



**LAUREA**  
UNIVERSITY OF APPLIED SCIENCES

*Prime Mover*

**USING INTERACTIVE TECHNOLOGY TO IMPLEMENT ACTIVITIES THAT  
PROMOTE SOCIAL, PHYSICAL AND COGNITIVE WELL BEING IN SENIOR  
CITIZENS.**

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**Using interactive technology to implement activities that  
promote social, physical and cognitive well being in senior  
citizens.**

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**Using interactive technology to implement activities which promote social, physical and cognitive wellbeing in senior citizens.**

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The purpose of this project thesis was to implement activities that promote physical, social and cognitive well being among elderly people by using interactive technology at Lautasaari service home. Another aim was to test the feasibility of creative methods in the field of social welfare. The project consisted of ten sessions of creative activities which targeted different areas of functional capacity.

Project activities were based on Anti oppressive practice, information regarding interactive technologies, and literature on aspects of physical fitness. The creative methods employed the use of Wii console, PlayStation 3, computer and a projector.

S.W.O.T analysis was conducted before the project's implementation, and S.M.A.R.T analysis was used as evaluation method of the achievement of the project's goals. Other methods for information collection used were, questionnaires, learning diary, group discussions, feedback from management and participants.

The findings support the idea that interactive technologies can be used as methods for implementing activities which promote the overall functional capacity of senior people. It also supports the notion that it can be used to diversify activities in social welfare institutions. Clients admitted that interactive methods have great potential for improving their physical, psychological and social wellbeing. Management also acknowledged it as an innovative working method.

Key words: Interactive technology, senior citizens, creative methods, anti-oppressive practice, and physical fitness.

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**Käyttämällä vuorovaikutteisen teknologian toteuttaa toimia, joilla edistetään, sosiaalisen, fyysisen ja kognitiivisen hyvinvoinnin ikäihmisten.**

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Tämän projektin tarkoituksena oli aktiviteeteissa interaktiivista teknologiaa käyttämällä edistää Lauttasaaren senioritalon asukkaiden fyysistä, sosiaalista ja kognitiivista hyvinvointia. Tavoitteena oli myös testata, voiko interaktiivista teknologiaa käyttää luovana menetelmänä sosiaalialalla. Projekti koostui kymmenestä luovasta tuokiosta, joiden tarkoituksena oli edistää yllä mainittuja toiminta-alueita.

Projektin aktiviteetit perustuivat syrjäytymistä estävään käytäntöön (A.O.P), interaktiiviseen teknologiaan, ja fyysisen hyvinvoinnin osa-alueisiin. Luovissa menetelmissä käytettiin Wii-konsolia, Play Station 3:a, tietokonetta ja projektoria.

S.W.O. T analyysia käytettiin ennen hankkeen toteuttamista, ja SMART analyysiä puolestaan arviointimenetelmänä projektin tavoitteiden saavuttamisessa projektin aikana. Muita käytettyjä tiedonkeruumenetelmiä olivat kyselylomakkeet, oppimispäiväkirja, ryhmäkeskustelut ja palaute osallistujilta ja henkilökunnalta.

Löydökset tukevat ajatusta, että interaktiivista teknologiaa voidaan aktiviteettien toteuttamisessa käyttää vanhusten yleistä toimintakapasiteettia kehittävinä metodeina. Se myös tukee käsitystä, että sitä voidaan käyttää monipuolistamaan toimintaa sosiaali -ja hyvinvoinnin laitoksissa. Asiakkaat myönsivät, että interaktiivisella teknologialla on hyvät mahdollisuudet parantaa heidän fyysistä, psyykkistä ja sosiaalista hyvinvointiaan. Myös johdon mielipide oli, että interaktiivista teknologiaa voidaan käyttää luovana työtapana.

Asiasanat: Interaktiivinen teknologia, vanhuksat, luovat menetelmät, syrjäytymistä estävä käytäntö ja fyysinen kunto.

## Table of contents

1	INTRODUCTION .....	1-1
2	BACKGROUND OF THE THESIS .....	2-2
3	THEORETICAL BASIS OF THE THESIS.....	3-3
	3.1 Finnish ageing policy and social services for senior people. ....	3-3
	3.2 Anti-oppressive practice .....	3-6
	3.3 Interactive technologies as creative methods .....	3-10
	3.4 activities and theoretical background .....	3-13
	3.5 Physical fitness .....	3-13
	3.6 Cognitive ability and elements of reminiscence therapy .....	3-16
	3.7 Wii Music game as a form of cognitive stimulation .....	3-17
	3.8 Elements of music and social stimulation .....	3-19
4	STAGES OF THE PROJECT THESIS.....	4-22
	4.1 Topic .....	4-22
	4.2 Client Group.....	4-22
	4.3 Familiarization with working life partner.....	4-23
	4.4 Implementation of the sessions.....	4-23
	4.5 Gathering information and evaluation .....	4-24
5	EVALUATION.....	5-24
	5.1 Evaluation Methods .....	5-24
	5.2 Evaluation process .....	5-25
	5.3 Observation and Diary Notes .....	5-28
	5.4 After Session Feedbacks .....	5-28
	5.5 Questionnaires .....	5-28
6	PROJECT EVALUATION.....	6-30
	6.1 Project goals, SWOT and SMART evaluations.....	6-30
	6.2 Evaluative discussion .....	6-33
	6.3 Evaluation of sessions .....	6-36
	6.4 Physical exercise sessions .....	6-36
	6.5 First session: 2.07.2013 .....	6-36
	6.6 Second session: 5.07.2013 .....	6-38
	6.7 Third session: 9.07.2013 .....	6-39
	6.8 Fourth session: 13.07.2013 .....	6-41
	6.9 Cognitive sessions .....	6-42
	6.10 First session: 16.07.2013.....	6-42
	6.11 Second session: 19.07.2013 .....	6-44
	6.12 Social interaction sessions.....	6-45
	6.13 First session: 23.07.2013.....	6-45

6.14	Second session: 26.07.2013 .....	6-47
6.15	Sustainability.....	6-48
6.16	First session: 30.07.2013.....	6-48
6.17	Second session: 6.08.2013 .....	6-49
6.18	Findings from the questionnaires .....	6-51
7	DISCUSSION.....	7-52
8	ETHICAL CONSIDERATIONS.....	8-55
9	References .....	8-58
	Appendix 1 .....	63
	Appendix 2 .....	67
	Appendix 3 .....	72
	Appendix 4 .....	73

## 1 INTRODUCTION

This was a project thesis in which interactive technology accessories are used to implement activities with the elderly. The aim is to develop activities that impact different areas, such as physical fitness, cognitive function, and social interaction by using current technology available and also to investigate if the Wii console and its accessories could be successful tools in creative methods besides the widely used arts and craft.

Senior years often come with health problems. Considering the fact that most of these elderly people are retired from active life and activities, it is very important to engage them in activities that are beneficial or can impact their well-being. For many of these senior citizens, regaining independence and better quality of life is very necessary (Bowling 2005, 193) if they have the opportunity to engage in meaningful activities once again.

In Finland as well as many European countries, the ageing population is growing rapidly and care responsibilities are widely shifting from family setting to care homes like Lauttasaari Senioritalo where this project took place. As a result, the risk of loneliness, isolation, depression and other health issues are on the rise. Although such institutions usually organize different activities and routine events to help clients deal with individual difficulties, we thought that introducing the use of interactive technology like the Wii gaming accessories to implement creative activities would not only be beneficial for clients wellbeing, but will also help practitioners to develop varied methods in service provision.

Another motivating factor for this project was the fact that besides other interactive technology programmes like Caring TV, Robots. Very few institutions in Finland are using the Wii gaming accessories to implement activities. According to Philips et al (2006, 47), social workers should challenge the idea that one method fits everybody and should consider the fact that diversity needs to be taken into account in order to provide adequate services. Since caring TV, Robots cannot be obtained by all the elderly people and all institutions either due to logistics or cost; we thought that by investigating the effectiveness of interactive technologies as a creative method tool and its sustainability through our project, we would be contributing in promoting its use in many other care institutions.

## 2 BACKGROUND OF THE THESIS

Lauttasaari senioritalo is a service home located in the Helsinki region, precisely in lautasaari neighbourhood. It belongs to the private sector, which means clients have to pay out of pocket to use the social services provided. This institution has a package of services available for its clients together with accommodation. The available options are: Meals which are prepared by the house kitchen staff and which are designed to meet the special dietary requirements of its clients. Security services where the house manager provides assistance from 7.00 A.M to 20.00 P.M and in the night time assistance from Esperi LTD safety helper.

Other services include weekly cleaning, laundry and linen services. Residents can also subscribe to acquire services such as hygiene, care, drug delivery and appointments with the house medical staff. Doctor services are also available once a week, where residents are able to consult the doctor on duty in case of sickness; these services are provided by the private sector. Hairdresser and Chiropractist visit once a week depending on the client's needs.

Lauttasaari senioritalo draws individual and collective plans for its clients based on their needs, the philosophy of this service home is to keep the functional ability of its clients and at the same time provide recreational activities which enhance wellbeing. Advice and guidance is also provided, clients can ask advice and counselling regarding benefits and other social services, help is available for application forms or to enrol in different activities offered by the center. This type of service targets psychosocial wellbeing where seniors can talk about their life situation and ask for help if they need support and guidance regarding any matter in their lives.

Exercise is emphasised, and the service fitness manager together with the physiotherapist design activities that target fitness and physical condition. Most of the clients using the services have different levels of mobility. Individual and collective assessment is done by lauttasaari service home staff, and activities are based on these evaluations.

The main goals at Lauttasaari service home is to enhance well-being, promote independence, and provide activities which help the elderly to lead an active and meaning full lifestyle (Lauttasaari palvelutalo, 2013 ). Many of the clients live independently at home and the services provided aim in keeping that independence long as possible, our activities also shared the same goal, they aim in keeping functional ability of elderly people for better quality of life.

The role of the working life partner was one of collaboration. Provision of logistics, meaning Lauttasaari service home provided us the right environment and additional material for im-



plementing the activities. In terms of supervision the working life partner gave us advice, and feedback through all the stages of the project.

Regarding the participants, the working life partner did the selection of those who were willing to be involved. The concrete outcomes for our working life partner, was technological innovation, meaning the material and devices used for the activities were donated after the the project ended. More options for staff and workers in terms of methods for implementing new activities with the residents. Also a range of activities that benefited the senior citizens of the Lauttasaari senioritalo, which worked every area of their functional capacity. The implications for development at local level of this project were to verify if the idea was feasible. Also, as professionals in the field of social work we strive to improve our implementation methods constantly, because it is important for a social worker to think of different ways of delivering services to clients and use resources available for innovation.

### 3 THEORETICAL BASIS OF THE THESIS

#### 3.1 Finnish ageing policy and social services for senior people.

According to (Statistics Finland, 2013) the ageing population in Finland is rising exponentially. As of 2012 18.1% of the population are over 65 years old with numbers increasing dramatically. Projections claim that by 2020 it will increase by 22.6%, in 2030 25.6 %, in 2040 26.2%, in 2050 26.9% and by 2060 the overall aged population in Finland will be 28.2%, this will place strain on the availability of social services for the elderly. According to (Hautto; Mikko, 1999, 72) the increase of elderly above 65 years old will put pressure on the ability to fund social and health care services at the present rate.

Due to the economic challenges regarding the provision of social services in the future and to improve standards of living among elders, Finnish government enacted policies concerning its elderly population, according to (Healthy ageing: A challenge for Europe,2007,179) there are several recommendations for enhancing well-being and quality of life of the elderly. The main themes emphasized by the government are physical activity, where the aim is to improve the physical condition of elderly living in Finland and secondly health promotion. By promoting health among the elderly the government seeks to reach goals such as equal opportunities for functioning actively in society, to develop constant autonomy and the ability of seniors to take care of themselves.

Another goal is to ensure seniors are able to live independently with good quality of life, which means they are able to live at home, and manage on a daily basis, this involves devel-

oping social services at local level to ensure an independent life. The government also emphasizes technology as a means of improving the quality of life of senior citizens. Technological advances should be used for the betterment of the health and social care systems, and also the betterment of the individuals' life (Healthy ageing: A challenge for Europe, 2007, 180). In older age seniors often worry about their functional capacity, and their desire is to remain at home as long as possible in order to avoid institutional care. Finland's policy aims at keeping the functional ability of seniors with a series of preventive and rehabilitative measures, by improving social and health care services. The ultimate goal is to continue living at home with an obstacle free environment and make use of assistive devices and current available technology, (Social welfare in Finland, 2006, 19).

According to (National institute of welfare and health, 2013) in 2010 the private sector had about 4350 institutions providing social services to different segments of society, with many of these services targeting the well-being of senior people.

Services such as (Vanhusten- ja vammaisten sosiaalihuollonavopalvelu), services and activities for elderly and disabled without accommodation, and (Ikääntyneiden päivätoiminta) daily activities for the elderly are a few examples of social services operating in the private sector which aim to promote independence, autonomy and support for the elderly (National institute of welfare and health, 2013). In Helsinki region there are service homes operating both in the public and private sector, and generally the goals are the same, improve and support elderly wellbeing.

For instance, public sector service homes such as Kinapori Palvelutalo have very specific strategy and goals for its clients (Sosiaali- ja terveystieteiden keskus, Helsinki kaupunki, 2013). Seniors can ask for advice and counselling regarding benefits and other social services, help with application forms or enrol in different activities offered by the center. These type of services also target psychosocial wellbeing where seniors can talk about their life situation if they need support and guidance regarding any issue they might face in their lives.

Technology is also used to improve services for its clients, for instance health services are also available such as: ITE point or (point of self-care), where seniors can measure blood pressure, weight and body shape. Brochures on health and nutrition, cultural and sports services are available as well. The center also has an interaction point with a computer that allows you to search information regarding health issues together with specialized staff such as registered nurses who can provide health care advice upon the request of the client. Other services include a library which provides a range of books and magazines which the elderly can use in their free time. Arts and crafts are also offered with activities such as ceramics, porcelain, sewing, wood and metal work, together with training courses.

Exercise is another aspect emphasized to keep good physical condition and fitness. Chair exercise, gymnastics, balance track and Nordic walking are offered by the service home. In Multi-cultural activities, different groups have the opportunity to meet other people, to get peer support and talk about issues related to their lives. This involves senior immigrants together with locals. One objective is to learn the Finnish language as well. Informal care is also available, advice is given to caregivers; a social worker is available for meetings during the week. Kinapori service home provides facilities to its clients such as laundry, sauna, gym, art and crafts ateliers and catering area, namely a cafe and restaurant). A weekly schedule is planned and lots of events are organized on specific dates.

This is an example of how the public sector services in Finland target the psychosocial wellbeing of the elderly and at the same time try to promote independence and autonomy in many aspects of their lives. In the private sector the aims are the same but institutions might suffer in terms of quality of services due to economic constraints, this however is much dependent on each institution, their financial situation and the quality of services provided. One important objective that the Finnish government is trying to reach is more cooperation with the private and third sector, (Social welfare in Finland, 2006, 19).

The private and third sector are more limited in the way they can provide quality services to its clients, funding and ability of clients to pay for extra services has an influence in the availability of some services. Therefore it is very important to try to bring diversity to social services and try to work with scarce resources available for more innovation. The priority should be developing services and activities that help maintain and try to rehabilitate overall condition among the elderly in accordance to Finnish ageing policy. The main goal is to avoid institutional care and raise standards of living among the elderly (Healthy ageing: A challenge for Europe, 2007, 180), however to do that we need to understand the needs of the elderly while taking a holistic perspective. According to (Clarke & MacFarlane 2011, 4) we should appreciate the complexity and the dimensions of ageing and the goals that the elderly set for themselves; this is very important specially when designing activities and services that target their needs.

Statt and David (2000, 58) tries to provide a comprehensive explanation of human needs based on Abraham Maslow hierarchy of needs, the authors claim that people struggle to fulfill their basic needs, and when they actually reach the stage of self-actualization they move on. Individuals in this stage look to express themselves, to achieve independence, build meaningful relationships and be as autonomous as possible.

Older people are the most vulnerable group, even when their basic needs are fulfilled that does not mean there is actual self-actualization. Elderly are no different in terms of social

needs, they crave for a sense of belonging, love and affection from family and close ones, and the need of being involved in their own community. These are markers of good quality of life. Also elderly people experience a deep need of feeling worthy and wanting to build self-esteem even in the last years of one's life, this comes through a reasonable degree of control and the ability to remain as independent as possible.

### 3.2 Anti-oppressive practice

Anti-oppressive practice is based on a belief that social work should make a difference, so that those who have been oppressed may regain control of their lives and re-establish their right to be full and active members of society. To achieve this aim, practitioners have to be political, reflective and committed to promoting change, (Dalrymple and Burke, 2000, 14). Dalrymple and Burke (2006, 48) further clarify that "reflexivity is about being aware of who we are as practitioners and the impact that we have on others and that they have on us." This reflection happens through open dialogue and through building a cooperative relationship with the clients.

The idea is to promote a change that can be brought about by the clients themselves. Reflexivity also demands that practitioners take into account how much their own worldviews and identity affect their actions and the information that they gather about the participants of a project (Burke & Harrison 2004, 135). "Anti-oppressive practice equates with the fundamentals of good social work practice: the pursuit of equality and justice" (Doel & Shardlow 2005, 214). The goal of anti-oppressive social work is to diminish or abolish discrimination and oppression in all levels and forms present in society. Social workers need to actively improve and change the practices that are oppressive or discriminative in nature and also to work in wider societal structure for social change. (Thompson 1997, 33.)

Dalrymple and Burke (2006, 84) identifies values which are essential in social work practice, and which is the first step to take into account when designing and implementing activities for clients. The idea behind anti-oppressive practice is to provide services that are not resource driven but instead focuses on the needs of the clients (Burke & Harrison 2004, 133). It is absolutely necessary to incorporate anti-oppressive values into the heart and use it as means of guidance for a good work practice. For instance, the author mentions principles such as "social justice and personal caring" which are very important aspects of practice. The concept of personal caring implies the practitioner takes into account the needs of people that might suffer from any disability or impairment and acts upon it. The social worker has the duty to correctly assess its clients and grasp how institutions work to deliver social services to their clients.

In terms of social justice the meaning implies that: “All people share a common humanity and therefore have a right to equitable treatment, support for their human rights, and a fair allocation of community resources.”(Department of government & social justice, Appalachian university, 2013). Taking this into account and considering the nature of project activities, the level of social change targeted would first of all be at the personal level. If the participants feel a sense of personal change in the way they interact socially, then the notion of identity which is about belonging, about what you have in common with some people and what differentiates you from others, would have been conquered. The statement above reiterates the need of practitioners to work towards a more inclusive society. Elderly people have the right to participate in the life of the community and have access to resources like everybody else. Fair allocation of resources in social services is a complex matter, and generally institutions operating in the private sector are constricted by funding, such that sometimes it is not possible to allocate money for new resources.

Partnership as ( Biehal et al; 1992) rightly stated ‘ many users of social services are vulnerable and disadvantaged in some way, and often they have not been treated as equals because of poverty, racism, assumptions about gender, age or disability. Including service users, and their advocates, carers and other interested parties, as far as possible in the decision making process that affect their lives is of vital importance to empower them. Hence, work with service users should be based on their meaningful participation in decision making. According to Dalrymple and Burke (2006, 132) the term partnership entails that each partner is countable of the project and dedicated in developing the common cause. Partnership should entail building an atmosphere of acceptance and teamwork, which recognizes each person’s contribution in a particular project (Trevithnick 2005, 230) and cultural differences have to be taken into consideration. Any activities and social services provided should be based on human rights and dignity of the service users.

The international federation of social workers (IFSW, 2013) states a social worker should “treat each person as whole”. This implies that the practitioner should strive to understand the different dimensions of an individual’s life, and factors such as family, community, natural environment. Another core principle of social justice is the duty of social workers to “work in solidarity” by challenging conditions which might contribute for marginalization, subjugation or stigmatization of any kind. Elderly people have several limitations which can hinder normal living. The mental and physical impairments seniors suffer can dramatically decrease quality of life and prevent the individual from participating in activities of the community. Preventing social exclusion and marginalization starts with minor changes so it slowly affects the larger picture, “working in solidarity” can be achieved through activities and services which are inclusive and open to all the members of the community.

Challenging discrimination and oppression at every level is one of the pillars of social work practice. According to (Burke & Dalrymple, 2006, 33) anti oppressive practice aims in helping people to gain personal power in order to fulfil their own lives, the practitioner works to eliminate oppression when it recognizes inequalities in power. Discrimination against the elderly is called ageism and it can be defined as:

“Prejudice against a person on the grounds of age in the belief that the age category is inferior to other age categories and that unequal treatment is therefore justified” (dictionary of sociology, 2008).

Discrimination towards seniors happens in many levels and different spheres of society, and it can severely affect the individual's life. Discrimination happens in job opportunities, access to services, and participation in the community. (Todd, 2004, 27) describes how older people are stereotyped negatively and the implications of “ageism” in their lives. The author mentions the common stereotypes and subtypes and the words which are used to define senior citizens. Common wording such as recluse, vulnerable, weak and loner are widely used this type of language has very negative effects on people's perception of what it means to be old. If a practitioner wants to challenge discrimination and ageism one should start by changing own perception while engaging with elderly clients.

An equal partnership involves trust, acceptance and respect (Dalrymple & Burke 1995, 56). It is also based on this quote from (Braye and Preston-shoot, 1997) “Anti oppressive practice is about positively working to challenge myths and stereotypes, and to speak out and act against the way social practices and the law itself discriminates certain groups of people” .Activities should be considered and designed according to feedback and ideas provided by clients and the institutions which practitioners are developing services for.

Empowerment means working in an anti-oppressive way, meaning the social worker shares power with his clients and doesn't make any assumptions that might undermine the relationship between the two parties. Working to eliminate oppression also means the practitioner tries to empower its clients, (Burke & Dalrymple, 2006, 110) defines empowerment as a process of collaboration where social workers and service users forge a relationship of partnership.

According to Browne, (1995, 358) the term “empowerment” describes a spectrum of political activities ranging from individual resistance to mass political mobilizations that challenge the basic power relations in society. Anti-oppressive practice defines empowerment as being a process leading to change, that means an empowered person is someone, who is aware of his/her own personal resources and who feels that he/she has control over her own life.

Empowerment can be achieved without any structural changes in the society, but in a higher level, empowerment is linked to bigger social changes. Also, empowerment can be experienced in groups, where the personal empowerment builds up the group empowerment and leads to increased personal power of all the individuals in the group.

The partnership component of Anti oppressive practice is vital because it is widely acclaimed as a basic part of good practice and value work which creates empowerment.' Feeling the need to 'rescue' the client is oppressive; you should be working with the service user to 'rescue them'. Helping clients to become more independent and less dependent on the system is a positive way forward, and should have a positive long-term effect on the client. Effective partnership is based on a variety of factors and a few of these are based on values, beliefs, ideals and even practical factors such as funding and resources. The elderly and disabled people are always vulnerable to oppression in the society; oppression affects the individual's mind-set when he or she is forming an idea of himself as a person, (Dominelli 2002, 10-11).

The interaction at both personal and social level has an impact on the development of the identity. The elderly are looked upon as 'children' who are no longer capable of doing 'reasonable' things although some might be suffering from dementia. Hence, society considers them as a powerless group. Dominelli (2002, 114) states, "the inclusion of marginalized people occurs when individuals who are generally excluded from the broader society come together in a group for specific purposes and have their experiences and existence as individuals validated in the course of doing so". The possibility of sharing in itself is empowering, leading to increased confidence (Dalrymple & Burke 2006, 53).

The second level, promotes the feeling of self-worth. The idea is to strengthen the feeling of self and encourage the clients towards self-initiative attitude. Dalrymple and Burke identify this level by the words "changed consciousness" (2003, 54), where the realization of the negative influence of the surrounding society should also emerge. Anti-oppressive practice emphasizes the importance of hearing clients' voices and ideas, including them as much as possible in the decision making process and seeing them as professionals of their own lives, (Dalrymple & Burke 2003). While developing activities for institutions there should be constant involvement with the clients and the management, the feedback from the supervisors and the clients is the most valuable input for designing the activities. This will make clients move from feeling powerless to powerful, build their self-esteem and raise their confidence. This makes them more participative in their community.

According to Thompson (2008, 28) practice should be person centred, which means any activities designed should be based on what is important for the person. Being successful with clients can only be achieved through a strong partnership.

### 3.3 Interactive technologies as creative methods

There is lot of innovations in the field of Gerotechnology, and virtual reality is already being applied in the field of health care for purposes of rehabilitation and maintaining cognitive and physical function, (Brosnan, 2009). Smart technologies for improving quality of life are already being used, according to the (Australian institute of Health and welfare, 2007) elderly aged between 55 and 74 are starting to use and adapt to new technologies rapidly. Technologies such as internet, mobile phones, portable tablets and gaming consoles are much more available now than before. It is important for social welfare professionals to keep up with these technological advances that can be used for enhancing quality of life in any target group, in this case senior people.

As stated above in the introduction, one of the goals is to test and verify if it is possible to use interactive technology as means of implementation for the activities with the target group. This type of technology came out in 2006 and it allows its users to play several games (Nintendo, 2013). The difference with this type of hardware is that allows its users to access the virtual world and play games using lots of movement as opposed to normal consoles. A definition of the interactive technology is provided below:

“A popular video game console from Nintendo introduced in 2006. Pronounced "wee," it runs Wii and GameCube software and features a wireless motion sensing controller that looks like a TV remote rather than a game controller. After a sensor bar is placed in front of the screen to orient the Bluetooth-based remote via infrared signals, the unit is strapped to the wrist and swung like a tennis racket, golf club or other sports equipment. Dubbed the "Wiimote," its internal accelerometers sense the motion on three axes and up to four players can have their own controller. The speaker built into the device sounds a "thwack" when hitting the ball. Source: (Wii definition of PC magazine encyclopaedia, 2013).

Other item from Nintendo used as methods to deliver the activities is the balance board. This item is very useful for activity implementation more specifically in the area of physical fitness. The balance board was designed for the purpose of exercising and body movement. “The active-play phenomenon started by Wii Sports now spreads to your whole body thanks to the pressure-sensitive Wii Balance Board, which comes packed with Wii Fit Plus. The board is used for an extensive array of fun and dynamic activities, including aerobics, yoga, muscle stretches and games.” Source (Nintendo, 2013).

There are several games designed for the balance board, and Nintendo game developers took into consideration every age during game development. Some games specifically target senior



people and the different areas within physical fitness. The balance board also has a feature where it analysis the level of fitness of the individual, based on their body mass index, height and weight. By doing this the user can make a personal training program and see how it evolves over time, (Nintendo, 2013).

Apart from using Nintendo hardware, Sony PlayStation 3 console can be used for implementing music sessions, which aims at promoting social interaction. This specific console has the possibility of providing games related to music, and gives the user the chance of singing and listening to different music tracks. Play station is a console that has been in the market since 2006, and according to (Sony, 2013) it is mostly used at home for the purpose entertainment and access to virtual reality. A computer and internet is also another strong method for audio visual display and it can be used as means of innovative methods for implementating sessions with clients. The possibility of accessing internet for music and pictures can make any activities much easier to implement and most likely fulfill the requests of any potential clients.

Interactive technologies as creative methods to improve and enhance wellbeing in individuals is booming, currently there are a considerable number of software's and devices in development and already available for use. For instance Intel-GE Care Innovations is a company which develops products and services and tries to combine current technology allied with health care needs (Intel-GE Care Innovations, 2013). The company developed interactive software called care innovation connected, that fights isolation and takes into account social needs of the elderly. The idea of the product is to give the opportunity to care givers to follow the constant needs of senior citizens. The software also allows individuals to build their own social networks and communities by interactive means. Like stated before, the idea is to prevent isolation and loneliness among elderly. It is worth mentioning that the product was developed in partnership with seniors and senior service providers, which brings more credibility to the idea of providing health and social welfare through this type of methods.

Another innovative method developed by the company is the use of advanced sensor motion technology that reads daily activity patterns and communicates with caregivers. The idea of this product is to allow a good level of privacy to seniors and at same time it monitors potential urgent situations that might occur during daily routines. The motions sensors transmit data to a computer software that analysis information, if there is a big change of routine or a possible situation, the software alerts immediately staff and caregivers, (Intel-GE Care Innovations, 2013).

One project that tries to combine virtual reality with motion is called "gabarello" and it was developed in Switserzelland by the Zurich University of Arts. Researchers developed a device

that engages patients by translating their physical movements and expressing them in the movements of a character in a totally virtual environment. Patients are attached into a Lokomat robot, which supports and assists their movements as they walk on a treadmill. When the patient takes over more and more of the load from the robot, the virtual character on the screen moves faster. Researchers at the University of Zurich incorporated sensors in the robot device to memorize the patient's movements, which has the function of biofeedback for learning how the game works, (University of Zurich, 2013). Although this project targeted children with lower body motor loss, it has potential applications with the elderly especially because it tries to rehabilitate gait and body balance.

COGAIN or (communication by gaze interaction) is an association that uses interactive means to improve the lives of citizens with motor impairments. The association develops projects which incorporate high tech interface technology for benefits of users with this type of disabilities. The association gathered experts on the field of eye tracking integration with computers for developing assistive technologies. The project works to improve the quality of life with people with motor disorders such as ALS (Amyotrophic lateral sclerosis) and CP (cerebral palsy). The researchers in the project focused in developing software applications that allow disabled people to be in better control of the environment and to improve communication. Texts for communicating can be created by eye typing, and be rendered by the users own voice (COGAIN, 2013). The project also develops virtual applications which are for entertainment purposes and make the life of users more fun and pleasant.

Other interactive methods which target emotional well-being among its users are already in the market. For instance patients with chronic and mental illnesses were the target group for a collaborative EU project called Playmancer. The game is specially developed to help patients to identify their emotions, improve and regain self-control, exercise certain movements and work out specific muscles (Playmancer, 2008). The game can actually identify and recognize some specific emotions such as apathy and boredom, excitement and feelings of anxiety in patients, and measure their cognitive responses. This is done with the help of emotion recognition technologies and biosensors. The game blends virtual reality and current technology to improve health and well-being with people suffering different disorders. This type of interactive game can be very useful for patients in geriatric settings, especially for individual's that suffer from dementia and memory disorders.

Insight Rehab uses a motion tracking video game to help with the process of rehabilitation after a stroke or traumatic brain injury. The use of this software allows the patients to work on therapeutic goals from their homes and tries to provide understanding of how the process of rehabilitation works. Damaged Nerves and brain connections can be monitored by the patient, and how their rehabilitation program and exercises is affecting it. The idea is to make

patients motivated to work towards improved health. The software also allows visualizing representations of the nerve connections and monitors how it grows over time with each effort. If the patient is able to have an idea of their health progress he or she can work towards keeping high motivation, even when there is slow progress, (wisdomTools, 2013). Another important feature of the software, is the ability of a medical team to remotely view and monitor the progress of the patient, make the necessary adjustments in the rehabilitation program if needed. This type of application is very useful, taking into account that strokes are very common among the elderly. These are just a few examples of how interactive technologies are being applied in the field of health and social care, for purposes of rehabilitation disease management and enhancing well-being in general.

### 3.4 Activities and theoretical background

### 3.5 Physical fitness

For physical fitness there are several games developed that target body movement and invite the user to engage in exercise, for instance bowling, tennis, basketball, canoeing, are offered in Wii sports resorts. This game was released in 2009 and targets users from every age, there is a great deal of movement and physical exercise during the games (Nintendo, 2013). Another important game developed together with the balance board is the Wii fitness. This product offers more features that involves a great deal of exercise and targets overall fitness in every age group. The different areas of training in the product are yoga, strength training, aerobics, balance games through which specific movements are designed taking into account ergonomic positions and body posture (Wikipedia, 2013).

In aerobic and balance games, the product focuses more on activities that require more energetic movements; this section is divided in three distinctive types of games, hula hooping, step aerobics and jogging. Each game presented provides a distinctive movement during play and aims at working out different body areas. We decided to work more with balance in general because according to the (Vestibular Disorders association, 2013) one of the leading concerns of old people is the fear of falls which is often related to sense of balance. The vestibular system is a sensory system which decays with age and is located in the inner ear, it is a complex fluid filled chambers and nerves that send signals to the brain to control balance in standing and walking. Elderly are much more prone to disorders in the balance system which can lead to many medical conditions, so is important to try to prevent it through exercise. Balance is also dependent on good joint condition and muscle strength, an area which Wii fit plus games target as well. These types of interactive games have the potential to be an alternative tool for working physical fitness in clients.

There are previous studies done with interactive technology, more specifically Wii game console that can be used as means of rehabilitation. In a study done about the effects of Nintendo Wii fit on community dwelling older adults, with perceived balance deficits (Bainbridge, Bevans & Kelly et al. 2011, 126) findings suggest that the interactive technology such as Wii can be used to improve the sense of balance of senior people. Large majority of participants found benefits in using virtual reality. The study also suggests that it is a cheap alternative that practitioners such as physiotherapists, nurses and social workers can use for rehabilitative activities. According to the (IBES, institute for a broadband-enabled society, 2013) virtual reality and gaming have been used to enhance physical activity in people over 45 years old. This type of technology is also being used with Individuals who suffer from conditions such as Parkinson, stroke and brain injury.

According to the (American occupational therapy association, 2013) the goal of occupational therapists that deal with productive ageing is to try to promote independence, and make seniors to participate in activities that are rewarding and meaningful. A study conducted by (Bell, Warren, & Southard et al. 2011, 213) on the effects of Nintendo Wii on quality life, social relationships and confidence to prevent falls showed promising results. The experiment was implemented in three assisted living institutions, with a total of 21 participants with 60 years and above. According to the author warm up exercises, Wii bowling game and fall prevent education, were used as means to test the effect of interactive technology in different areas of wellbeing. The findings suggest an overall satisfaction from people participating in the experiment, more awareness in terms of preventing falls, and an increase in use of Wii console among residents. The study also supports the view that this type of technology is being increasingly used in social and health care settings, with potential for increasing quality of life and social benefits. More experiments and further studies would be extremely beneficial.

In another study performed by (Agmoon & K. Perry, et al. 2011, 161) Wii fit exercise games were used to improve balance in older adults. The aim was to determine the feasibility and safety of using Wii gaming console for exercising purposes among seniors, a group of 7 adults with ages of 84 (5) that suffer from balance impairments were selected in 4 continuing care retirement communities. The experiments lasted 3 months, participants were asked to play 4 exercise games (Basic step, Soccer heading, Ski slalom, Table tilt) for 30 minutes 3 times a week at their homes. The participants reported a high enjoyment after using the exercise games, and improvement in the overall balance of the body during daily activities. The seniors also reported desire in playing games with relatives and closed ones, namely their grandchildren. This suggests that Wii games can be used as means of enhancing social cohesion by bringing people together. The study also supports the idea that using Wii console and the balance board is safe in general, but some supervision is required during game play. The study mentions again that it would be beneficial to make more research into the field of virtual re-

ality as means of rehabilitation for senior people, and that Wii fitness games have the potential of being incorporated into physical therapy practice.

Apart from balance and posture which are very important throughout life and especially in old age, physical rehabilitation is a very important component in senior care. Virtual reality is already being used in elderly care to work with one most common ailments of old age, which is Parkinson's disease. According to the (American Parkinson disease association, 2013) this medical condition is characterized by a "progressive disorder of the central nervous system, with a decrease in spontaneous movements, gait difficulty, postural instability, rigidity and tremors". This happens due to degeneration of pigmented neurons of the substantia nigra, leading to a decrease in dopamine availability in the brain.

In a study performed by Yen C.Y, Lin K.H and Lin C.H., et al. (2011, 862) virtual reality was used for augmented balance training with seniors suffering Parkinson disease, a dynamic balance board similar to the Wii console hardware is used together with a projector and computer. The aim of the experiments was to improve and rehabilitate postural control by using VR (Virtual reality), the results suggested that there are some benefits in this type of intervention and seniors using it did in fact improve their overall posture.

Another medical condition which affects senior people and greatly decreases quality of life in old age is memory disorders, according to (Muistiliitto, 2013) there are approximately 130 000 people suffering from dementia and memory disorders. The numbers are increasing with 13 000 Finns developing some type of memory disorder every year (Muistiliitto, 2013). According to (Alzheimer's Association, 2013) staying physically active is an important factor for preventing memory disorders. Engaging in regular exercise maintains a good blood flow to the brain and promotes neurons survival, with aerobic fitness being very beneficial in particular. The association recommends at least 30 minutes of daily exercise. Yoga, bicycling, and walking are some examples of activities which (Alzheimer's Association, 2013) recommends. These are available through Wii sports resorts and Wii fitness game package.

Cardiovascular and metabolic responses to Wii fitness games in middle age and older adults has also been researched by Guderian, Borreson & Sletten et al. (2010, 436). The purpose of the study was to test if Wii technology could be used to improve and maintain cardio respiratory fitness. Both genders participated with 40 subjects with ages between 58 and 87, aerobic and balance games were used in Wii fitness testing sessions lasting approximately 20 m. The results suggested that Wii fit games are a feasible alternative to more traditional aerobic exercises, especially among middle age and older adults, and can be used as means of improving cardiovascular condition.

With a booming ageing population in Finland it is important to invest in resources which promote rehabilitation and are considerable cheap. Virtual reality is accessible and reasonable in terms of costs, and easy to implement in health and social care settings.

### 3.6 Cognitive ability and elements of reminiscence therapy

According to Tarassenko, Kenward, and Morris et al (2005, 204) long-term memory is divided in many categories and components, semantic, episodic, recognition, are a few examples. For instance episodic memory deals with recollection and the ability to track events through one life. Long-term memory can store much larger quantities of information than short term memory and for much longer periods of time, both types of memories have different functions and seem to change during lifetime. Long term memory amasses all the experiences and important events of a person's live, therefore it is important to stimulate and try to work out memory throughout life especially in last years. Recollection is a process that happens a lot among elderly, it is very common for seniors to remember old days and important experiences that shaped their lives.

Memory loss is the most common symptom of cognitive decline in old age, however it is possible to try to slow down process and improve memory. The general conception is that our cognitive abilities decline when we get older, research indicates otherwise. Huttenlocher & Peter. R (2002, 170-171) talks about adult neuroplasticity. The brain has the ability to form new neural connections and pathways throughout life. The authors also pinpoint the fact that learning can occur at any age and the nervous system is equipped to change throughout life. Individuals develop different strategies for learning during their lives and it is a never ending process, although it might become increasingly difficult with age.

As stated before remembrance and nostalgia is a powerful thing and elderly people tend to think a lot about past events and own experiences. According to (Able, Community Care, 2013) reminiscence therapy is a form of memory retrieval methods that involve social interaction and conversation, with a facilitator trying to build good group spirit. This type of therapy involves pictures, objects and items which are important to the individual, the importance is to make associations and remember past events and personal experiences.

Bauckam, Bender and Norris et al. (1998, 74) gives a description of the aims involved in reminiscence therapy for the purpose of social and emotional stimulation among clients. The author claims that the idea is to stimulate and bring memories and enthusiasm about life again. The therapy encourages social cohesion and dynamics; it tries to raise self-esteem again and creates bonds of trust, between clients and staff. Building a relationship of trust and

partnership in this type of therapy is essential, because clients share personal and private information about their lives with practitioners and peers alike.

According to Schweitzer, Bruce and Gibson (2008, 53-56) attitudes and skills for a successful reminiscence therapy session are many. Good listening skills are essential, it is important to be very mindful and attentive to what each client is saying, not rushing or hurrying the clients in any way is good. During reminiscence therapy sessions with clients it is important to put emphasis on proper communication. Senior people often need extra time to express their emotions and thoughts; a sense of awareness is required during conversation. The author also mentions receptiveness, the dynamics of body language such as eye contact and showing interest in what the client has to say, is essential for success. Other factors affecting the outcome of the reminiscence exercise are curiosity, sensitivity, sense of humour and accepting attitude.

Being genuinely interested in the client's life story and any events meaningful for them helps build a picture of the individual's life. This is one main goal in the session, to understand the clients as a whole and their life story as a narrative. The author also mentions sense of humour as a tool to build a good atmosphere, and break any possible tension. When engaging the clients it is essential to build a fun and relaxed atmosphere, with good flow of conversation according to the author. It is important for the practitioner not to judge the client anyhow and respect any opinion or point of view. As professionals working in the social field, it is important to act as facilitators and mediate during group sessions.

Sensitivity is important during conversation flow, in reminiscence therapy the aim is to trigger and stimulate memories in the clients. However it is important to recognize the moments where the client might remember something painful or distressing. In this case the practitioner should change the topic and the flow of conversation, and try to identify memories that can cause distress to the clients. These are very important aspects to take into account for building proper group dynamics during reminiscence therapy.

### 3.7 Wii Music game as a form of cognitive stimulation

Nintendo's Wii Music is a participatory game, which encourages creativity. The idea of Wii Music is to put an emphasis on music by giving the player a certain freedom during game play (Nintendo, 2013). Unlike other rhythm games that require the player to press the correct note

each time, in Wii Music the principle is to listen to the song's rhythm and play along with it, and at the same time leaving space to improvise and create something of the player's own .

The game offers a vast scale of songs and interactive instruments to play. Wii Music is almost like a new musical instrument, since it gives the player a feeling of making music, without having to get acquainted with real instruments. With this game the user does not find any difficulties in learning a new instrument, something that can be provided to clients. Wii music is relatively simple to play, and it has the possibility to influence positively the overall well-being of the players. With easy movements and by imitating the instruments with the Wii Remote and Nunchuck controllers, one can play most of the instruments.

While playing, there are four or five different ways to hold the Remote, the user can choose one style at a time (Cubed 3, 2008). The style one chooses depends on the instrument one is playing. For example, if the player wants to play the piano, they would have to just move the Wii Remote as if hitting the piano keys, like in real life. Another example is playing the guitar or flute. In the case of playing the flute, the player holds the Remote like a flute and presses the buttons to make sounds. In our opinion Wii Music would benefit the cognitive well-being of elderly, since the mini games it contains are involved with both music and brain games. Like earlier stated, these elements have a positive effect in the functioning of the brain.

In a study conducted by Prospereni, Fortuna and Giani et al. (2013, 516) Wii console and games available were used with purposes of neurolohabilitation and neurorepair. Home balanced training using balance board was used with patients suffering from multiple sclerosis. The study claims that new rehabilitative strategies are being used regarding relearning motor skills and to improve plasticity in patients. High repetitive and task practice is being used in virtual reality and visual training feedback to improve severe impairments, such as lack of balance while walking, and gait problems. Multiple sclerosis also has an effect on cognition and sensory perception, with patients also suffering from depression and other neurological impairments. The experiment employed 36 participants where they used interactive technology over 12 weeks of time. The findings from the study reported an improvement in static and dynamic balance among patients; it also improved proprioceptive signal conduction by constant information between perception and action. The study also reports the improvement of mobility by engaging in constant repetitive movements. This is just an example of how Wii gaming can have an impact on neural rehabilitation and common disorders.

Besides the above mentioned cognitive benefits using Wii software games like Wii music, the games do involve concentration skills, which can be good for the clients. Listening to different instruments and melodies and thinking of notes that should be separated from others can improve concentration. Another game in Wii Music is Hand bell Harmony, this game works



with interpretation skills and tempo (Nintendo, 2013). The mechanisms of the game play involve a lot of repetitive movements together with music, something which can be very beneficial for clients as mentioned in the study above. Also while playing Wii Music the clients have to be alert in the sessions. These games can improve hand-eye coordination and help maintain attention capability.

### 3.8 Elements of music and social stimulation

The population of ageing people is growing so fast and a growing amount of people are living alone, and in isolation. Social isolation amongst older people is emerging as one of the major issues facing the industrialized world because of the adverse impact it can have on health and well-being. Social isolation has been defined as “a state, in which the individual lacks a sense of belonging socially, lacks engagements with others, has a minimal number of social contacts, and is deficient in fulfilling any quality relationship. (Nicholson 2008, 1432)

Social wellbeing is a sense of involvement with other people and with our communities. Many researchers believe that well-being is not just about being happy or content, but also about being actively engaged with life and with other people. It is reported in many literatures that physical activities can reflect on well-being. Also studies carried out by (Boxtel, et al.1996; Gauvin and Spencer, 1996) demonstrated that it is not only physical activity, which contributes to wellbeing, but that activities of a social, productive or intellectual nature also have significant effect.

Reichstadt et al. (2010, 557) also suggests that many elderly people feel at their best when they are with other people and engaged in a worthwhile activity. The author reports that many elderly reported that social involvement contributes to a positive self-attitude and self-acceptance. Therefore it is important for practitioners to devise activities that can stimulate social interaction, and bring clients together especially in social welfare setting such as a service home.

A method for social stimulation is music, and it can be a powerful way of uniting people, for purposes of social cohesion. According to (Wigram & Pedersen, 2002, 17), music has also been used since antiquity as a form of healing and it is deeply imbued in different cultures. Life is not meaningful when one cannot enjoy music. Often senior people associate songs with different time of their lives, this makes a lot of sense because often songs mark different periods in human history. Music can be used as a form of therapy, and the interventions are designed to promote wellness, manage stress, alleviate pain, express deep feelings and enhance overall wellbeing. Music therapy also seems to improve memory and works as means of reha-

bilitation. The association also states that music is a very powerful way of communicating (American Therapy music association, and 2013).

Through music sessions it is possible to give clients the possibility of expressing themselves through songs which are meaningful to their lives. Music therapy has very specific standards of practice for working in settings with geriatric clients. The aim is to use music with emphasis on development, restoration and maintenance of each individual to the best possible level of functional capacity. Individual assessment seems to be specific criteria in music therapy where clients are assessed based in categories of, psychological, cognitive, physiological functioning. The aim is to determine musical preferences, and possible musical skills. Virtual reality together with elements of music theory has been used to work with clients in a geriatric setting (American Therapy music association, 2013).

Basically music influences positively the whole person; it affects cognitive, physical and emotional health. Some psychological benefits of participating in a musical activity are the feeling of enjoyment, improved self-understanding, and raised positive feelings which can be rewarding and interesting. The feeling of being able to express oneself creatively is one of the most basic human needs (Music Education Research International, 2010) and can be done through musical activity.

Music also is known to help patients with Alzheimer's disease, 2 case studies are mentioned in Brescia & Kenneth (2012, 5) where music therapy has been used for the purposes of helping people suffering from different types of Alzheimer. The first case was 68 year old women who received music therapy intervention over a course of 12 weeks. The study used music group therapy sessions to try to improve memory and cognitive function. The results reported an improvement rate over time, and the patient did benefit from the music therapy. The second case study was about a hospitalized man who suffered from regression and severe Alzheimer's disease and received music group therapy over 15 months period. The findings in the study were mixed in nature but it suggested that despite of continuous physical and cognitive deterioration over the period that the study was conducted, the patient still maintained an interest in music and the stimulus it produced.

The author also mentions that music activity in that particular setting still helps out with the patient's social needs.

Another study was conducted by (Boulay & Benviste, et al. 2011) with 7 institutionalized patients suffering from mild to moderately severe Alzheimer's disease. The experiment used MINWii music therapy game for renarcissization of demented patients. The participants improvised or played songs of their choice by pointing at virtual keyboard with a Wiimote pistol, which is an accessory of Wii game console. The results report that MINWii music therapy game

enhances positive interaction with practitioners and caregivers, and stimulates powerful reminiscence even with the most impaired patients. This is a good example of how virtual reality is being applied together with music elements to create a social environment where potential clients can benefit from.

Research has been conducted in specific geriatric environments where music and rhythm is used to enhance group activity. In a study conducted by Mathews, Clair & Kosloski (2001, 377), researchers used music intervention during exercise activities, the idea was to involve as many participants as possible in the exercises with the aid of audio stimulation. The experiment involved 21 participants in a 20 bed special care unit, and it was conducted over course of 25 weeks, the authors used materials such as a simple cd player with different music styles such as western polka, blues, jazz and folk together with a set of exercises. The results suggest that rhythmic music does increase patients' participation in group activities. The authors also mention that due to simplicity of the intervention and methods involved, it is easy to implement in other geriatric settings, namely nursing or service homes.

Another study was conducted by Varvarigou, Hallam and Creech et al. (2013, 103) to investigate how 11 senior participants experience creative music sessions delivered by music life project, in the U.K. The study is based on the assumption that elderly are able to learn with proper enticement and overall support from music facilitators in the right setting. The research hypothesizes that music has a considerable impact on physical, social and cognitive well-being of elderly and can also be used as a means of reminiscence.

The study reports that some of the participants only attended the creative music sessions for the purpose of socializing. One participant also attended because music brings back memories from her past. Other participants reported they wanted to learn a new creative skill and return to music after many years away. The overall findings suggest that elderly that are engaged in creative music activities develop purpose, a sense of inner growth and sessions as such support healthy ageing and good lifestyle. The authors also mention that practitioners involved with music activities can benefit from this type of approach. Another recommendation provided is the use of You Tube software as means of finding rare and old songs. Virtual reality and interactive technologies can also play a strong role in the way musical activities are delivered to clients, for purposes of improving overall wellbeing.

## 4 STAGES OF THE PROJECT THESIS

### 4.1 Topic

The students chose the topic on the assumption that it is possible to combine current technology to maintain and improve well-being with clients in the field of health and social care. From the beginning we wanted to bring some sort of innovation in social care, although virtual reality has been used in health care settings before. Students felt that in Finland this type of approach is not so common. The project wanted to test the feasibility of the idea and at the same time bring innovative methods in creative methods. Another motivation for the topic was the fact that at least two students had previous experience with the type of technology involved. Extensive research was carried out concerning the theoretical background of the project and the methods involved. As mentioned in the interactive technologies section, the concept of applying gaming and robotics for purposes of rehabilitation and health improvement was the driving force in choosing the topic.

### 4.2 Client Group

Picking the right target group was essential for the project; the students felt that working with senior people was the right choice because of the nature of the technology involved. As mentioned before the main strength of the methods is that it allows the clients to engage in different activities without actually leaving their place of residence. Apart from the possibilities of virtual reality, the idea was to fight the myth that elderly are not able to cope with new technological changes. Most of the clients in Lauttasaari service home that participated in the activities have different levels of mobility and impairments, which made the project very challenging. Interactive technologies and the concept of using it in rehabilitation and health maintenance was also the main reason for picking the clients.

Extensive research was done on the different possibilities in the Helsinki metropolitan area. Several institutions were contacted and most belonged to the public sector. Due to restrictions in research permits and other bureaucratic procedures, we decided to implement it in the private sector. It was easier to develop and implement the project in the private sector, due to the flexibility of our working life partner. We also understood the basic difference between a geriatric setting such as hospital where elderly basically live, and service homes where clients seem to have a more home routine. We came across Lauttasaari service home, which had all the requirements we needed. A first meeting was arranged with the management to explain the concept of the project and gather an initial feedback and a second meeting to pick the right clients for the activities. In this stage the aim was to bring social change for the working life partner and our clients, in accordance with Anti-oppressive practice. The

project challenged existent social conditions and tried to bring a social disadvantaged group into a more communal and participative life.

#### 4.3 Familiarization with working life partner

A contact meeting was organized with the management to enable us to get familiar with the vision and philosophy of the institution. It was also an opportunity for us to present our plan and discuss other modalities necessary for a successful implementation of all planned activities. Anti-oppressive principles such as partnership, empowerment and challenging discrimination were followed and largely incorporated in this stage, as mentioned in the theoretical section. All the activities designed were planned and decided together with residents and working life partner, a relationship of partnership and trust was built and consolidated through planning, implementation and evaluation of the project. Empowerment happened through all process where clients were given the choice to decide for themselves which activities they desired to participate and the manner of the sessions. Challenging discrimination was a very strong element throughout the project, all the activities designed were inclusive and no participant was excluded based on their disabilities or impairment. Despite having a small group of clients, the sessions were open to any resident in Lauttasaari who wished to participate.

#### 4.4 Implementation of the sessions

10 sessions of activities were planned and implemented according to the time table drawn up. Materials and issues such as safety of the clients and possible risks prior and during activities were put in place. The personnel gave support through advice, and participation in activities if necessary. During the sessions we took the clients wishes into account and made necessary adjustments according to the flow of the sessions and clients' limitations.

The sessions were grouped in three areas of functional capacity; the first was physical fitness, where Wii interactive gaming console was used together with different accessories such as the balance board. Games such as bowling, canoeing, tennis, and sword fight, basketball, hula hoop and balance exercises were used. The aim of these sessions were, improve and maintain sense of balance, improve resistance and stamina, better joint mobility, increase muscle strength, and better spatial orientation. The physical sessions were based on the idea that interactive gaming and virtual reality can be used as means of engaging in exercise, as reflected and experimented in previous studies.

During the cognitive sessions, Wii gaming console, accessories, projector and computer were used to implement the slide session and group discussion as well the Wii music game. The aim of these activities were to maintain and improve clients cognitive function, mainly memory

and concentration skills, to create a social interaction setting, where clients can socialize with each other and share memories and experiences by recalling of past events. The use of Wii music game had the purpose of improving musical intelligence and cognition. The cognitive sessions were based on the idea of using interactive technology to implement elements of reminiscence therapy. In the social sessions Wii, PlayStation 3, computer and you tube software were used to implement the karaoke and singing activities. The aims were to build group spirit, create interaction, socialize and enhance wellbeing through sound and music. The social sessions were based on the idea of using current technology and software such as, singstar and you tube to enhance social wellbeing.

#### 4.5 Gathering information and evaluation

Collection of information went on during and after each session through feedbacks and participant observations. We discussed aspects of the sessions, how it could be improved and what they would like to try in the next session. At the end of the project; we gave out self-completion questionnaires to participants and staff and held an evaluative discussion session to crown the whole evaluation process. Unofficial translations were made, and language was checked properly to avoid any mistakes or change of content during translation since clients answered in Finnish language.

## 5 EVALUATION

### 5.1 Evaluation Methods

Evaluation is a systematic way of reflecting on and assessing the value of what is being done. It is commonly interpreted as an end product or an activity taking place at the end of a project, (Patton 1997, 280). It is a major part of learning, and can provide a wealth of useful information on the outcomes of a project or action, and the dynamics of those who undertook the work. The evaluation purpose comprised of process and outcome evaluation strategies (to demonstrate how the project is meeting its objectives, using its resources and whether any modifications in its process is required and also to assess the extent to which the project has affected its participants respectively).

A SWOT analysis was conducted prior to the implementation of project activities and S.M.A.R.T was used throughout the project evaluation. SWOT evaluation was the principal method used at the beginning the project; i.e. in the process of planning, choosing our partners and the suitable client group. It was aimed at knowing our strengths and weaknesses as well as the opportunities and threats that might be involved during realization of the project since we are not professionals. It enabled group reflection on these ideas, in order to make us proactive instead of depending on habitual reactions. It allowed the students to act in ad-

vance to deal with the unexpected difficulty, be anticipatory of some problems and find possible solutions.

We evaluated each session at the end of the day, throughout the project through feedback questions to participants and staff and a discussion amongst ourselves. Considering it as a process taking place across all phases of the project, used to determine what has happened and whether the initial aims of the project have been carried out and achieved, with regards to the specific objective of the session activities. We focused on checking the following: Relevance, efficiency, effectiveness and sustainability. We used the 'smart' method to identify, define, monitor and evaluate our objectives to ensure that they are: measurable, achievable, specific and fall within a realistic time frame throughout project implementation.

We worked with 7 participants selected by our partners based on the criteria we gave them (criterion sampling) to ensure quality assurance. That means, working with those participants whose degree of disability will not greatly impact their performance at the activities, and those who are not at so much at risk of accidents during the activities. Those who can be able to at least understand how to use the Wii tools and whose mobility level and health conditions are not that bad. Gender balance was taken into consideration such that we had 3 men and 4 women.

## 5.2 Evaluation process

Albert S. Humphrey developed SWOT analysis in the 1960-1970 as he led a research group at Stanford Research Institute. The background to SWOT arose from the need to find out why project planning and implementation failed (SWOT Analysis, 2011). SWOT is the first stage of planning and it helps the planner to focus on key issues.

STRENGTHS	WEAKNESSES
OPPORTUNITIES	THREATS

Source: SWOT analysis, 2013.

We identified each area as stated in the SWOT method, for helping us students to most likely succeed in the early stages of planning and later on with project evaluation. The aim is to get an overall idea of the process of the project, for instance we evaluated the:

Strengths:

- 1 Proper partnership with the working life partner
- 2 Ability to take an holistic perspective on the needs of the clients
- 3 Flexibility in designing the activities
- 4 Good negotiation with the clients and management, a common ground in relation to the methods and goals of the thesis was achieved.
- 5 Good team work, progressive improvement in communication.
- 6 Thesis topic was of great interest to the students and we invested personal resources on it, namely time and money.
- 7 Target group fit perfectly with the goals of the project; clients are friendly and cooperative and willing to participate in the activities despite their limitations.
- 8 Previous experience in working with senior people.

Weaknesses:

- 1 Different knowledge among students on how to use the devices in the activities.
- 2 The language of work with clients is Finnish, and not all students can speak the language.
- 3 Eventual difficulties in implementing the sessions due to language barriers.

Opportunities:

- 4 The project provides the working life partner with innovative methods to implement different activities and to improve their services to the clients.
- 5 The concept of the project can be implemented in the field of health and social care, since it is not widely used in institutions around Finland.
- 6 Combining current technology with health and social care, therefore improving our professional skills.

Threats:

- 1 Limitations regarding previous history of clients` health condition.
- 2 Finding the right environment to implement the activities, namely room, projector and suitable conditions.
- 3 Possible technical problems.



S.M.A.R.T method is important to measure success of set objectives. We chose this type of analysis because it allows us to have a clear and broad picture of our objectives.



Source: Learn Marketing, S.M.A.R.T Analysis, 2013.

**Specific:** To provide activities which target, physical, cognitive and social wellbeing of the clients. Secondly to support and prove the idea that interactive technology can be used as means of innovative methods in the field of health and social care.

**Measurable:** Through observation and feedback from clients and staff, questionnaires responses, we gathered useful information from which we were able to determine if the project outcomes were valuable

**Acceptable:** Working life partner approved the project because of its feasibility. Based on previous literature, it was believed that the project would provide answers to project aims; hence we were sure of our capabilities to achieve our goals

**Realistic:** Although there were several barriers, it was a doable project. The students knew how to apply the technology as innovative methods

**Time framed:** A defined time line was allocated to the project and it was possible to follow it.

Considering the fact that the aim of the project was to use interactive technology as a creative method to implement activities with senior citizens that impact on their wellbeing, we set out to plan an evaluation that will enable us and our partners to know the outcomes and impacts, benefits, effectiveness and learning's of the entire project. Hence, questions were designed to be formative and summative. We used several tools to gather information and these include: self-completion questionnaires, diary notes, daily feedbacks, Informal discussions with employees and the clients. The aim of using several information gathering tools is

to ensure that we have confidence in the results because if they all point to same conclusions, then we will be able to get some higher degree of trust in the findings.

### 5.3 Observation and Diary Notes

Marshall and Rossman (1989, 79) define observation as "the systematic description of events, behaviors, and artifacts in the social setting chosen for study. During each activity session, information was gathered via active observation, which was documented in a diary that we wrote after each session. The diary was meant to be a systematic documentation of our observation, which is an integral part of action research (Vilkkä 2006, 100). Participant observation method gathers accurate information about how a group and the project operate in the field by asking questions, watching behaviours and reactions of participants. The biggest advantage of observation is that one can get direct and natural information on the functions and behavior of individuals, groups or organizations. Our goal in observing was aimed at two things. Firstly, ideas on what activities work with this group of participants to make planning of the next lessons easier. Secondly we hoped it would give us a general view on how well we succeeded in planning and implementing the session, because after all, one important thing to us was also that participants would enjoy our activities.

### 5.4 After Session Feedbacks

Evaluation of project activities also went on after each session (during the operational project period) through feedback questions to participants and some staff. Natural language was used and since the participants are Finnish speakers, semantic theory was used to translate their messages or communications. According to Vassilyyev, (1974, 79), a word meaning, is its use in the concrete "form of life" where it is adopted. Word senses are determined and delimited only by the meanings of other words in the same fields, and sometimes from the context in which they were used. We also considered the ways that non- verbal actions could be interpreted as a way of communication. We also took into consideration Gordon's (1985) translation theory, which emphasizes observation as an important factor for translating, since every communication act has three dimensions, which are: speaker, message and audience (Translation Theory, 2011).

### 5.5 Questionnaires

At the end of the project, short questionnaires with open ended questions were given for self-completion to participants and staff so as to invite the respondents to provide individual opinions. Questionnaires can be conducted in person, by telephone, or by mail. They are used to quickly obtain information from a wide variety of people and are inexpensive. Questionnaires

can be completed anonymously, and are easy to compare and analyze. The open-ended questions gave respondents the flexibility to write as much as they wanted and also to raise any other subject matters they wish to raise in their responses (Denscombe 1998, 155).

At the end of our project we handed out a questionnaire to all the participants that had taken part in the sessions. The point of the questionnaire was to receive feedback and thus it was an evaluation from the client's point of view about the whole project. We handed out the questionnaire on the last session of our project and we explained that answering the questionnaire is completely voluntary and that all the answers would be dealt with confidentially. We received altogether 7 responses to the questionnaires. It consisted of five questions. After each question, there was provision for the answers. The interviewees were free to write whatever comes to their mind. The last question was designed for further suggestions or free comments about the sustainability of the project. The questions were designed to obtain specific information based on the goals of the project and the general evaluation of the entire session.

The first question aimed at getting the general view point of each participant with regards to the project concept. The second question aimed at making the evaluating of each session and instrument easier since both had specific health areas as target. It also helped in assessing how much our goal in improving all three areas of wellbeing, physical, social and cognitive was attained. Lastly, it helped us to know which session was most enjoyable so as to evaluate the effectiveness of all sessions. The third question was designed to deduce participant's level of familiarity with various session and activities, as well as their potential benefits to their wellbeing or health.

The fourth question was kind of a guide to the respondents to express their feelings further; poking them to tell specifically which aspects of their health was impacted so that we would be able to categorize each domain of our goals, physical, social and cognitive. The fifth question was aimed at evaluating the overall social impact of the project on participants. All five questions destined to the staff was generally designed to evaluate our performance, the relevance of the project in Lauttasaari Senioritalo and also to assess if we attained our goals which was to use interactive technology ( WII Console Games, Play station 3, Computer) to improve on the physical, cognitive and social wellbeing of the residents.

## 6 PROJECT EVALUATION

### 6.1 Project goals, S.W.O.T and S.M.A.R.T evaluations.

Although our primary goals were successful to a greater extent, there were some hitches. In presenting activities that target the needs of our clients, we understood that it was essential to get a clear vision of the working life partner. Grasp the mechanisms of how the institution delivers its services to the residents; by taking into account the philosophy of Lauttasaari service home, which is to promote independence and functional capacity of its residents. We used the concept of 'holistic being' to guide the way activities were designed such that participant's needs were met. From the students point of view we were pretty successful in this goal, as also reported by clients and working life partner.

In terms of bringing innovation in the field of social care, and combining current technology as innovative methods for activity implementation, the students felt it was the strongest and most successful goal. The whole project concept was based on this idea and we managed to implement all the activities with the use of interactive virtual accessories. Clients and management expressed satisfaction and happiness on the availability of virtual reality and new technologies.

In terms of achieving sustainability it is hard to say if we were successful or not. Although we planned two sessions where we trained the staff and clients on how to use the games and hardware, evaluation and follow up needs to be done over time. The ideal method would be to inquire after a 6 months period with the working life partner, if the staff and clients are still using the material and games. However, clients and staff promised to continue using our methods and the technology.

We felt that S.W.O.T and S.M.A.R.T analysis will allow us to reflect objectively about the whole project. The working life partner had the right conditions, material and client group that suited our activities. Based on our previous experiences working with elderly people, we understood their overall needs, which facilitated the designing of the activities. Group members had communication problems at the initial stage of the project but later on managed to turn that weakness into strength. Picking the topic of our thesis was not a problem because most of the students involved in the project had experience with the technology and the methods involved, which largely contributed to the success of the activities. Choosing the right target group was a major necessity from the beginning, and S.W.O.T analysis was very helpful in making us realize all these.

In terms of weaknesses in the beginning of project development we realized that although at least two students had experience with the technology involved, the third one had little or no

experience at all. Despite being a weakness and limitation in itself, the students felt it wouldn't jeopardise the project thesis at all, all the students took the process as a learning experience. Another major weakness that S.W.O.T methods made us realize in the beginning was the language barrier; only one student was a native Finnish speaker, another could master the language with some limitations, and the third one had more difficulty with the idiom. We envisaged this might undermine communication with the clients during activities and possible distortion during information gathering. However we managed to surpass that during the sessions and meetings with clients through translations and observation notes by all students involved.

In term of opportunities, we understood that implementing a project of this nature is an opportunity to have a break through. The chance of implementing innovative methods in health care through virtual reality is a very unique opportunity and we grasped that from the start. There was a strong possibility that some institutions would not consider this as a viable project and would refuse our idea. That notwithstanding, we believed in the project idea from the start, because in Finland there are not many institutions with this type of methods, so it was a good opportunity to test it.

In terms of threats from the beginning we anticipated factors that might undermine the project, first limitations in knowledge regarding health condition of our clients. Not knowing the extent of the limitations of clients could have been an impediment in terms of implementing activities. Students anticipated that possible impairments and physical ailments that clients might have would prevent success. Taking this into account we spoke with management during the initial meetings to assign us clients that have a reasonable degree of mobility and were able to participate in the activities. At the same time we wanted to have a diverse group, and didn't want to discriminate between clients based on their disability. The activities were opened to every client at lauttasaari service home that wished to participate irrespective of their impairments or limitations, also even within our client group there were different levels of mobility, which made it very challenging sometimes.

Another possible threat foreseen before the start of the project was possible technical problems. As mentioned above in the chapter of interactive technology as creative methods the project success was dependent on the ability of the working life partner to provide the right conditions and environment for installing the material and implementing the activities. During S.W.O.T analysis in the beginning, students predicted that problems with the hardware and material might arise during the course of the activities. This was later on confirmed during the sessions where we faced some technical issues; however the students did manage to overcome these obstacles, mostly due to previous experience with the material involved.

S.M.A.R.T method apart from setting very specific objectives, was also used as tool for project evaluation, it allowed the students to visualize and put the project into the right perspective. The idea was to specify as much as possible the different goals, such that there will be minimal margin for failure, for instance:

**Specific:** From the beginning and as mentioned before we had a very specific idea of what we wanted to achieve, first and foremost the objective was to provide activities that target the different areas of functional ability. The aim was to work systematically with different aspects of functional capacity, namely physical, cognitive and social aspects of our clients. For this we had in mind different games and activities that virtual reality has to offer. Before project implementation extensive research was conducted on the different possibilities and how each game and activities would target a specific area of functional ability. From the point of view of the students, this objective was attained; activities did target the different needs of the client group and touched every area.

**Measurable:** The project thesis was possible to be measured and evaluated through information gathered from the diary notes, students' observations, informal discussions and the questionnaires. All the information gathered helped us to evaluate the outcomes and the whole process.

**Acceptable:** As mentioned before a project of this scale needs acceptance and trust from the working life partner. When we came up with the idea, we understood that it would require an open mind from the management and the staff of which ever place we will be implementing the project to accept it. We realized that in order to implement this kind of project that is not so widely used here in Finland, we will need to thoroughly explain the concept to the management and the clients we were getting involved with. A project draft was made and a small presentation was prepared by the students in the first meetings so the management, staff and client would get a clear picture. This was very useful and crucial and they all understood the project concept and realized it is feasible.

**Realistic:** From the initial stage, we questioned the nature of the project, and understood there would be several barriers for its implementation. The students considered every aspect and factors that might undermine the activities and methods. As stated before aspects such as, nature of the working life partner, the attitude of the management and staff towards the project concept, good client group and right material and environment, were crucial aspects for success. Every factor was a barrier for students to overcome and we thought about possible solutions in case of failure in any phase of the project. Despite all the setbacks we suffered from the beginning of the project, the students felt it was doable and realistic at the end because all sessions planned were implemented to the later.

Time framed: A time line was allocated for the project from the start, the authors understood for a project of this scale to be successful, there should be deadlines concerning each stage. We devised dates for each phase, starting from arranging a suitable working life partner, until implementation of activities and final stages of feedback. The students did try to follow the timetable designed as much as possible but due to setbacks some deadlines weren't achieved, but the overall time frame was successful.

## 6.2 Evaluative discussion

We had an evaluative discussion at the end of our project, which concentrated on how our working life partners and the participants felt about the project and how empowering future projects or continuity should be done. The group feedback meeting with participants and management was guided by a focused semi-structured interview method. Focused Semi-structured interviews are informally guided. Some questions are predetermined and new questions are developed from the discussions. According to Patton (1997), Semi-structured interviews are used to understand an interviewee's experiences and impressions allow the flexibility to probe for details and are more like a two way communication used to give and receive information. We also used the information from the feedbacks in the session evaluations to evaluate and examine our own ways of coordinating the project.

Information gathered from this meeting was also interpreted for our findings. Similar themes to those gathered from our diary notes, after session's feedback and the individual questionnaires came up. In the final meeting with participants, staff and management we discussed informal way the strengths and weaknesses and overall impressions of the project thesis. We recorded the opinions and thoughts of the participants together with the feedback of the management. The idea was to provide a relaxed and comfortable atmosphere where everybody would share their opinions in an honest and truthful way. We also wanted to express to the management and clients how much we students were grateful for having the opportunity to conduct this project.

The first question we asked the clients what was their opinion about playing the games, one client said that "the games might be unnecessary in this house". This client also thought that other sessions in the service home are more efficient than sessions organized by us. According to the client, it would have been good if the school tutor would have been guiding us while organizing the sessions. Another client reported that "many people in the group became interested in playing the games during the sessions", this client also thought that "some people in the group were a little reluctant to play". Despite these comments, according to the views of the client, "we were inspiring".

A third client said that “the project was really fun” and he was happy to participate. A fourth client also reported that “It was a good project that we did”. This client thought that although not everything is suitable for everyone, as a user of a rollator, there are good movements for these users; however “some movements required too much force”. According to this client, “it was also good that the exercises needed force and stamina”, e.g. when playing baseball. The participant also reported the game helps shoulder muscles but stated that not all residents can use all the games, since everybody suffered from different impairments, something we totally agreed upon. The client suggested that in the future, “help would be needed from a nurse in installing the equipment”.

The opinion of the fifth client was that “the activities should have been more familiar”, however she didn’t provide a reason why, just the overall feeling the client had had. Client six said that he liked everything, “but maybe the best was the Balance board”. The seventh client thought that the equipment was good, but that “she was too old to play”. This client also reported that it would be better “if she had better health” and “it was nice to play in a group”. The client suggested that, players should be quite in the same level when playing, meaning that everyone should have more or less the same skills during gaming, otherwise it is more difficult, she stated.

When asked what the clients thought of the karaoke session, one client answered that “it would have been good to do some individual interviews before the sessions”, again we inquired why and the client simply reported because of the music preferences of each client. According to all the clients, the karaoke activity was a nice social session; one client thought that the karaoke “should be old-fashioned”, and also reported that in a previous session, the selection of songs was enormous and it was easy to sing. Another client stated that “I know a little bit more about the technology now”.

When inquired if the games had an effect on balance or physical coping, and whether the clients felt in any way there was improvement, one client answered that the “use of Balance board would require a good physical health to start with, because if a person has weaker physical health, the board could be dangerous”. Other client commented on the dynamics of the sessions and stated that there was “quite a lot of sitting and waiting throughout the sessions”. This might be explained due to technical problems we faced sometimes. A third client stated that “it is not guaranteed that the technology always works when you need it” again possibly referring to technical problems one might face during using the equipment. A fourth client said that he now has more courage to be himself.” According to this client, the sessions have helped with his own image and self-esteem, and he has been able to be more courageous and confident with himself.



Another important aspect was to figure if the games had an effect somehow on the memory or concentration skills of the clients, and whether the clients felt that the games had somehow refreshed them. One client said that “it would require some kind of a good physical health to start with, so one would be able to really play”. This client felt that his own physical health was not good enough to begin with. Another client reported that, “if something feels bad, one does not have to participate in doing it”, something we always took into account during the sessions, the clients wishes and the willingness to participate.

A third client answered that many participants thought that bowling was the best game, something we noticed through all the sessions. A fourth client reported that “it is good that one can develop in playing these games, and in a long-term setting the development would be possible”. This statement strongly suggests that the participants could really have benefited from much more sessions, and more substantial changes would have occurred with a longer period of time.

A fifth client said that it must have been difficult for us to evaluate whether the clients had developed physically, cognitively and socially, something we agreed upon since measuring changes and improvements his a difficult task in this type of project.

The client reported that “I do not know what you noticed of my development, but I felt that at least physically I did not develop throughout these sessions”. This client also stated that development happened more in other sessions organized by service home. A sixth client said that if “these sessions would have lasted six months, one could better evaluate development, something we all agreed and explained that because it is a project there is starting and finishing date. The same participant also suggested that” if there would have been sessions every day, this probably would have been much better.”

Another aspect we inquired was, what kind of development and improvement the sessions we had need in the future. One client said that “it would be better if there was more than one group leader in the sessions”. Another client said that it would be good if, “when standing on the Balance board, there would be someone or something more to hold on to, otherwise it might be dangerous”. The client also mentioned the” staff could take that responsibility in the future and people with different levels of physical health; have to be taken into account”. Security was one of our major concerns and during all the activities we constantly supervised and use the rollator at one point in the activities; however accidents were a possibility, something which fortunately it didn’t happen.

A client mentioned the cognitive sessions and thought that the pictures in the reminiscence activity did not go together with her memories, and there were not enough pictures about her

birth city Turku. We apologized and kindly explained that we tried to include many pictures as possible in the reminiscence session, and it was our mistake.

The participant also reported that "it would have been nice to continue at least six months", so the students could have gotten a better picture of the sessions. Something we agreed because more accurate data could have been gathered, especially regarding sustainability.

A fifth client thought that "the sessions do not bring anything more to the services organized in the house, although she has learned to understand concepts of interactive technology like the Wii console", something she appreciated anyway. These were the main comments we recorded during the final meeting and shed more information on the results of our project. After the general discussion was over and the participants shared their ideas with us, we spent some quality time with participants and staff having coffee and cake. We kept a professional posture during the all project thesis but also wanted to connect with our clients and build a fun and positive atmosphere, something we achieved.

### 6.3 Evaluation of sessions

In the sessions' evaluation we aim at analysing the students and clients performance during the activities, also the objective is to build a report that will produce reliable information for further discussion.

### 6.4 Physical exercise sessions

#### 6.5 First session: 2.07.2013

In order evaluate the physical exercise sessions we have to hold in mind the goals we set from the beginning in the session's plans, which touches physical, cognitive and social aspects of functional capacity. The physical goals were, improve and maintain sense of balance, improve joint mobility, increase muscle strength, preserve sense of orientation, and increase stamina and resistance. The cognitive goals were, enhance overall well-being, build self-esteem, improve self-perception and build a fun atmosphere with clients. The social goals aimed at building group spirit, fight loneliness and isolation, strength bonds between the residents and build a more inclusive environment at Lauttasaari service home.

One of the reasons for having 4 sessions was to see evolution of physical fitness over time and to see if these goals could be achieved to larger or to lesser extent, some goals probably required much more sessions, as other were achieved only with a few sessions. The first session was crucial; we introduced the material and the games to our clients we started by issuing instructions how to use the material. The first game we used was bowling, it took some time for the clients learn how to use the Wii controls and they required constant explaining during

the games. One client learned almost instantly the technique of bowling on the Wii, which it was very surprising for us students. With rest of the clients there was perceived differences in the way they could handle the technology, and the rate of speed of which they were learning, which suggested large individual differences. When the clients were questioned after the game, if it was fun and easy to play, all of them reported “yes”, concerning the level of difficulty there was mixed responses; some clients reported bowling was easy while some others reported it was hard. Overall the students start noticing an atmosphere from enjoyment from part of clients.

The next games used was basketball and hula hoop, the first one required a different type of body movement, which involved fine motor skills especially when handling the Wii controls. Most of the clients were able to perform during this game, with some exceptions a client reported difficulties in using the controls due to poor upper mobility. During feedback after the game, clients were asked again about the level of difficulty in relation to their mobility and if it was fun, most of clients reported “yes” but hard to use the remote controls. During these initial games students notice that every time any client was able to play successfully a game, there was positive feedback from the other clients and lauttasaari staff. This was something the students wanted do from the beginning which was to try to encourage clients by giving them positive feedback, even when they are not able to perform in every game. The idea was to build self-esteem, empowering the clients to believe in themselves independently of the results.

In the Wii balance board games the next game used was hula hoop, this particular game is designed to prevent falls, the idea is to move your hips in circular way to maintain and improve the sense of balance. At least 4 clients were able to perform the game, the other two some had major problems due to major legs and hip problems. On the end of the game feedback the clients reported, feelings of fun and enjoyment, and good group spirit, something we had in mind to achieve. The first session was mostly an experiment to see until extent our clients could participate in the activities, and which games related to physical fitness they would like to use. Other games used in the initial session were Obstacle course, Table tilt, and Birds eyes Bulls Eyes, which all work with sense of balance and muscle strength. The clients were not able to participate in all these games; we tested them first, and understood the level of difficulty was too big, so we improvised and used other games available.

In our first session we experienced some communication problems during group interaction, especially when issuing instructions individually and collectively to the clients. However one the end first session the group discussed the dynamics of communication and took it as a learning experience. From our first session we concluded that:

- 1 Clients were still overwhelmed by the concept of virtual reality and interactive methods; however they were enthusiastic and loved the idea.
- 2 The clients were starting to develop a good group spirit, in accordance with our objectives.
- 3 The aspects of physical fitness could be improved over time, especially fine and gross motor skills, the clients showed they can have the ability of learning how to use the material, slowly but progressively.

#### 6.6 Second session: 5.07.2013

For the second session we used the same games with slight variation and more emphasis on the Wii balance board, as stated before this piece of hardware and the games developed target balance and posture, as well joint mobility and muscle strength. That was something we wanted to work with, in accordance with our objectives. Most of the clients start to get keen on bowling, and it was the first game they asked in the second session. Again there was positive feedback from the participants regarding the game and most of clients start displaying a better understanding of the technology involved. This was very surprising for us students, since they only tried once before. When questioned afterwards about the usability of controls and the difficulty of the physical movements involved, one client reported “it was not hard to use”, and that the body movement involved in the game relatively easy. However this particular client had a very good level of mobility possibly the highest one in the group.

The other five clients reported the game was easy to use however we could notice problems in hands coordination when using the Wii controls, and focusing problems. One client had eye sight problems and a leg protease, which required more attention during game play for safety reasons; despite that he was able to perform really well during the games and reported it was “great fun”. During the second session we notice that participants were bonding more with each other, with a more genuine atmosphere of fun and enthusiasm among clients, students and staff which were observing the activities.

Other games used was baseball and tennis in the Wii sports resorts, the participants were not able to perform to well on these games due to the fast nature of the game, we noticed problems with reflexes and overall mobility. When questioned about the difficulty, the clients reported “looks fun, but too hard “and “hard to follow the pace of the game”, this was especially noticeable with participants that have more physical limitations, such as poor eye sight and lower mobility.

The games used with Wii balance board, was Penguin slide, Table Tilt or Tilt City, Obstacle course, Birds eye, Bulls eye, Hula hoop, these games are especially designed to work with

sense of balance. The clients enjoyed playing all the games, though they reported difficulty with bird and bulls eyes. When playing Table tilt or Tilt city, the clients were able to perform very well standing on the Balance board, even on a better level than the staff of the service home, something we found very surprising. The Wii balance board provided us as well an insight on the level of disability of most of the clients concerning their body balance, something which helped us for the next sessions. When the participants were questioned at the end of the session about the usability of the balance board, most of the clients said it is "easy to use", especially with the hula hoop game. It is worth mentioning that all the women in the group were particularly delighted with this game. Although at least five out of six of the clients could perform in some balance board games, the different levels of disability were noticeable; some needed help and constant supervision during game play. From the second session we concluded that:

- 1 Clients showed more understanding towards the concept of interactive technology, and displayed more ability in using the hardware, however not all of them. The clients with a high level of mobility were able to perform better, in comparison with the participants which had more disabilities.
- 2 Problems with hand coordination and ability to focus were prevalent among the participants, at least three clients showed difficulty in handling the controls, however overall good performance with the Wii balance board.
- 3 The atmosphere during the activities became more inclusive during the session, the participants were bonding and the students could sense a feeling of well-being among the participants. This was a very important objective, which was starting to be achieved from the first session.
- 4 It was hard to say if gross and fine motor skills showed improvement in relation to the first session, however at least 2 clients displayed much more ability when using Wii controls, especially during the bowling game.

#### 6.7 Third session: 9.07.2013

For the third session we used different games from the Wii fitness package together with the balance board, the participants also experimented with different games from the Wii sports resorts. Tightrope, wakeboarding, boxing, sword playing were the games elected for the session, for instance in tightrope again we placed emphasis on the sense of balance, at least three clients were able to perform in the game. When questioned about the difficulty level and dynamics of movement, the participants reported "easy to perform" and "no problems with the balance board", it was impossible to gather more data from the other participants due to technical problems with the hardware. The balance board was not able to measure the body weight of the female participants, making it difficult to play.

Participants also experienced problems in the wake boarding game, the purpose of the game was to exercise "joints" and "fine motor skills", clients reported difficulty in "handling the controls", and the movement of the game. Clients were later questioned if the game could help with improving joints movements, some clients reported "yes, maybe with enough practice", others replied "hard to say", or "no, it is too difficult". Again it is important to mention that the games offered had different levels of difficulty, and performance was very much dependent on the level of mobility of the participants.

The next game used was sword playing, this was particularly successful, and the game required a lot of strength, and upper body coordination, the participants performed well, and worked on "muscle strength" and "left to right coordination", in accordance with our objectives. The participants reported "good fun" and "lot energy spending during the game", also "easy to play".

In this session we also pay special attention to group dynamics and enhancement of wellbeing, the students together with staff provided constant feedback with encouragement before, during and after the activities. We realized the best tool to empower our clients would be to give them constant positive feedback, and to captivate them the best way possible. We used good conversational skills together with genuine interest for the clients' lives, another aim we had in mind was to provide an environment which was not too mechanical or clinical. We arranged the material and the environment in a cosy way, for instance we offered tea, juice and biscuits during the activities, so clients could connect with us and among themselves, the aim was to build good group spirit. When we questioned the clients regarding the social aspect of our activities, all of them reported "it is nice to be here" and "I like our group activities", also "it is a nice change of routine". From our third session we concluded that:

- 1 Some participants were learning how to use the technology at a faster rate than others. Again individual differences played a large role in assimilating new information and skills
- 2 The objective of breaking isolation and enhancing wellbeing among participants was practically achieved. Very good group dynamics, good communication, and enthusiasm from the participants together with students and staff.
- 3 Achieving the objective of improving joints mobility and fine and gross motor skills in the participants to a reasonable level required much more sessions. However there was minor visible improvement in comparison with the previous sessions.
- 4 Participants were starting to develop preferences for the different games.

## 6.8 Fourth session: 13.07.2013

In the final physical fitness session we used some games from the previous ones and extra games from Wii sports resorts package, the games selected for the session were canoeing, Frisbee, archery, and air jumping. Canoeing was pretty successful among the participants and group performance was very good, clients reported “great fun, while using it”, and “physically demanding”, this game was particularly good for “resistance, stamina, and muscle strength”. The physical movement involved is quite intense with upper and lower body being used during game play; this was specifically useful tool for working with the physical goals. The next game used was Frisbee, again the clients performed really well; like in real life the movement used involves rotation of the body and a good arm swing, at least five of the clients reported it was “extremely simple and fun to use”.

Archery was a bit more complex game to perform for the participants, because two controls were used at the same time, the Nunchuck and the Wii control remote. The participants reported difficulty with “coordination, and ability to use the hardware at the same time”. In the final session we decided to use and test Wii music game, which will be used in the following sessions as well, the reason for this was because it involved physical movement and worked with cognitive aspects of the clients. Some games in the Wii music package were a bit difficult for the participants, for instance pitch perfect and hand bell required a reasonable focus and concentration. As stated before in the previous session some participants reported problems in focusing and concentration, the same happened during these games, clients reported difficulty in “following the pace “ and “ confusion with game dynamics”. Clients were not able to distinguish the bells colours and were experiencing problems handling the Wii controls and focusing on the game at the same time.

The pitch perfect game was too difficult mostly due to language barrier, the software and instructions was in English which required constant translation, also the amount of information required to learn the game was a bit too overwhelming for the participants. As noticed in the previous sessions, more complex games were not suitable for all the participants, pitch perfect required very good hearing and fast hand coordination, so the performance in this game was a bit low. On the end of the game clients reported, it was difficult, to “handle the buttons, at the same time”, and “overwhelming visual information”. One female participant commented during the activities that the best games are the ones where the Wii controls are used without having to touch any buttons, together with “difficulty in using both controls at the same time”. This was also mentioned by the other participants where they report problems in handling both controllers at the same time (Wii control and Nonchuck device). Participants also played the Quick jam game, where they had to play a certain instrument together with the rhythm. The strength of this game was the availability of instruments

to choose from, the game play involves body movement, finger coordination together with musical intelligence. The participants really like this game and praised the aspect of “using music with movement” during the jam session. Overall this game was successful and participants reported “wellbeing” and “fun when using music”.

In term of group dynamics the students felt a very positive and improved communication with our clients, after four sessions we gradually earn the clients trust forging a good a partnership, something which is essential as practitioners. For our last session with physical fitness we concluded that:

- 1 Clients were familiarized and assimilated with the concept of virtual reality, understanding its potential and possible benefits.
- 2 The four sessions did achieve many goals established prior, such as enhancing wellbeing, building inclusive environment, and working with aspects of physical health.
- 3 Some goals like improving joint mobility, more muscle strength and stamina needed much more sessions in order to be successful. Physical fitness and rehabilitation plans generally takes much more time to see visible results
- 4 We could see an evolution in learning new skills after using the games, the participants did learn how to use the controls and hardware, and understood the dynamics of many games. However when the level of complexity increased in the games, many of participants performances decreased, individual differences and own functional capacity played a large role in the sessions.

## 6.9 Cognitive sessions

### 6.10 First session: 16.07.2013

In the cognitive sessions the goals we set in mind from the beginning in the session plan was to: maintain and improve memory, work with concentration, create social interaction among the participants, and build trust among the group. The students used elements of reminiscence therapy together with the Wiki music game, the aim was to improve and stimulate cognitive aspects through group discussion, music and rhythm while employing interactive methods.

In the reminiscence therapy session two clients were absent and were not able to participate, however we did manage to have a successful session. The students realized that in a group discussion one important factor is to make the environment conducive; taking that in mind we arranged the room in a cosy way, prepared biscuits and juice and placed chairs in a circle. The idea was to give a feeling of home and proximity among students and participants, the material was set with the computer and projector were pictures were displayed, based on



previous information gathered from the clients. The slides were showed and students stopped in every picture engaging the clients in conversation, for instance if a picture revealed a country generally it was associated with travelling. Most of the clients talked overall about their travelling experiences with us and other group members, at least at very basic level. Despite not sharing very personal aspects of their experiences yet, they were pretty detailed about it and remembered famous landmarks, when they were built, and which year they visited.

The idea was to stimulate their memory and make them think about their own life and how meaningful it was. Most of the clients talked a lot about Portugal since most of them travelled there, and one of the students nationality was Portuguese, so the clients felt the need to share that aspect of their lives. Other pictures displayed was different cities, the idea was to show to the clients the places they were born, so they would share with us the history of their lives in a narrative way. Most of the participants told the students the places they grow up as child, the places they moved during their lives and experiences associated with it. Again the clients were not too personal in their description; however we could notice they were using remembrance to make sense of their lives, and we could notice a certain nostalgic feeling among the participants. One client was very quiet during the session, we tried to engage in conversation however the participant was not to responsive. The idea in reminiscence therapy is that participants share experiences out of free will, so we respected the wishes of this client above all.

Another pictures displayed were associated to occupations and different professions, most of the participants did share their experiences related to their jobs before retirement. Participants talked eagerly about their working experience while young and at different stages of their lives, one of the participants didn't want to share her previous history regarding her professional background, something the students respected. When the participants were asked if it felt good to discuss their experiences, at least three clients displayed satisfaction and reported "it was good", and "I don't mind".

Other pictures displayed were related to hobbies, the idea was to get the clients to share about their personal preferences, past and current hobbies, at least all of the clients shared their tastes and interests, and seem comfortable in speaking about it. Participants reported it was "ok to talk about", and expressed enthusiasm when discussing it. The success of session was largely dependent on the way we approach the participants, the students tried to use much as possible good conversational skills, correct posture, active listening, and a genuine interest in their lives. In terms of group dynamics and how open the clients behaved towards each and us, it was progressive and fast. Some of the participants already knew each other since they live in the same service home, despite that it was surprising to see how clients were still sharing unknown aspects of their live in a very open way.

Reminiscence therapy tries to make the individual think of its own life in a narrative manner; the purpose is for the client to make sense of its own experiences and life. Taking this into account during the flow of conversation in the session, the students tried to ask the right questions, for instance we inquired about the participants lives in different periods. We asked questions such as “how was life in Finland during youth” or “did life change a lot, in comparison to before” and “How was life in the city you born”. These are just a few examples of questions we used to build the conversation and make clients share aspects of their lives among the group. Asking questions related to their professional background and hobbies also helped the participants to make sense of what they have done in their lives. When asked on the end of the session, if they enjoyed sharing their personal experiences and aspects of their lives in a group discussion and how was the atmosphere; most of the clients reported “yes, it was good” and “it is nice to have group discussion”, “we liked the atmosphere”. From this session we concluded that:

- 1 The session managed to stimulate and arouse memories; most of clients shared their personal lives and experiences in a group, and at the same time the activity worked towards good cognitive functioning.
- 2 During the session we managed to create a good atmosphere with our clients, good communication and wellbeing were present all the time.
- 3 We managed to build trust among the participants well enough so they would share aspects of their personal life with each other. The session worked towards a more inclusive environment at Lauttasaari service home.
- 4 The session was successful and we achieved most of our goals.

#### 6.11 Second session: 19.07.2013

In this session we used the Wii music game, together with the same games as in the fourth session of physical fitness, pitch perfect, hand bell, custom and quick jam. This session was not particularly successful, again clients report lot of problems, in the first two games, pitch perfect and hand bell. Most of the participants stated “difficulty in handling the controls” and “too complex games to play”; with the quick jam clients performance was much better as happened in our fourth session of physical fitness. In this session the level of motivation from the clients was a bit low, also we notice some frustration regarding the difficulty involved in the games used.

As stated before this game requires lot of concentration from the clients and many were not able to focus properly in order to play, most of the female participants did not perform as well as their male counterparts and showed more disinterest. The men in the group where much more enthusiastic about it, for instance one male client played several sessions of custom , and quick jam and was enjoying himself, when asked did he like play, he stated “ yes,

very much “ , “and good fun”. This client showed the ability of learning at much faster rate than the other participants, this was visible also the previous sessions as well.

This might be explained due to his previous experience with electronic games, something that the other participants and he acknowledged. Despite the students noticed there was minor difference in the rate the male participants learned some games, compared to their female counterparts, not in all the games though. The reason might be because of game preferences and previous history and experience, something one of the clients had. It is not an indicative of better male ability. In terms of group dynamics this session was not the best, the clients were frustrated and difficulty in following instructions, problems with focusing and concentration were prevalent half way of the session. Despite the students encouragement we could notice some participants had already given up, when asked on the end of the session the overall feeling, we could sense some disappointment from the clients. Most of the ladies reported “too difficult”, and “not much fun involved”, most of men reported it “was ok” and “I enjoyed myself”. From this session we concluded that:

- 1 Due to difficult nature of the games at least half of the participants displayed very low performance. This was more predominant among female participants, then males, again we noticed problems in handling controls, problems in concentration and coordination.
- 2 We’re not able to achieve most of the goals set in the session plan, although we managed to get all the participants to play, their motivation and enthusiasm was low in comparison with the previous sessions. This might have been due to difficulty of the games presented.
- 3 Despite the setbacks most the male participants reported enjoyment and fun during the session, which was a positive point.

#### 6.12 Social interaction sessions

#### 6.13 First session: 23.07.2013

On the social interaction session plan the goals we set from the beginning were: create social interaction, build good atmosphere, arouse feels of acceptance and work with music and memories associated with it. The aim was to enhance wellbeing among participants while singing and listening to music, karaoke and songs available from sing star and PlayStation 3 was the choice for the session. As stated before, we collected information regarding the musical preferences of our clients and downloaded them in the PlayStation 3 so the participants would sing.

Before this session, clients requested a number of Finnish songs from different Finnish artists and some songs in English. From the beginning the students knew there would be a language barrier because many of the participants did not know how to communicate in English, so we wanted songs mostly in Finnish language. Sing star is PlayStation 3 software that allows downloading several songs from a musical database (Singstar, 2013); the students were able to download at least half of the songs requested and provided other Finnish artists for the participants to sing. Despite this we were not able to find many songs which were meaningful to the clients, and the idea was to provide songs which they are acquainted to, so they would sing together.

This session was not very successful. First we set the material, presented the songs, and gave instructions on how to use sing star. Some clients tried the microphones and the songs available; however they were not convinced with the game dynamics. One reason for this was the lack of songs they wanted to sing, and also the competitive aspect of it. In the middle of the session, the participants stated they did not want to use singstar karaoke anymore. When asked why, the participants reported “don’t like to sing like this”, “don’t like the game” and “not my favourite songs”. Also the students noticed some of the clients were reluctant in singing just by themselves, something that undermined the session.

In order to finish the session, the students had to improvise and present other games. We asked our participants to choose from previous activities offered, what they would like to try again. Most of the participants chose Wii sports games, with bowling and canoeing being their favourite games. At the end of the session, clients reported it would have been nice to sing and it was an ok session. However, the students noticed a slight disappointment from the client’s side. From this session we concluded that:

- 1 Singstar game was not very helpful for the music session we had in mind, although it had potential due to large availability of songs, the clients were not impressed by the dynamics of the game.
- 2 Language barrier was problem in the session because of the lack of Finnish songs available to sing, the participants were familiar with some songs in English, however disappointed because there wasn’t so much Finnish songs they requested.
- 3 We only achieved part of our objectives. A good atmosphere and social interaction was created during the session. However, we failed in presenting music that was requested.
- 4 Despite setbacks we still managed to improvise and offer the participants games they enjoyed.

#### 6.14 Second session: 26.07.2013

This session was much more successful and rewarding than the previous one. In this session we decided to do karaoke with help of the computer, projector and You Tube software. In addition to that we printed lyrics of the songs the participants liked and requested. First we set the environment in a nice and cosy manner, connected the computer to the projector and made a circle with the chairs, then searched for each song in (You Tube) and offered the lyrics to each client. The idea was to find the songs requested and sing together.

You Tube was particularly useful in this session since it allowed us to find the artists the participants requested, also the fact we had a printed version of each song lyrics made the activity really successful. Most of the songs were familiar to the participants and we managed to make the clients sing in a group, something we had in mind from the beginning. we played songs from the 40`s until the 70`s, 80`s, and noticed the clients knew most of the songs by heart which was very rewarding for us, since they were expressing enthusiasm and joy while singing it. The main strength of the session was the ability to deliver most of the songs in Finnish language, compared to our previous session during which we faced problems regarding the availability of songs. When participants were questioned at the end of each song about their overall feeling, most of them said "it's great to sing", and "I really love this song", "it feels good to listen to music". One fact worth mentioning is that all the participants seemed to have same taste in music, and loved the same songs; which was very useful for singing together.

The idea was to allow the participants to express themselves emotionally and work with memories associated with that. Most of the clients commented on past events of their lives and remembered certain periods of their own history. Occasionally we would hear, "I remember this song when I was young" or "this brings me many memories". This was a very rewarding experience for us students, because we managed to offer a very meaningful activity for our clients at Lauttasaari service home.

In terms of group dynamics the communication was really good, and we created the right atmosphere with the participants. The clients reported feelings of well-being, and expressed their joy verbally, especially after their favourite songs. Occasionally they would comment on something associated with each track. From the students perspective this session was very empowering for the clients, and at the end when questioned about the overall session the participants reported "this was great," "I had lot fun", and "we love music". They also requested the possibility of repeating the act, something that pleased us students, personally and professionally. From this session we concluded that:

- 1 The session managed to create an inclusive and social environment for the participants. Feelings of well-being and enjoyment were reported by the clients.
- 2 We managed to retrieve memories associated with music and discuss about it, creating a social environment where the clients would share aspects of their emotionality with the group.
- 3 Music is a very powerful force that can really unite individuals and be used to help people express themselves, something we were able to do with our group.
- 4 All the session goals were achieved.

#### 6.15 Sustainability

#### 6.16 First session: 30.07.2013

In terms of sustainability we planned two sessions with the management and clients. One of our main goals regarding the project was to try to develop sustainability on the long term, meaning the staff in Lauttasaari service home would continue using the technology and methods involved. From the beginning we had the idea of training the staff and the participants involved in the activities so they would be independent to use interactive methods if they would wish to. We consulted the management prior to the activities and explained what we had in mind; it was decided together with staff and the rehabilitation assistant (kuntohoitaja) that it was absolutely necessary to explain how the hardware and games work.

Also the idea was to involve clients who would be willing to participate in the training sessions. After the physical, cognitive and social interaction sessions we consulted the clients who seemed fit to participate in the training session. Two clients were willing to participate together with the rehabilitative assistant (kuntohoitaja). The reason for this was the fact that both participants performed very well during the activities and learned very fast the main concept and the skills needed for using the technology.

Our main objectives for the two sessions were: to teach how to use the material and the technical aspects of it, explain how the games work, and additional information regarding possible problems that might arise while using Wii console and accessories. In this session participants, rehabilitation assistant and the supervisor of the place were present. First we went through the technical aspects of the hardware, we showed how to connect the cables to the projector, how to start the Wii console and insert the games. This process was very important since any technical problems or mistakes might undermine any session the clients might want to have in the future. The rehabilitative assistant recorded notes and ask questions during the process, the manager was also present and gave us her feedback regarding the all project. We repeated this process many times until the rehabilitative assistant and participants were able to set the material by themselves, when questioned if it was hard, the clients answered "it is

lot of steps involved”, and ” I am afraid I do something wrong”. Despite their fears they were able to set the material by themselves with the student’s supervision.

The next step was to explain the different features of every game, both in Wii sports and Wii fitness package, because there was large selection of games involved, we choose the games the participants liked more during all sessions. For instance bowling, penguin slides, basketball, hula hoop was the games, which we went into more detail, we also took great emphasis in how the balance board works and what games can be used with it. Despite understanding the basic mechanisms of the games, there was additional information the clients and staff had to assimilate. When asked if it was easy to learn the features of each game, the staff reported “a bit hard, so much information”, ” need more practice”, “and perhaps with time, I will learn more”. The participants reported individually that “yes, I know how to play the games, but I might need help if something goes wrong” and “ so much little details and steps in the games”. One curious fact when testing the games was that the participants even performed better than the rehabilitative assistant (kuntohoitaja).

The working life partner supervisor also tried the hardware and the games involved and found them entertaining. In the students opinion this was very good because the management approved the project but never tried the methods themselves. The supervisor enjoyed most of games and commented that is “very good for Lauttasaari service home to have this possibility “, something that made us proud as students and professionals. From this session we concluded that:

- 1 Participants and staff learned the basics of how to set the material, however they were not very confident about it.
- 2 The amount of information and features regarding the games and hardware was massive, something that confused the staff and participants.
- 3 Much more additional sessions were needed for staff and clients to be fully independent, in terms of mastering the material and the games completely.

#### 6.17 Second session: 6.08.2013

In this session we basically repeated the same process like in the previous time, with the difference that we used a normal television instead of the projector. All the other sessions were conducted in a big exercise room (kuntoSali) where the projector and the sound system were installed, so this time the staff and participants asked if we could install the hardware and devices in the coffee room. The reason for this was the fact that many other clients from the service home generally socialize in this room, so the staff thought it would be a good idea to set the material there and introduce to the other clients.

Generally all the clients from the service home go there at least once a day, so the idea was to get everybody curious about the games and the technology involved. The conditions and environment offered in the room were also quite good and it did not undermine the session or the interactive experience at all. The television was fairly big and there was lot of space for the participants to play and move around, the staff decided to keep the material in that room for the time being, and commented that they would move again the material to exercise room if the clients desired so. In this session we decided to let the clients set the material by themselves, starting with cables and hardware until using the games. We wanted to test and see if the participants and staff would remember ours instructions from the previous time. The clients and the rehabilitation assistant performance were good; they made small mistakes with cables in the beginning but managed to succeed with little help from students. Despite needing supervision throughout the process and not being so confident about it, they managed to set the basic material.

This was a good achievement if you take into consideration the fact that it was their second session of training, however it was visible that if good results were to be attained, additional training was required. When participants were asked if they felt it was easier in setting the material compared to previous session, they answered the same, “I will learn more with time and practice” and “not so hard when you learn it”. The staff reported that “it will get easier with time” and “just have to remember all the details”.

Going through all the features of the games and the balance board mechanisms, was something we repeated again in this session. We used the same games and explained the features once more, the clients and staff remembered lot of details from the last session, but made many mistakes while using the controls and games. The staff again showed a bit more difficulty while performing and testing these games, something we found intriguing. This might be explained by the fact the participants had much more experience in virtual gaming than the rehabilitative assistant who had no previous experience at all.

From the beginning we had in mind to provide training to the kuntohoitaja so she would incorporate our methods and activities while drawing individual and collective plans for the clients. At the end of the session we inquired with the rehabilitative assistant if she will use our methods to conduct activities with the residents and the answer was, “quite possible” and “the games are fun and can be used in future activities”. Despite strong indications that staff might use the interactive technology in the future, it is hard to know if sustainability will be achieved. From this session we concluded that:

- 1 Additional sessions and training is absolutely necessary for the staff and participants.



- 2 Supervision during game play and hardware and material arrangement is still required. Participants learned a great deal of information, however made mistakes which can undermine future independent sessions.
- 3 Massive amount of information due to the diversity of the games involved.
- 4 Sustainability could be achieved if training would be provided at least six months after the project is terminated.

#### 6.18 Findings from the questionnaires

The replies from the questionnaires were put in a table form which can be found in the appendix, and it is worth mentioning that responses and observations have been officially edited and translated by Laura. The reason for this was to enable the reader to understand because the language of this Thesis is English. As mentioned earlier each question had a specific target area as per our goals and objectives. Hence, findings are categorized according to physical, social and cognitive well-being. Going generally through all the areas and the questions provided by the clients, the authors concluded that:

From a social well-being perspective, we can state that the participants generally enjoyed the sessions and felt empowered by them. Most of them enjoyed playing the games and remarked that it boosted their confidence, cheered them up and improved their social interaction. Answers such as: "It is nicer to play with a group of people than alone." and "It was a nice way to spend time" confirmed that. Other statements done by the participants such as "It felt good", plus "it was nice to try my boundaries a little" and "I notice that was still quite good at balancing" support the notion mentioned above.

Other answers reported by the clients such as: "Realising the technique with both instruments was also nice and it cheered me up" and "Achievement and clear development was rewarding, when you notice that you are still able to do something." Support the view that self-esteem and feeling of self-worth was enhanced throughout the activities.

With regards to our goal of improving the cognitive wellbeing of the clients, we can deduce from some of their responses that there was an impact on their reaction skills, statements such as: "Using the control stick was fun playing and maybe even improvement in my reaction skills" plus "the Balance board improves bad balancing skills." and "All my life I have been interested in games and their solutions", supports the notion that cognitive aspects of the clients were stimulated with the activities. Additional answers such as: "These games were interesting and exciting" and "It felt good when I got something right" plus "After achieving in a game, it cheered me up.", also demonstrates that feelings of self worthiness and well-being increased among the participants. This is tightly connected with cognitive wellbeing.

The activities also made an impact on the physical wellbeing of the clients as gathered from their responses. According to the clients, the games had a positive effect on the balance and coordination skills, together with the different body parts, for instance answers such as: “A positive, fun and empowering program, which improved physical strength. Shoulder muscles became less tense.” is an indicative that the activities provided did work out with some physical fitness aspects of our clients.

Other statements such as: “It is difficult for me to compare a control stick that you hold in hand to a balance board, because the working of these is so different” and “there could have been more exercises on the board, because it is important to maintain old people`s balancing skills.” These comments clearly showed that the client`s physical fitness benefited from the games and the technology involved in the activities, the participants also understood the potential benefits of interactive technologies in their lives. Findings also suggest that other area of physical fitness such as coordination skills were worked out during the activities.

## 7 DISCUSSION

The intention of this thesis was to find out if the use of interactive technologies like the Wii console, Play station 3, and computer were appropriate tools in elderly client work to improve fitness, cognitive functioning and social interactions. Hence, we aimed at creating or developing achievements which can target the well-being of seniors as mentioned above, and to investigate if technology can be effectively used as other forms of creative methods in the social work field in general. In order to test this method in the social work field in Finland, sessions were carefully planned in collaboration with the working life partner and the views of participants were taken into account.

There were 7 participants in attendance, and this study was conducted using varied information collection methods like group feedback sessions, learning diaries, focus group feedback session and questionnaires with open ended questions. Results were translated and analysed using the inductive content analysis method. Findings were grouped into the 3 main areas the study aimed at investigating. General findings gathered from all the information collected both from participants and staff revealed that the use of interactive technology could be effective tools in developing activities that improve on the wellbeing of senior people and also serve as another form of creative methods if programs or activities are well designed to target specific areas.

Looking at the physical fitness benefits, the activities developed with the Wii and the Play station offers, it would be realized that is quite versatile as people of different disability and mobility impairments can use it. The games that required the use of the console stick demon-

strated it not only as an efficient tool for the development of fingers and hand movements, but for the whole body. It can be used indoors, clients who cannot walk or stand can use it seated. Activities that target different areas of physical fitness can be adapted with ease, so that every category of client can benefit and use it, either alone or with the help of an assistant.

Thus, apart from the wellbeing, the Wi console and Play station activities also built self-esteem, stimulated communal participation and breached the idea that elderly people are kind of unhappy and can no longer appreciate and use new technologies anymore. Therefore, this study group can say that the use of these interactive technology tools meets up with the recommendations cited in (Healthy ageing: A challenge for Europe, 2007) which emphasizes physical activity, where the aim is to improve the physical condition of elderly living in Finland and health promotion such as equal opportunities for functioning actively in society.

Also, this study group found out that just like any other age group; elderly people are no different when it comes to social needs as mentioned Statt and David (2000, 58) review on Abraham Maslow (hierarchy of needs). Wanting to play and win games as reported brought joy and the feeling of worthiness, personal development, autonomy and self-actualization, which is what every human being will love to have till end of life.

Another beneficial outcome of the use of interactive technology activities with the use of the Wii console and play station portrayed an improvement in cognitive functioning. Besides the reminiscence session which was a method to make the elderly travel back memory lane in thoughts and images, the entire of process of understanding how to use the equipment, follow the rules and remembering the steps of procedures served as a stimulant to their brains. Therefore, we think this form of creative methods is quite effective in elderly client care as it ties with the recommendation of (Reed Jan Clarke & Charlotte MacFarlane, 2011, 4) which emphasizes the need to develop services and activities that help maintain and try to rehabilitate overall condition among the elderly.

On the social aspect, we also believe that it is a good tool to use to foster social interaction amongst these elderly people who are sometimes very lonely, depressed and stressed. At their advanced ages and characterized by several disabilities, seniors do not longer go out frequently nor get so involved in diverse active life activities. They usually are away from family and thus are lonely most of the time. With such creative methods [interactive technology gadgets] they can improve on social interactions as they get to play with other participants or even play indoors activities to boost their mood. Hence this method has been seen as effective to make life better for seniors who must not necessarily leave their environments or have partners and still feel happy.

According to some participants, it is nicer to play with others than play alone. Also winning in a game was found to bring positive changes in mood and also enhanced confidence and the sense of achievement. Creating activities with the use of innovative interactive technology like the Wii and Play station was found to be a valuable professional work development for social workers.

Results showed that this approach makes for diversity in activity design and also broadens the professional's knowledge on new technologies and program planning. Hence, we can confirm that interactive technologies are efficient tools to organize creative activities as some clients reported they were happy to try new things, instead of being stuck in same routines of yester-years. Technological advances are essential because every aspect of modern life is connected to technology, according to (Social welfare in Finland, 2006) we should make use of assistive devices and current technology to improve quality of life.'

Looking at the theoretical framework of this thesis and practicalities deduced during and after its implementation we found out that there is a strong connection to empowerment in client work. We used the client centred approach which incorporates the AOP components. In executing this project, we worked in partnership with participants and management ideas and views were sought from both parties ,suggestions, remarks and grievances were listen to prior to all the sessions and at the end of the whole project.

The clients were empowered to make decisions and be part of planning activities that concerned them. Empowerment can also be discerned from the general impact the project activities had on their well-being - boosting social interaction, by reducing loneliness and boredom, changing moods and building self-esteem, confidence and achievement.

Social change is evident as the sustainability of the project will go a long way to make for innovative and diverse methods in the way activities are planned designed and implemented. Providing the equipment's to Lauttasaari senioritalo which is a private home with limited facilities than the public sector homes goes a long way to bringing some equality in resources between residents in the private sector and those in the public sector as desired by the Finnish government in its policy document on ageing in Finland.

One of our goals was to create a project idea that would be sustainable in the long term. This goal was achieved. The staff was taught how to use the equipment, as were some of the clients, which gave a positive view that they would continue with the activities in the future. In as much as this thesis was aimed at experimenting the use of interactive technology as a creative method in client work with seniors , it also was an opportunity for us to familiarize our-

selves with all aspects of the themes, gain an in depth knowledge in programs designing and implementation in client work with the elderly .

Thus, it was a learning process as we faced some challenges in course of execution not all of us are Finnish native speakers; hence there were difficulties in language comprehension during session implementations. We also realized that some of the questions were not quite clear during transaction. Responses gotten did not answer all the components we set out to check.

In addition we also realized that it would have been better to narrow down to one component of well-being and also due to the time frame within which we had to do the project, respondents complained it was too short time to assess if they noticed any changes .Hence, results might have been different if the project lasted over a longer period and with many more participants than we had.

Lastly, we had to improvise at times because we did not have enough finances to buy many games and more control sticks to avoid long waiting period by other participants. In order to explore the actual benefit of using interactive technology in client work to improve on their wellbeing, it would be interesting to carry out a survey with a larger sample group made up of clients of all ages on their perception of current technologies.

## 8 ETHICAL CONSIDERATIONS

We would like to state that before and during this project research, the ethical guidelines of Laurea University of Applied sciences as well as general ethical principles of conducting research were taken into consideration. According to Heikkinen et al (2006, 148) validity and reliability do not fit well for assessing action research. Validity is hard to demonstrate because the conductors of the study form the standard of truthfulness in the context of their study. Also reliability cannot be shown, because action research seeks to find new ways and method to conduct things.

In this light, we did consider aspects like historical continuity and service innovation in the conception and implementation of the project at the lauttasaari senioritalo. Looking at the historical continuity, there had been lots of activities in that home with similar objectives; therefore it was easy for us to introduce the concept of using another creative method which was using interactive technologies to implement activities that improve wellbeing in all its ramifications. At the same time we were cautious to introduce new ideas so that we would not upset the routine of the institution or somehow take over the space of other activities. We also took strongly into consideration ethical guidelines for professional conduct according to the union of social workers in Finland (Talentia, 2013), especially regarding participation

and self-determination of clients, coercive measures, confidentiality and privacy of clients. We followed the rules and regulations of the working life partner and dwelled on the four main ethical issues: Consent, Harm, Privacy and Deception.

**Consent:** We did make sure that permission was sought from the management of Lauttasaari Senioritalo and a research agreement sheet signed and approved. The participants were well informed about the research aim and purpose so that they could voluntarily decide to take part or withdraw at free will. Those selected for the activities had the capacity to make their informed consent of course. Participants had the choice to be absent if they had other commitments. We emphasized the voluntarism and self-mastery in making their own decision and respected any participant's refusal to an activity and an equal treatment of all the participants. Coercion and deception was avoided, and the right of self-determination was respected, we emphasized the clients own responsibility for his or her decisions regarding participating in the project.

**Harm:** We did also consider potential harm like physical, psychological, emotional and embarrassments during the project research and ensured that such are prevented. Hence, we made provision for less risky activities and for some activities or games, we asked participants with poor physical conditions to sit. Ample explanations were given to participants prior to each session so they know it is not a tournament that winning carries a prize but just a health and social exercise. Thus, informality of the communication and the interactive nature of the research process were vital to avoid emotional, psychological embarrassments. We listened to what the participants had to say and let them finish without interruptions. Welcomed their ideas and are willing to change the direction of a session. We also created an environment that is both stimulating and secure for the participants.

The environmental effects can be reasonable in a physical and psychological experience of a participant. Therefore it is important that the atmosphere in the sessions supports the positive interactions so that the clients can gain confidence and trust from people around them. This we achieved through the sitting arrangements and some light refreshment during some sessions. We also aim at reducing the clients self-blame, awaken a belief in their personal power to be in control of their own circumstances and in more concrete, their own bodies. With regards to the anti-oppressive practices' of empowerment and the three levels of feelings, ideas and action, we considered the following features in empowering the clients; Client's suggestions and opinions are taken into account when planning the activities.

**Privacy:** Confidentiality was preserved throughout the research project. There was no usage of personal identifiers on our field notes, transcripts and on the questionnaires. This enabled the participants to feel free to make an independent decision without fear of negative conse-

quences. Personal data was not made public and names of participants are not published in this thesis report, also no information was disclosed without the clients consent, we abided by the rules of data protection.

Deception: Honesty was maintained about ourselves, what our research is all about and what we intend to do with the results we gather to both the management and the participants. Researchers do not only possess ethical responsibility to the informants but to the reader of their study as well our thesis followed the rules of dialectics by trying to have the voices of all the people involved in the project heard. Each aspect of the findings represents the different points of view of our participants, working life partners and us. We filled out the diary from our point of view, we had the questionnaire to get the participants point of view and we had the evaluative discussion to get the working life partners point of view. Of course each view was subjected to our analysis which might reflect the participants" and the working life partners" views differently than the actual raw information portrays. Hence, the results of this study are fair, sincere and ample as possible in the analysis and description.

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## Appendix 1

## Results from questionnaires.

What is your impression about participating in the project activities?

Client one	“Nice time spent together. I would learn how to use this technology, but I would not know how to teach others. “
Client two	“Thank you for offering me the possibility to participate in the program created by you. “
Client three	“It is always good to get acquainted with new things. I guess it might be useful as well. One has to have quite a good physical condition to be able to perform in the games, though easy tasks were offered as well.”
Client four	“It was nice to take part in the activities. When an activity has an instructor who masters the games, programs etc. the activity is fun. The games and balance tasks and such require a group leader, in my opinion. This was fun, and I would even try again.”
Client five	It was a nice way to spend time.
Client six	A positive, fun and empowering program, which improved physical strength. Shoulder muscles became less tense.
Client seven	“After analysing the performed activities, in my opinion they would suit better to service homes that do not have many activities to offer. In our case, however, the wellbeing of the clients is well taken care of: own fitness caretaker, geronom organizing a lot of activities that enhance and maintain cognitive skills, as well as organizing events that promote social wellbeing. Client-centred functioning is also encouraged. Therefore and through my experiences I say that interactive technology would not bring any benefits to us, in regards of real services offered here that are more efficient and diverse.”

2. Which of the instruments did you prefer: playing using the Wii control stick or using the balance board to play?

Client one	“Once I realized how to use the control stick, it was fun and improving. I was not on the balance board at all.”
Client two	“The balance board improves bad balance skills.”
Client three	“I liked both, but maybe more the control stick, because my balance is not so good. (Prosthesis in the left leg).”
Client four	“I preferred the control stick. My balance is bad, maybe that is why! “
Client five	“I liked to use the control stick, because you could use it while sitting on a chair as well.”
Client six	“I liked the Wii console. I did not try the balance board.”
Client seven	“It is difficult for me to compare a control stick that you hold in hand to a balance board, because the working of these is so different. There could have been more exercises on the board, however, because it is important to maintain old people`s balancing skills.”

3. How did you feel using both instruments?

Client one	“I tried only the one that is held in hand.”
Client two	“Using the control stick was fun playing, and maybe even improvement in my reaction skills. The Balance board improves bad balancing skills. “
Client three	“It felt good. It was nice to try my “boundaries” a little and notice that I

	was still quite good at balancing. Realising the technique with both instruments was also nice and it cheered me up. Achievement and clear development was rewarding, when you notice that you are still able to do something.”
Client four	“The one you hold in hand suited me better. I did not like the balance board”
Client five	“When standing on the Balance board, one makes more mistakes inadvertently while looking at the program on the screen.”
Client six	“I only tried the control stick.”
Client seven	“I tried both instruments as much, and I think that they differ greatly from each other. I was standing when using both instruments. The controllers held in hand promote especially coordination skills. “

4. Did you experience any changes after using the instruments and playing the games? If yes, what kind of changes i.e. health wise?

Client one	“My shoulders became less tense, which helps moving around with the rollator”
Client two	“I cannot tell after such a short while. Maybe after longer periods of time.”
Client three	“This was fun. Perhaps if it did change something, it was that I was encouraged to be myself and enjoy the moment. “
Client four	“I am grateful for being able to have taken part in this, because this was something completely new for me. The time was too short in order for a change to happen.”
Client five	“All my life I have been interested in games and their solutions. These games were interesting and exciting. It felt good when I got something right. After achieving in a game, it cheered me up.”
Client six	“It was nice to try, but I was not interested to continue.”
Client seven	“What comes to my physical health and cognitive skills, they did not change after trying out the games. The good thing is that now I know what kinds of things the words game console, Wii and Play station include”

5. How did you feel playing the games with other friends? Was there any difference playing with others and when you exercised alone?

Client one	“It was fun.”
Client two	“I did not try playing two-player games.”
Client three	” I did not play two-player games. In two-player games competitiveness is highlighted, which I do not really approve of.”
Client four	“I did not play two-player games.”
Client five	” I do not think there is a difference in one-player games and two-player games.”
Client six	” It is nicer to play with a group of people than alone.”
Client seven	“I tried playing Tennis as a two-player game, but though I threw the ball correctly, the opponent did not hit the ball back. After several attempts I concluded that I was not able to play the game. In many games there were virtual opponents, and winning always arouse happiness and joy in a group.”

Answers from the personnel questionnaires:

1. How well would you say we paid attention to our client group? Did you feel that someone was left a little too much alone in the group, and was not noticed by us as much as others?

Personnel answers:

- You paid attention to all participants equally: all clients could participate equally.
- In the feedback situation, as well as in the beginning when introducing the project, you paid attention to everyone and everyone could talk and participate.
- You paid equally attention to all the participants.
- All the participants showed interest and tried to learn from students instructions. They participated actively in my opinion.

2. How would you define our performance as group leaders? For example, how clear were our instructions, when explaining the games to the clients?

Personnel answers:

- The instructions were clear. You had the strength to repeat and instruct also individually and everyone learned.
- The explaining was thorough.
- Working with a new group of clients and then being elderly in such a project (technological) is challenging. Given this background, you guided and organized the project in the best way you could.

3. How would you define the motivation and interest level of the clients during the activities?

Personnel answers:

- The players got instant feedback of what they were doing. Progression makes happy. All the players were motivated.
- Though some of the clients were a little suspicious, they participated eagerly.
- The residents were surprisingly motivated in participating in different games, though everything was new and before inexperienced for them.
- The participants tried to play as many games as they could due to the variety of choice offered. It was good for them because each participant had a chance to choose a game of his/her own interest.

4. Would you say the wellbeing of the clients has developed throughout the sessions? If yes, how? (Physical, cognitive and social)

Personnel answers:

- In the games, the whole body is used. The games can be played together as "teams" and one can exercise memory and balance skills. Hopefully the games will get residents, who normally do not like to exercise. Would it be possible to play in the TV room or club room? Perhaps a couple of residents could learn how to use the instruments and take the responsibility of leading the playing?

- The games brought happiness and cheerful mood.
- Excitement could be seen from faces and heard in talks later.
- To learn new things and enjoy doing them adds to the wellbeing of an individual in many ways.
- Sharing one interest as a group strengthens social well-being.

5. How would you perceive the use of interactive technology as a form of developing and maintaining wellbeing in Lauttasaari senioritalo in the future?  
Personnel answers:

- It motivates possible mutual activities.
- It might reduce loneliness in the future.
- It might improve communication.
- Activities levels increased, that might affect performance and health in the future, possible improvements in psychological, social and physical condition.
- Future sessions might improve interaction and communality among the residents, through this they might make new friends.
- Games seem to improve coordination, memory and balance.



## Appendix 2

Session plans.

### Exercise session plan by Helio Ricardo

Objectives:

This activity seeks to promote physical well-being in general, many games developed for Wii console are designed with the purpose of users exercising, from the beginning this was area of specific interest due to the nature of the technology involved. Wii console is built on the idea of motion and the ability of using all your body during game play, with this in mind we picked several games which promote physical activity and work with different movements and overall body posture. Research has been conducted about the different types of body movements involved in real life exercise and then virtually applied in Wii games (Nintendo, 2013). The aim is to make the users engage in the same movements and exercise of a normal life situation, without actually leaving the space they are confined to.

Several types of physical sports require the right environment for practice and this something which is not always available for most clients in service homes, for instance sports such as canoeing or tennis require a field or a river for exercising. Virtual reality and Wii gaming can provide that environment for the clients at lauttasaari service home. When planning the session we researched the different types of games developed that target, balance, strength, muscle work out, yoga and aerobics, picking the right games is essential for achieving the goals in terms of exercising. Physical exercise also complements other areas that we are trying to promote with our clients, namely cognition, and social interaction. The main objectives regarding exercise sessions are:

Physical goals:

- 1- Improve and maintain sense of balance.
- 2- Improve joints mobility.
- 3- Increase muscle strength.
- 4- Preserve sense of spatial orientation.
- 5- Increase stamina and resistance.

Cognitive goals:

- 1- Enhance overall well being.
- 2- Build self-esteem and feeling of worthiness.
- 3- Improve own self-perception.
- 4- Build a fun atmosphere with clients.

Social goals:

- 1- Build group spirit.
- 2- Fight loneliness and isolation.
- 3- Strength bonds among clients.
- 4- Novelty and change of routine.
- 5- Build a more inclusive environment at lauttasaari service home.

Like stated above it is important to select the right games that will help us to achieve our objectives in the exercise sessions, after careful selection, this activity will use games such as:

1-Bowling, basketball, Baseball, tennis, swordplay, boxing, canoeing, Frisbee, all these games are available Wii sports resorts game package. In the Wii fitness plus game package the sessions will use the balance board, together with games such as:

- 1-Penguin slide
- 2-Tightrope
- 3-Hulla hoop
- 4-Obstacle course
- 5-Table tilt
- 6-Birds eyes

The games mentioned above provide the clients with the opportunity to engage in different types of physical movement, the Wiki fitness plus package specifically targets muscle strength, balance and aerobics (Nintendo, 2013). One of the technical specifications of the balance board is the ability to measure the body mass index and overall physical condition of its users. The board is also able to keep a record of the sessions and assess evolution of physical condition over time, this specific feature can be used if clients desire so in the future.

### **Implementation environment**

There will be four exercise sessions with clients at lauttsaari service and one of the main concerns is to provide the right environment to implement the activities. The working life partner provided us an exercise room (kunto Sali) and material needed for the activities, namely a projector, chairs, and cushions. Taking into account the safety of clients is the main priority so making changes in the environment is essential for successful sessions; we plan to work on factors such:

- 1- Proper installation of equipment, namely Wii console and other electronic devices used during activities.
- 2-arrangement of the exercise room (kuntoSali) it's important to have space for exercise and remove any potential dangerous objects which might be harmful to the clients.
- 3-Providing instructions for the clients how to use the material and games presented.
- 4- Constant guidance and help during the games and physical movement.
- 5- Feedback from the clients on the end of each session.

### **Considerations during sessions**

Other factors to consider is the diversity of our client group, like stated before each client has different limitations and abilities, it is important to remember that during the course of the activities, so factors like;

- 1-Level of disability of the individual, some clients are slower or have impairments which don't allow them to perform certain movements or exercise. It's important to take this into account, not every client will be able to play all the games offered or engage in the same type of body movements.
- 2- Finnish language will be used during the activities with some limitations due to the fact that only one student is a native speaker. We will try to overcome language barriers with help of clients and among us students.
- 3-Providing feedback during sessions is essential, the aim is to encourage the clients and give them positive comments which build self-esteem and well-being. For safety precautions is also important to tell the clients if they are engaging in physical movement which might bring harm to their health. Assisting clients during activities is essential especially when they handle the equipment, namely control remotes and the balance board.
- 4- The aim of the sessions is to build an inclusive atmosphere where every client is given the opportunity to try the games and exercises, it's important to give enough time to every client to execute the games and exercises.
- 5-During session implementation the instructors should speak clearly to the clients and try to avoid problems regarding communication.

6-The aim of sessions is to have fun and create group spirit among the clients, a good attitude and positive energy is necessary for group bonding.

7-The clients decide which games they would like to participate, students present the different options and the group decides, decisions are based on client's wishes.

8- Group decisions together with individual needs will be considered during session's implementation.

### **Participants**

**Students-** Gretchen Ndango, Laura Porri, Helio Ricardo Portocarrero.

**Target group** - Clients from Lautasaari service home, a group of six seniors. However all activities are open for everybody that resides in the service home and wishes to participate in the sessions.

**Number of sessions-** 4 sessions will be implemented with each one lasting one hour approximately.

### **Social session plan by Ndango Gretchen:**

On these sessions we plan the use of Wii console, playstation 3, Singstar and You tube software for the activities with our clients, the idea is to boost social interaction and eventually help in their general wellbeing since staying in the care institutions could create a lot of isolation. It is worth nothing that all of our activities are oriented towards boosting social interaction amongst participants. All the activities are such that could be done in pairs at least.

### **Session objectives:**

Goals are:

Aimed at creating an interactive atmosphere with activities that require sharing of past experiences with others as is the case with the photo gallery history as reminiscence therapy. The karaoke and music activities, bowling, are also group play activities that require lots of interaction. By having fun and sharing experiences in the session, a feeling of being accepted and belonging into the group will be created. The clients may be relaxed more than they would have been all alone in their rooms. The client will have enjoyed being with other persons other than the nurses who take care of them. Songs and some games activities are those requested for by clients

### **Session Plan;**

- 1-Two Sessions, duration: 1hour
- 2-Participants: Lautasaari assisted living home.
- 3- Students: Helio, Gretchen and Laura
- 4- Language used: Finnish and English,

### **Implementation;**

- 1-Installation of equipments (Wii console, projector, chairs)
- 2-Arrangement of hall
- 4-Programming of activities and testing
- 5-Presentation of activities to participants
- 6- Commencement.
- 7- Feedback and closing.

N.B- Project considerations are same as stated above as all sessions are bound by same specifications, same clients and same logistics

### **Cognitive session plan by Laura Porri**

In the cognitive sessions, our plan is to use reminiscence therapy and Wii Music game as tools to maintain and improve cognitive abilities, such as memory and concentration. The cognitive sessions will be divided in two parts, elements of reminiscence therapy and Wii music games. For the reminiscence activity, we intended to download pictures from the Internet and use it as means of remembrance with the clients. The pictures will be uploaded to the Wii game console and presented through a portable computer together with the projector.

Before implementing this activity, we will ask background information from our clients, the aim is to gather general information such as, place of birth, city, location, past and current hobbies and interests when the clients were younger. Gaining trust from the clients is a progressive process, so we intend to ask general questions which are not too personal for the clients.

We also intend to gather information about places the clients have travelled, and about their professional history. As mentioned before the activities are based in partnership and will only use information that the clients want to share with us. The clients are not obliged to reveal anything personal about their lives; the aim is to build an overall picture of the group members. Based on the information about aspects of the clients' life stories, we will download pictures from the Internet and show them through the Wii console. Computer will be also used to display slides about anything relevant to the clients. If the clients wish so, they can also bring their own pictures, and share memories related to it. The important thing is that the clients feel empowered by this activity, and the sessions will activate and stimulate their memory.

The idea is to have a free discussion so the clients can talk about whatever comes into their mind from the pictures. The aim is to build group spirit where the clients feel they can express themselves and share aspects of their past and presented life with others in the group. The aim of the reminiscence activity is to get the clients thinking about past events in their lives through the use of pictures.

In the second session the Nintendo Wii Music games will be used, the idea is to reap the benefits of music and rhythm in general, Wii music gameplay focus in arranging and playing various instruments by improvisation (Nintendo, 2013). The use of sounds and harmony is can be very appealing tool for emotional expression in the clients, also Wii music games are fun and easy to use in general. The idea is to produce a relaxed atmosphere where clients experiment with music and sounds.

#### **Objectives of the cognitive sessions:**

1. To maintain and improve clients cognitive function, mainly memory and concentration skills. By participating in the reminiscence activity and Wii Music activity, the sessions will have a stimulating effect on cognitive functioning. Wii Music gives the clients a chance for ear training, and a possibility to improve concentration skills with rhythmic musical exercises.
2. To create a social interaction setting, where clients can socialize with each other and share memories and experiences with each other. The aim of this session is to activate the memory by recalling of past events.
3. Besides stimulating clients' cognitive functioning, to maintain and improve clients' physical condition with Wii Music game. While playing different instruments using the Wii control stick, the clients will get some physical exercise since the games require moving of hands as well.
- 4- Build group spirit in order to strengthen bonds and improve trust among Lauttasaari clients.

**Session plan;**

- 1-Two Sessions with each one lasting 1 hour approximately: Reminiscence therapy and Wii Music session.
- 2-Participants: Lauttasaari senioritalo clients.
- 3-Students: Helio, Gretchen and Laura.
- 4-Language used: Finnish and English.

**Implementation environment****Wii Music session:**

- 1-Reserving of implementation space
- 2-Installation of Wii console and Wii Music game
- 3-Testing the Wii Music game
- 4-Presenting different parts of Wii Music to clients and inviting them to play
- 5-Teaching clients to play
- 6-Feedback from clients and ending

**Reminiscence therapy session:**

- 1-Reserving the implementation space
- 2- Installation of Wii console and computer
- 3-Testing of equipment before session
- 4-Providing beverages and snacks for clients
- 5-Showing pictures to clients and letting them share their experiences and memories
- 6-Feedback from clients and ending

**Considerations during the sessions:**

- 1- Paying attention that all clients have a possibility to speak during the reminiscence activity.
- 2-Offering necessary support measures for clients during Wii Music session, i.e a rollator to hold on to while playing.

## Appendix 3

Time table of the project thesis.

Month	Area of focus	Activity	Method
Beginning of July	Physical health. 4 Sessions.	Bowling, balancing exercises, sports and fitness games	Wii console, Balance board, virtual reality and games
Middle July	Cognitive function. 2 sessions.	Reminiscence therapy, different kinds of puzzle games and music games.	Wii console, computer, group discussion, visual media like photos, art and Internet
Beginning of August	Social interaction 2 sessions.	Music activities, singing karaoke, listening to music, group activities	Play station 3, Wii console, computer using Sing star in karaoke, different kinds of music programs and games.
Middle of August	Sustainability 2 sessions	Training staff and clients in handling equipment and material, namely games and devices.	Teaching staff and clients by observation, note taking, and verbal explanation.
Middle of august until October	Gathering data	Evaluating the thesis	Publishing the thesis.

#### Appendix 4

##### Questionnaires for the clients, (English version).

1. What is your impression about participating in the project activities?
2. Which of the instruments did you prefer: playing using the Wii control stick or using the balance board to play?
3. How did you feel using both instruments?
4. Did you experience any changes after using the instruments and playing the games? If yes, what kind of changes i.e. health wise?
5. How did you feel playing the games with other friends? Was there any difference playing with others and when you exercised alone?

##### **Questionnaire for the personnel in English.**

1. How well would you say we paid attention to our client group? Did you feel that someone was left a little too much alone in the group, and was not noticed by us as much as others?
2. How would you define our performance as group leaders? For example, how clear were our instructions, when explaining the games to the clients?
3. How would you define the motivation and interest level of the clients during the activities? Would you say the wellbeing of the clients has developed throughout the sessions? If yes, how? (Physical, cognitive and social)
4. Would you say the wellbeing of the clients has developed throughout the sessions? If yes, how? (Physical, cognitive and social)
5. How would you perceive the use of interactive technology as a form of developing and maintaining wellbeing in Lauttasaari seniori talo in the future?





Questionnaires in Finnish language.

Kyselytuokioistaasukkaille:

- 1 .Mitä mieltä olit aktiviteetteihin osallistumisesta? Minkälainen kuva sinulle jäi aktiviteeteista?
2. Mistä pidit enemmän, Wii- pelikonsolin kädessä pidettävästä ohjaimesta vai tasapainolaudan käytöstä, jolla piti seisoa?
  - A.) Jos pidit enemmän ohjaimen käytöstä, miksi?
  - B.)Jos pidit enemmän tasapainolaudasta, miksi?
3. Tuntuiko sinusta jotenkin erilaiselta kokeiltuasi eri Wiin osa-alueita? Tuntuiko, että Wii olisi muuttanut sinussa jotakin?
4. Miltä sinusta tuntui kokeilla molempia Wiin osa-alueita, kädessä pidettävän ohjaimen käyttöä ja tasapainolautaa, jolla seisotaan?
5. Miltä sinusta tuntui pelata Wii- pelejä muiden kanssa samanaikaisesti (kaksinpelinä)? Oliko kaksinpelinä pelaamisessa jotain eroa yksin pelaamiseen nähden? Jos oli, voisitko selittää?

**Kysely henkilökunnalle:**

- 1.Miten hyvin sanoisit, että huomioimme asukasryhmämme aktiviteettien aikana? Tuntuiko sinusta, että joku olisi jäänyt liikaa yksin aktiviteettien aikana, emmekä olisi huomioineet häntä yhtä paljon kuin muita asukkaita?
2. Miten hyvin sanoisit, että pärjäsimme ryhmänvetäjinä? Esimerkiksi, miten selkeitä olivat ohjeemme selittäessämme pelien käyttöä asukkaille?
- 3.Miten määrittelisit asukkaiden innostuneisuutta ja motivoituneisuutta peleihin tuokioiden aikana?
- 4.Oletko sitä mieltä, että asukkaiden hyvinvointi olisi lisääntynyt aktiviteettiemme aikana? Jos on, millä tavalla? (Esim. Fyysinen kunto, muisti, keskittyminen ja sosiaalisuus)
5. 5. Minkälainen rooli interaktiivisella teknologialla olisi sinun mielestäsi hyvinvoinnin kehittämisessä ja ylläpitämisessä Lauttasaaren senioritalossa tulevaisuudessa