allocation and collaboration. Due to the collaborative aspects of these games where you depend on group dynamics to achieve progression, a popular topic of exploration amongst researcher has been how the use of MMORPG's in a social context can improve teamwork and leadership abilities (Chen 2009, Nardi & Harris 2006).

Figure 2 shows a group of players in WOW working together to defeat a "boss"

Figure 2: Screen image of World of Warcraft (WoW); Source: http://www.staronion.com/maiev/nfblog/?p=915

2.4 Second Life

Second Life created in 2003 by a California based Software Company called Linden Labs, is a Multi User Virtual World (MUVE), which is a simulated, computer-based, immersive multimedia environment that is accessible over the internet. This is a world that users can inhabit by creating a 3D graphical version of themselves known as an avatar, which they can use to interact with the world and the other inhabitants. The avatars can be custom made and tailored to your preferences, everything from clothing to eye color and even bone structure can be modeled by the user. The avatar in Second Life is used to navigate through the virtual world, visiting the numerous places created by other users, communicating and exchanging data with the others through real-time text and voice chat functions. Second Life also has a built in weather system with day and night cycles which adds to the realism of the world (Foster 2008).

It is possible to buy either a public or private region (also called island) in Second Life through Linden Labs. The private region, which is commonly used by educational institutions that runs classes or courses in Second Life has a fee of 1000 dollars with a monthly maintenance fee of 295 dollars. The private region gives additional benefits such as a space closed from the public where it is possible to arrange educational activities without being disturbed by the "outside world". If you buy your own land in Second Life, you can build structures of any size, shapes or texture. In an educational setting this could be anything from an entire university campus to a genetics lab in which you can perform virtual experiments (Helmer & Light, 2007). Second Life is a user-centered platform where the users can build their own virtual property with prims, which are building blocks with basic geometrical shapes such as cubes and cylinders that the users can alter by giving the different colors and textures and putting them together to create buildings, trees, cars and other objects (Helmer & Light, 2007) (see figure 3)

This image depicts the "prim" building blocks and the menu, which is used to alter them

Figure 3: Source: http://metaverse.mitsi.com/Secondlife/Posts/Prim-animator/
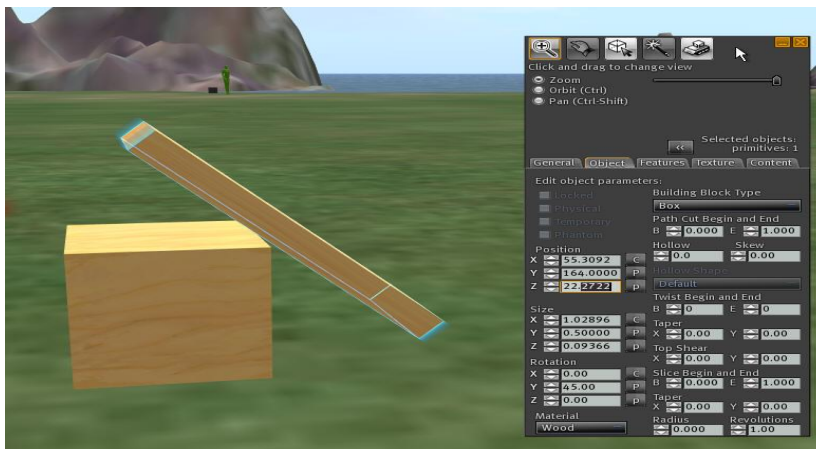
Second Life is mainly created as a social world, which you can "inhabit" virtually and the users of Second Life are often referred to as residents. MUVE's like Second Life differ from other virtual environments like MMORPG's and MUD's. Second Life is not created as a game with tasks that you are given, goals to achieve or a storyline to follow. The content of this virtual world centers on the use and exploration of the extensive world that the users have built (Figure 3). Even though Second Life is not an MMORPG, it shares many of the same social functions and the same possibilities of interaction with the environment through avatars and virtual artifacts (objects). Where MMORPG's such as World of Warcraft already have a set of game rules the players have to operate within, MUVE's like Second Life offer a world where the users and educators can create their own environment that suits their needs, in which there is no game-based rules to follow. However, there are some other basic rules adhering to MUVE's that users must follow in order to explore the world or to become a part of a social community (like operating an avatar) (Livingstone et al. 2008). This open-ended quality, with the possibility to design avatar appearance and the surrounding 3D environment in addition to the communication tools that can be used synchronously makes Second Life suited for different types of learning that requires immersion and a sense of social presence. Since Second Life was first launched in 2003 it has commonly been used for disaster and emergency preparedness training, medical training, military training and other forms scenario based or technical training that is expensive and hard to perform in real life. Second Life is also suitable for staging role-playing activities and exploring micro-phenomena like molecular biology (Helmer & Light, 2007).

Second Life was mainly created as a virtual world for social use but there are several universities and businesses that have a presence in Second Life for the purpose of teaching, education and promotion.

Several educational institutions have purchased their own private island where they can build anything that suits their needs to conduct different learning activities. The virtual structures and objects can also be interactive in several ways. Users can create and edit objects collaboratively and interact with objects built by others (Livingstone et al., 2008, Boulos et al. 2007). It is possible for educators to integrate numerous learning tools. Among them are objects for team-building, virtual patients for medical scenario training or a screen to display power-point presentations in a virtual lecture hall, where students can place their avatars on chairs to listen to a lecture (Livingstone et.al 2008).

2.5 Educational Applications of Virtual Worlds and Second Life

The use of virtual worlds in military education and training has become increasingly popular during the last due to the open-ended nature of these platforms, with the possibility of customizing the content of the environment based on educational needs

Using virtual worlds for military training has several advantages. Emergency and worst case incidents can be virtually created as scenarios without any risk of injury to the participants. The cost of fuel and maintenance of equipment is not an issue and the scenarios can be repeated indefinitely. The use of virtual worlds for military training are more often seen as a way to reduce and supplement real-life training of military personnel, and not to replace it (Stricker & Clemons, 2009).

Both NATO and The Department of Defense have done extensive research on the use of games and virtual worlds for military training. The U.S military has more commonly used simulation technology for combat training, but in the later years they have started using virtual worlds for scenario-based training. The Air Force has created their own base in Second Life where they created a training game called "Operation Rescue Worker Relief Challenge" which was used to train the cadets in leadership during a hostage rescue mission. In this

mission the cadets participated in a scenario where they had to work collaboratively and share information to reach their objective (Stricker & Clemons, 2009).

In a military study conducted by the NATO Human Factors and Medicine Panel, the aim was to investigate the effects of culture and cognition on performance of homogenous versus mixed culture military teams through the use of a commercial role-play game.

In this study by Warren et.al (2005) it was found that virtual worlds can be used to study how decision making and cognition varies across cultures and how these differences can affect collaborative work and learning. These platforms can be used to simulate scenarios where it is otherwise not possible or in this case more cost efficient than staging the role-paly in the real world. The rich virtual environments which also have a possibility for open-ended interaction will perhaps prompt the participants to become immersed in the role-play and act naturally in the choices they have to make whilst engaging in cross-cultural interaction (Warren et al. 2005).

Second Life has been used in various forms of medical education and can be a suited platform for engaging students in hypothetical "what-if" scenarios in the form of role-plays or other collaborative tasks. Second Life provides a safe environment where medical students can practice their skills and knowledge on virtual patients without the possibility of causing harm to themselves or others.

In 2009, the medical students of Imperial College in London took part in a pilot program for game-based collaborative learning. The students were located in a real-life classroom where they had access to a virtual hospital ward in Second Life through their computers, where they worked in pairs on the tasks they were given. The virtual hospital is a copy of a respiratory ward where the students have access medical equipment, journals and patients with different respiratory conditions. The students had access to a variety of tools and artifacts which were used in order to help the students to become accustomed with the procedures order x-rays of the patients and to listen to access recordings of patients' real-life breathing or to do other tests to be able to set a diagnosis (Wiecha et al. 2010).

Ohio State University has a sim in Second Life that is open to the public, where visitors can play a game called "Nutrition Game" in which the players can visit different restaurants, order and eat different foods. Feedback on how the food you eat and how different eating styles

affect your body are given to the player through pop-up windows after they are done with the meals of the day. The feedback will give you information how the food affects your body in the short and long term and you are given a score depending on the health outcome (Cooper 2007).

Another example of health education available in Second Life is the San José State University island which has a heart murmur simulation available for their clinical students (and visitors), which can be used for training in cardiac auscultation. The students can visit the virtual clinic and listen to the patient's heart murmurs to identify heart conditions (Boulos et.al, 2007).

Many MUVE's are capable of supporting social learning activities such as role-plays. Students can play out many types of situations or scenarios, relevant to the professional skills they are required to attain. Role-plays can be used as a tool in order to prepare students for the coming challenges of the workplace. Role-plays are especially suited for and can be designed to develop or enhance communication skills and "people skills" in professions where this is needed, and it can support the students working together to construct knowledge (Addison & O'hare 2008:8-9) A role-play staged in a classroom can for some students prevent a full immersion of the role being played and the content of the role-play. In situations where one has to perform in front of other people, some students can find it inhibiting when they are physically observed and evaluated and are thusly not able to immerse themselves. Another aspect that can prevent immersion is that in many cases the atmosphere of the classroom does not match the real life context that is being simulated. Role-plays that are stages in virtual worlds such as Second Life are found to be less restrictive than the face-to face version of role-plays, with the numerous ways in which the virtual artifacts can be tailor made and customized in order to reflect the real-life environment (Addison & O'hare 2008).

Second Life is a platform that is interactive and social in nature and even though it is mainly created as a virtual world that supports social interaction, Second Life offers a wide variety of tools and visual elements that supports learning and group collaboration as I have illustrated in the examples mentioned in this chapter. My thesis will therefore be directed towards the use of Second Life for social learning in the form of role-playing and scenarios.

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2.6 Affordances and Constraints in Second Life

In a review of previous research on the use of virtual worlds for distance education, Warburton and Perez Garcia (2009) present affordances and constraints that are present when virtual worlds (in this case Second Life) are used in distance education. All of the informants in the CAMO project were co-located and thusly not all of these examples will necessarily apply to the type of affordances and constraints that we experienced while conducting the study. I will mainly focus on the points that I find relevant in accordance with the data collected.

Affordances in Second Life:

Warburton and Perez Garcia (2009) identifies affordances that are present in Second Life

- **Extended or rich interactions**: The possibility of social interaction amongst individuals and communities, human-object (artifact) interaction
- **Immersion**: 3D environments such as Second Life offers a sense of presence through the embodiment of a virtual representation in a shared environment
- **Simulation (of environment)**: The reproduction of certain contexts can be too costly to recreate in a real-life setting. Virtual environments has the advantage of removing these physical barriers
- **Community presence**: Second Life promotes a sense of belonging and purpose among the users
- **Content production**: Second Life offers a possibility for ownership and creation of the learning environment and the artifacts within it.

Constraints in Second Life:

Using computer applications with an online component is most often not without problems. There are a number of possible constraints that educators may face when using virtual worlds in an educational setting. These are some of the constrains presented by Warburton & Perez Garcia (2009).

- **Technical**: Problems related to technical difficulties span from user-related issues such as managing the user interface, manipulating the avatar, audio-communication and creating objects to machine related issues of bandwidth and hardware
- **Collaboration**: When using virtual worlds as a tool in education, it becomes all the more important that the co-construction and collaboration is scaffolded by an instructor or teacher
- **Time**: Even simple tasks can take a long time.

3. Context and Case Description

CAMO (Cultural Awareness in Military Operations) is a collaboration project between Norwegian University of Science and Technology (NTNU), the ADL (Advanced Distributed Learning) office of the Norwegian Armed Forces, InterMedia and the Norwegian Defense University College. Other participants that have been a part of the project include Norwegian Defense Language and Intelligence School, Norwegian Military Academy, Telemark Battalion and the Norwegian Defense Media Center (Prasolova et al. 2012:9).

The goal of the project was to create a 3D-virtual world simulation in Second Life meant to be used as a training tool in cross-cultural communication and cross-cultural awareness for soldiers and other military personnel in the Norwegian Armed Forces. There are several 3D virtual worlds on the market, which can be used for educational purposes, but Second Life was chosen as it has many favorable aspects that made it and platform attractive to use for this specific study, such as a low entry level. It is also relatively cheap with development cost and there is a possibility of modeling necessary artifacts and avatars, to create a needed level of realism and to fulfill the learning purposes of the experiment (Prasolova et al. 2012).

There has been an interest of exploring the use of 3D virtual worlds for learning purposes within several units of the Norwegian Armed Forces, where everything from PTSD to tactical training were considered as possible subjects to explore in the project.

Thus, the overarching research goal of the project became:
"To what extent do 3D virtual worlds create/facilitate learning for the users?"
The goal of the experiment has been to study whether 3D virtual worlds contribute to learning, based on the participants' experiences during these experiments (Prasolova et al. 2012:8)

More specifically, The Norwegian Armed Forces' main aspiration for the project was the following:

- "To obtain first-hand experiences with pedagogical use of the technology (possibilities, usage areas and limitations) within the context of the Norwegian Armed Forces"

- "To develop necessary competencies internally in the Norwegian armed forces to facilitate further efforts in this direction in the future" (Prasolova et al. 2012:8)

The research questions I use in my thesis are thematically influenced by the research goal created by the project participants. I investigate the social learning possibilities of Second Life within the frame of cross-cultural communication and awareness in military operations. The Norwegian Armed Forces' aspiration for the project was to explore the practical application of a virtual world such as Second Life in various forms of military training in addition to learning outcome. This focus differ from the research goals I explore in my thesis, which is aimed at how Second Life can facilitate social learning.

3.1 Learning Goals

A set of learning goals were created which was used in the development of the scenario content. These learning goals were based on potential cultural challenges that the soldiers could meet in contact with the inhabitants of an Afghan village. Several topics were considered for exploration in the projects earliest stages of development. These subjects were; Planning and execution of military operations, post-traumatic stress disorder, gender perspective, language training and reach back. As a result of limited time and budget, three interconnected subjects were chosen for further exploration; Cross-cultural communication, gender perspective and language training, which would be easy to integrate within a single scenario. This decision in turn affected the learning goal-themes and the content that was chosen for the scenario (Prasolova 2012).

There were identified five major learning goal categories which were implemented in to the mini-scenarios. These learning goals were chosen, in consultation with the subject experts in the Norwegian Armed Forces (Prasolova 2012:12).

The learning goals that were chosen are the following:

Tactics: "general tactics (in a concrete cultural context) , e.g. identifying threats based on the relevant cues from the environment"

Gender: "interacting with women in tribal/clan communities, e.g. how to act towards Afghan"

Religion: "dealing with religious customs and practices"

Socializing: "observing local customs, e.g. when dealing with children, visiting a house"

Language: "basic language skills for simple tasks like polite greeting, asking for directions, identifying security threats; interaction between the interpreter, the locals and the squad"

Each of the learning goal categories were split in to several sub-categories, which are themes present within each category. Some examples of sub-categories are: close contact with women, identifying possible threats and food during Ramadan. There were created a set of "mini-scenarios", based on these sub-categories, also called "scenes", which would each represent the over-arching learning goals. The role-play has all together eight scenes. These scenes are attached to certain locations which is called zones, within the virtual village. When the soldiers first enter the virtual village, a cue, which is an event or action that is designed to trigger interaction between the soldiers and the villagers, is set in to action. There are specific cues within a scene that are triggered when the soldiers move in to a certain zone. A cue that is staged to "set off" a scene could be children asking the soldiers for chewing-gum, or an injured woman approaching the soldiers asking them for help. How the scene develops, will depend on how the soldier respond to cues they are given. If they act in manner that is culturally sensitive, by taking in to account the various cultural etiquettes and norms, the scene will have a positive outcome, the villagers will be cooperative and the soldiers will get closer to reaching their goal. If they don't take the cultural norms into account, in the worst case, the villagers will refuse to cooperate and it will halt the progression of the scenario (Prasolova 2013:2-3).

The following is an example of a learning goal related to the gender perspective with cues from the environment, appropriate reaction from the soldiers, possible mistakes that the soldiers could make in this scenario and typical responses from the villagers, to those mistakes (Prasolova 2012:17).

Learning goal: Close contact with women

Cues from the environment:

A local woman asks for/needs (medical) assistance (e.g. her clothes are bloody)

Presence/absence of other family members.

Appropriate reaction

Female soldier approaches the woman, talks to her and provides necessary assistance

Typical/possible mistakes

Male soldier approaches the woman, talks to her and in the worst case touches her while attempting to provide assistance.

Male soldier enters the woman's house while no other family members are present

Typical responses in case of mistake

The woman gets upset/hostile

Negative reactions from the locals

One of the project participants, whom were responsible for the experiment design of the scenarios, took on the role as a "game master" which is "a person serving as an organizer, moderator and facilitator during the role play". The game master is responsible of giving the participants playing the roles of the Afghans, feedback on appropriate responses, based on the soldier's actions. If the soldiers make a mistake they will be provided with a response from the game master and the virtual environment (the avatars that play the "afghan villagers") (Prasolova 2012:12). See figure 4 for a screen image of the virtual Afghan village built in Second Life.

Figure 4: The Afghan village in Second Life

The Norwegian Defense Media Center created an introduction video for the scenario, which the soldiers were shown just before they participated in the scenario. In this video the soldiers get information on their mission objective, which is that they have an appointment to meet the chief of the village with the purpose of getting information on possible Taliban activity in and around the village. The additional information they get is that the threat level is medium, it is around 12.45 on a Friday and that it is Ramadan. This information implies that there are cultural aspects that the soldiers need to take in to account as they interact with the villagers, such as whether or not to accept food (which they were offered in the scenario) during Ramadan (Prasolova 2012:14).

Second Life was first introduced to the soldiers one week before the experiment took place. They were given instructions in using the basic functions they needed to take part in the role-play. All of the soldiers had previous experience in using computer simulated game-environments for combat training. The soldiers did not have any knowledge of the content of the scenario other than that they were to take part in a research project which involved Second Life as a learning platform. The soldiers, interpreters and villagers were given an introduction to Second Life over the course of two hours, where we guided them through the basic functions as avatar movement, teleportation, voice and text-chat, so they would be able to master the basic functions of movement and communication that they needed in order to take part in the scenario. There were in all 11 cadets all from the same grade level, who took part

in the study. The data that was collected were mainly based on interviews and observations of the soldiers, considering that it was their learning experience and outcome we wanted to explore. The observation material was collected over the course of three hours. During this time, the scenario was played through two times.

3.2 Cultural Awareness in the Norwegian Armed Forces Education

"Kultur på ville veier: En gjennomgang av Forsvarets satsing på kulturforståelse" is a report based on a study that mapped the Norwegian Armed Forces most relevant departments and educational institutions' focus on education and training in cultural awareness for Norwegian soldiers (Andreassen & Holo, 2010). In this report, cultural awareness is defined as:

"The Norwegian forces comprehension of the local context of the operation area and their approach to the local moral, cultural, ethical and legal boundaries, in interaction with both the civilian population, allied military and the enemy" (Andreassen & Holo 2010:10).

In the recent years the educational institutions of the Norwegian army has had an increased focus on cultural awareness, but according to this report they do not build the curriculum and training for cross-cultural encounters on actual field experiences, and there is hardly a clear strategy on how cultural knowledge should be operationalized in the Norwegian armed forces. The subject matter within this area has a limited focus and application of cultural awareness in international operations and the practical application of experiences and knowledge that soldiers have attained through being deployed in Afghanistan (Andreassen & Holo 2010:17). According to this report there is generally an absence of practical exercises, use of the students own experiences and scenario training or any other practical training at the schools and that cultural awareness is mainly taught theoretically through the means of classroom education. It is suggested in the report that it can be beneficial to internalize and operationalize the cultural knowledge in a more practical sense, for the soldiers in training of becoming officers. The comprehension of Afghan culture and other foreign cultures may give the soldiers insight and can improve the safety of Norwegian soldiers in the field of duty (Andreassen & Holo 10).

It is often beneficial for officers and soldiers that have done international service to be able to see their experiences in a larger context and to understand their cultural experiences, from the international operations that they have been a part of so that their experiences in turn can be made applicable and relevant for themselves and other soldiers. When this experience is operationalized the training in a military context it may be easier for the Norwegian forces to utilize this knowledge where it is needed. It is reported in the study that when the teaching is removed from the context in which the subject matter is relevant the education becomes fragmented and it may be less relevant for military needs (Andreassen & Holo 2010:16). In the report it is also referred to a former ISAF (International Security Assistance Force) general McChrystal, which created guidelines on how ISAF-soldiers should prepare before they are deployed to work in a foreign country. In the report he mentions that it is beneficial to implement scenarios with a cultural content in the form of role-plays, in order to teach the soldiers how to interact with people of foreign cultures and how to be respectful of their religion and culture (Andreassen & Holo, 2010:25).

3.3 Cross-Cultural Communication in Military Operations

Culture is an important component of understanding human behavior and it plays a central part in all human communication. Culture can be defined as "learned and shared values, beliefs and behavior of a group of interacting people" (Bennett 1991) The values and beliefs one has learned throughout life may be fundamentally different from those of other cultures. The ability of a mutual understanding between people of different cultures has become increasingly important during the last decades. People will find themselves more frequently in situations where cross-cultural communication is needed, both at work and in the private sphere. If the importance of cross-cultural (or inter-cultural) communication is neglected difficulties and conflict may arise (Kim & Hubbard 2007). *"Understanding strangers' communication styles, a fundamental part of intercultural communication, constituted an essential step to go beyond the dichotomy of "us" versus "them"* (Kim & Hubbard 2007:225). In order to reach a successful communication with people of other cultures, one must first be able to understand "the other", and to understand and interact with people of other cultures one must be capable of taking their perspective (Kim & Hubbard 2007).

The soldiers and personnel that are involved in peacekeeping operations, deployed to foreign countries becomes part of a complicated cultural framework, often very different from the cultural framework of their home country (Rubinstein 2003). Within these operations there is also a mixture of organizational cultures and nationalities working together on the same mission. The local population of the countries that the members of the peace operations come into contact with, draw upon a cultural background of their own. In a situation like this the possibilities for misunderstandings based on the lack of cultural knowledge are increased (Rubinstein 2003:30).

3.4 Gender Perspective in Military Operations

Gender is a cross-cutting issue that affects several aspects of communication generally and more specifically in military operations and the societies affected by war. These can be aspects like building bridges and wells, deliver humanitarian relief, gathering information and prioritizing development activities. (Houdijk 2008:7) Cultural communication and awareness is strongly linked to the gender perspective and an awareness of how the gender roles in a society affect the inhabitant's behavior and interaction are important for successful communication. Being aware of the habits, family honor, traditions and codes that may be present, and knowing how to apply this knowledge in practice, a soldier can more easily asses how to successfully interact with both men and women (Houdijk 2008:10) In recent years, the western countries military focus have to a larger extent started to take gender and diversity in armed conflicts and peacekeeping operations, into account (Lund 2007). In order to get better access to the entirety of a population, both men and women, it is recommended by peacekeeping forces and armed forces to implement some guidelines to ensure an open communication between the civilians and soldiers of a military operation. One of these guidelines is to make use of female soldiers in communication with female inhabitants (Lund 2007:7).

During the ISAF (International Security Assistant Force Afghanistan) operation, 2003-2004 The NATO Civil-Military Cooperation, which has a function that links the military to civilian agencies who gather intelligence for ISAF among other tasks, had a lack of female interpreters which had a great impact on the amount of information they managed to collect.

By only being able to address the men in the population it may be difficult to know where the resources of the peacekeeping forces (like NATO and UN) should be directed, and how to support the interests and better the lives of the female population. Furthermore, when the soldiers are not able to communicate with women as well as men it is a challenge to be able to analyze a society's structure and the needs of the people within it (Lund 2007). ISAF experience indicates that using female officers offers opportunities that are not available to male officers. The Women's park in Kabul that existed during the ISAF operation was a place exclusively for the female population of Kabul, which only the female soldiers had access to. This was a place where the women did not need to wear burkas and could speak freely about their thoughts and concerns. The soldiers could get in touch with the local women and gather information to get a clearer picture of how to improve the lives of the women in the Kabul province (Lund 2007). This example illustrates the importance of taking cultural issues such as the gender perspective into account, when interacting with the inhabitants of a foreign culture, such as many soldiers need to in peacekeeping operations.

4. Theoretical Perspectives and Concepts for Analysis

The Interaction that Second Life supports is social in nature. The virtual environment grounds the communication through visual elements that the participants share and experience collectively. Second Life offers different synchronous communication channels that allow the users to take part in a shared world and participate in collaborative activities. To evaluate Second Life as a platform used for collaborative learning I have chosen to use a combination of learning theories, general and specific. Some of these theories will provide me with concepts to serve as "categories" or analytic distinctions employed in the data collection and analysis and in combination with the learning goals set in the CAMO project.

I have divided the theoretical framework in to two categories: "Social learning theories" and "Computer-supported learning theories"

4.1 Social Learning Theories

In this section I will present theories that shed light on how people learn in a social context. These theories are largely based on the belief that people learn from each other when working collaboratively and knowledge is created through the learners' interaction with each other and the surrounding environment.

4.1.1 Constructivism

Constructivism is a theory of how knowledge is developed in the human mind. "It is an epistemological concept that draws from a variety of fields, including philosophy, psychology, and science" (Walker and Lambert, 1995: 1). The constructivist tradition is represented in the field of educational science, mainly within early 20th century cognitive

psychology by Dewey, Piaget, and Vygotsky (Walker and Lambert 1995). The fundamental view of the constructivist tradition is based on the belief that we construct our own knowledge through an interaction with the culture and social context we are a part of and that this construction happens experientially. The cognitive processes which lead to learning are not just created individually within the mind of the individual, but it is a part of a larger context. This context is not fixed but constantly evolving and consists of social interactions with other human beings and "knowledge," variously known as cultural artifacts (Wertsch 2001), conceptual artifacts (Bereiter & Scardamalia 2003), or simply world 3 objects (Popper, 1978). This knowledge construction is a part of an ongoing process of constant change. When the individual is introduced to new information, the existing concepts we have acquired on an earlier occasion, will then change. According to the constructivist view on learning, the subject of what is being learned cannot be seen separately from how the knowledge is created.

Savery and Duffy presents three primary propositions that are elementary to the constructivist philosophical view, which can serve as instructional principles. These propositions are based on the works of Richard Rorty (1991) and Von Glaserfeld (1989).

 The first proposition; "Understanding is in our interactions with the environment" is based on the belief that students construct their understanding of a subject or a concept individually and are thus not capable of sharing these understandings, but on a collaborative level it is possible to explore to which degree the understandings we make are compatible. "What we understand is a function of the context, the activity of the learner, and, perhaps most importantly, the goals of the learner" (Savery & Duffy 1995:136)

The second proposition; "Cognitive conflict or puzzlement is the stimulus for learning and determines the organization and nature of what is learned" (Savery & Duffy, 1995:136). This proposition implies a student-centered approach to learning, when the student meets resistance through a puzzlement or cognitive conflict it acts as a driving force for the student to expand their knowledge.

The final proposition; "Knowledge evolves through social negotiating and through the evaluation of the viability of the individual understandings" (Savery & Duffy 1995:137). When students work collaboratively to solve a problem, they can test their own understanding by exploring it, based on the feedback that they get in an interaction with students that are working on the same subject and compare it to others understandings and they can compare it

with the feedback from the environment within which they find themselves. This proposition is based on the belief that all views or understandings are not equally viable: they must continuously be tested by exploring alternative views in our social and epistemic environments.

4.1.2 Constructivism in Virtual Environments

E-learning environments have commonly placed a focus on the learners as individuals that are acquiring knowledge and learning in isolation from other learners (Addison & O'hare 2008, Stahl et al. 2006). Moreover, the use of computer technology in education has been seen as a way of providing quick and easy access to educational content. Based on the constructivist view, the fast access to information is not the main focus or advantage in using virtual worlds for educational purposes. This perspective values the opportunities that these platforms provide for social interaction, thinking and communication which scaffold the construction of meaning and knowledge. Problem based learning, collaborative learning or simulations in the form of role-plays are common perspectives used in constructivist education (Addison & O'hare 2008:8-9).

According to Dede (1995), Virtual worlds can be seen as constructivist environments for learning as they often support an open-ended investigation, of which the use of collaboration and communication tools that are highly interactive and supports conversation and communication with peers and instructors. These environments allow students to immerse them-selves in a distributed simulated environment through their avatars. Virtual worlds provide an environment that center on collaboration and interaction amongst the students and contain expanded capabilities for education and communication. Dede (1995) mentions two key components virtual worlds contain, which add to the present-day educational media. These are: a telepresence via avatars and immersion (Dede, 1995:6). In virtual worlds the dynamic between the users can provide a leverage for the collaborative learning activities that is different from face-to-face collaborative engagement. Both the machine based avatars and avatars controlled by other users, present in virtual worlds, can be perceived as highly life like. The avatar creates a synthetic embodiment of the person controlling it. This gives the user a capability to display different forms of human characteristics (through customization,

movement and gestures). When the avatar is operated by a person, it is capable of mimicking real-life human movement and interaction through movements and gestures. The use of virtual worlds also opens up the possibility for students to be able to customize the way that they communicate through several different channels, which adds to the overall learning experience (Dede, 1995).

4.1.3 Problem-Based Learning

Problem-based learning (PBL) methods are closely connected to constructivism and its theoretical principles. PBL was first proposed during the 1950's in American medical schools. This learning theory is based on the notion that individuals are to a greater extent capable of relating to a problem and making it their own when they are being confronted with it in a setting that imitates the problems or tasks they will meet later on in real-life (Barrows, 1980).

Thus it is a student-centred pedagogy in which students learn about a subject through the experience of exploring a problem, i.e., reaching a solution or clarifying it by interacting with peers and teachers. Students learn strategies for critical thinking, information seeking, and knowledge sharing. They acquire shared knowledge in personally meaningful ways. The goals of PBL are to help the students develop flexible knowledge, problem identification and problem-solving skills, self-directed learning, and effective collaboration skills (Hmelo-Silver, 2004). Working in groups, students identify what they already know, what they need to know, and how and where to access new information that may lead to the resolution of the problem. The role of the teacher is not to teach a predefined and fixed curriculum, but to facilitate learning by supporting, guiding, and monitoring a self-guided collaborative learning process (Barrows, 1980).

In many professions, especially those who carry a great amount of responsibility and public accountability such as medical doctors, aviator pilots or even military personnel, in these domains there is a need for the student to be taught not only scholarly or factual knowledge but also vocational knowledge. This is not to say that the student does not need theoretical knowledge rather that it would be beneficial that the information is acquired in a manner that makes the student prepared to apply it to the problems that they are faced with in their own professions. Barrows believes that it is most beneficial for a student to be challenged with

problems, similar to those he would meet in his profession in order to understand and relate to the problems that they will encounter (Barrows, 1980:52-54).

4.1.4 Reflective Practice

Donald Schön (1983) believed that the structure of the teaching processes in schools and professions is highly influenced by technical rationality, divided in to research and practice, where both the means and the end of solving a problem is fixed, and that these should both be decided on before you set out to solve a task. Schön argues that simple and straightforward problems do often not exist in the real world, and practitioners may have to deal with problems that are complex, unique and uncertain in their professions (Schön, 1983:20). Reflection-in-action is a term coined by Schön, which describes how practitioners are often required to "think on their feet" and improvise solutions to a problem at hand, when there in many cases is no clearly defined problem to be solved or answer to be found. This is where reflection-in-action differs from formal teaching, where both problems and solutions are given and teaching is done through knowledge transfer by focusing on how practitioners define their own problems and works towards a solution by applying previous knowledge and experience on situations that they are not familiar with. Practitioners are often not aware that they possess this knowledge and it is visible implicitly through our actions. We instinctively use this knowledge that we acquire, which Schön calls tacit knowledge, instead of planning ahead on which steps we must take to reach a specific goal (Schön, 1983). Reflection-on-action on the other hand occurs after the task is finished, at which point you reflect on what you have done, evaluating how successful or unsuccessful the methods, actions and result has been (Schön 1983:26).

4.1.5 Social Presence and Body Language in Virtual Worlds

In some media (like virtual worlds) used for distance education and cooperative work, it is not possible to see the individuals you are communicating with, and the only means of communication is through written and spoken language or through a visual representation of the communicator known as *avatars*. This will have some consequences for the character of

the interaction. In addition to language, communication between individuals happens through a wide variety of physical signs that can only be perceived visually. In real life, we use these movements and signs in our interaction to influence each other, to create a common ground and flow of the conversation. In the field of social presence research there are different theoretical positions on how important these gestures are to facilitate communication. In some of the earliest studies on social presence in communication these physical signs were by Short et al. (1976) assumed to be of utmost importance to facilitate a smooth communication, especially in regards to availability of the other's reactions, moods, self-image and attitudes (Short et al. 1976:161). In these studies the focus have been on the visual channel, without paying much attention to the contextual and socially situated factors of social presence (Lowenthal 2010: 20). Later studies have shown that, even though the lack of a physical presence changes the character of the communication, it does not make it impossible to understand each other or to solve mutual tasks, and what is more important is the context of what is being said or taught. Given the right circumstance it is therefore possible for the users of Computer Mediated Communication (CMC) in a learning context, to be able to understand each other with relatively simple means of physical communication (Lowenthal 2010). However, online education in its early years, was hampered by not fully working or difficult to use technology, and thus criticized for a lack of proper social cues with the effect of interfering with learning and teaching. Researchers have continued to develop and apply social presence theory, which gradually have improved online learning and other forms of CMC to be both interpersonal and very social. Virtual worlds add another dimension to communication though writing and talking, and a visual element of the communication. Even though the participants are not able to see one another physically, they are able to see the virtual representations of each other, as avatars on the screen, and share common experiences. This adds a new level to the possibilities of self-expression and immersion (Lowenthal 2010:8-12).

Mennecke and colleagues (2011) presents a theoretical framework called "embodied social presence", created to enhance understanding of the communication and interaction that happens in MUVEs. MUVEs share features with commonly used, traditional communication tools such as videoconferencing and e-mail, in which the users communicate through text and sound. On the other hand – MUVEs can offer some unique qualities in regards to communication that may enhance the social presence of the users. One of these qualities is the spatial aspect that we also experience in the real world when we share a physical proximity

with other people. The communication that happens in these environments does in many ways resemble the interaction that takes place in real life, where the communication happens face to face (or body to body). When the users of MUVEs interact with one another they do not only rely on spoken or written words, but also objects, gestures, actions, tools and the presence of the avatar (Mennecke et al. 2011).

4.1.6 Perspective Taking

George Herbert Mead represents the sociological perspective of role-taking. He states that perspective-taking is essential to and underlying all human communication and interaction and that people does only experience them-selves through the feedback they get through the communication with others. This social regulation is a central part of the social participation that we partake in on a day to day basis. We modify our behavior based on the response or reactions of other people (Mead, 1934). Selman (1980) which represents the cognitive version of perspective taking defines perspective taking as "the ability to see the world from another person's perspective of infer another's capabilities, attributions, expectations, feelings and potential reactions." (Selman 1980, cited by Jarvela & Hakkinen, 2000:23) Perspective taking skills are according to these theoretical perspectives a precursor to clear and successful communication in all social interaction (Jarvela & Hakkinen, 2000).

Jarvela and colleagues (2000) conducted a study where they explored which level of discussion that occurs amongst the users of web-based conferencing and how this relates to the level of perspective taking that is prompted though the technology. They used Selman's perspective taking categories of developmental levels of social perspectives, in order to study how the students negotiate meanings in their discussions and social interactions (Jarvela & Hakkinen, 2000: 2-3) Jarvela and colleagues report that there is a need for an increased quality and depth of the web-based learning and communication that happens in higher education. The research that is informing the use of these technologies is lacking in the theoretical grounding of contemporary learning theories. The emphasis is to a larger extent placed on technological procedures and tool features as opposed to the interaction that happens amongst the students. Jarvela et.al also reports that networked interaction used in learning projects has had a tendency of only prompting superficial discussion without reaching a level of theory based argumentation (Jarvela & Hakkinen, 2000). The interaction

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that happens in all web-based learning environments, both asynchronous and synchronous is highly dependent on communication between the participants and their ability to take the others perspective while using the technology, in order to reach a common ground and understanding of the subject matter. They propose that web-based technologies have the potential of supporting perspective taking and inter personal understanding and that the level of perspective taking is elevated in correspondence with the quality of higher level of communication and discussion (Jarvela & Hakkinen 2000).

4.1.7 Perspective Taking in Cross-Cultural Communication

Having region-specific knowledge and cross-cultural competence is needed in order to work on missions in a specific region. This is considered to be important abilities for soldiers that work on missions in foreign countries. The cultural characteristics and traits that are practiced within a group of people consist of rituals, language, symbols and behavioral models, which in turn affect the collective actions of these groups (Rubinstein 2003). Thusly, an ability to take the others perspective requires some knowledge of the norms and customs representative of their culture. Being able to build trust and new relationships with the local population is partially possible by having knowledge of their culture, but communication-oriented skills are an invaluable asset as well (Rubinstein 2003). Cultural sense making which is "the processes by which people make sense of and explain culturally different behaviors" is described to be affected by and to be a component of perspective taking (Rasmussen et.al 2010). Rasmussen and colleagues (2010) propose that perspective taking can be used to make sense of cultural behaviors in cross-cultural interactions. If soldiers are provided with a baseline context knowledge of factors that affects the behavior of people from different cultures (within the relevant context) and are provided with the metacognitive skills that are needed in order to build upon this understanding and knowledge and to apply this cultural knowledge in practice, the students will establish a higher capability of communicating with people across cultures and placing themselves in the others perspective.

4.2 Computer-Supported Learning Theories

The theories I present in this section is centered around the use of computer-supported learning environments for social learning, how communication can be facilitated in these environments and how informal and formal learning can be supported through computer applications.

4.2.1 Computer-Supported Collaborative Learning

Computer-supported collaborative learning (CSCL) is a "learning science concerned with studying how people can learn together with the help of computers" (Stahl et al. 2006:1). CSCL methods of teaching and learning are often used in distance education where the participants are not collocated and the only means of communication is through a computer. When the students' reflections and actions are no longer grounded in the physical world they live in, they have to use extra effort to co-create a shared world (Stahl et al. 2011). The two main components of CSCL are learning in groups and computer support. The collaborative aspect of CSCL is based on the notion that learning and cognition is intersubjective in nature (Fugelli, 2010). The collaborative components involve both individual and collaborative learning.

The method and study of group learning has been present since the 1960's, in other words long before the creation of networked computers. Early studies of group learning in a CSCL context viewed learning as a solely individual process, (Stahl 2006:3) which stems from the rationalist philosophy of human cognition, where the human mind is viewed as isolated from the surrounding world and from other people. Stahl, adopting ideas from phenomenology, argues the world we perceive is also a shared world, where we create an image of ourselves through the eyes of others (Stahl 2006).

During the early stages of group learning studies, group work was seen as a cooperation process where each individual does on piece of the work and then contributes it to the final product. Dillenbourg (cited by Stahl et al. 2006) presents a distinction between cooperative and collaborative learning, which he defines as: "In cooperation, partners split the work, solve

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sub-tasks individually and then assemble the partial results into the final output. In collaboration, partners do the work "together", i.e. synchronously (at the same time).

CSCL has distinguished itself from this view by bringing the collaboration aspect to the foreground, as the primary subject of study. The view of group learning as a collaborative process entails that learning happens socially, where the students work together on a shared task. When the learning processes are not based on individual activities, communication becomes an even more important part of the group work, as the students have to pursue lines of inquiry in collaboration through sharing information, coordinating contributions, and negotiating meaning (Stahl 2006).

CSCL is often misunderstood as simply as E-learning; i.e. the organization of instruction across computer networks. Stahl and colleagues (2006) express a concern that "*e-learning is too often motivated by a naïve belief that classroom content can be digitalized and disseminated to a large number of students with little continuing involvement of teachers or other costs.*" (Stahl 2006:1).When CSCL is used in a formal educational setting, the teacher plays an important role where they support the students with guidance, structure and motivation. Stahl and colleagues states that there is a need for the teachers to guide and motivate the students, by being socially present and to keep an on-going interaction with them. The use of computers in instruction and education will require a similar amount of effort by a teacher, as it would in a classroom setting. It is not enough to digitalize classroom content as videos, texts and slides, and use this as the single source of information, without interaction between the students and teachers. The students learn through observing and interacting with each other in their learning processes, by asking questions and solving tasks collaboratively (Stahl 2006:3).

4.2.2 Supporting Formal and Informal Learning

Gerard Fischer (2011) argues that most CSCL approaches are primarily concerned with school learning and that this type of learning is mainly conceptualized from the perspective that the "answers are known", that is the answers to a problem or a task have one right answer. This type of education is associated with formal learning where the teacher transfers their knowledge on to the students, as opposed to allowing the students to create new

knowledge. According to Fischer, it would be beneficial to incorporate a social dimension in the education where the learners can actively contribute with their own meaningful problems and collaboratively reformulate knowledge (Fischer, 2011:2). Both CSCL and CSCW (Computer-Supported Cooperative Work) have a tendency to focus on formal approaches by "gift-wrapping" content, in which the students work with given problems without opportunity for them to formulate and find their own solutions. However, in modern day work life, there is a pressing need for creative problem solving on a collaborative scale (groups and communities). This type of problem solving Fischer requires distributed cognition (Hollan et al., 2001), which is better suited for complex problem solving where the answer is not known (Fischer, 2011:1). Distributed cognition is by Hollan et al (2001) defined as: *"Distributed cognition is based on the assumption that knowledge does not reside solely in a person's head, but is created in social practices, and mediated by artifacts all situated in a socio-technical environment"* (reproduced in Fischer, 2011:6)

Domain-oriented design environments, is an example of learning environments where the users can interact both with each other and the environment to create new knowledge. The learning environments provide the learners with information spaces that they can explore, relevant to a self-chosen task. Here each individual can become "owners of the problems" by being able to contribute in defining the problems and creating new knowledge by exchanging information. This type of problem solving is best suited for learning processes that are not well-defined in the outset, like decision making or design problems where there is no specific required outcome (Fischer 2011:9). These learning environments are computer based and generate feedback on the artifacts the users create, and give suggestions on ways the artifacts can be further improved. This is done through critiquing, a type of computer-based scaffolding, which enables users to get further in their design process by receiving feedback (of a varying degree) and ideas for things that can be done differently (Fischer et al., 1993). Furthermore, the users can customize the critiquing to fit their own needs and individual perspectives. Moreover, this learning environment gives specific examples on successful artifacts that are relevant to their work that the users can get ideas from to modify their own constructions (Fischer et al. 1993). By using open-ended learning environments like these in close proximity to work tools (Mørch et al., 2012) it enables the users to a greater extent to look at their tasks and problems from different angles and it encourages a creative approach to collaborative inquiry.

4.2.3 Common Ground and Intersubjectivity in Virtual Environments

In virtual worlds used as learning platforms there can be several factors that may hinder a smooth collaboration. Even though there happen to be technical difficulties and interactional problems, virtual worlds and other means of interpersonal communication need to deal with common ground. Cark and Brennan (1991) proposed a theory called "Grounding in Communication" (or Common Ground) in which they describe communication as a collaborative process. When people work together in groups, they will build up a common knowledge that all participants draw upon. The term common ground is by Clark and Brennan defined as "*the mutual understanding among communicators about what is being discussed*" (Clark & Brennan, 1991). Common ground is achieved through grounding, which is the process where the contributors of a conversation make sure that all parties understand what is being communicated both through content and process. Creating common ground in content entails that all of the participants shares an understanding of what is being communicated. Establishing common ground in process can be described as a shared understanding of the procedures, rules, timing which in turn determines how the interaction will be conducted (Convertino et al. 2009).

 Another term for this is intersubjectivity (Fugelli et al. 2013). The two views differ in the following respect: Clark and Brennan's position is based on an implicit notion of "shared cognition," whereas Fugelli and colleagues, building on the work of Ragnar Rommetveit, advocates the notion of "shared social reality." Rommetveit defined intersubjectivity as a "temporarily shared social world" (Rommetveit, 1979: 87), which is mutually accessible to all partakers in a conversation. From this position the social world in the outset is not the world of the private individual but a world of intersubjectivity shared by all, to a lesser or greater extent.

Shami and colleagues (2011) conducted a case study to explore how processes and situations that are created in virtual worlds may contribute to grounding of communication. The data was collected at an annual meeting of the IBM academy of technology, where they used Second Life as a platform for a web conference with activities such as poster sessions and keynotes. The focus of the study was the poster sessions, which appeared to be the most

successful conference activity. The success of the poster session is argued to be a result of the possibility for implicit grounding – grounding that is established at the beginning of a conversation, where the different parties use the social situation and the physical environment that they are present in to create a common ground for mutual referencing. Grounding in virtual worlds can be achieved through either written and spoken language or the "physical" space of the computational environment. The participants observe the same surroundings and utterances made by the other participants, thus they created a common ground (Shami et al. 2011:396). The participants achieved common ground in content through the understanding of the purpose and structure of the meeting and by having experience from conventional poster sessions on earlier occasions. Grounding was also achieved through the collective use of the virtual environment where the participants observed the same visual surroundings and shared the same visual experiences. The authors also found that the grounding happened more easily when there was a low need of clarification of the content (participants were already familiar with poster sessions from a real world setting), and when information was in manageable (not large) chunks (Shami et al. 2011).

5. Research Method

Qualitative and quantitative research methods are the main two different forms of carrying out empirical research. Qualitative research has a naturalistic and interpretive approach to the surrounding world and it involves studying things in their natural setting. The researcher is meant to make sense of the phenomena they study based on the meaning that their informants bring to these phenomena. Denzin and Lincoln (2003) describes qualitative research as "… a situated activity that locates the researcher in the world. It consists a set of interpretive, material practices that make the world visible" (Denzin & Lincoln 2003:4) The researcher are meant to function as a "tool" in the process of systematically uncovering information through methods such as participant observation or unstructured interviews, which are common methods used in qualitative research. Qualitative methods like the ones mentioned are normally unstructured and open ended, allowing the informants to give in-depth information, choose their own words and share their personal experiences and insights on the topic that is being studied. Qualitative data is normally gathered in a descriptive form and is used at an individual level to produce in depth data about social phenomena (Kvale 2008).

Quantitative research is highly structured and not as flexible as qualitative methods. The data is commonly gathered in numerical form, through a large selection of subjects, through surveys or questionnaires. Numeric data have the purpose of being placed in units of measurement or in rank order e.g. "yes" or "no" and other forms of multiple choice questions. The choice of method or combination of methods depends largely on the research question and what kind of information the researcher seeks to uncover (Silverman, 2011). We chose to mainly use the qualitative methods observation and interview in the CAMO project as we had a small selection of informants, although we did have a short amount of time to collect the data and found it necessary to supplement with a qualitative method in the form of questionnaires.

5.1 Case Study as a Research Method

The case study is a qualitative method of research design and analysis used within the field of

social science and it is commonly used to study contemporary phenomena where the researcher have a low degree of control over the behavioral events that is being studied, as opposed to quantitative methods such as experiments where the design implements a higher degree of control (Yin 2009:1). Case studies are most commonly used in different types of qualitative research in which the researcher wishes to investigate one aspect of a phenomenon Case studies can be used as a method for a wide variety of research inquiries. Common methods for data collection in case studies are interviews, participant-observation, direct observation, documentation, archival records, and physical artifacts (Yin 2009:78). The case study resembles a comprehensive research strategy (more so than a data collection tactic) where the choice of method and approach to data analysis is to be incorporated based on the contextual conditions of the study that is being carried out and the research inquiry (Yin 2009:78). As we wanted to get insight in to both how Second Life can be used in a social learning context and how this platform can support learning of cross-cultural communication and awareness we found in necessary to incorporate several research methods in order to, as thoroughly as possible, cover the aspects of the learning process that the soldiers went through.

5.2 Validity and Reliability within Case Studies

Yin (2009) presents a principle of data collection that is meant to help the researcher establish validity and reliability in the case study. This principle is to use multiple sources of evidence. Yin encourages the researcher to make use of several sources of data that could be both qualitative and quantitative. This method is also known as triangulation, which is commonly used in case studies. During this study, we collected data from three different sources; Observation, interview and questionnaire, with the intention of evaluating how Second Life can be used as a platform for learning in a social context. We wanted to look more closely at the knowledge they attained, through the use of questionnaires and to use interviews in order to get first-hand information about the soldiers' thoughts on the use of Second Life as a platform for the role-play. By conducting the interviews after the soldiers completed the scenario, we were able to more closely investigate the soldiers experiences with the use of Second Life and how this

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We have gathered data from different sources to have grounds for our claims and to be able to evaluate the data from all of the sources, in relation to one another. We combined qualitative and quantitative methods, which are also known as a mixed-methods approach. The data collection mainly happened within a qualitative framework, but we wanted to have an additional source of data to get a deeper look in to how the soldiers knowledge were affected by the scenarios, their overall experience with using the platform and their views on the content of the scenarios.

It is common to conduct few interviews while conducting a qualitative study. Due to the low amount of informants a common criticism of the use of interviews, is that the results are not generalizable to a larger population, nor can they be used to test a hypothesis (Kvale 1996:108). However, In case studies there are placed an emphasis on the researchers ability to explore the meaning of the events that are being studies and spending time on getting to know the context in which the interaction happens (Kvale 1996:221). The goal is thusly not to have a large selection of informants. We did not have accesses a large selection of informants during the study, which lead to a smaller amount of interviews. This can in many ways be an advantage, as it gave us a greater opportunity to explore the empirical data in depth

5.3 Grounded Theory

The grounded theory methodology involves both conducting social research and generating theory in the same process. The theory is meant to be guided and generated based on the collected data, therefore the data collection, analysis and creation of theory is closely interlinked (Strauss & Corbin, 1994). By theory is here meant categories of data created in a bottom up coding process. In the beginning of a project, coding is the process of creating initial theoretical categories that is used to organize the data material. This is done in order to discover relationships between different concepts that arise while the data is being studied (Strauss & Corbin, 1994:57). The grounded theory study is thus meant to be a cyclical process where the researcher are able to use their data to create new theories as opposed to only relying on already existing theories. The data categorization continues in stages until there is no more new information to categorize (Strauss & Corbin, 1994:273).

The categories that were used to conduct the analysis in the CAMO project were partly informed based on already existing social-learning theories and partially based on the learning goals of the project developed for the scenario, and is thus is not strictly a bottom up process; it is partly based on preconceptions and partly starting with a blank slate. We did have an idea of what type of information we wanted to gather based on the research question and the theoretical themes surveyed chapter 4, but we went in to the research process without having a clear sense of where the data would lead us, when we did the observation and asked follow up questions during the interviews.

Based on reoccurring themes linked to social learning we identified in the data material, we chose a selection of social learning theories that would better inform our understanding of the collaborative learning that happens in a virtual role-play and how well Second Life as a learning platform were suited for this purpose.

After the completion of the scenario we interviewed three of the soldiers that participated in the project: one of the team leaders, a female soldier and one of the interpreters. These three soldiers interacted with each other, with the virtual artifacts and with the Afghan villagers throughout the session as opposed to many of the other soldiers, and were thus able to evaluate the teaching methods to a greater extent.

To analyze the qualitative data material we have gone through the recorded interaction data from the sessions in Second Life. We have used an iterative process where we grouped the data by the assistance of a so called open coding technique. The data was placed in name given categories as they were detected in the data material, and the categories changed names as we identified new types of data. This form of data coding is connected to grounded theory where you start without any preconceived notion on what type of data you will find (systematize and convert data to information, as you go ("bottom up"). It can be a challenge to start with a blank sheet as one do while using grounded theory when an analysis builds on the researcher's previous knowledge and experience, and the constraints that are given by the project (the learning goals project description, and area of focus). This is why we have used a combination of top-down and bottom-up data categorization.

5.4 Interview

We wanted to get direct feedback from some of the informants, where they got the chance to elaborate upon their own experiences to a much greater extent than what is possible through a questionnaire. After the completion of the scenario we interviewed three of the soldiers that participated in the simulation: one of the team leaders, a female soldier and one of the interpreters. These three soldiers interacted with each other, with the virtual artifacts and with the Afghan villagers throughout the session as opposed to many of the other soldiers, and were thus able to evaluate all aspects of the teaching methods.

Interviews are frequently used in case studies, where the focus is directed toward a specific phenomenon such as a situation or a person. Interviews can also be used in addition to other methods. In ethnographic studies or studies in which participant observation is used, unstructured interviews can be an important source of information to get an in depth view of the informants thoughts on a specific subject. This research method is especially suited for investigating the informants understanding of their own world, experiences and self-understanding (Kvale, 2008:46).

Kvale (2008) presents two main-categories of "interview-purposes". They can have an exploitative purpose or a hypothesis-testing purpose. The exploratory interview has the purpose of exploring new angles on a topic. This type of interview is often used in order to evaluate what kind of thoughts and feelings the informants have in relation to the topic being studied, in order to uncover new angles of inquiry or to further develop the research design. Interviews used in the grounded theoretical tradition, often fall under the exploratory category where the interview would primarily have a descriptive purpose (Kvale 2008).

We did not carry out in-depth descriptive interviews, even though these are typically used in the grounded theoretical research. Conducting and using in-depth interviews requires much more time than what we had available, in carrying out the interviews. However, the interview data (in addition to the observation material) we collected guided the selections of the theoretical framework based on the social learning theories presented in chapter 4, which in turn guided the development of the analytical categories, in line with the bottom-up categorization used in grounded theory.

Interviews that are conducted within the qualitative tradition are often unstructured with open questions. This type of interview is carried out with an open framework with a purpose of giving the informant the possibility to present the information that is important to him or her. (Kvale 1996). After we decided on what topics we wanted to explore and what kind of information we wanted to uncover we developed a semi-structured interview guide, which is conducted with a somewhat open framework for data analysis (Kvale 1996). I collaborated with my supervisor as well as some of the other project participants on the development of the instruments, an interview guide and two questionnaires, as our research team was responsible for the evaluation work package of the CAMO project. There was not much time to conduct the interviews after the completion of the scenarios. We had about thirty minutes to finish the interviews on the day of the experiment due to the tight time schedules of the participants, so we decided to do two interviews during that time. Due to the short time, it was not possible to ask the informants all of the questions we had created, and we made a pragmatic selection; we did not have time to diverge from the pre-formulated questions and to ask follow-up questions based on the answers that the informants gave. The possibility of follow-up questions is an essential feature of semi-structured interviews (Kvale 1996). We did however get some additional information on the soldier's thoughts and experiences concerning practical topics, such as the use of Second Life in a learning context and the content of the scenario. Despite of the limitations, we did not consider to ignore the interview data. We collected useful information and it helped us to make sense of (triangulate) the other data sources.

5.5 Observation

Yin (2009) states that observational evidence within case studies are most often used to uncover additional information on the subject that are being studied. This is done in order to provide a thorough understanding the phenomenon that are being studied and the context it exists within (Yin 2009, 87) We carried out observations of the scenario training in order to provide information on how the social learning happens while carrying out scenario-based training in a 3D virtual world.

Netnography, which is a sub-branch of the research method ethnography, is a term coined by

Kozinets (2002). This method is commonly used to analyze the behavior of social groups and individuals that are users of virtual communities. Netnography is traditionaly based upon observation of and participation in the platform or context being studied. This research method can be used as a tool to provide information about online communities and groups' meaning making, symbolism and exchange of information (Kozinets 2002:1-2). Netnographic research is conducted with the same openness and flexibility as grounded theoretical research. When using this research method it is common to focus on the context in which the interaction between participants happens and to use naturalistic methods where the subject being studied is displaying a free and open-ended interaction (Kozinets 2002:3-4). Although this research method is most commonly used to study the communication patterns of virtual communities and the content with in them, I feel like it can be used to enhance the comprehension of how communication and social learning happens in virtual worlds. Even though the scenarios in the CAMO project were carefully structured and planned out beforehand, the soldiers were allowed to act freely and chose which courses of action to take and to learn by trial and error. We did not conduct a study that is directly influenced by ethnographic research. Despite of this fact, netnography has provided useful guidelines to collect the empirical evidence and an understanding of how research on MUVEs can be conducted

While using the netnography approach, it is common to used different types of software tools to facilitate the data collection. This is considered to be a less "intrusive" way of collecting empirical data, as you are monitoring the informants' activities through a computer (Kozinets 2002:2). We made recordings of the interactions in Second Life with a screen-capture software called BSR screen recorder (http://www.bsrsoft.com/). This program recorded everything that happened on screen in Second Life, both sound and picture. The possibility of viewing the observation material several times, gives a great advantage to discover details that one might miss while the scenarios took place. After completing the recordings of the observation data and the interviews, we already had gotten some substantial ideas on which specific theories that could be suited to analyze the data. The open-ended quality, which enabled the soldiers to freely choose their actions and the social nature of the learning process largely based on interactions between the soldiers and the villagers, helped us to narrow down the theoretical framework used to analyze the data. I and my supervisor re-watched the recorded material several times. This helped us to develop the categories for analysis and to uncover new information that we missed in the previous viewings. Moreover I and the other

researchers involved in the project observed the scenarios through our avatars as we collected the data. We were each seated at a computer in the same room that the soldiers conducted the scenario. This gave us an opportunity to watch the soldiers in action, as they took part in the role-play.

5.6 Questionnaire

The soldiers answered a web-based questionnaire before and after the completion of the scenario. The pre and post questionnaire were meant to test the soldiers knowledge on cross cultural communication and motivation for further education in this subject.

The questionnaires were made available electronically on a web page, using a software package called survey monkey, which provides easy to use services for collecting survey data and running statistics (www.surveymonkey.com). The link to the surveys was sent to the soldiers by mail. The soldiers were each given a number to serve as identifier, too keep their names anonymous. These numbers were sent them in an excel-sheet, with their names and numbers in rows next to each other. There may have been some confusion as to which number belonged to which cadet, and we believe that some of the cadets used these numbers instead of the ones that were assigned them for login, because there were some numbers that we did not get replies from. There were also two cadets who used the same number. Considering that we wanted to gather general data related to the cadets' experiences gained and lessons learned with the new learning platform, and not specifically on the differences related to gender, age or background, this did not cause any problems for us.

The pre-test and post-test was created with the intention to investigate to what extent a simulated role-play in Second Life (in combination with the debriefs) would cause the soldiers to learn something new about cross-cultural communication and cultural awareness, and to better be able to evaluate Second Life as a learning platform.

The process of designing the questionnaire questions for the pre-test and the post-test became a collaborative activity I engaged in together with my supervisor Anders Mørch, David Hansen from Bjørknes College and Ekaterina Praslova Førland from NTNU who also worked on the development of the scenarios in the CAMO project and has previous experience with the use of game-based training in a military context. None of us except David Hansen had

much knowledge about Afghan culture and customs at the time the questions were created, thus we needed help to formulate and create the questions that would be used in the pre-test and post-test. The questions are based on the 5 learning goals (see part 3.1) that the contents of the scenarios were based on.

The electronic survey tool allowed us to add a text box (open ended item), where the soldiers could give feedback on the scenario-based training. Considering that we did not have much time available to collect the data, the text entry item turned out to be a useful feature for extra information, i.e. opportunity to catch any feedback that we may have missed through the interviews we collected. In situations where there is not a large amount of time to gather interview data, questionnaires provide a time-efficient way to collect, analyze and report data compared to conducting qualitative interviews (Kvale 2008:45-46).

Quantitative methods are most often used on a much larger scale of people than we had access to (Kvale 2008). We had only11 people in our group of informants, thus the number of informants that gave feedback through the questionnaires was not very high. This is something I take into consideration when I evaluate the quantitative data.

5.7 Debrief

Debriefs were arranged throughout the execution of the scenario after the soldiers had reached certain goals in their mission. There were in all three debriefs that each lasted for about fifteen minutes. David Hansen, who was connected to the project as a cultural expert, did the debriefing. He commented on the choices and actions of the team leaders, what they did well and what they could have done better, based on the learning goals. These debriefs are not a direct part of the data material, so they will not be commented on much further. However, it is highly plausible that the debriefing affected the outcome of the post-test questionnaire; therefore they will be taken into consideration when I evaluate the learning outcome.

5.8 Ethical Considerations

The first step in the process of the study were to send an application to the Norwegian Social Science Data Services (NSD) containing the details of the project and the type of data being collected, with the purpose of protecting the personal privacy of all the informants.

Kvale presents three ethical guidelines for research in the Social Sciences, which is; informed consent, confidentiality and consequences (Kvale 1996:112).

Informed consent is the researcher obligation of informing the participants of the study about the general purpose of the data collection, possible harm or risk that the informants may be exposed to through participating, that the participants are always free to end their engagement in the study (Kvale 1996:112). In the CAMO study, the participants were given an informed consent sheet in writing, where the participants were given the needed information, to ensure their voluntary participation.

Kvale describes the confidentiality principle as "*the protection of subjects' privacy by changing their names and identifying features…*" (Kvale 1996:114). The informants that responded to the online questionnaires, were all given a number that I could identify them by, to ensure that their identities would remain hidden, considering that this data was collected online. The information in this document could not cause any harm to the informants, or other participants in the study.

Kvale further states that "*The consequences of an interview study need to be addresses with respect to possible harm to the subjects…*". Informing the informants about the consequences of participating in the study, entails that if there are any ways in which the informants may experience distress or be caused harm as the interviews takes place or as a result of the study (based on the nature of the questions and topic of study) (Kvale 1996:114). As the interview questions we used were mainly based on experiences related to the use of Second Life in the context of social learning and cross-cultural communication, we did not find any possible consequences that needed to be addressed.

6. Data and Analysis

6.1 The Empiric Material

During the experiment the soldiers each used one computer during the scenarios. They were placed in a separate room from the interpreters and those who played the villagers. After the experiment was done, all of them gathered in the same room, where the cultural expert whom held the debrief gave a summary of how the soldiers (especially the team leaders) handled the challenges they met, and opened for a discussion where the soldiers could reflect on the content and challenges of the scenarios. Directly after the discussion was done, two of the soldiers that took part in the experiment were interviewed. We interviewed the female soldier who took part in the interaction with the villagers, and the team leader who had the most experience as an officer and team leader. A third soldier (an interpreter) was interviewed one week later via telephone.

During the collection of the observational material, the scenario was played through two times, each by two different soldiers, who played the role of team leaders (I will refer to the two team leaders as first and second team leader). The role of the team leader is to delegate the other soldiers' tasks and responsibilities, such as securing the perimeter of the village, in case of an ambush. He would also be in charge of the communication with the Afghan villagers. The first team leader had already comprehensive experience on cross cultural communication through being a team leader in international operations in Afghanistan. He was well acquainted with Afghan customs and culture. The soldiers had the opportunity to observe the team leader and how he managed the different challenges they encountered in the scenarios. The second team leader that played through the scenario did not have any experience with international operations

The design of the village gave the soldiers visual representations of several cultural artifacts and what they in reality may look like, the soldiers could use everything from the exterior of the buildings to the clothing of the Afghan to gather information. Even though some of the learning can be connected to other factors than the use of Second Life, we find Second Life to have contributed significantly both in relation to the understanding of basic aspects of the

Afghan culture and on the motivation of participating in a virtual learning platform.

6.2 Quantitative Data

After the completion of the scenarios, the soldiers answered a questionnaire with general questions about communication, culture and tactical application. They got questions on how they evaluated Second Life as a platform for education in cross-cultural communication, and how they obtained cultural information from the cultural artifacts from the people and the surroundings that they met in the Afghan village. The following diagrams are a selection of the questions that were asked. The X-axis illustrates which question alternatives the respondents had, while the Y-axis show the number of answers on each alternative. After each group of tables I will give a short summary of the findings.

6.2.1 Questionnaire on Communication, Culture and Tactical Application
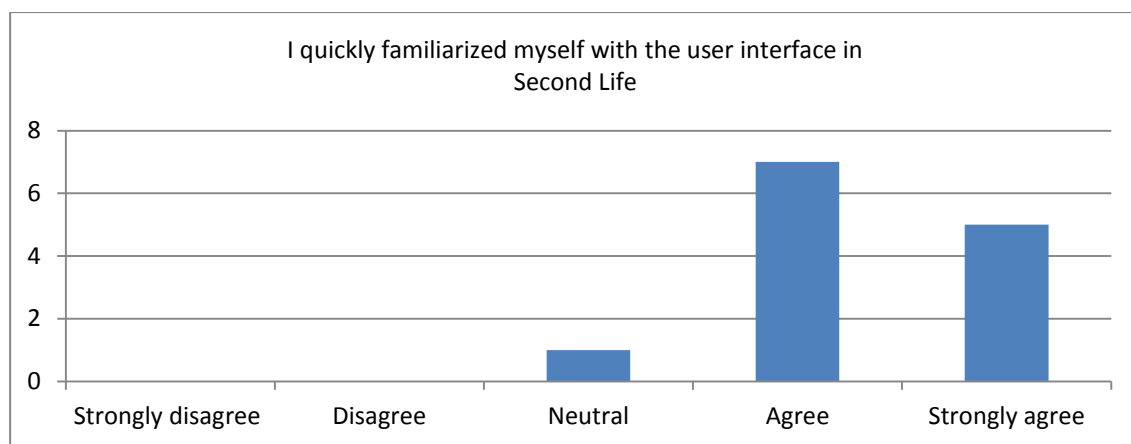
Table 1: User interface of Second Life (n=13)

I thought it was difficult to move the avatar to different places

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Value	6	7			
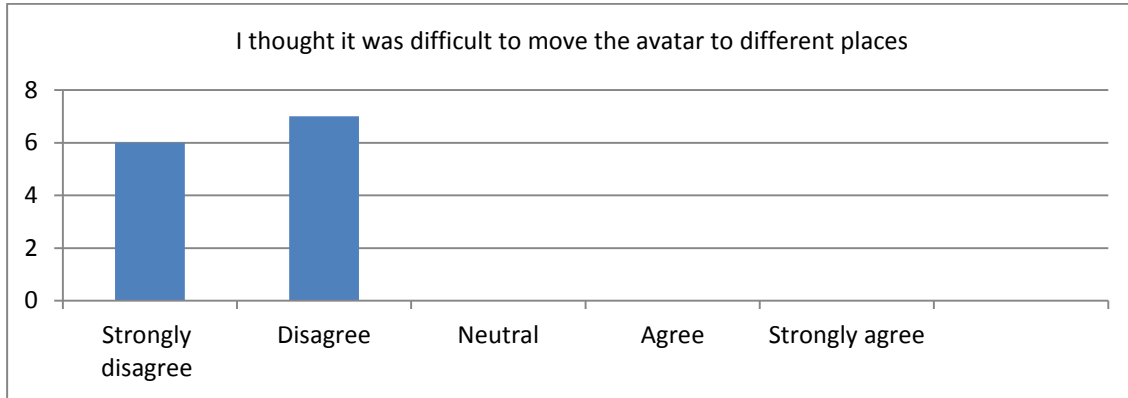
Table 2: Navigation in Second Life (n=13)

The tables 1-2 show answers to questions related to the user friendliness in Second Life. The soldiers gave exclusively positive feedback on the questions related to the user friendliness of Second Life. The soldiers quickly learnt the necessary functions of Second Life that they required to be able to participate in the scenario.

The level of difficulty in the scenario was too high

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Value	2	10	1		4
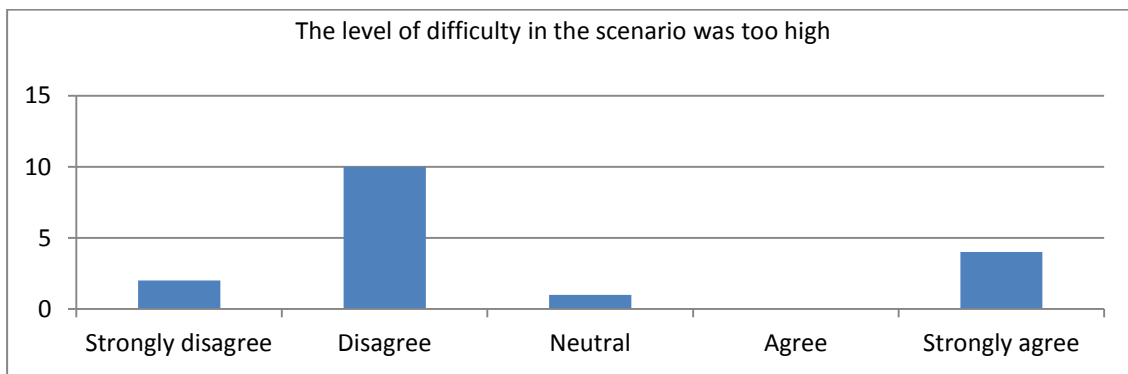
Table 3: The level of difficulty in the scenario (n=13)

Most of the soldiers meant that the situations they had to solve in the scenario were not too difficult and they disagreed on the statement that the degree of difficulty was too high.
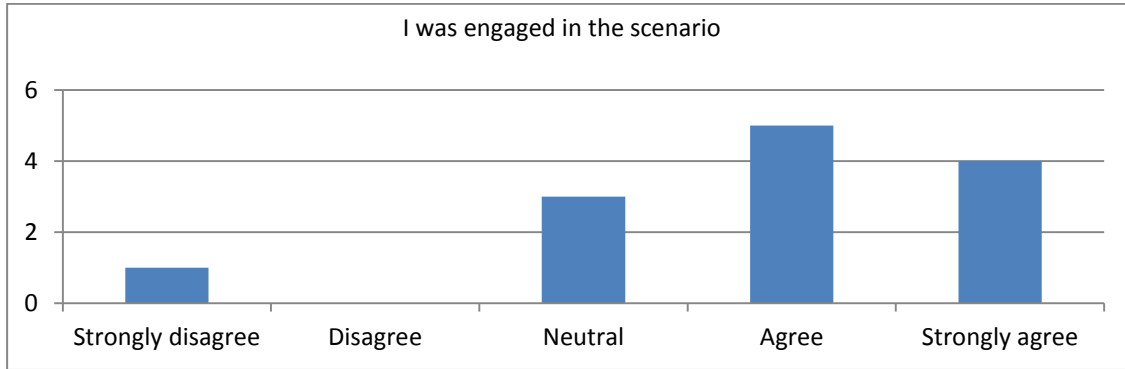
Table 4: Engagement (n=13)
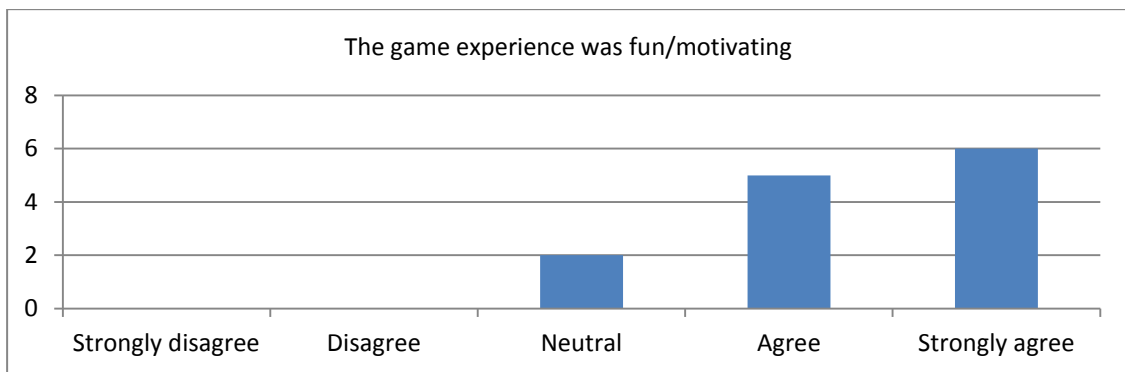
Table 5: Game experience and motivation (n=13)

Most of the soldiers that participated in the scenario, did not take part in the interaction with the Afghan villagers. They were only able to listen in on what was being said in the interactions and observe from a distance. Even though many of the soldiers did not take any part in the interaction of the scenario (the ones that secured the area), most of them either agreed or completely agreed that the game experience was fun and motivating. Table 5 shows that many of the soldiers were engaged in the scenario.
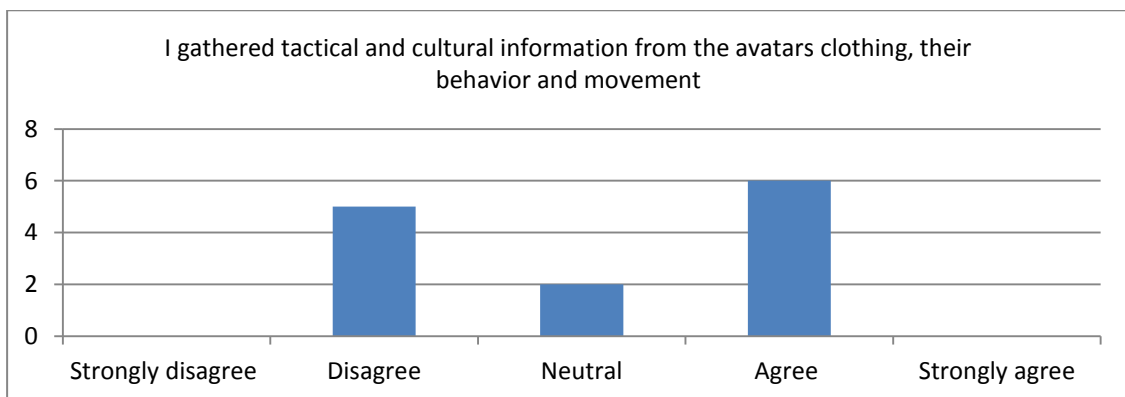
Table 6: Recognition and use of cultural artifacts (n=13)

On the questions related to how the soldiers used the cultural information from the Afghan avatars and the surroundings in the village several of the soldiers either disagreed or was neutral to the statement that they used the cultural information from the cultural artifacts. This result can possibly be connected to the soldiers that secured the area considering that many of the soldiers did not take part of the interaction with the Afghan villagers and therefore did not have to take these factors in to account. It could be useful to follow up this factor in further studies, design and use of cultural symbols in the Afghan village.
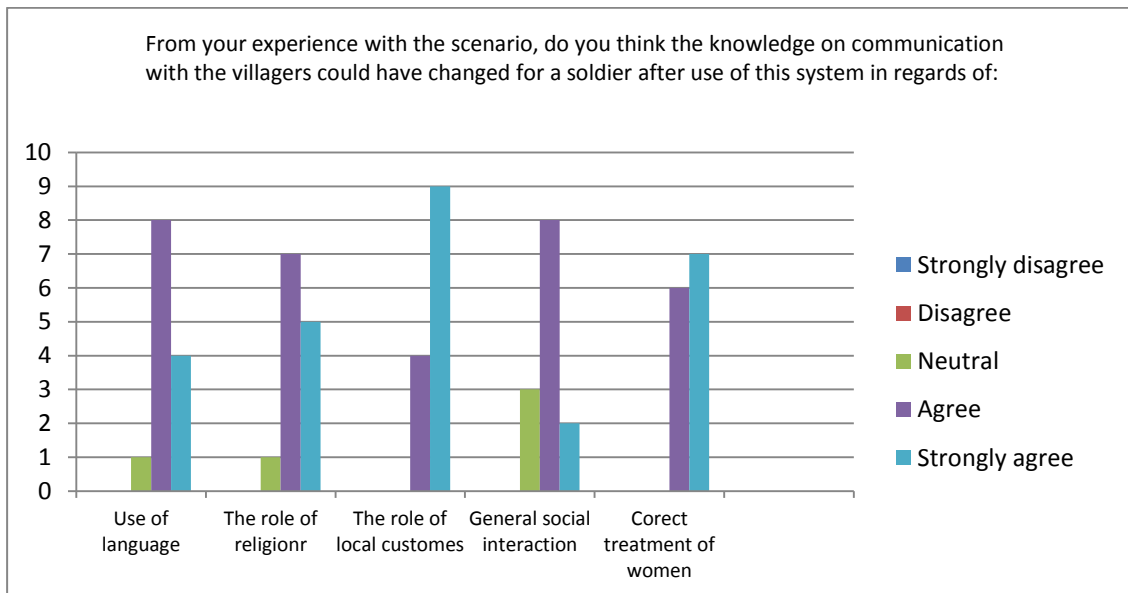
Table 7: Change in knowledge of cross-cultural communication
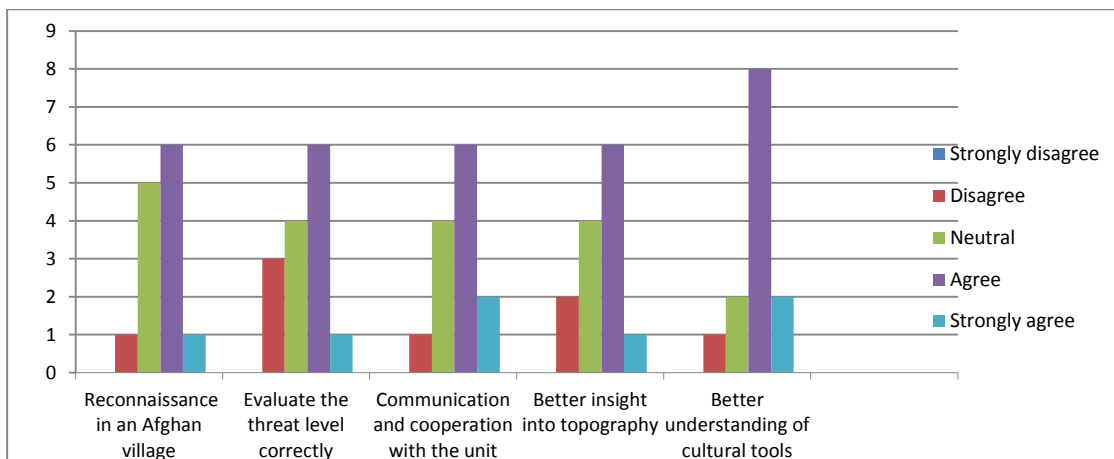
Table 8: The importance of different aspects of cultural awareness (continuation of table 7)

Table 7-8 illustrates the soldiers' evaluation of the question "how knowledge on communication with the local inhabitants" could have changed after they completed the simulations/scenarios in Second Life. The soldiers do to a great extent agree that their knowledge changed after taking part in the scenarios with a focus on cultural and religious aspects as the gender perspective, cultural artifacts, use of language, social interaction and local customs. Some of the soldiers disagreed with the statement that the communication with the local inhabitants could have changed their ability to more objectively assess the threat level in the village correctly. This unsuspected feedback may be due to the small amount of villagers in the village. When there are few villagers present, it could mean many of them were hiding inside their houses due to an impending ambush. There was no attack or ambush integrated in the scenarios. More so, the soldiers' disagree or are neutral toward topics such as communication with other soldiers in the unit, better understanding of topography or reconnaissance.

6.2.2 Pre-Test and Post-Test

The following diagrams reproduce a selection of the answers the soldiers gave on the multiple-choice test that covered questions on cross-cultural communication and cultural awareness. Each question in the test had three to five possible answers, with both correct and incorrect answers integrated. However, there were always more incorrect options than correct ones, so that it would not be too easy to choose the right answer by arbitrary selection. In the below figures, the blue columns show the answers (number of respondents) given on the test before the soldiers were introduced to the scenarios in Second Life, and the red columns are the answers on the same test after they completed the scenario.
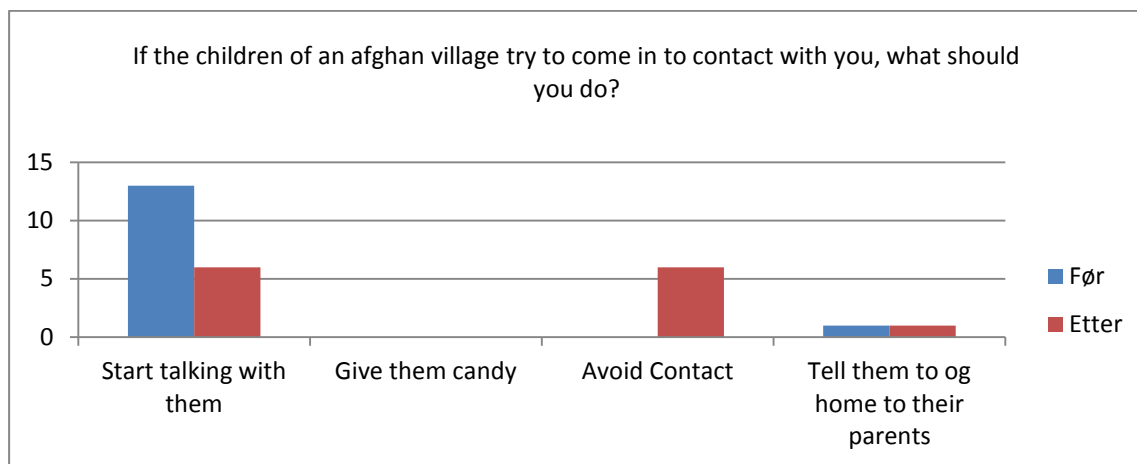
Table 9: Communication with children (Learning goal 1)

The question shown in table 9 (Communication with children) all of the soldiers answered that one should start talking to the children of an Afghan village if they try to make contact with you. After the soldiers had participated in the scenarios, more of them answered that one should avoid to make contact. The learning goal of this zone is that you should not engage in any contact with the children, and just move on. The first team leader chose to ignore the children and talk to the first adult that he came across. The subject of whether you should engage with the children or not, was not directly mentioned in the debriefs. The first team leader might have had prior knowledge in this area and based on his experience, chose not to talk to them. In the pre-test, all of the soldiers answered that you should start to talk to them. In the post test, half of the soldiers answered that you should avoid contact, and the other half answered again that you should talk to them.

On the question of treatment of women in *table 10*, the post-test were distributed over all of the options. The post-test shows that most of the answers are placed on the alternative "The communication should be done by a female soldier". This is a theme that the soldiers were introduced to in the scenarios and it was also commented on in the debrief. Data excerpt 5 and 6 in the qualitative analysis elaborates on the gender perspective in more detail through interaction data

Table 10: Treatment of women (Learning goal 2)
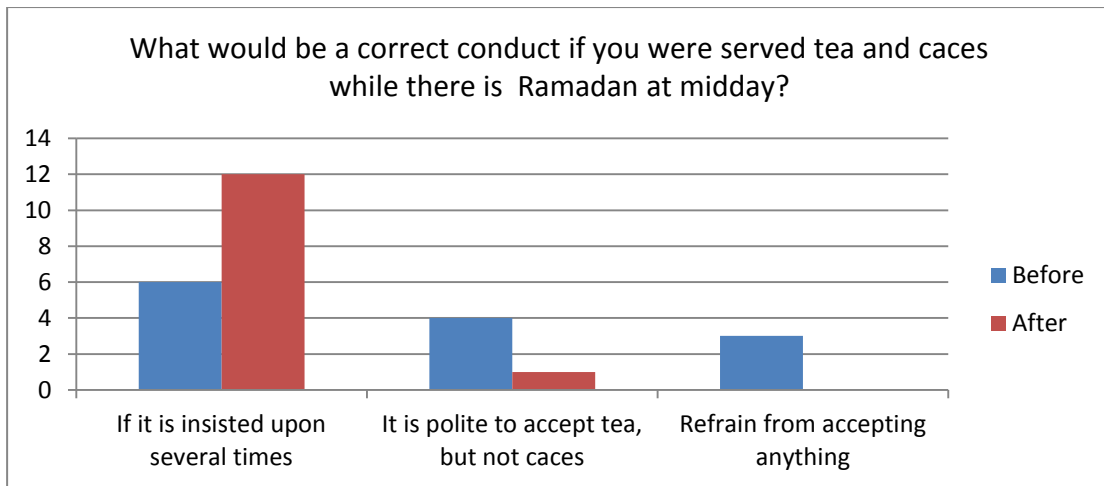
Table 11: Recognition and cultural codes, part 1

The soldiers were offered tea and cakes at the meeting with the chief. This is a theme that were covered in the debrief after the scenarios. The answers changed in the post test, from being divided over the different categories, to that the majority of them answered that you can accept tea and cake if it were insisted upon several times.
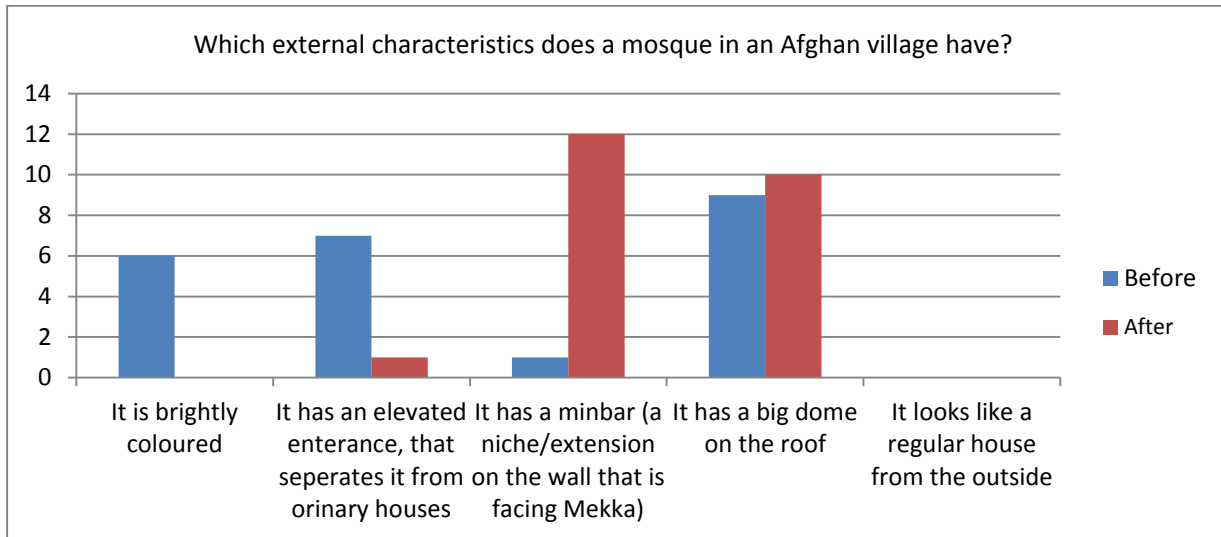
Table 12: (Learning goal 3)

How to recognize a mosque were also mentioned in the debrief. The soldiers got a simplified visual representation of what a mosque in an Afghan village can look like; it had the elementary characteristics as an elevated entrance, a dome on the roof and a minbar
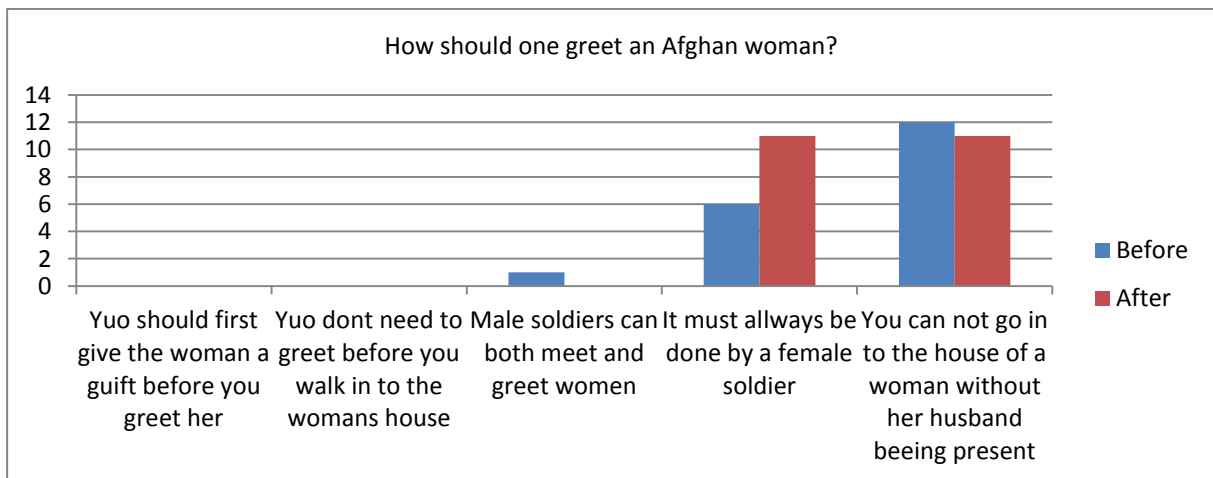
Table 13: Greeting women (Learning goal 2)

There were placed an emphasis on the importance of that the communication with Afghan women should, if possible be done by female soldiers, both in the scenario and the debriefs. The results of both the pre-test and the post-test show that this is something the soldiers have some knowledge of.
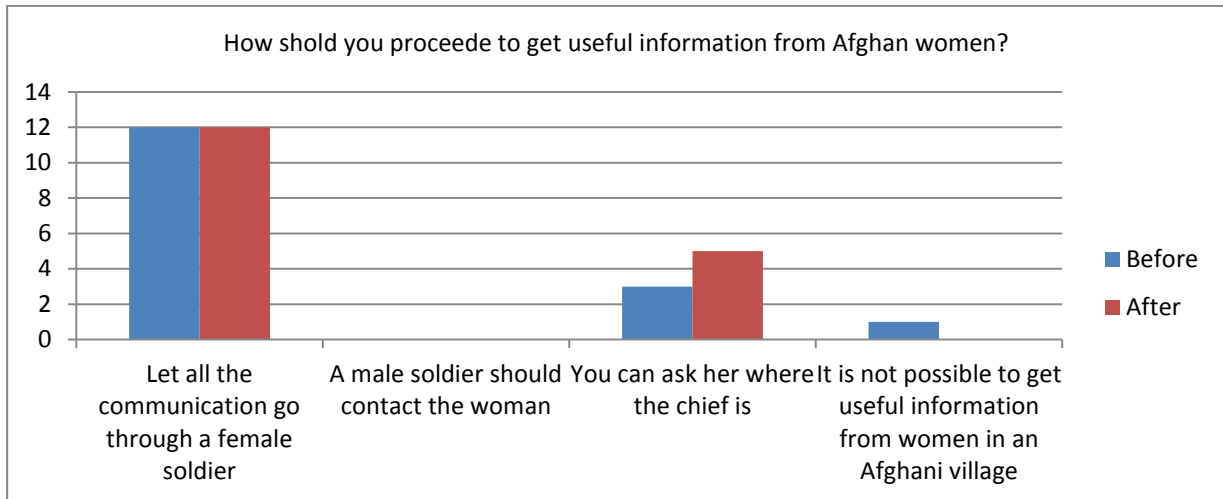
Table 14: Information from women (Learning goal 2)
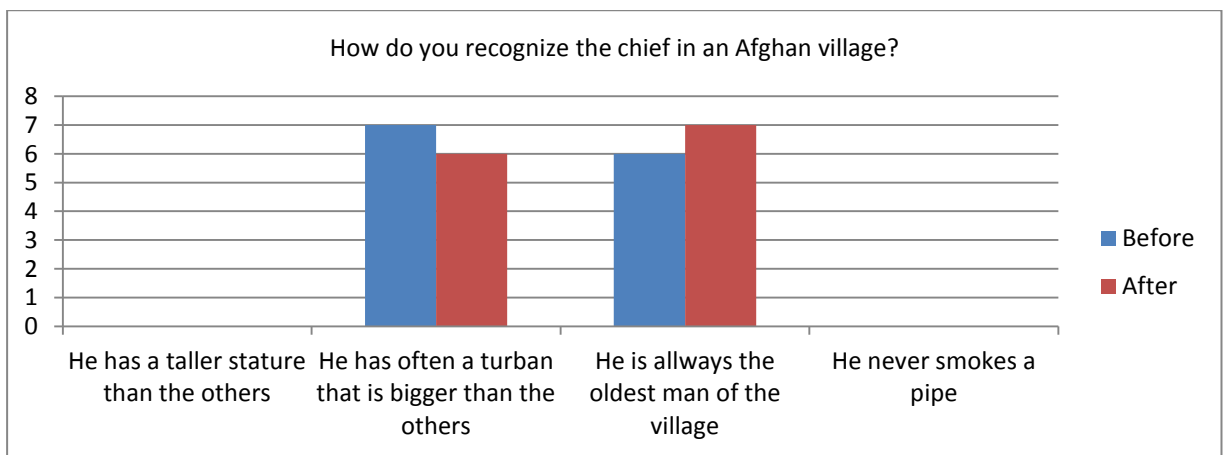
Table 15: The first meeting with the chief (Learning goal 5)

Table 16: The meeting with the chief in his compound (Learning goal 6)

On some of the questions, there were no significant changes on how the answers were divided over the different categories, from the pre-test to the post test. This is illustrated by table 14-16. Some of these themes were not involved in the training and debrief as much as some of the other themes such as the gender perspective. There can possibly be other reasons why the changes are less significant. One reason can be poorly designed questions and (or) question alternatives. Another reason could be that the questionnaire might not be the best source for data on this subject. Some of the questions become more nuanced when you look at the corresponding interaction data, which I describe in the next section.

6.3 Summary of Quantitative Data

The questionnaire data shows that the soldiers are generally positive to the use of a virtual learning platform for training in cultural understanding. The fact that all of the soldiers were not equally active in the communication of the scenario gave an impact on the questionnaire results. Many of them did not have a good basis for answering the questions that were related to how they took cultural artifacts in to consideration when they communicated with the Afghans. In the questionnaire on communication, culture and tactical application, the soldiers answered a question where they evaluated in which degree their knowledge on communication changed, by participating in the scenario in relation to different categories in regards to cross-cultural communication and tactical aspects. There was a variation in which categories they thought would change the level of knowledge by participating in the scenarios. These findings can be taken in to consideration in the case of future studies, as some of these categories was not included in the role-play (such as topography). The results of the multiple choice test on cross-cultural communication showed a variation between questions there were no significant changes in to questions and questions where there were a considerable change in from the pre-test to the post-test. The questions that there were a greater change in were mainly based on the themes that were covered in the scenario and the debriefs.

6.3 Qualitative Data

A result of the qualitative analysis is five categories of reoccurring data. These categories supplement the data from the questionnaires and are informed both by the learning goals and by several theories within the field of social learning. Through these categories I seek to explore which elements in a social learning process virtual worlds like Second Life can add, that other traditional learning methods cannot give. I especially wanted to explore which forms of interaction and cooperation a virtual world can offer, that promotes learning, and how they can contribute to social learning in the area of cross-cultural communication and awareness.

The following five categories have been identified, based on the learning goals that were developed beforehand, the collected data and the theoretical framework:

1) Common goal,
2) Perspective taking
3) Gender perspective
4) Dilemma handling and
5) User friendliness.

Each category is explained as follows: First I give a short description of the context, then one or two representative examples of raw data, and lastly a short analysis which discusses the finding.

6.3.1 Common Goal

The soldiers' main goal was to have a meeting with the chief of the Afghan village, and to get an overview of the possible Taliban activity of the area. Common goal is an overarching category that is thematically connected to most of the other analytic categories. In order to reach the common goal, the soldiers had to manage and be aware of the other categories I describe in this chapter (with the exception of user friendliness). In order to get the information that they need to find the village chief and to successfully complete this meeting.

This goal was apparent throughout the scenario. In order to get the information that they needed from the chief, the soldiers and especially the team leader have to be polite and act culturally sensitive. In order to achieve this, the soldiers must take the villagers perspective and seek a common ground when they communicate with each other and the villagers .. The other goals were derived from this goal.

Data excerpt 1. The dialogue shown in this excerpt is between the team leader and the village chief when he and his team has reached the goal of getting invited in to the chief compound. The only people present in the compound are the team leader, a female interpreter and the village chief (Malik), and two of his men (who remained silent for the duration of the meeting). The dialogue takes place the chief's compound, at the end of the first scenario.

Team leader 1:	*You have gotten a nice compound here and it seems like you live a good life*
Interpreter/Malik:	*Yes life is very good. We're fine here. I am Malik in this village.*
Team leader:	*Yes, that's nice to hear. How many lives in this village?*
Interpreter/Malik:	*About thousand people live here in the village.*
Team leader 1:	*I noticed that there is a nice mosque here in the village now. Who is the (.) Who is the Imam?*
Interpreter/Malik:	*Our mosque is very beautiful.*
Interpreter/Malik:	*= Have you not met the Imam of the mosque?*
Team leader 1:	*It is possible that we have met him, but unfortunately we did not get a chance to greet him.*
Interpreter/Malik:	*He has been Mullah of the mosque in eight years.*
Interpreter/Malik:	*His father was also Mullah in this mosque.*

The team leader got two central questions about the village answered in this excerpt: How big the population is and who is the leader of the mosque. He gets access to this information after a few short informal comments where he also uses compliments ("nice compound", "nice mosque" etc.). This is one of several cultural codes that the soldiers need to master to get the necessary information from the village chief.

Figure 5: The team leader is talking to the village chief and his men with the help of an interpreter

Data excerpt 2. This excerpt shows a dialogue that was held towards the end of the conversation between the first team leader and the village chief in the chiefs' compound.

Team leader 1:	*It is nice to hear that all is well here in the village. It seems like there is a good security here in the village.*
Translator/Malik:	*Taliban attacked us and ISAF soldiers have returned fire*
Translator/Malik:	*ISAF soldiers come in to the village and ransack the village.*
Translator/Malik:	*The people get very angry over this.*
Translator/Malik:	*The soldiers believe that the inhabitant of the village is Taliban, but there is no Taliban here in the village. Taliban is in Pakistan.*
Translator/Malik:	*Pakistanis, Chechens, they are not here.*
Translator/Malik:	*Our people are very good. Good people.*
Team leader 1:	*Yes, but you say yourself that there is Taliban attacks here. Do they come all the way from Pakistan to attack here then?*
Translator/Malik:	*They come from Pakistan and hide in this area, and attack us.*

At this point the team leader has managed to get the chief to open up by starting the conversation with informal talk that includes compliments. The main learning goal of the

scenario is to act correctly in terms of the Afghan culture, at the meeting with the chief and his men, by being culturally sensitive and to exchange pleasantries. The team leader succeeded in achieving this as it is illustrated in excerpt 1. In this manner he reached the goal to get the necessary information on Taliban activity in the area.

6.3.2 Perspective Taking

To achieve the goal of the mission, the soldiers had to take the Afghans cultural and religious point of view in to consideration, and to use the knowledge that they already had in this area in their interaction with the Afghan villagers to solve the different situation that they come by. Communication became an important asset, in order to understand the others perspective for both the Afghans and the Norwegian soldiers. Possibilities and limitations associated with this are described in excerpts 3-4.

Data excerpt 3. It is mainly the team leaders that decide how the communication with the Afghans will be conducted and what is being said, but the interpreters are in a unique position by being able to communicate with the Afghans directly.. The dialogue in this excerpt takes place in the beginning of the first scenario, directly after the team leader and the interpreter had spoken to an Afghan woman and before they reach the next stop on their route which is a mosque with villagers praying inside (in near proximity to where this conversation takes place). The team leader wanted to get some additional information on how the Afghan villagers react to their presence. The team leader asks the interpreter what impression she got of a woman they just spoke to and how to handle the villagers praying in the mosque.

Team leader 1:	*Interpreter, I would like to talk a little with you*
Interpreter:	*Yes*
Team leader 1:	*What impression did you get from that woman? Was she (.) Did she want to talk? Is this a Pashtun village?*
Interpreter:	*The woman seemed to like it. She spoke Dari. She was shy and when we came in [to the village] she told the children to back away and that this was dangerous. So I think it is useful to talk with the ones we*

	meet a little longer (.) to show that we are not a threat.
Team leader 1:	*Yes, that sounds fine. What do you recommend in relation to the mosque here now? I suggest that we stand here and wait until they exit.*
Interpreter:	*I agree*
Team leader 1:	*Now we just have to wait here until they exit*

By getting additional insight on how the villagers perceive the soldiers, it will be easier for the team leader to take on the Afghan villagers' perspective and to adjust his communication according to their reactions. In excerpt 3, the team leader is informed that it can be useful to talk more with the people that they meet so that they hopefully would get closer to gaining the villagers trust.

Data excerpt 4. Though following excerpt from the reflection session shows how the soldier's builds on the knowledge they already have on cultural awareness when they reflect on how they should relate to the Afghan villagers. This excerpt shows a discussion based on the questions; to what extent should they take the Afghans needs in to consideration and how sensitive should you be in relation to their cultural background.

Soldier 1:	*We talk a lot about respecting the Afghan, respecting that culture and being humble, but you should not forget that we represent a culture as well (.) And this is the Afghans' aware of as well. If you become completely submissive and is very humble towards the ones you are talking to, this can give them a bad impression of you. It is important that you dare to stand up for what you represent too, and that (.) we should be able to push the Afghans a little bit too because (.) They have a slightly different agenda than what we do. We don't have the time they have (.) so you need to push them a little (.) as well.*
Soldier 2:	*It's a big difference in being humble and being weak.*

Perspective taking is central in any communication process with other people that you do not know. This happens in stages, and more or less consciously. Firstly one needs to understand that it is a necessity, then how it is done in practice, and finally to find a balance which serves both parts. This is mainly important because both parts often have different goals. If you don't find this balance, the communication between individuals could be disrupted. A correct perspective taking from central participants is a prerequisite for the team to reach their goal. Data excerpt 1 show that an early stage of correct perspective taking by central actors is a prerequisite for the team to be able to reach their goal. If the soldiers had just walked in to the mosque and disregarded the praying villagers, they most likely would not have gotten any information from them on how to find the village chief. This would have halted their progression towards the goal of the mission. Data excerpt 1 show an early stage of perspective taking while data excerpt 3 shows a later stage. The comprehension (understanding) that data excerpt 3 shows is acceptable if you have mastered the earlier stages, but would on the other hand be problematic if you have not.

6.3.3 Gender Perspective

The gender perspective is a specific form of perspective taking, where it is necessary to take the cultural gender differences in to account while communicating. The gender perspective, which is an integral part of the Afghan culture, is dramatically different from the gender perspective in western world countries such as Norway. In the scenarios the soldiers were confronted with gender related challenges in several situations, especially in communication with a female Afghan villager. The problems that can arise if this communication is not done correctly were emphasized. The Afghan woman in the scenarios would react differently if there was a man or a woman that tried to talk to her. The following excerpt illustrates how the soldiers can take this in to consideration while communicating with the Afghans.

Data excerpt 5. In this excerpt the soldiers are talking with the female Afghan villager. She hurt her head when she fell down from the roof, and she is in need of medical attention. The "actor" controlling the female villager is using a "crying" gesture, which causes the avatar to make audible crying sounds and to cover her face with her hands. There is a female soldier

that is talking with the injured woman through a female interpreter as ordered by the team leader.

Female soldier:	*If you want us to help you bandage the wound, we have the ability to do that.*
Interpreter/injured woman:	*Yes thank you so much for the help, but there has to be a woman bandaging me.*
Female soldier:	*Yes, that is okay. Then I will help you with your head.*
Female soldier:	*Team leader, I will use my single pack to bandage her head. She wants it to be a woman who helps her.*
Team leader:	*That is received. When you have done that we will explain to her that there is nothing more we can do. We don't have any doctor with us. And then you will withdraw politely from the building, then we will move further towards our primary goal.*

The dialogue in this excerpt shows how the team leader chose to send two women (a female soldier and female interpreter) in to the house of the injured woman. He was standing outside the house while the conversation took place. Men that are a stranger to the woman should not walk in to her house, in this culture. The Afghan woman also heard the team leaders' communication with the other soldiers outside the house. He contacted a male medic (emergency medical technician) that came over to the house to look at her head. Seeing that she wanted to be treated by a woman, she specifically asked for it to be a woman to take care of her injury, even though there only were women present inside her house. In this part of the scenario, the soldiers got a further insight in to how important there is to be aware of the gender perspective, while communicating with the Afghans, by observing the woman's reactions on how they chose to solve the situation. They also got to observe how the team leader chose to stand outside the woman's house while he let the female soldiers go in to the house and tend to the woman's wound.

Figure 6: The two female soldiers are talking to the injured women, asking what happened to her

Data excerpt 6. The team leader of the second scenario started with a male interpreter, and the Afghan woman was one of the first villagers that they met. Even though he had a female interpreter available, he chose to use the male interpreter in the interaction with the woman. The soldiers were also standing close to her. This is something that is considered impolite in Afghan culture. How the two team leaders chose to solve this situation in different ways were brought up by the, where he says: "I'm a little dissatisfied that you did not chose to use any women i in the beginning of the game. How you handled the children was nicely done. I think the men who spoke to her were a little aggressive" Seeing that they had both a female soldier and translator available it could be an advantage to let all of the communication go through one or both of them, as it was done in the first scenario. If you don't take cultural or religious factors in to account in the communication, as the gender perspective, this could lead to problems in managing an open communication with the Afghans and especially the woman in the village. In this case it would probably be easier to take in to account how the Afghans react. To be able to move towards the goal of the mission it is essential that the villagers get a good impression of the soldiers and don't look at them as a threat.

Data excerpt 7. After the second team leader gave orders for where the rest of the soldiers should position themselves, they enter the village. The first people who meet them are an Afghan woman who is standing still, looking at them and some children who are asking them

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for water and candy. The team leader wants to talk to the woman, and approaches her with a male translator.

Interpreter: *Salam Aleichem*

Interpreter: *I don't get a response*

Team leader 2:   *You don't get a response from her?*

Interpreter: *No*

Team leader 2:   *Then we just walk further down the street*

Even though the second team leader had a female translator available he used the male translator while talking to the woman. One of the learning goals of the scenarios was the gender perspective. The soldiers have to take this perspective in to account when they communicate with the Afghan villagers. One of the challenges they were faced with, was the proper use of translators, and to consider when it would be appropriate to use a male or a female translator. The Afghan woman refused to talk to the soldiers because there was a male translator that approached her, which is considered highly inappropriate in Afghan culture. They were also standing too close to her, than what is considered appropriate as seen in figure 7.

Figure 7: The soldiers are standing to close to the woman, thus she refuses to speak to them.

6.3.4 Dilemma Handling

The complexity of cross cultural communication that the examples above display, indicates that there is no definite answers to how one should communicate with people of another culture considering that there will always be differences in how the inhabitants reacts to your actions. In the scenarios the soldiers were able to freely choose how they wanted to solve the different situations that they encountered. They could choose where they wanted to go and who they wanted to talk to in order to reach their goal. The soldiers were not given any restrictions on how to communicate with the Afghans, and the Afghan villagers were not given any strict frames to shape the interaction with the soldiers. They were encouraged to improvise within their roles in the virtual world that the scenario represents. In this category we have displayed situations in the scenarios, where there have not been any definite answers on how a situation is to be solved.

Data excerpt 8. When the first team leader were on his way in to the chiefs compound he gave notice that he would not be able to take his shoes of, because he always need to "be on"(alert), that he need to be able to act if something unanticipated were to happen. This is an example that follows up on the conversations in data excerpts 5-6.

Interviewer: Is there something (.) can you give an example (.) Was there anything you
                      noted in relation to this?

Team leader 1:   Yes, both in communication with women, when we gave that woman
                      treatment, to walk in to that house and explaining that you are a soldier.
                      You are here as a soldier and i am not able to take my shoes off because I
                      need to be on and explain this to them. The experience with this indicates
                      that they already know this, but it can be good to go over this with them
                      This is the dialogue that is referred to above

Team leader 1:   Say the following, that i am sorry that i can't take of my shoes when i go in
                      here [to the compound] but it is because i am a soldier, and i always have
                      to be on guard.

Interpreter/Malik: It is not important. It is okay.

To take of your shoes before you enter some ones house is considered polite and expected in Afghan culture. The team leader had two possible choices; to take the Afghans cultural expectations in to consideration, or to keep his shoes on as a safety measure. He chose to keep his shoes on when he went in to the compound. Based on previous experience he was aware that it most likely would be accepted and that it would most likely not lead to any form of conflict.

Data excerpt 9. Another example of handling a dilemma were described in the interview with the female soldier, where she talks about the soldiers encounter with the children at the start of their mission, something she describes as a learning experience, whether you should talk to the children or leave them be.

Interviewer: *As the final question, you have never been to Afghanistan earlier, did you get any form of "a-ha experiences" or something else you seemed to learn, that you might not have learned otherwise?*

Female soldier: *I got a lot of a-ha experiences. I experienced that (.) as I said, we have learned a little about this a while back, but that was sort of (.) you have to be really conscious of what you are doing and I probably have, you know, that we (.) didn't talk with the children. I was thinking that we had to talk with the children for instance and it's completely okay that we don't talk with the children. I sort of understood this after a while. The concept of time, i noticed that the first team leader was a little skilled at that. He was like, okay it's nice that you're saying that, but we have to move on now. You sort of learn from that too.*

This excerpt shows how the female soldier acquired new knowledge, by observing how the team leader solved different situations in the scenario. She got new information on how you should act around the children that you are bound to encounter, who you talk to and how you should prioritize your time, seeing that you always have a limited time frame that you need to stick to. This is also something that is reflected in the pre and posttest in table 9, where several of the soldiers answered that you should avoid talking to the children in the post test.

6.3.5 User Friendliness

The following data excerpts deals with the user friendliness of the learning environment of Second Life and the motivation of the soldiers that participated in the project

Data excerpt 10. This is an excerpt from the interview with the female soldier that was active in the communication with the Afghans.

Female soldier: *What i think is nice about this is that it did not take that much time. I was not bored and i didn't need to "kit up" completely and stand outside freezing and stuff like that, if I'm looking at it that way. So in that sense I got a lot out of it in a short amount of time. Seeing that it is a game and it's something that's new, I notice that it doesn't go as I don't achieve flow as well as if I would (.) For instance I would have understood how to seat myself, if I had been there. But I was not able to in this game and this is related to the training you have beforehand. But I must say from being completely inexperienced and hating computer games, this was very easy for me. I managed to maneuver, I managed to sit down after a while and stand and do what I was supposed to.*

Female soldier: *I thought it was very educational and I managed to immerse myself in the role completely. I was sort of (.) a little nervous when I walked over to the woman that I had to talk to*

This female soldier was one of the soldiers who were interacting with the Afghans more frequently. The first team leader chose to use her in the interaction with the Afghan woman (in excerpt 5). In this excerpt she mentions that the conversation with the woman made her nervous and that she immersed herself in her role she was playing. This shows that the scenario in Second Life will for some individuals give a high degree of realism and immersion. She also comments on that she mostly did not have any trouble learning the technical elements of Second Life as maneuvering her avatar, but that there were one element she did not master during the scenario. She seated herself in a cross-legged position in the meeting with the village chief. This was also mentioned in the debrief: a woman should not to be seated with her legs apart. This is something that was discussed afterwards in the debrief, that as a woman it can be an advantage to be seated with your legs together, considering that there is several possible positions to be seated in.

Data excerpt 11. This quote is an excerpt from the reflection round, after the completion of the scenarios. One of the soldiers that secured the area tells about how he had some problems hearing the conversations in the scenario.

Soldier: *The first thing that come to mind, game-wise. It's okay that you secure the area, but i won't catch any of the conversation or anything like that, so i won't learn anything. I'll just sit and stare at the screen, wondering what is going on. Unless i zoom in and seek the information, but then I won't be doing what I am supposed to do*

The soldiers used the voice chat function in Second Life for communication in the scenario. When you use this function you have to be within a certain distance of the sound source to be able to hear what is being said. Some of the soldiers that were securing the area were too far away from the sound and was thus not able to hear what was being said in the conversation between the soldiers and the Afghans. We got feedback from the soldiers on how to improve this aspect, to increase the user friendliness of Second Life as a learning platform, which I will elaborate on in the next section.

6.3.6 Proposals for Improvement of the Technology

The following proposals for improvement are based on feedback that the soldiers gave in the questionnaire and the interviews. They are organized in a list. Original feedback is written with quotation marks. Where we found it necessary the feedback were rephrased in more general terms.

- *Body language* can be of great importance to make the communication more "human", and to promote a higher degree of realism and immersion, which is a central part of the scenario. In Second Life it is possible to use body language or so called gestures. In the interview with the female interpreter, she was asked a question related to the possibility of using mimic and body language in Second Life. In a quote of the interview she says:

    "I thought that the body language and mimic were almost absent. You were not able to play the way you would have in real life. Especially with (.) when you spoke with the Afghans. The way you act, by showing humility and maybe willingness to cooperate. It gets really clinical when you remove all mimic"

    An example of body language that was used in the scenario is that the injured Afghan woman was crying, when she met the soldiers. Due to limited time, we did not integrate this function in to the training to a great degree. It is possible to use these to a larger extent than what was done in the scenarios.

- *Verbal communication*: Many of the soldiers that secured the village did not hear what was happening in the scenario, because their avatars were placed too far away from the audio source. In the questionnaire, one of the soldiers mention the possibility of using a military communication device instead of the built in voice-chat function in Second Life. He says:

    "Allot [of the content] in the game is good, but examples of actual pictures, where you get in depth information on what you are looking for before you play the game, would help. The communication conditions could be improved by using a military communication

device. Then you would not be dependent on being close to the avatars that are talking in order to hear the orders and the conversations that are going on. "

By using the military equipment, they will not depend on being close to the avatar that is speaking to be able to hear orders and the conversations that is going on. This will also give the soldiers training in using this type of equipment.

- *Realism*: It were also mentioned by some of the soldiers that they felt like it should have been more people in the village. If there are few visible people in the village, it could be a sign of an ambush. This is something that could be solved by making avatars that is not controlled by players, which could be programmed to move around, to seem more alive. By having more avatars in the town it will give an impression that the conditions in the town is normal and that is no indication of threats that the soldiers would need to deal with

- *Active participation*: Several of the soldiers (the ones that secured the perimeter of the village) did not take part in the communication with the Afghans, and thus they were not very active. One of the soldiers' comments in the questionnaire:

"This has many possibilities. During the experiment we participated in, there were too few that got to try out communicating and using an interpreter. Could with advantage increase the level of difficulty or insert elements for the ones that don't talk. For instance the ones that are securing the areas give some challenges there. Could be someone who is angry, irritated, more children, that they see dead people or something similar. Something that Challenges them on their com. with the team leader of the scenario. Otherwise, this can offer many possibilities in a deployment environment with forces that are going on int. ops., to get a better awareness"

He makes suggestions for improvements by adding challenges for the soldiers that are securing the village, to involve all of the soldiers that take part in the scenario, so that they too can get training in handling unforeseen incidents and communicate with the Afghans.

- Many of the soldiers did not have an optimal capacity to evaluate the contents of the scenario (see table 6). The soldiers that only secured the village perimeter did not have to interact with the cultural artifacts or the Afghan villagers. This is something that may have affected the multiple choice test with questions on cultural understanding, seeing that many of the soldiers did not observe the interaction directly or heard how the team leader communicated with the Afghans, and solved the different situations he came across (see Table 9). If more of the soldiers get a possibility to be active in the scenario, it would be easier to evaluate the learning environment and the contents of the scenario.

5.3.7 Summary of Qualitative Data

The common goal of mapping the Taliban activity in the Afghan village has been a recurring theme through the analysis of the qualitative data, The most efficient way to reach this goal is to take into account and act according to the cultural and religious norms. The soldiers were for the most part acting according to the multiple cultural factors they came across, and took these in to account in the interaction with the Afghans. In the analysis I have displayed the different measures the soldiers used, to get closer to the goal. In the category *common goal* I have shown how the team leader went ahead to get the necessary information from the village chief, to get further towards the goal of the scenario. In the category *perspective taking*, I have shown how the soldiers adjust their communication according to the Afghans cultural and religious perspective, and how they reflect on how and to which degree they should represent their own culture in the communication with the Afghans. In the category *gender perspective,* I have explored how the soldiers can take the gender perspective in to account when they communicate with the Afghan woman and how this is done in different ways by the two team leaders. In the category *dilemma handling,* the interaction data shows that the soldiers had the opportunity to act freely and solve the situations based on the previous experience that they already had. In the interview data we found that some of the soldiers acquired new knowledge by *observing* which actions the team leader of scenario 1 chose to conduct to reach the goal of the scenario. They had many options that can give different reactions and outcome in the

scenario. After the scenario, these choices were addressed for reflection in the debrief, where it will be commented on what was done well, and what could have been done differently

 In the category *user friendliness* I have commented on the degree of immersion that was achieved by one of the soldiers and practical issues related to the use of the technology. This is also something I also talk about in part 5.4: proposals for improvement of the technology where I present feedback from the soldiers, in which they identify some problematic aspects and give suggestions for improvement.

7. General Discussion

The following chapter is organized around the research questions, which are discussed at a general level, drawing on the data of the empirical chapter and referring to literature from the theory chapter. I will use the data and analysis I presented in the previous chapters as a base for discussion. I have structured this chapter in accordance to the research questions I posed in the introduction, which are:

1. How can Second Life support social learning?
2. How can Second Life support cross-cultural communication and cultural awareness in military training?

7.1 How Can Second Life Support Social Learning?

Both the interview data and the observation data indicate that that the learning that happened in the CAMO role-play is of a social nature. The soldiers were able to learn by observing each other's actions and interacting with the Afghan villagers in realistic scenarios. These interactions are also similar to situations they may encounter in international operations. They were referring to these interactions afterwards, in the interviews and debriefing sessions, which indicate they were memorable within the time present.

Staging a role-play in Second Life offers many opportunities for social, flexible and interactive learning. The constructivist view values the opportunities that virtual worlds present in order to facilitate social interaction and open-ended investigation (Dede 1995), more so than just a focus on fast access to information and educational content. Throughout the analysis chapter I have presented examples of how Second Life supports this variation of social learning and communication. The soldiers that participated in the CAMO study were prompted to solve the problem of reaching the village chief through a (relatively) self-guided and collaborative learning process during the role-play in accordance with the constructivist view on learning.

The possibilities that virtual worlds such as Second Life presents, can also be seen in accordance with problem-based learning (Barrows 1980), in which acquiring a hands-on, experiential knowledge is seen as important in order to prepare students for the future challenges they will meet in their professions. The problem-based learning approach is suited for complex topics such as cross-cultural communication that relies on communication skills, the ability to think and act on your feet and the ability to manage multiple choices where there is not necessarily one right answer or solution to a task or problem.

7.1.1 Reaching Common Ground in a Virtual Role-Play

The "grounding of process", as proposed by Clark and Brennan (1991), did seem to happen easily and without effort throughout the scenarios. The virtual representation of the Afghan village contained several cultural artifacts that the soldiers could use as tools to gather information. The virtual environment allowed the soldiers to use the common virtual surroundings and situation that they were in to create a common ground for mutual referencing. Shami and colleagues calls this process implicit grounding. The findings in their study indicate that social learning staged in virtual worlds are dependent on implicit grounding in order to establish grounding in communication and interaction (Shami et al. 2011). All of the soldiers had some form of previous knowledge on how to relate to the cultural symbols and norms, which they needed in order to carry out the interaction with the villagers. The information the soldiers could draw upon were the villagers clothing, buildings and other structures. One example of this is the interaction between the team leader and the interpreter at the mosque (*excerpt 3*). Both the team leader and interpreter were able to identify the building as being a mosque due to the audible praying sounds coming from inside the building, and that the virtual mosque carried a resemblance to a real life mosque (e.g. it had a Minbar built into it). In turn, this agreement (or recognition), that the building they were standing by was in fact a mosque, led to their discussion about how to approach the people praying inside of it, thus using an external, shared artifact for reaching a common ground of the process on how to handle the situation. If the soldiers had not recognized this building as a mosque, they may have walked in through the doors and interrupted the praying. This would most likely have caused the people in the building to be less cooperative, and would consequently halt the soldiers' search of finding the village chief. The soldiers who were

active in the communication of the scenario were able to reach common ground by collaboratively interacting with each other and the environment, which indicates that both other people who one can communicate with and common artifacts one can inspect are necessary for full support of grounding in a virtual world like Second Life.

The "grounding of the content" (Clark and Brennan, 1991) is a type of grounding to support communication, and it happened relatively smoothly. The main means of communication that the participants used was the voice-chat. They also used other forms of communication, such as text-chat, which could support communication when voice chat was not preferred (for example when being located at distanced apart from each other). The soldiers used the military terms that they usually would use in a real-life situation and they used their avatars to navigate through the virtual environment, with no problem of finding or following each other more or less as they would in a physical environment. They used their previous knowledge on how military missions or operations are conducted in the mission of the scenario. Shami and colleagues (2011) also states that it is easier to reach a common ground in the virtual surroundings as the participants have previous knowledge and experience of the content and that the grounding will happen more easily if there is a low need for clarification of the content (Shami et al. 2011). The team leader gave the other soldiers orders through the built-in voice-chat in Second Life. The one thing that hindered some of the soldiers' understanding of what was happening in the interactions inside of the village was the short reach of the voice-chat sound that impacted those who had the task to secure the area. However, it did not cause any problems for the soldiers that interacted with the Afghan villagers.

7.1.2 Learning When the Answer Is Not Known

Fischer (1991) mentions a type of computer based learning environment (Doman-oriented learning environment) that gives the user customizable feedback, which enables the user to work creatively with problem-solving tasks in an open-ended learning environment. The feedback that the soldiers were given in the Second Life scenarios was not computer generated as it is in domain-oriented learning environments, but given by the people (or "actors") controlling the Afghan avatars. This feedback can be used by the soldiers as a tool to explore Afghan customs and culture through the interaction with the villagers. The soldiers could also use the virtual artifacts as a source of feedback. Many of the soldiers mentioned

that they did not take the cultural artifact in to account as a source of information when they interacted with the villagers as seen in *table 6* The cause of this could be that the duration of the data collection only lasted a short amount of time; thusly not many soldiers could take part in the interaction and were only given the task of securing the village. If more of the soldiers had fully tested the content of the scenario, this feedback may have been different. However, *excerpt 3,* in which the soldiers debated on what to do as they approached the mosque, can serve as an example where the soldiers' decision on which course of action to take was informed by a virtual artifact.

Fischer (1991) argues that open-ended learning environments which encourages the learner to solve problems creatively, is best suited for learning processes that are not well defined in the outset. These learning processes typically involve decision making and creative problem solving as key components. The goal of the meeting with the chief and retrieving information about the Taliban activity in the area was well defined, but how to act and attain the villagers trust through communication in order to get the information that they needed was not well defined. The soldiers did not get any specific instructions on how to act or attain the information they needed, other than the details of the mission. The information and suggestions that was given to the soldiers through the debrief was only given after each scenario round as pointers on how they could improve their actions and communication with the villagers. The soldiers were never told in the outset what they should do in the interactions or which course of action they should chose.

The qualitative data indicates that the scenario-based training gave the soldiers that were active in the role-play an opportunity to look at the problems or dilemmas from different angles and that this opens up a possibility for creative problem-solving. During the role-play scenarios the soldiers encountered complex problems that had no one right answer. They could freely choose how to handle the situations they were exposed to as long as they acted in a culturally sensitive manner. Some of the qualitative findings in the CAMO project supports that the scenario based training in Second Life has the potential to facilitate some of the same qualities as mentioned in 4.2.2 The data *excerpt 7* and *8* shows how the soldiers in some cases were faced with dilemmas related to which course of action would be the most beneficial in the moment.

7.1.3 Reflective Practice

Donald Schön (1983) describes two types of reflective practice; reflection-in-action and reflection-on-action. Second Life provides a flexible and open-ended environment that is suited for staging role-plays with a content that is similar to those real-life learning situations which has no well-defined or "correct" outcome. I believe that these qualities create a learning environment that can facilitate and support a reflective practice, because it is not sufficient just to have the end state (goal) in mind, one must also have in mind the pros and cons of each movement towards the goal, and those moves are not clearly defined (e.g. it is not like a chess board).

The soldiers that participated in the study have all built up a varying repertoire with skills and knowledge on how to work as a team, how to be aware of the Islamic gender roles and the cultural norms in an Afghan village and how to use this in communication with the local inhabitants. The skills are based on previous experience with international operations, formal education and training. The level of knowledge and experience differs with each soldier. Some of the soldiers that participated in the CAMO experiment have been to Afghanistan several times, and others had no experience with international operations. The first team leader had extensive knowledge on how to be culturally sensitive in his communication, as he had worked as a team leader on earlier operations in Afghanistan. This is reflected in data *excerpt 1*, where he is invited in to the village chief as a result of displaying a culturally sensitive behavior. The soldiers are sometimes shown to collaboratively reflect on how to approach and solve the problem in surprising situations such as *excerpt 3*, where they encountered the mosque. In these excerpts, the team leader shows through the dialogue that he masters the cultural codes that are necessary to get the information that they set out to acquire. It is also shown in *excerpt 7* where he could have chosen to keep his shoes on when entering the chief's compound, but decided to keep them on and gave the chief and his men a short explanation on why he would not take them off. It is in unexpected situations like this, where the soldiers have to reflect-in-action (think on their feet so to speak) and use a form of tacit knowledge to approach new situations. The social learning that the Second Life platform provide, creates a possibility for the users to utilize previous attained experiences by applying them to situations similar to those you would meet in real-life. Role-plays staged in Second Life also provide an opportunity for participants with less experience to observe the actions of

more experienced participants and learn from this. The second team leader had no previous experience which this type of work, which affected how he communicated with the Afghans (*excerpt 6*) The problem solving that they go through in the role-plays, may prepare them for unexpected challenges in real-life. Soldiers that has not been deployed to foreign countries can learn from this by taking part in a training that is directly linked to the context in which the subject matter of cultural awareness is relevant, by observing experienced officers applying their knowledge and experience in solving the problems in the scenarios. *Excerpt 7* and *8* can also be used as examples of how the role-play was open-endedly structured, where the soldiers interacting with the Afghan villagers could freely choose how they wanted to resolve the different situations and problems that they encountered. This structure gave the soldiers several options in how to act in the different situations in order to reach the end goal that was presented in the scenarios (i.e. inquire the chief about Taliban activity in his village). Thus reflection-in-action becomes all the more important.

7.2 How can Second Life Support Cross-Cultural Communication and Cultural Awareness in Military training?

It is necessary for the soldiers that go on international operations to attain an extended knowledge and awareness of the foreign culture that they will be working in. In most peace keeping operations the soldiers will be in contact with the local inhabitants and in many situations the soldiers depend on gaining the local inhabitants cooperation and trust to be capable of doing their job.

7.2.1 Cultural Sensitivity and the Issue of Real Time

Some of the excerpts in the data and analysis chapter depict how the soldiers gained new insight about the dilemmas related to acting culturally sensitive and notice the unexpected situations they can be faced with while working in a foreign country. These realizations may have been prompted by the experiences they gained by participating in the role-play that they took part in ahead of the interviews. The interviews and the reflection session uncovered

some of the soldier's thoughts on aspects of the Afghan culture that they should be aware of, and how it may affect their work in practice. In *excerpt 4*, two of the soldiers discuss challenges related to the balancing of their agenda of completing their mission objective versus the Afghans' needs and interest. The soldiers have a limited period of time to complete their job, thus they are faced with a dilemma concerning the amount of time they are able to spend for instance on talking to children that approach them or other concerns not related to their mission objective. This dilemma became apparent during the role-play, as in the following example. In one of the situations encountered, the Afghan villagers continued the dialogue after the soldiers received the information they needed and could move forward in the scenario. The female soldier who took part in the role-play commented on this time-aspect during the interview (see *excerpt 8*), which was puzzling to her. She observed how the team-leader moved on to the next mini-scenario after he got the information he needed from the villagers and that he chose not to speak with the children.

The amount of time that is used on the scenario as a whole and on each mini-scenario might give the students a false impression of how much time that should be spent on each instance in real-life. The students would spend significantly less time on speaking with the Afghans during the role-play and jump from one mini-scenario to the next at a high pace. To create a flow in the scenario the soldiers did not meet a very large amount of resistance as they might have been in a much less predictable real-life situation. This is not to say that other scenarios in Second Life was all together lacking in resistance and challenging interactions. I believe that Second Life is as much suited for this purpose as any other 3D virtual platform.

7.2.2 Perspective Taking and the Gender Perspective

Culture is an important component of understanding human behavior and it plays a central part in all forms of human communication. If you have little knowledge of the cultural background of the people you communicate with, it may be difficult to take on their perspective and understand them. In order to engage in successful and productive communication with people from other cultures, one must first be able to understand and learn to take the perspective of "the other" (Mead, 1934).

The qualitative data excerpts of the observation material show several examples of how the practice of perspective-taking, especially with regards to cross-cultural communication, can be facilitated through a role-play in Second Life. The two examples (*excerpt 3* and *4*) mentioned in section 5.3.2 show how Second Life can facilitate a hands-on perspective-taking.

The data collected indicates that the soldiers were able to use their cross-cultural competency they had acquired on earlier occasions either through practice or formal teaching. As seen in *excerpt 1* and *2* the first team leader acted in a culturally sensitive manner required in each mini-scenario he encountered. He was able to make decisions based on the knowledge he already had on the Afghan cultural perspective.

The second team leader had no previous experience with international operations and may not have had enough knowledge to participate at the level expected of them. As seen in *excerpt 6* and *7*, the soldier did not take into account the cultural codes of conduct during his communication with the woman in the Afghan village. According to Rasmussen and colleagues (2010), the soldiers that are a part of international operations must be provided with the basic knowledge on cross-cultural communication within the relevant culture (that they will be in contact with) and the meta-cognitive skills, which supports them in establishing a higher capacity of communicating with people across cultures and to make sense of cultural behaviors in these interactions. This may be seen as an indication that there is, at the very minimum, a need for an introductory course in Afghan culture and customs (at least addressing each of the learning goals implemented in the scenario). Having some basic knowledge of Afghan culture may leave the soldiers in a better position to understand the Afghans' cultural perspective and to apply this knowledge when participating in the role-play. The combined experience of an introductory course and the hands-on scenario experience, may increase the soldiers ability to apply the knowledge they learn to later work in the field of operation

7.2.3 Engagement in a Simulated Context

Due to the short amount of time we had available to collect the data, we did not get the chance to interview more than three soldiers. The quantitative data gave us an additional source of

information that we would otherwise not have access to through observation or interviews. The two questionnaires gave us an overview of the soldiers' knowledge of cultural awareness before and after the simulation. Although the amount of informants were low and not all informants that got the chance to join in the actual role-play, the feedback of the questionnaire gave us the impression that most of the soldiers enjoyed participating in the simulation and many found the experience to be engaging (see *table 4 and 5*). These findings support the qualitative data in which the soldiers gave positive feedback of the learning experience. As shown in *table 1* and *table 2* the majority of the soldiers did not have any trouble with the user interface nor the functionality of Second Life needed to participate.

One of the affordances of the use of Second Life in an educational context identified by is immersion. Virtual worlds such as Second Life support the users in feeling a sense of presence through the spatial surroundings and through the virtual embodiment of avatars (Mennecke et al. 2011, Warburton & Garcia 2009). The female soldier expressed that she became nervous as she approached the wounded woman to talk to her, as ordered by the team leader (shown in *excerpt 10*). This nervousness can be seen as an indication that she managed to immerse herself in the content of the scenario.

The pre-test and post-tests pertaining to the learning goals were created to assess the soldiers' knowledge of typical aspects of the Afghan culture. It was based on the type of information the cultural expert would use when he taught courses on the topic at the Defense College. The soldiers were tested before and after they were introduced to this information in the role-play scenarios. Thus the soldiers were able to gather information on cross-cultural communication and cultural awareness from three different sources: The feedback from the visual representations of the village and its inhabitants, the Afghan villagers, and debrief after the simulation sessions.

Overall, the soldiers scored better in the posttest than the pretest, which is based on a higher number of "correct" answers in the former. It is hard to say whether or not the soldiers' improved understanding after the posttest a result of interactions with the Afghan villagers in Second Life, or the debriefing session guided by the cultural expert afterward. The cultural expert was only able to comment on the soldiers' choices as a result of his observations made while watching the soldiers from behind their screens. By using this method of teaching he was able to give his feedback in the context of the soldiers' experiences with the role-play. This leads me to believe that the debrief sessions and the scenarios are closely intertwined.

The soldiers may not have been aware of the type of mistakes that they made or what kind of actions were performed in a culturally sensitive manner if they had only been subject to the feedback they received after the scenarios. It would possibly neither have been clear to the soldiers what the effects of the actions they carried out in the role play if they only relied on the feedback and information that they got through the role-play.   As stated by Stahl et.al (2006) and Warburton, Perez Garcia (2009) it is greatly important that the students receive support and feedback from a teacher or supervisor while using computer-based learning tools. This will give the students a greater possibility to place the information that they attain in a context that is relevant to their task and what they are supposed to learn. This distinction, as seen from the perspective of timing with regards to giving feedback on action, can be explained in the terminology of reflective practice as the difference between reflection-in-action and reflection-on-action (Schön 1983).

8. Summary and Conclusions

This is a summary of the findings presented in the thesis, divided into learning by participation and design implications of the technology. At the end I summarize by giving a set of conclusions and recommendations presented in the final report of the CAMO project.

We used the learning goals that were created for the project as a frame of reference for the design of a questionnaire that was given to the soldiers before and after the completion of the scenario in Second Life. The learning goals were: 1) Tactics, 2) Gender, 3) Religion 4) Socialize 5) and Language. Afterwards we analyzed the data material with qualitative and quantitative methods. The goal of the study was to explore what the soldiers had learned and if their cultural understanding had increased after they had been through a simulated assignment in Second Life, where they would interact with the virtual Afghan villagers. In addition to the questionnaires, observation of the scenario session and interviews of the soldiers were conducted in order to explore how Second Life can support social learning. Throughout this thesis I have explored how social learning can take place in Second Life and how this platform can be used as a tool for training in cross-cultural communication in order to develop cultural awareness.

8.1 Learning by Participation

Through the gathered data we have evaluated how the soldiers learned by participating in the project and how they evaluated the use of a virtual learning platform for training in cross-cultural communication and awareness. The scenarios that the soldiers went through in Second Life, gave them a possibility to test their skills on interacting with the Afghan villagers and to use the information that they gather from the surroundings and the cultural artifacts that they encounter, like buildings and clothing. The questionnaire answers gave an indication that the soldiers did learn something about cultural awareness, after they had been through the scenarios and debriefs. They show an understanding of cultural and religious aspects like the gender perspective, cultural artifacts, use of language, social interaction and

local customs. Some of this learning could be attributed to the debrief session, where the soldiers also got information about the possible outcomes of the choices that they made in the role-play. Some of the soldiers disagreed that what they learned in Second Life is suitable to evaluate the threat level of the situation correctly. This can be a result of the low number of Afghan inhabitants in the village. The nuance of the questions is more evident in the qualitative analysis. The soldiers had many possible options of action that could give different reactions and outcomes in the scenario. The qualitative data indicates that perspective taking and managing the options or courses of action that they were presented with is an essential ability for the teams' progression in the role-play. In the discussion chapter I have shown how the empirical data indicates that Second Life can be a suited platform to use for social learning activities, by supporting different forms of interaction and communication that allows the use of scenario-based role-plays. The qualitative data also shows that in most cases the soldiers that were active in the interactions of the role-play achieved grounding both through content and process, which indicates that Second Life sufficiently supported the interaction that was needed to carry out the role-play.

8.2 Design Implications of the Technology

The soldiers gave feedback both in the interviews and questionnaires on what they liked about the simulation and what areas they suggested needed improvement for optimal use of this technology for future education in cultural awareness in military training. I have commented on several aspects present in the scenario that may have hindered the soldiers' ability to communicate with ease and may have lessened their sense of immersion in the role-play. I have addressed these issues by making recommendations for adjustments and changes which can be implemented in further studies in the use of SL as a tool for scenario training in an educational setting. Some elements of Second Life can limit the flow and realism of the scenario, which can inhibit the users' immersion into the content. These are connected to conversation and body language. The interpreter that was interviewed found the communication in the virtual environment clinical and lacking in body language that is used while communication with Afghan people in order to show humility, friendliness or other gestures and that the gestures were not well enough integrated to be used in the scenario. Another suboptimal finding was that the voice-chat function can create problems for the

verbal communication due to the reach of the sound. It were also mentioned by one of the soldiers that were securing the area of the village that they did not get enough challenges. He also gave examples on which elements that can be added to the scenario so that he and the other soldiers who secured the area can be a part of the interaction. The soldiers gave exclusively positive feedback on the user friendliness of the technology and they easily familiarized themselves with the necessary functions of Second Life such as movement and chat functions, which they needed to master in order to participate in the scenario. As a result of limited time, and that there were relatively few soldiers that tested the learning environment, the study were conducted on a smaller scale to be realistic for a mission to a real Afghan village (may require more than one hundred participants all together).

8.3 Conclusions and Recommendations

The following conclusions and recommendations for the Norwegian Armed Forces' further use of virtual worlds in the training of cross-cultural awareness and cross-cultural communication are as follows:

Experimental design and digital didactics:

- There is a necessity to thoroughly plan and implement the scenarios to be played
- Raising the participants' awareness of the learning goals in advance of the experiment.
- Adequate education prior to practical cultural awareness simulations will contribute to enhanced learning
- Real-life cases/scenarios in different units in the Norwegian Armed Forces can be converted to virtual scenarios in such platforms

There are plenty of opportunities for virtual platforms to support military training:

- Training negotiating skills
- Convalescence and post-traumatic stress prevention
- Recruitment
- All types of role play
- Lectures and meetings

- All types of collaboration, especially in an operational context
- Dilemma training
- 'Command and Control' training, tactical leadership

References

Addison, A., O'Hare, L. (2008) How Can Massively Multi-user Virtual Environments and Virtual Role Play Enhance Traditional Teaching Practice. *ReLIVE08 Conference Procedings*

Barrows, H. S. (1980). *Problem-based learning: An approach to medical education*. Springer Publishing Company.

Bartle, R. A. (2010). From MUDs to MMORPGs: the history of virtual worlds. In *International handbook of internet research* (pp. 23-39). Springer Netherlands.

Bennett, M. J. (1991). *American cultural patterns: A cross-cultural perspective*. Intercultural Press.

Bereiter, C., & Scardamalia, M. (2003). Learning to work creatively with knowledge. *Powerful learning environments: Unravelling basic components and dimensions*, 55-68.

Boulos, M. N. K., Hetherington, L., & Wheeler, S. (2007). Second Life: an overview of the potential of 3-D virtual worlds in medical and health education. *Health Information & Libraries Journal*, *24*(4), 233-245.

Chen, M. G. (2009). Communication, coordination, and camaraderie in World of Warcraft. *Games and Culture*, *4*(1), 47-73.

Childress, M. D., & Braswell, R. (2006). Using massively multiplayer online role-playing games for online learning. *Distance Education*, *27*(2), 187-196.

Clark, H. H., & Brennan, S. E. (1991). Grounding in communication. *Perspectives on socially shared cognition*, *13*(1991), 127-149.

Convertino, G., Mentis, H. M., Rosson, M. B., Slavkovic, A., & Carroll, J. M. (2009, April). Supporting content and process common ground in computer-supported teamwork. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems* (pp. 2339-2348). ACM.

Cooper, T. (2007). Nutrition game. In *Proceedings of the Second Life education workshop* (pp. 47-50).

Dede, C. (1995). The evolution of constructivist learning environments: Immersion in distributed, virtual worlds. *Educational technology*, *35*(5), 46-52.

Dede, C., Nelson, B., Ketelhut, D. J., Clarke, J., & Bowman, C. (2004, June). Design-based research strategies for studying situated learning in a multi-user virtual environment. In Proceedings of the 6th international conference on Learning sciences (pp. 158-165). International Society of the Learning Sciences.

Denzin, N. K., & Lincoln, Y. S. (Eds.). (2003). *Collecting and interpreting qualitative materials* (Vol. 2). Sage.

Ducheneaut, N., Yee, N., Nickell, E., & Moore, R. J. (2006, April). Alone together?: exploring the social dynamics of massively multiplayer online games. In *Proceedings of the SIGCHI conference on Human Factors in computing systems* (pp. 407-416). ACM

Fischer, G., Lemke, A. C., Mastaglio, T., & Morch, A. I. (1991). The role of critiquing in cooperative problem solving. *ACM Transactions on Information Systems (TOIS)*, *9*(2), 123-151.

Fischer, G., Nakakoji, K., Ostwald, J., Stahl, G., & Sumner, T. (1993). Embedding critics in design environments. *The knowledge engineering review*, *8*(04), 285-307.

Fischer, G. (2011). Understanding, fostering, and supporting cultures of participation. *interactions*, *18*(3), 42-53.

Foster, A. L. (2008). Using Second Life as a platform for education. *The Education Digest*, *73*, 5.

Fugelli, P., Lahn, L. C., & Mørch, A. I. (2010). Intersubjectivity in Open Source Software Development: Expansive Grounding in Distributed Work.

Hatano, G., & Wertsch, J. V. (2001). Sociocultural Approaches to Cognitive Development: The Constitutions of Culture in Mind. *Human Development*, *44*(2-3), 77-83.

Helmer, J., & Light, L. (2007). Second Life and virtual worlds. *Learning Light Limited*, *2007*.

Hmelo-Silver, C. E. (2004). Problem-based learning: What and how do students learn?. *Educational Psychology Review*, *16*(3), 235-266.

Hollan, J., Hutchins, E., & Kirsh, D. (2000). Distributed cognition: toward a new foundation for human-computer interaction research. *ACM Transactions on Computer-Human Interaction (TOCHI)*, *7*(2), 174-196.

Holo, T., & Andreassen, M. D. (2010). Culture astray: A review of Norwegian military's focus on cultural understanding. *Norsk Utenrikspolitisk Institutt (NUPI), Oslo, Norway*.

Houdijk, P., Teigeler, R., Stoffers, R., Feddema, M. (2008) Gender Makes Sense. *NATO report*

Jarvela, S., & Hakkinen, P. (2000). Levels of web-based discussion: Theory of perspective-taking as a tool for analyzing interaction. In *Fourth International Conference of the Learning Sciences. B. Fishman & S. O'Connor-Divelbiss (Eds.), Mahwah, NJ: Erlbaum* (pp. 22-26).

Ketelhut, D. J. (2007). The impact of student self-efficacy on scientific inquiry skills: An exploratory investigation in River City, a multi-user virtual environment. *Journal of Science Education and Technology*, *16*(1), 99-111

Kim, M. S., & Ebesu Hubbard, A. S. (2007). Intercultural communication in the global village: How to understand "the other". *Journal of Intercultural Communication Research*, *36*(3), 223-235.

Kozinets, R. V. (2002). The field behind the screen: using netnography for marketing research in online communities. *Journal of marketing research*, *39*(1), 61-72.

Kvale, S. (1996). Interviews: An introduction to qualitative research interviewing. *Lund: Studentlitteratur*.

Kvale, S. (2008). *Doing interviews*. Sage.

Livingstone, D., Kemp, J., & Edgar, E. (2008). From Multi-User Virtual Environment to 3D Virtual Learning Environment. *ALT-J: Research in Learning Technology*, *16*(3), 139-150.

Lowenthal, P. R. (2010). The evolution and influence of social presence theory on online learning. *Online education and adult learning: New frontiers for teaching practices. Hershey, PA: IGI Global*.

Lund, K. (2007). *Gender and Diversity in Military Operations*. ARMY WAR COLL CARLISLE BARRACKS PA.

Mai, L.,:Mai X'mas Card to FF Fwens + WoW Talks. http://www.staronion.com/maiev/nfblog/?p=915 (Retrieved April 2013)

Mennecke, B. E., Triplett, J. L., Hassall, L. M., Conde, Z. J., & Heer, R. (2011). An examination of a theory of embodied social presence in virtual worlds*. *Decision Sciences*, *42*(2), 413-450.

Nardi, B., & Harris, J. (2006, November). Strangers and friends: Collaborative play in World of Warcraft. In *Proceedings of the 2006 20th anniversary conference on Computer supported cooperative work* (pp. 149-158). ACM.

Olivetti, J., The Game Archaeologist plays with MUDs: The history http://massively.joystiq.com/2011/04/05/the-game-archaeologist-plays-with-muds-the-history/ (Retrieved June 2013)

Popper, K. (1978). Three worlds. The Tanner lecture on human values. *University of Michigan*.

Prasolova-Forland, E., Fominykh, M., Darisiro, R., & Morch, A. I., D., Hansen, I., Thomassen (2012) Cultural Awareness in Military Operations, *Final Report*

Prasolova-Forland, E., Fominykh, M., Darisiro, R., & Morch, A. I. (2013, January). Training Cultural Awareness in Military Operations in a Virtual Afghan Village: A Methodology for Scenario Development. In *System Sciences (HICSS), 2013 46th Hawaii International Conference on* (pp. 903-912). IEEE.

Rasmussen, L. J., Sieck W. R., Osland, J. (2010) Using Cultural Models of Decision Making to Develop and Assess Cultural Sensemaking. In Competence Advances in Cross-Cultural Decision Making

Rommetveit, R., & Blakar, R. M. (Eds.). (1979). *Studies of language, thought and verbal communication*. London: Academic Press.

Rorty, R. (1991). *Objectivity, relativism, and truth: philosophical papers* (Vol. 1). Cambridge University Press.

Rubinstein, R. A. (2003). Cross-Cultural Considerations in Complex Peace Operations. *Negotiation Journal*, *19*(1), 29-49.

Savery, J. R., & Duffy, T. M. (1995). Problem based learning: An instructional model and its constructivist framework. *Educational technology*, *35*(5), 31-38.

Schön, D. (1983). The reflective practitioner. *New York (EUA): Basic Books*.

Selman, R. L. (1980). *growth of interpersonal understanding*. Academic Press.

Shami, N. S., Erickson, T., & Kellogg, W. A. (2011, January). Common Ground and Small Group Interaction in Large Virtual World Gatherings. In *ECSCW 2011: Proceedings of the 12th European Conference on Computer Supported Cooperative Work, 24-28 September 2011, Aarhus Denmark* (pp. 393-404). Springer London.

Short, J., Williams, E., & Christie, B. (1976). The social psychology of telecommunications.

Silverman, D. (2011). *Interpreting qualitative data*. Sage.

Stahl, G., Koschmann, T., & Suthers, D. (2006). Computer-supported collaborative learning: An historical perspective. *Cambridge handbook of the learning sciences*, *2006*.

Stahl, G., Zhou, N., Cakir, M. P., & Sarmiento-Klapper, J. W. (2011). Seeing what we mean: Co-experiencing a shared virtual world. In *Connecting computer-supported collaborative learning to policy and practice: CSCL 2011 conference proceedings* (Vol. 1, pp. 534-541).

Steinkuehler, C. A. (2004, June). Learning in massively multiplayer online games. In *Proceedings of the 6th international conference on Learning sciences* (pp. 521-528). International Society of the Learning Sciences.

Strauss, A., & Corbin, J. (1994). Grounded theory methodology. *Handbook of qualitative research*, 273-285.

Stricker, Andrew G., and Larry Clemons. "Simulation gaming for education in MyBase: The future of Air Force education and training with virtual world learning." *Proceedings of the 2009 Spring Simulation Multiconference*. Society for Computer Simulation International, 2009.

Von Glasersfeld, E. (1989). Cognition, construction of knowledge, and teaching. *Synthese*, *80*(1), 121-140.

Walker, D., & Lambert, L. (1995). Learning and leading theory: A century in the making. *The constructivist leader*, 1-27.

Warburton, S. (2009). Second Life in higher education: Assessing the potential for and the barriers to deploying virtual worlds in learning and teaching. *British Journal of Educational Technology*, *40*(3), 414-426.

Warren, R., Diller, D. E., Leung, A., Ferguson, W., & Sutton, J. L. (2005, December). Simulating scenarios for research on culture & cognition using a commercial role-play game. In *Proceedings of the 37th conference on Winter simulation* (pp. 1109-1117). Winter Simulation Conference.

Wiecha, J., Heyden, R., Sternthal, E., & Merialdi, M. (2010). Learning in a virtual world: experience with using second life for medical education. *Journal of medical Internet research*, *12*(1).

Yin, R. K. (2009). *Case study research: Design and methods* (Vol. 5). sage.

http://metaverse.mitsi.com/Secondlife/Posts/Prim-animator/ (Retrieved April 2013)

Appendix

Appendix 1

The informed consent sheet given to the soldiers:

Informasjon om innsamling av datamateriale til prosjektet CAMO og samtykkeerklæring

Dette prosjektet har som mål å utforske mulighetene for bruk av den virtuelle 3D verdenen Second Life, til opplæring av soldater.

Professor Anders Mørch og masterstudent Ingvill Thomassen ved InterMedia UIO, vil være hovedansvarlig for innsamlingen av kvalitative data til prosjektet.

Vi vil samle inn data i form av spørreskjema, observasjon, video/lydopptak og intervju. For å gjennomføre studiet er det nødvendig for oss å ta opptak av interaksjonen in scenarioene. Vi vil bruke et skjermlagrings program for å ta opptak i Second Life. Dette inkluderer opptak av lyd og bilde og alt som skjer på skjermen. Det vil også bli gjort videoopptak av intervjuene. Dere vil svare på ett spørreskjema før og etter scenariet. Vi vil også intervjue noen av dere. Data som samles inn vil danne et viktig grunnlag for innholdet i masteroppgaven, evaluering av funn fra CAMO prosjektet og fremtidig forskning i forbindelse med resultatene fra prosjektet. Utvalgte klipp i fra videomaterialet som samles inn i Second Life vil bli brukt i forbindelse med presentasjoner av CAMO prosjektet og inngå i masteroppgaven og publikasjoner. Her vil alle navn og identiteter holdes anonymt.

Datamaterialet vil bli brukt i masteroppgaven som skrives av Ingvill Thomassen og i forbindelse med presentasjon og publisering av prosjektet. All data som samles inn vil anonymiseres i etterkant av studiet og alle opplysninger som samles inn vil behandles konfidensielt, slik at din identitet ikke skal kunne gjenkjennes. Alt data materialet vil låses vekk når det ikke er i bruk og vil kun være tilgjengelig for vi som jobber med analyse av materialet.

Det er frivillig å delta i dette prosjektet og det er mulig å trekke seg fra prosjektet når som helst frem til det er avsluttet uten å måtte begrunne det.

Kontaktinformasjonen til Ingvill Thomassen er:

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Dette prosjektet er rapportert til Norsk Samfunnsfaglig Datatjeneste (NSD), personvernforbundet for forskning, som sikrer at prosjektet er innenfor lovverket om beskyttelse av personopplysninger

Dato for prosjektslutt er 31.12.2012

Jeg har lest informasjon over og gir herved mitt samtykke til at de opplysninger jeg gir kan bli brukt i prosjektet.

_____   _____

Sted/dato   Underskrift

Appendix 2.

The questions of the pre-test and post-test given to the soldiers before and after the completion of the scenario:

CAMO – Cultural Awareness in Military Operations

Pre-test og post-test

Flervalgsspørsmål på basis av læringsmål om kulturforståelse for norske soldater, og spørsmål med graderte svarsalternativer for å se om motivasjonen for å lære mer om Afghansk kultur er endret etter prosjektet.

v.5, 23. Nov. 2011

Læringsmål i kursiv etterfulgt av spørsmålene. Forslag til alternative svar. Kan editeres og utvides:

1. *Evaluere trusselnivå i en landsby med barn og kvinner tilstede (2-3 spørsmål)*
   1. Om barna i en Afghansk landsby forsøker å komme i kontakt med deg, hva bør du gjøre?
      a. Unngå kontakt
      b. Begynne å snakke med dem
      c. Gi dem godterier
      d. Be de om å gå hjem til foreldrene sine
   2. Hvordan bør du forholde deg til å gi barna du møter i landsbyen, gjenstander som tyggegummi eller sjokolade?
      a. De kan bli syke
      b. De vil fortsette å mase
      c. Foreldrene vil bli stolte om du gir barna deres gaver
      d. Du bør alltid ha med gaver til barna
2. *Forholde seg til Afghanske kvinner på en best mulig måte iht. lokale kulturelle normer og hvordan en skal skaffe tilveie informasjon generelt (2 spørsmål)*
   1. Hvordan skal man hilse på en Afghansk kvinne?

      a. Det må alltid gjøres av en kvinnelig soldat
      b. Man bør først gi kvinnen en gave før man hilser på henne
      c. Man trenger ikke å hilse før man går inn i huset til kvinnen
      d. Man kan ikke gå inn i huset til en kvinne uten at hennes mann er tilstede
      e. Mannlige soldater kan hilse på og snakke med Afghanske kvinner
   2. Hvordan bør man gå frem for å få nyttig informasjon fra Afghanske kvinner

      f. La all kommunikasjon skje gjennom en kvinnelig soldat
      g. En mannlig soldat bør kontakte kvinnen

h. Man kan spørre henne om hvor høvdingen er

i. Det er ikke mulig å få nyttig informasjon fra kvinner i en Afghansk landsby

3. *Kjenne igjen de fysiske tegn som identifiserer en moské*

1. Hvilke ytre kjennetegn har en moské i en Afghansk landsby

   a. Den ser ut som et vanlig hus utenifra

   b. Den har et *minbar* (en nisje/utbygg i veggen som vender mot Mekka)

   c. Den har sterke farger

   d. Den har et opphøyet inngangsparti som skiller den fra vanlige hus

   e. Den har en stor kuppel på taket

2. Hvordan forholde seg til noen som befinner seg i moskeen

   f. Man skal aldri gå inn i moskeen

   g. Man kan gå inn i moskeen etter at bønnen er ferdig, men ta da av skoene

   h. Man skal vente utenfor til de som er innefor kommer ut

   i. Man kan gå inn i moskeen mens bønnen pågår

   j. Om man ønsker informasjon kan man avbryte bønnen

4. *Hilse korrekt og utveksle høflighetsfraser, og vite hvem en skal hilse på og i hvilken rekkefølge (2 spørsmål)*

1. Hvordan skal man korrekt hilse på en høvding i en Afghansk landsby

   a. Man bør hilse på høvdingen først når han kommer i et følge

   b. Man bør hilse på den som går først i følget

   c. Man kan la en kvinnelig soldat foreta hilsen

   d. Man trenger ikke å hilse på høvdingen

2. Hvordan gjenkjenner man høvdingen i en Afghansk landsby

   e. Han har ofte en turban som er større enn de andre

   f. Han er høyere av vekst enn de andre

   g. Han er alltid den eldste mannen i landsbyen

   h. Han røyker aldri pipe

   i. Andre signaler

5. *Foreta en vurdering om hvorvidt settingen kan utgjøre en trussel for styrken (2 spørsmål)*

1. Hvilke kjennetegn kan være indikasjoner på en trussel i en Afghansk landsby?

   a. Landsbyen er tømt for yngre menn

   b. Landsbyen er tømt for kvinner

   c. Afghanerne i landsbyen bærer våpen

   d. Barna er samlet utendørs

2. Om du finner en mann inne i et privat hus i landsbyen, som ber med en AK47 liggende ved siden av seg, hva bør du gjøre?

   a. Dette er ingen trussel om bønnen ikke avbrytes

   b. Avvente inntil høyere har tatt stilling til situasjonen

   c. Man bør gå videre

   d. Man bør fjerne våpenet

   e. Man bør gå bort til mannen og finne ut om det er til personlig beskyttelse eller om det kan utgjøre en trussel

6. *Nærkontakt med Afghansk kvinne som er såret/skadet sammen med andre Afghanere (1-2 spørsmål)*

1. Hvordan bør man kommunisere med en skadet Afghansk kvinne i en gruppe av mennesker?

   a. Det bør foregå av en kvinnelig soldat

   b. Det spiller ingen rolle om det er kvinne eller mann som kommuniserer

   c. Hun bør fraktes ut av landsbyen så raskt som mulig

   d. Du bør la lokalbefolkningen ta hånd om den afghanske kvinnen og ikke bryte inn

7. *Mest mulig korrekt opptreden for soldatene i møter med den lokale lederen (høvdingen) og hans menn en er i møte med (2-3 spørsmål)*

 1. Hva vil være en mest mulig korrekt opptreden i en situasjon hvor du blir invitert inn i høvdingens compound?
   a. Være bevisst på å takke ja til alt man blir tilbudt
   b. Unngå uformell prat (smalltalk) i starten
   c. Vente med å gå inn til høvdingen har gitt signal om at det er i orden å gå inn
   d. Gå rett inn

 2. Hvilke av disse alternativene er kjennetegn på korrekt atferd når man går inn i compounden?
   a. Gå inn i tilfeldig rekkefølge
   b. Gå inn etter rang
   c. La høvdingen gå først selv om han insisterer at soldatenes leder skal gå først
   d. Kvinnene går inn sammen med de mannlige soldatene
   e. Nekte å la noen andre enn høvdingen gå inn først selv om han insisterer på at soldatenes leder går først

8. *Interaksjon mellom Styrkesjef og soldatene*

 1. Hvilke faktorer må det tas hensyn til når man er inne i høvdingens compund
   a. Hvilken rekkefølge man setter seg ned
   b. Hvor høvdingen skal sitte
   c. At man må ta av seg skoene etter at man har kommer inn
   d. Kvinner kan sitte ved siden av høvdingen
   e. Hvilken rekkefølge man sitter seg ned i er uvesentlig

 2. Hva vil være en korrekt opptreden hvis du blir servert te og kaker mens det er Ramadan og det er høylys dag?
   a. La være å ta i mot
   b. Du kan ta i mot dersom det insisteres på det flere ganger
   c. Det er høflig å ta i mot te, men ikke kaker

 3. Hva bør en være oppmerksom i samtalen med høvdingen og hans menn
   a. Afghanere har en annen forståelsesramme omkring sikkerhet enn situasjonen skulle tilsi da primærbehovene er de mest fremtredende (mat, drikke, ved, etc)
   b. Man bør starte med uformell samtale (smalltalk) før man stiller formelle (taktiske/sikkerhetsmessige) spørsmål
   c. Den uformelle samtalen kan være humoristisk om man er ironisk om seg selv
    Man skal ikke nevne personer man har møtt langs veien

   d. Man bør starte samtalen med å stille taktiske og sikkerhetsmessige spørsmål da Afghanerene ikke setter pris på uformelle spørsmål

Noen andre spørsmål av typen gradering: Svar fra "helt uenig" til "helt enig" (slik som i det andre skjemaet):

Jeg er motivert til å lære mer om (afghansk) språk og kultur

Jeg er motivert til å bruke det jeg har lært av språk og kultur i int.ops

Jeg er trygg på mitt evne til å samhandle med lokale innbyggere ved en eventuell deployment i Afghanistan

Appendix 3:

This is the questions of the questionnaire, given to the soldiers after the completion of the sscenario and the interview guide that was used in the interviews with the three soldiers

Prosjekt CAMO: Cultural Awareness in Military Operations

Spørsmål til spørreskjema og tema til intervjuguide

Merk: noen spørsmål har svarskala fra Uenig til Enig, med tre mellomkategorier: Litt uenig, Hverken enig eller uenig, Litt enig. Andre spørsmålene (type 2) krever noe lengre svar. Alle spørsmål skal besvares i et webbasert spørreskjema i etterkant av eksperimentet. I tilegg vil det komme en type 3 spørsmål på kultur (flervalgsspørsmål), som skal besvares både før og etter eksperimentet.

Bakgrunn
Kjønn, alder, tjenestetid i Forsvaret, antall ganger i int.ops., antall ganger hvert i Afghanistan, tidligere opplæring i kulturforståelse (velge mellom: e-læring; klasserom; i arbeid; annen; ingen), har du vært i en tidligere stilling eller situasjon der kulturforståelse har vært relevant?

Teknologiforståelse:

Det gikk raskt å sette seg inn brukergrensesnittet til Second Life

Grafikken i Second Life var ikke forstyrrende

Jeg syntes det var enkelt å bevege avataren rundt

Jeg kommuniserte lett med de andre deltakerne ved bruk av headset

Jeg kommuniserte lett med de andre deltakerne ved bruk av tekstchat

Generell kommunikasjon:

Informasjonen om oppdraget kom tydelig fram og jeg fikk du full forståelse av hva jeg skulle gjøre

Jeg syntes det var enkelt å kommunisere med mine lagkamerater i scenarioene

Jeg syntes det var enkelt å kommunisere med afghanerne i scenarioene

Jeg kommuniserte enkelt med de andre ved bruk av gestures

Jeg forstod hva de andre mente når de brukte gestures

Kultur:

På hvilke måter tilpasset du kommunikasjonen med lokalbefolkningen, i forhold til deres kulturelle bakgrunn?(type 2)

Hvordan vil du kunne anvende denne kunnskapen i et oppdrag i Afghanistan? (type 2)

Symbolene som brukes i afghansk kultur i forhold til karakterisering av mennesker kom tydelig frem

Jeg tilpasset kommunikasjonen med afghanerne i forhold deres religiøse ståsted

Jeg tilpasset kommunikasjonen avhengig om jeg snakket med en kvinne eller mann

Indikasjoner på normale situasjoner i den Afghanske landsbyen var som jeg forventet og i samsvar med hva jeg har lært tidligere

Indikasjoner på trusler i den Afghanske landsbyen var som jeg forventet og i samsvar med hva jeg har lært tidligere

Lokalbefolkningens atferd var som jeg forventet og i samsvar med hva jeg har lært tidligere

Jeg har fått en bedre forståelse av afghansk kultur ved å ta del i scenarioene

Opplæring

Hva mener du er fordeler og ulemper ved Second Life i forhold til klasseromsundervisning? (type 2)

Hva slags utbytte fikk du av scenarioene som fjernundervisning i forhold til fysisk rollespill og trening? (type 2)

Synes du Second Life godt eller dårlig egnet for opplæring i kulturforståelse? (type 2)

Hva lærte du av debriefen; endret det forståelsen din av scenarioene? (type 2)

Realisme i virtuelle verdener

Lokalbefolkningens atferd var naturlig

Vanskelighetsgraden i scenarioene var passe utfordrende

Jeg engasjerte meg i scenarioene

Jeg følte samhold med laget mitt

Jeg følte meg fremmedgjort i interaksjon med lokalbefolkningen