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WINDSURFING FOR ALL- INCREASING PARTICIPATION AND
ACCESSIBILITY AT YYTERI

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The aim of the thesis was to study functional accessibility and adapted windsurfing at Yyteri beach for people with physical or intellectual disabilities. The theoretical background of the thesis includes literature regarding accessibility, adapted physical activity, windsurfing, equality, legislation on both international and EU levels and information about Yyteri Surf Center. The articles were collected mainly from Science Direct. In addition books from libraries and official Websites from the internet database were also utilized.

The main part of the thesis was based on a four-day-windsurfing event; organized at Yyteri beach for people with special needs. The purpose was to explore what kind of accessibility solutions were put in place or needs to be put in place in order to be able to arrange windsurfing for all. The research was divided into five parts: 1. Accessibility of Yyteri Surf Centre, 2. Adaptation of the windsurfing equipment, 3. Accessing the beach and water, 4. Getting on and off the windsurfing board, 5. Learning windsurfing. The method used for this study was qualitative and consisted of analysis, interviews and audio-visual material.

This study indicated that opportunities of physical activities for people with disabilities had increased. The accessibility was enhanced by equipment modifications, supplying and building up new equipments. Based on the participants' feedback and observation of the event, it was concluded that Yyteri is accessible and windsurfing could be organized for all, provided there was a sufficient amount of assistance and a substantial level of equipment adaptation. Equal participation in sports and physical activity for a person with disability requires a combination of various skills, competences and knowledge. From the experts' point of view, personal experience and perspective of the users plays an important role.

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1 INTRODUCTION

Accessibility has been a significant issue of modern policy and can be divided into social, mental and environmental categories (Farrington & Farrington 2005, 1). Originally the word accessibility meant to be able to enter, reach, approach or to obtain for all people. Its literal meaning has changed significantly over the last few decades. The word features prominently in modern legislation, notably in the Disability Discrimination Act of 1995 in the United Kingdom and further legislations at both national and international level. (Website of the Oxford Dictionaries 2011; Oxford Concise Dictionary of Current English 2004, 7.)

Accessibility is seen as crucial for participation in modern society, with the European Union advocating social inclusion and ensuring the fundamental human rights of people with disabilities. In addition the EU is eliminating existing accessibility barriers, with the view that people with disabilities have the same entitlement to full social participation, independence and dignity as anyone else. (Website of the European Commission 2010a.) The growing influence of these ideas in wider society is reflected in new opportunities to involve people with disabilities in sport (Thomas & Smith 2009, 23). Adapted physical activity is regarded as means of both physical and psychological rehabilitation and social inclusion (Thomas & Smith 2009, 26).

Windsurfing is beneficial for health and is associated as a sport of harmony between man and nature (Ryan 2007, 105-106). However it has not been fully accessible for people with disabilities. The focus of this thesis is to present the accessibility issues and the required adaptation levels in this particular sport. Adaption refers to both changes to the windsurfing equipment for wheelchair users as well as the pedagogical methods for children with special needs. This thesis is a part of *Sataesteetön – project*, a development and research program conducted by Satakunta University. *Sataesteetön - project* aims to respond the requirements of society that supports everyone for independent and unrestricted life in every stage of life span. *Yteri for All* is one part of this project and it aims to inspect and develop accessibility and

increase participation for individuals with disabilities at the area of Yyteri beach in Pori, Finland. *Yyteri for All* aims towards inclusion and is based on equality and accessibility in which social and mental attitudes and environmental aspects are all taken into consideration. (Karinharju, personal communication on 8 April 2011.)

2 PURPOSE OF THE THESIS

The aim of the thesis was to gather information about accessibility and windsurfing at Yyteri beach during a four-day-event, organized in 2010 for people with disabilities. The assessment of accessibility included social-, mental-, and environmental access to windsurfing. As a product of this thesis a DVD tool including audio-visual material of the event was created in order to present the accessibility issues, including required adaptation, for this particular sport.

3 ACCESSIBILITY

Accessibility means the ability to obtain, approach, reach and enter (Website of the Oxford Dictionaries 2011). However the term accessibility also includes various concepts: basic human rights, mobility, transport use and also the idea of social inclusion and social justice. It is sometimes described as rural or urban, nevertheless the meanings are ‘opportunities’ and it is comprehended as social and political. Moreover accessibility should be defined on the basis of a great variety of parameters like location, time of the day, personality and stage in life cycle. (Farrington & Farrington 2005, 2-5.)

3.1 Environmental accessibility

The term environmental accessibility also incorporates geographical concepts, such as space separation and destination (Weber 2006, 399). Accessibility has also been

defined as an attempt to attain activities by utilizing a convenient transportation system (Neutens, Schwanen, Witlox & Mayer 2008, 332). Although the concept of accessibility is sometimes mentioned in relation to individuals' freedom and independence, it is most widely associated with transport and travelling in most research (Bertolini, Clercq & Kapoen 2005, 207; Neutens et al. 2008, 332).

In addition to the above mentioned meanings of accessibility, the basic accessibility concept criteria have been worked out recently by professionals from all over the world in accordance with the Quebec Legislation. The information concerning accessibility planning was for blind and visually impaired people. It was remarked that the main accessibility criteria should correspond to the principle of universal design. Accessibility consisted of two levels: minimal and recommended. Minimal covered safety issues and recommended was associated with better accessibility. (Lemay, Rattelle & Kreis 2005, 1031-1032.) This universal design principle is also supported by the Spanish National Organization of the Blind (ONCE) to build, plan and offer the environment, services and facilities utilized by all (Dolores & Lopez 2005, 1038). However accessibility in theoretical guidelines and in actual life is understood differently (Edinger 2009, 113).

3.2 Social accessibility

Accessibility, in reality, is the first area where companies, housing associations or investors can make financial savings. The newest understanding of the accessibility concept includes the term low-barrier, where the main point is the correspondence of the accessibility aims to the real situation. Thus the main aim of accessibility nowadays is decreasing the barriers and enhancing usability of the existing environment. (Edinger 2009, 113.) From a separate viewpoint, the concept of low-barrier adaptations is the concentration on practical and cost-effective decisions to facilitate an individual's life. Moreover the demand of special needs solutions will become a key principle in the future due to the aging of society. (Edinger 2009, 114.)

The reason is a demographic situation in modern societies, where the number of young people decreases as the number of older people increases. It will result in a growing number of people with different types of disabilities but participating in so-

cial life. (Reinhard 2009, 121.) In addition sport-related injuries among the youth, those affected by automobile-accidents, substance abusers are also increasing in society (Reinhard 2009, 122).

Recently the principle '*Access for All*' has been accepted by society and accessibility is understood as the requirement for equality (Reinhard 2009, 127). The strategy of the people concerned with this problem is to create a better world for each community member on their own terms. Assistance is recommended to people with disabilities due to the basic human rights in order to obtain an adequate employment, decent living conditions, necessary goods, education, health care, mobility and to participate in cultural, religious and athletics. (Christ 2009, 13.) Accessibility affects the distribution of jobs, schools, shops, recreational facilities, income, educational level and health. Thus increased accessibility leads to increased participation in social and economic life. The level of accessibility constantly varies in different societies. (Farrington & Farrington 2005, 2-5.)

3.3 Mental accessibility

Participation in society such as involvement in sport and exercise encourages the disabled people to rebuild or restore their social identity and sense of self. It can be associated with their recovery and give them meaningful social roles. (Carless & Douglas 2008, 578.) Accessibility, as it relates to physical activity, means not only access to sport facilities, but includes perceived safety of the neighborhood, weather conditions, enjoyable scenery and other perceptions. Spatial access to the recreational facilities is insufficient for being active. (Humpell 2002, 194-196.)

People with special needs should be provided with assistance, individual care and infrastructure of their own (Seeland & Nicolé 2006, 30). Even though modern society admits the rights of people with disabilities the structure of society and its norms are difficult to adjust (Seeland & Nicolé 2006, 30). The situation with the disabled people in Germany revealed that many people feel ashamed of their disability and they are unwilling to apply for the official disabled status. In addition a great majority would reject any services that would increase their level of social inclusion. (Seeland & Nicolé 2006, 32.) It was concluded that social inclusion can be reached by

wholly integrating society, thereby preventing segregation and improving tolerance, health and space for socializing in society (Seeland & Nicolé 2006, 34). These interpretations and approaches to accessibility are prevalent in current debate on the subject and have become key issues in discussing and forming disability policy in the EU countries (Waldschmidt 2009, 8). Besides implementation of disability policies, there is a substantial amount of resources of the EU countries that is spent on special society programs for people with disabilities, as well as among others, public activities and campaigns in order to change the attitudes, values and norms in society (Waldschmidt 2009, 15).

3.4 Accessibility on the national level

The above mentioned issues are on the agendas of Scandinavian countries and the provision of individual rights in the society is guaranteed and followed similarly (Waldschmidt 2009, 19). The accessibility issues are also of great importance also in Finland. Green areas and their accessibility are associated with the quality of life in urban areas and are recognized to be of social value. (Tyrväinen, Mäkinen & Schipperijn 2007, 6.) In addition some of the researchers emanating from Sweden suggests that enhanced accessibility to the public green spaces leads to better health (Nielsen & Hansen 2007, 840). Neuvonen et al. (2007, 241) described about 90% physical activities granted for residents in Helsinki area. In addition 5510ha of green areas belong to the Helsinki city and most of them are accessible green space for citizens (Tyrväinen et al. 2007, 7). Moreover municipalities have their own areas for Helsinki residents involving them into the physical activities (Neuvonen, Sievänen, Tönnés & Koskela. 2007, 241).

In general, the level of accessibility in Finland is not a considerable amount different from the other Scandinavian countries. Study results reveal that even low income population possesses the access to physical activity in Finland. Accessibility for all population groups and careful planning of the environment is associated with successful Nordic society in Finland. (Neuvonen et al. 2007, 243-245.)

4 EQUALITY

In order to participate in our society accessibility is crucial. Accordingly, the EU both aims to both eliminate difficulties to accessibility that exist, and ensure that people with disabilities can practice their fundamental human rights to full participation and inclusion in society. People with disabilities have the same entitlement as anyone else to full social participation, independence and dignity. (Website of the European Commission 2010a.) The United Nations Convention is the first treaty on a global level regarding disabled people's rights. This international instrument is the result of 30 years of cooperation between the civil societies - especially disabled people organizations (DPOs) - and the United Nations (UN). Although it does not introduce new legislation for people with disabilities, it nevertheless explains and codifies their existing human rights and promotes social inclusion. (Lang 2009, 267-271.)

4.1 EU level

The Treaty of Amsterdam signed in 1997 led to the conception of legislation against discrimination. Three years later the Treaty of Nice introduced the Charter of Fundamental Rights, and in 2007 both treaties were integrated into the Lisbon Treaty, which attempted to emphasize the role of the Charter. However not all Member States have ratified the treaty to date. (Kirton & Greene 2010, 147.) Article 10 of the Lisbon Treaty declares the following: "In defining and implementing its policies and activities, the Union shall aim to combat discrimination based on sex, racial or ethnic origin, religion or belief, disability, age or sexual orientation." (ISSN 1725-2423 2007, 49). The Lisbon Treaty came into force on 1st December, 2009. Despite it not having widened the anti-discrimination sphere of action, it is still an improvement, as previously the article applied only to gender. (European Commission 2010, 26.)

All Member States and organization within the EU must insist upon the Charter of Fundamental Rights when enforcing EU law. Article 20 dispose of the equality before the law and further articles reinforce the rights of people with disabilities and other principles of anti-discrimination. The two directives regarding equality had to

be fully adopted by all Member States in 2007, however in a few countries there are some infringements that still remain. (European Commission 2010, 26.) Although there is legislation against disability discrimination in the EU policy, social activities such as transport, education, access to goods and services, housing and social protection are currently not covered by the European Community law (European Commission 2009, 5).

One of the largest groups of disadvantaged people in Europe are the people suffering from long term mental illness. The EMILIA project attempted to provide the opportunity for people with intellectual disability to be included in a wider society. In order to achieve a socially inclusive society, a lifelong learning program was carried out, aiming to reinforce human rights of equality as well as assisting people with mental problems to obtain a higher level of employment. (European Research Area 2010, 1-9.)

Two models of how to approach disability can be distinguished. The medical model aims to improve intellectual or physical impairments, therefore disability policy should support the quality of life and assist people with disabilities to achieve as normal conditions as possible. The social model, which arose as an ideological response to the medical one aims to eliminate discrimination, social exclusion and negative attitudes towards people with disabilities. (Lang 2009, 268.) According to the disability research that used the social model, there are 65 million disabled people in Europe (Priestley, Waddington & Bessozi 2010, 1).

4.2 National level

European Union statistics taken in 2002 revealed thirty percent of the Finnish population are suffering from disability to some extent (Website of the European Commission 2010b). Their right is summarized in the Finnish Act on the basis of disability, service and support operations. The aim of the law is to support people with disabilities to act and live on an equal level of convenience with the other members of the society and eliminate disability-related obstacles. Within the law, special paragraphs deal with various services for a disabled person. Municipalities are obligated to organize special transport-related services, day activities and personal assistance

for people with severe disability. Day activities include those organized outside the home that promote social interaction. Personal assistance is provided for at least 30 hours/month in order to assist a person with disability in social participation, maintenance of social interaction or to participate in his/her hobbies. In addition personal assistance can be provided during activities of daily living or employment and learning. According to paragraph sixteen, the state can spend special money on adaptation training, rehabilitation counseling and research and pilot activities in order to improve the status of a person with disabilities in society. Paragraph twelve emphasizes the duty of municipalities to increase cooperation between various authorities, institutions and organizations, whose activities are related to the living conditions of a person with disabilities. The municipality can setup a Disability Council whose task is to promote and monitor the activity of different sectors in accordance to disability issues. The Disability Council may make proposals and hands down opinion for the decision making. (Laki vammaisuuden perusteella järjestettävistä palveluista ja tukitoimista 380/1987, 1§, 8§, 12§ & 16§.) Furthermore the Non-Discrimination Act (21/2004 6§) prohibits both direct and indirect discrimination and promote equality. In addition to the legislations mentioned above, an organization called the Kynnys: The Threshold Association aims to achieve disabled people's inclusion since 1973 (Website of Kynnys Ry 2011).

4.3 Municipality level

In the interest of equality both the Land Use and Building Decree and the Land Use and Building Act ensure accessibility for both people with disabilities as well as people with limited functioning or mobility, in all new buildings and places that are used by service providers, businesses or by the administration. The objective of these land use legislations is to promote a healthy, safe, socially functional working and living environment for various population group, including people with disabilities. (European Commission 2009, 76; Maankäyttö- ja rakennusasetus 859/1999, 53§; Maankäyttö- ja rakennuslaki 132/1999, 5§ & 12§.)

Since 1995, when Finland became an EU member state, national legislations correspond with community legislation (Website of the Ministry of the Environment 2011). The legislation at the municipality level in the city of Pori also aims to pro-

vide the most convenient and best working and living environment for its citizens (Porin Kaupungin Rakennusjärjestys 10.4.2004 §1). The city of Pori has its own political program regarding people with disability (City of Pori 2011).

5 ADAPTED PHYSICAL ACTIVITY

Adapted physical activity has been defined in many ways. Adaptation refers to adjustment, accommodation and modification of physical activities for individuals who require particular consideration due to their special needs. According to the International Federation of Adapted Physical Activity (IFAPA), adapted physical activity also includes philosophical aspect of the definite sport, discipline and disability rights. (Website of the IFAPA, 2011.)

A long time ago people with disabilities were segregated by society and kept isolated in different institutions and hospitals. They were treated as a minority with different types of abnormalities and possessed little opportunities in society. It took a great amount of time for the non-disabled members of society to understand that people with disabilities were able to walk at their own space and those assistive aids facilitated their locomotion. Nowadays the stereotypical perceptions of people with disabilities, formed in society, have started to change. (Thomas & Smith 2009, 8.) The shift to a social understanding of disability and disabled people problems brought a change in the social policy towards people with disabilities by the governments and the growth of the disabled people's movements in Western societies (Thomas & Smith 2009, 10). All these aspects influenced society and created opportunities to involve people with disabilities in sport (Thomas & Smith 2009, 23).

5.1 Effects of adapted physical activity

The main finding regarding APA programs is that physical activity has a positive impact on psychological and social health, which in turn directly influences the physical health (Haga 2008, 257; Speyer, Vuillemin, Herbinet, Chastanger & Briancon

2010, 169). One of the means of adapting people with disabilities to a social and increasing their acceptance by society may be through engaging in physical activity especially for individuals with developmental disabilities (Weiss, Diamond, Demark & Lovald 2003, 285). It should be remarked that Thomas & Smith (2009, 3) come to similar conclusions in their study, however they refer to disability sports, which are also regarded in the context of social inclusion. They define 'disability sport' as sport activities for engaging individuals with disabilities and offering them alternatives to contest with those who have similar impairments (Thomas & Smith 2009, 3).

Disability sport was founded not only as a mean of physical and psychological rehabilitation but also as way to turn people with disabilities to the social life (Thomas & Smith 2009, 26). Some studies analyzing the research results of the period covering the 80s and 90s discovered great effect of the physical activity for the social behavior of the people with mental impairment even more than for motor learning (Haga 2008, 257; Válková, Hansgut & Novácková 2010, 1859). In assessing the effect of sports on people with disabilities for example Special Olympic participants the researchers highlight only positive results for the self-worth and increase in physical activity (Weiss et al. 2003, 298.)

Speyer E. et al. (2010, 166) studying the effects of physical activity on hospitalized children and adolescents cite the APA definition of the French researchers as using physical and sporting means, at the least to maintain and at best to improve, the health of the individual in either a medical or social environmental context. Additionally it has been confirmed that physical activity for children with chronic illnesses prevents their loss of physical abilities, increases the quality of their lives as well as enhances exercise capacity and pulmonary function. It improves muscle strength, endurance, functional mobility and quality of life in children with leukemia as well. (Speyer et al. 2010, 166.)

Physical activity improves functional independence, health condition and quality of life of the disabled people. In some of the reviews it has been reported that two physical sessions per week positively influences the perceived quality of life positively and increases muscle power in spinal cord injury patients. Aerobic exercises enhance multiple sclerosis patients' maximal oxygen uptake, functional capacity, muscle and

endurance. Strength training sessions of a nine week period also proved to increase leg strength in spinal muscular atrophy patients. In addition such physical training raises high- density lipoprotein levels in SCI persons, decreases stress and depression and improves calcium balance. (Lui & Hui 2009, 31.) It has been particularly underlined that active participation in physical activity assists in preventing and reducing the development of chronic illnesses especially type II diabetes, obesity and other health problems (Pekmezi et al. 2009, 495). In addition physical activity employs the functions of the respiratory, neuromuscular and cardiovascular systems and is determined by age, training status, gender and the nature of the impairment of the individual (Woude, Groot & Janssen 2006, 228).

Physical activity and sport nowadays are strongly associated with the rehabilitation and restoring the functions of a disabled person during adaptation and compensation processes including the use of assistive aids. Speaking about the people with chronic impairments for instance individuals with lower limbs impairments rehabilitation should be concentrated on restoring the wheeled mobility, functional independence and adaptation of the motor function on the base of technology. (Woude et al. 2006, 906.)

5.2 Social inclusion

People with disabilities can be active participants in sports and physical activities. In many cases participant can be included with slight or no modification to the activities. The general principle of inclusion is equitable participation. Depending on the activity and individual it may be beneficial for the participant to be involved in segregated or parallel activities. Moreover, slight modifications in environment or equipment may enable them to participate as fully as possible. The crucial point is that after modifications are carried out that the task or activity is still meaningful and the purpose is not lost through unnecessary changes. (Australian Sports Commission 2001, 28-30.) Social inclusion means that people with disabilities are treated and accepted as individuals who have their right to take risks, to commit fault, to receive the benefits of physical activity as much as anyone else in society (Australian Sport Commission 2001, 18).

Nowadays the key priority of the EU governments' policy is participation in sport and physical activity and promotion of social inclusion of particular social groups including disabled people by supporting and developing the work of the local authorities (Thomas & Smith, 2009, 59). In Finland Adapted Physical Activity (APA) is a profession and provides services in education, rehabilitation and sport (Morgulec-Adamowicz & Ferreira 2010. 38). Promotion of participation in sport and provision of the necessary facilities is the responsibility of local authorities (Thomas & Smith 2009, 48). They improve access to buildings, offer appropriate rates to people with disabilities, introduce training programs for sport centre staff and develop cooperation between the private and voluntary sectors (Thomas & Smith 2009, 53).

5.3 Equipment and sport adaptation

The arm wheelchair work takes plenty of power and may lead to the overuse in the upper extremities. Moreover 50-70% of wheelchair users are at risk of complaints in the area of the upper body after 10-15 years, therefore it is greatly important to study physiological and other effects of wheelchair sports and wheelchair propulsion and to measure them. (Woude et al. 2006, 907-908.) It is remarkable that assistive aids for example hand rim wheelchairs have changed into multi-functional and task specific machines, for instance track wheelchairs, due to sports practice. Nowadays they are provided with large wheels, low seat, smaller hand rims whereas basketball wheelchair have become highly maneuverable with small castors, normal size rim diameter. All the wheelchairs are made of high tech material and are lightweight. The type of sport: basketball, track wheelchairs, tennis or wheelchair rugby and conditions of use straightly influence the change in a wheelchair such as tire, castor wheel or the choice of wheelchair material, rim diameter, rim size, wheel size, seat heights. (Woude et al. 2006, 909.)

Individuals with limb deficiency have obtained great possibilities to participate in a range of sports and to compete at high level athletic tournaments over the last few decades. Dealing with limb prosthesis participants the exact requirements, the environment, intensity and frequency of the activity or sport must be taken into consideration. (Webster, Levy, Bryant & Prusakowski 2001, 38.)

In water sports prosthesis can assist individual's entry and exit from the water. Prosthesis should be protected from water damage for instance the "Activankle." These ankle systems are waterproof and salt resistant.(Webster et al. 2001, 42.) In addition the choice of interface materials such as silicone and gel liners or hypobaric socks utilised in the prosthesis are greatly significant and provide additional padding as well as absorption of the pressure and shear forces. Moreover prosthesis weight, durability, strength, and the ability to overcome great biomechanical forces affect the athlete's well-being. (Webster et al. 2001, 39.)

The policy of the professionals involving people with disabilities into physical activity should be disability-specific. It is recommended that people with disabilities should be provided with accessible facilities and programs that are beneficial to their health and their financial resources. (Rimmer, Riley, Wang, Rauworth & Jurkoski. 2004, 424.) In order to create equal conditions for participants in sport competitions the athletes should be classified according to the location and extent of their limb deficiency. It should be considered whether or not adaptive equipments such as wheelchair or prosthesis are permitted to be utilized during the competition. It should be noted that in swimming, for instance. the use of prosthesis is prohibited. Moreover different kinds of sports have different types of classification schemes, which may influence the result and provide the athlete with a slight advantage. (Webster et al. 2001, 39.)

Regarding assistance and accessibility in physical activity it should be noted that in any kind of activity with disabled people and in assisting them, it is important to obtain information about adaptive equipment as well as relevant education, training and professional knowledge. Furthermore psychological and emotional support from the professional staff and participants' friends and families is also very significant. (Rimmer et al. 2004, 422-423.)

6 WINDSURFING

Windsurfing is a world-wide sport, which was established by three US-Americans; Jim Drake, Newman Darby and Holy Schweitzer in the late 1960s (Buchhorn, Ziai, Felder & Fehske 2009, 45). As it became extremely popular throughout the world, different styles, techniques and equipments developed in the 1990s (Winner 1995, 3). Although nowadays windsurfing is considered to be an extreme sport “for a few” instead of a “sport for all” (40years of windsurfing 2007) it will become more accessible in the future (Winner 1995, 3).

Windsurfing is similar to snow skiing in terms of variety. The latter has for example cross country, alpine-, snowboarding style, while windsurfing has slalom-, longboard- and wave style as the three main branches. Wave- and slalom styles belong to short board sailing. Short boards are less variable and smaller, moreover windsurfing with these kinds of boards requires more wind and speed, up to 21-83km/h, therefore these styles are recommended only for experienced surfers. On the contrary longboards are larger and can be also utilized in windless weather; therefore making them suitable from beginner to Olympic levels. (Winner 1995, 4-7.)

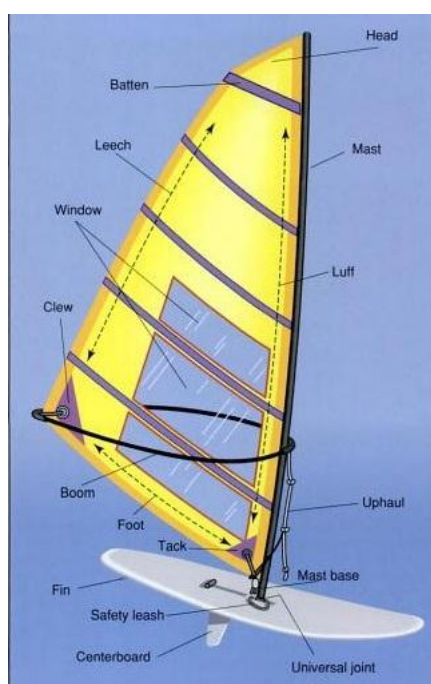
Specifying the best suitable windsurfing type for an individual depends also on physical fitness, weather conditions, location, motivation, and the amount of money and time which one is able to spend on windsurfing lessons. However longboard surfing is accessible to anyone, and most of the windsurfing places offer equipment of good quality as well as professional instructors. Moreover windsurfing clubs organize social activities, events, racing in order to maintain the accessibility of water sports. (Winner 1995, 4-7.)

The basic windsurfing gear comprises a board and a sail. The sail is made out of a mixture of monofilament materials and varies in size, manufacturing and form. A complete rig consists of a sail, mast, mast base, boom, uphaul and safety leash. The boards are made from polyethylene foam, which is covered with epoxy resin. They are attached through a universal joint to the rig and on the bottom of the board there is a fin, which varies in size and shape depending on application. Beginner's boards

often have additional support such as a centerboard in the middle. Each board has foot straps on the rear in order to improve maneuver and stability. (Buchhorn et al. 2009, 45.) (See Picture 1)

Windsurfing is considered to be an equipment-oriented sport: constant wind conditions are very seldom, therefore athletes try to adjust their equipment in accordance with the weather conditions. In addition to the wind force it is crucial to take into account the surfers ability and the nature of the environment such as the depth of water, wave spot, when adjusting equipments. Strong wind is equal with small equipment, moreover smaller boards are harder to control. The size of the sail varies mainly between 4,2m²-7,0m² and the capacity of the boards are mostly between 80 and 145l. In order to prevent hypothermia wetsuit, shoes, gloves are recommended. (Buchhorn et al. 2009, 45.)

Windsurfing affects beneficially on general well-being due to the sense of unity with nature and the “flow”. The “flow-concept” defined by Csíkszentmihályi describes a feeling of control over the environments and action, the harmony between personal skills and the sporting challenge, concentration, loss of constraint and anxiety and feelings of pleasure and enjoyment. (Ryan 2007, 105-106.)



Picture 1. Parts of the windsurfing equipment. (Winner 1995, 12.)

7 IMPLEMENTATION

This thesis is a part of an ongoing project, which started in 2009. Many companies such as Yyteri Surf Center, Yyteri Spa, Yyteri Sun Oy, Yyteri Beach Oy, Porin Ohjelmamestarit Oy together with the Finnish Boardsailing Association, the City of Pori, and the Satakunta University of Applied Sciences arranged the *Yyteri for All* plan. The events that were organized according to this plan included rowing, golf, sailing and windsurfing. (Website of the Finnish Boardsailing Association 2011.) Previously E. Nyysölä (2009) provided a thesis about the spatial accessibility of Yyteri Spa and Surf Center, where she assessed and measured the architectural accessibility of the built environment for wheelchair users. In addition E. Novari (2010) carried out a survey regarding the nature paths and accessibility of the beach and its surroundings. This thesis is therefore focused only on functional accessibility and adapted windsurfing in Yyteri.

The theoretical data collection lasted half a year due to the lack of evidence based literature and was interrupted by abroad travelling. Nevertheless these circumstances provided the opportunity for research in international libraries as well. The theoretical background material was collected by utilizing Science Direct applying the following key words: accessibility, social inclusion, equality, adapted physical activity and windsurfing. In addition international books, online documents, legislations and official websites from the internet database were acquired in Finnish, German and English languages. The research process was aggravated by the fact that a similar kind of thesis has only ever been carried out at the Artevelde University College Ghent in Belgium by A. Slabbynck & A. Paelinck (2007). As it was only written in Flemish, the language barrier reduced the opportunity to utilize one of the most relevant sources available.

This thesis started on spring 2010 and the whole framework lasted over a year. The preparations to the thesis began in May 2010 at the first meeting in Yyteri where the staff of the Surf Center and the representatives of *Yyteri for All* - project were present. The aim of this research was to discover how to make windsurfing accessible for all and how to adapt it in accordance with the needs of people with disabilities. In

addition the aim was to create a short film that serves as a tool for utilization in similar future events and that explains methods of adapting the equipment and sport modification.

7.1 The participants

According to the social inclusion and sport for all conception participation in *Yyteri for All* - project was accessible for everyone; therefore everybody had equal right to attempt windsurfing. Three wheelchair users who had either a spinal cord injury or paraplegia and one athlete with lower limb prostheses arrived all over from Finland in order to participate in the event. However one wheelchair user attended only two days out of four. The children who attended the windsurfing event had no physical disabilities, but slight intellectual impairment were from Satakunta region and participated in the project for two days at the Yyteri Surf Center.

7.2 Accessibility of Yyteri Surf Center

Pori is located in the Satakunta region, as its capital, with various nature surroundings, including the shallow water beach of Yyteri. Yyteri is an area for rest and different kinds of sport activities. (Website of the City of Pori 2011.) The beach is covered with fine sand and extends for over 6 kilometers. Yyteri offers a great variety of outdoor activities, including windsurfing, which is provided by Yyteri Surf Center. (Website of Maisa 2011.) The Finnish Boardsailing Association that is located in Yyteri offers the opportunity to acquire knowledge in surfing, kite surfing and windsurfing at different levels. The Surf Center also assists in providing board and sail material for equipment adaptation and events for all, including people with special needs. (Website of the Finnish Boardsailing Association 2011.) Yyteri can be reached by public and private transportation. Accessible bus leaves from the city center to Yyteri. (Website of Porin Linjat Oy 2011) There is a parking place at the rear of the Surf Center solely for use by the people with disabilities or those, who have limited mobility. (See picture 2)



Picture 2. Yyteri Surf Center. A wooden path leads from the parking place to the yard

For *Yyteri for All* event each athlete travelled by herself/himself, although some of them had personal assistance. Wheelchair users were allowed to drive and park their cars right next to the Surf Center, creating optimal access. Participants were provided with assistance for covering the distance between the car and the Surf Center, if they so required. The beach was covered with soft sand and some seaweed. This seaweed posed a challenge as it adhered to wheelchairs' wheels and hindered rolling (See appendix 1)

The wooden path leading to the beach started in the Surf Center yard. It was covered by sand and required cleaning to alleviate obstacles during transportation. The path ended half way to the beach without transition. Therefore it was easier for wheelchair users to access the beach from the Surf Center rather than in the opposite direction. When returning to the Surf Center from the beach, all wheelchair users needed assistance due to the gradient of ascent and the height of the threshold. Building a slope transition between the threshold and the sand area would be recommended in order to minimize personal assistance. (See appendix 1)

7.3 Adaptation of the windsurfing equipment

Those who have intellectual disability or lesser physical impairment, such as leg prostheses require no equipment adaptation except taking into account their individual parameters: weight, height and physical fitness when choosing the suitable windsurfing gear, whereas people with physical disabilities require further adaptation of the windsurfing gear.

The main concern for wheelchair users is maintaining and being safe on the windsurfing board. In the same way that a wheelchair is adjusted to its users, the chair fixed on a windsurfing board has to be chosen according to the athletes' individual constitution (See picture 3) In addition individual parameters such as height, weight and disability influence the choice of the chair and its material. Additional adaptation of equipments such as the suitable and comfortable size of the seat is required in order to meet all the needs of the athlete. For instance an inflatable pillow was utilized to narrow the seating area and create a better fit. Additional back support was used to prevent leaning backwards. (See appendix 1)

However the chairs were not supporting the body sufficiently. The position of the trunk and the legs influence the stability of the sail. Turning the sail is essential for maneuvering and this can be carried out safely only if the trunk and pelvis are well supported, therefore chairs should support not only the back, but also the hips on the side. Wheelchair users cannot or can only slightly use their legs, therefore chairs should be made from harder material, which is stabilizing the trunk more. For instance a blockart type of chair could be utilized in the future.



Picture 3. Chairs vary in size according to the height

During the event only practice shortboards were utilized, which were wider and more stable than the race boards. The chairs were attached to the boards with ropes, belts and slings via the footstraps. In addition they were attached to the raiser. Generally the universal joint is fixed to the board and the mast base while the mast is attached to the universal joint. However, sometimes an adapter is used between the mast base and the universal joint. Dealing with the wheelchair users this solution was not deemed safe enough; therefore a raiser was applied between the board and the universal joint in order to prevent athletes' legs from breaking in case the sail fell. The metal raiser was attached to the board and was covered with polifoam and elastic material to avoid irritation and pressure on the athletes' thighs, because it was set between their legs. (See picture 4; appendix 1)



Picture 4. Raiser and the universal joint

The sail required less adaptation; however the boom should be lowered and doubled, due to the athlete's sitting position. Apart from this the windsurfing equipment consisted of special clothing such as wetsuit, shoes and gloves in order to prevent hypothermia. Moreover T-shirts were provided in order to protect athletes from cold and

to create the sense of being a part of a team. In addition life-vests were recommended in case of falling from the board. (See appendix 1)



Picture 5. The doubled boom

7.4 Accessing the beach and water

Wheelchair users required different methods and aids in order to reach the beach. Most of the athletes were able to use their own wheelchair after a third wheel was attached in front of it to increase the ability of crossing obstacles and rolling without effort on the uneven sand terrain. It should be noted that gloves or the sleeves of the sweater were used to protect hands from friction while rolling the wheels. Several athletes without the third wheel either relied on personal assistance from an instructor or team-mate or used the Hippocampe wheelchair (hereinafter referred to as Hippocampe). The Hippocampe is fitted with large plastic wheels suitable for crossing water-logged, sandy or muddy terrains as well as for use in extreme outdoor conditions. The Hippocampe is universal and multifunctional and was therefore utilized in transferring the athletes from the Surf Center to the beach and back as well as in the sea. Even with this equipment, negotiating the threshold area - where the sharp end of the wooden path ends and meets the sand - was challenging on the way back from the beach especially when the athletes attempted to mount the wooden path with their own sport wheelchairs. (See picture 6 & 7; appendix 1)



Picture 6. Overcoming the ascendant sand surface on the way back



Picture 7. Overcoming the threshold on the way back

7.5 Getting on and off the windsurfing board

Wheelchair users required assistance to get on and off the windsurfing board. The level of assistance depends also on the depth of the water. In shallow water they require less assistance to move from their wheelchair to the board. Although transportation from the wheelchair to the windsurfing board can be carried out more independently in shallow water, windsurfing is practiced in deep water. The Hippocamp is suitable for getting to the deep water, although once there the athletes depend on assistance to get on and off the windsurfing board. In addition to the Hippocampe a single windsurfing board without the chair and without the sail can be utilized for transportation in the water. (See appendix 1)

7.6 Learning windsurfing

Children in the study faced intellectual challenges as opposed to the physical disabilities of the adults, and windsurfing adaptation was accordingly focused mainly on educational factors. Learning a new skill always includes both physical and mental ability development, hence it is important to apply the right didactical methods and pedagogical approaches. The timetable of the day was supplied with pictures regarding the information about the daily program and necessary equipments in order to

support the children during the day. (See picture 8) The essential parts of the windsurfing gear, including its accessories were introduced to all the participants. First they were taught to change clothes, to prepare the equipment for windsurfing and to transport them to the beach. They were able to perform all the tasks with slight assistance. On the beach a theoretical lecture for both adults and children was continued in combination with a demonstration regarding basic windsurfing techniques and weather conditions such as wind directions and windforce. (See picture 9) Secondly training on the beach was carried out, where participants were able to practice the right position on the board, uphauling the sail, steering, turning the rig and weight shifting, whereas wheelchair users were shown how to apply similar techniques from a seated position. (See appendix 1)



Picture 8. Timetable with pictures for the children



Picture 9. Teaching to hold the boom and the correct, extended position of the arms

Following this, training was carried out in the water. Firstly the children were requested to walk into the sea and grow accustomed to the feeling of water through the wetsuit. The children were provided with balance, coordinative, proprioceptive and endurance exercises in order to improve psychomotoric skills. Initially the activities were carried out on the board in different positions such as sitting, quadruped, kneeling and standing without the sail, secondly with the paddle and ended with actual windsurfing. (See picture 10; appendix 1)



Picture 10. Uphauling the sail and windsurfing.

8 CONCLUSION

During the four days pilot course that was held from 5th August to 8th August 2010 qualitative methods were applied for data collection that consisted of observation, taking photographs, videos, notes and interviews. The collected audiovisual material included over four-thousand photographs and more than six hours of video tapes, which were further analyzed. According to the collected data, it can be concluded that Yyteri Surf Center is accessible provide there is a sufficient amount of assistance.

In terms of environmental accessibility the most challenging area was the soft sand and the threshold area, which aggravated transportation between the yard of the Surf Center and the beach. Sand as an environmental factor cannot be ignored, therefore transportation should be solved with assistance. The assistance can be through either personal aid or through specially conceived aids such as the Hippocampe or the third wheel. Although the threshold area at the end of the wooden path can be accessible with the assistance of instructors, a transition slope would ease transportation.

Both the Hippocampe wheelchair and the wheelchair with the third wheel can be utilized for transportation in shallow water, although in deep water only the Hippocampe and the windsurfing board are usable means of transportation. There are different methods to get on and off the windsurfing board. In shallow water wheelchair users require less assistance than in deep water.

Analyzing the adaptation of the windsurfing gear it should be mentioned that the choice of additional equipment such as the chair and the raiser had a substantial bearing on the windsurfing experience; particular attention must be paid in future to develop the ideal size and material specifications for the chair. The types of chairs used - similar to the all-weather plastic chairs often found in cafés - were too soft and fail to support the athlete's trunk properly. The size of the chairs was not suitable for every athlete's individual physique and a piece of wood was placed for back support. Despite providing sufficient support for the back, the blokart type of chair would have been more appropriate and substantial for windsurfing in some athletes' opin-

ion. Neither the children nor the athlete with leg prostheses required equipment adaptations.

The didactical and pedagogical methods were utilized effectively for the children when teaching windsurfing. The instructors and the personnel including students, teachers from different institutions and further staff members from different organization were well prepared and their attitude towards athletes was open and helpful. Cooperation between them proceeded successfully.

9 DISCUSSION

The topic of our thesis was suggested by Kati Karinharju, Yyteri for All –project manager and senior lecturer at SAMK, who has been organizing adapted physical activity events in Yyteri. We were fortunate to participate in this ongoing project, to assess accessibility of adapted windsurfing and to research this particular area. The thesis process was challenging, because during our studies we had dealt neither with accessibility assessment nor with windsurfing. In addition no research has been previously carried out regarding adapted windsurfing in the English language. As adapted physical activity was a significant part of our physiotherapy curriculum the authors of this dissertation became fascinated by the idea of people with disabilities being exposed to various sport activities.

The aim of the thesis was to provide those people who are interested in adapted windsurfing with new information about adaptation and accessibility. Moreover the aim was to create a tool for utilization in further similar events and methods of adapting the equipments as well as sport modification. The audiovisual material regarding the project maintained participants' anonymity. All the participants gave explicit permission to use their pictures and video records. (See appendix 2.) The project also created prerequisites for successful solutions of ethical problems and revealed a proficient level of event organization. It should be mentioned that the area of this thesis was new; therefore it was complex to choose the definite vision of the topic as well as to limit the research area. Due to the breadth of the topic, it was difficult to focus

solely on the issue of accessibility. A further challenge was that the analysis of the windsurfing event could neither be strictly categorized as research nor as project work.

It should be noted that a great amount of time was utilized for writing the theoretical background of our thesis, which is logical and comprehensive. It covers the overview of terms such as accessibility, equality, adapted physical activity and their relation to each other. In addition it attempts to present their significance in modern society on both European Union and national levels. However physical and mental accessibility should be more clearly differentiated. The lack of evidence-based information, the lack of scientific research in windsurfing and the necessary equipment adaptation in the sport as well as an overdependence on analysis of audio-visual material are the main weaknesses of this thesis.

Although this project aimed at organizing windsurfing regardless of the type of disability, it dealt mainly with wheelchair users. Children with special needs were mentioned, although the required type of adaptation in their case differs from the participants with physical disabilities. Therefore it should be described and further researched separately, because it is not accomplishable to cover every possible disability area in this thesis. For further projects and research we recommend people with various disabilities such as visual or hearing impairment, to engage in sport activities in order to enlarge social inclusion and equality. In addition we recommend more research and testing into the design and usage of equipment adaptation cases such as that of the blockart type of chairs.

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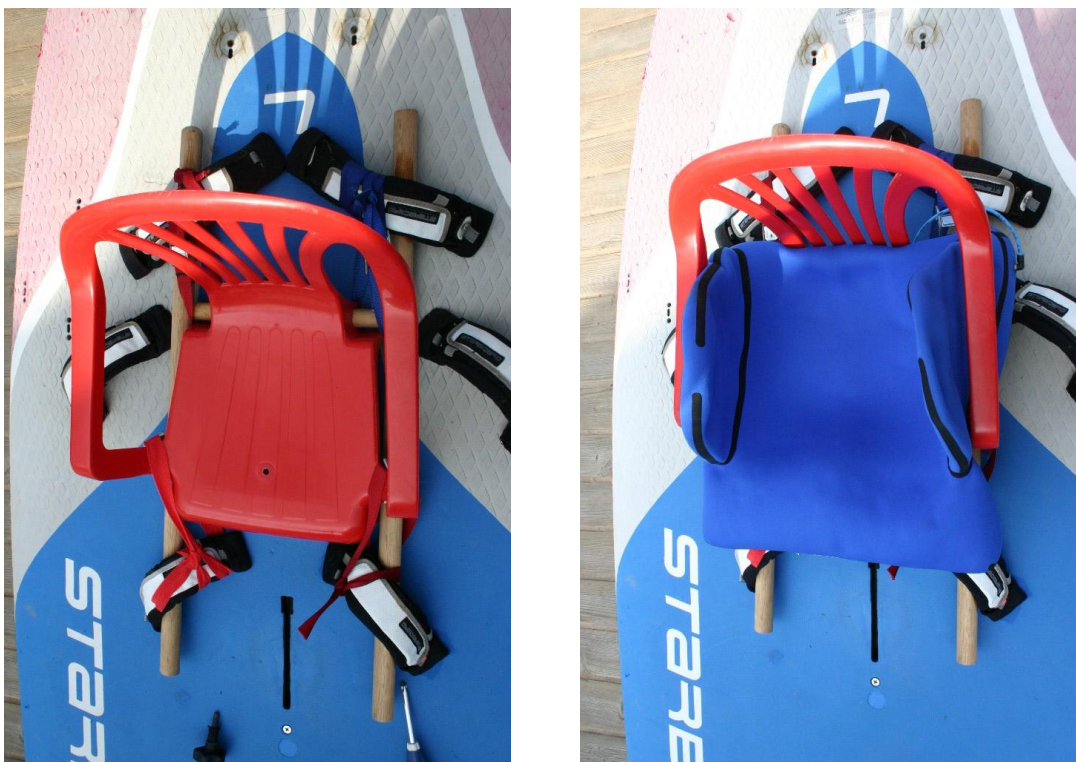
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APPENDICES

Appendix 1 Pictures

Appendix 2 Permission for research – Participants

Appendix 3 Permissions for musical background of the DVD



Picture 1-2. Inflatable pillow is placed on the chair in order to limit the size and to soften the seat. Generally these kinds of pillows are for clients with ulcer.



Picture 3. The universal joint and the adapter

APPENDIX 1/2



Picture 4. The polifoam and the rubber cover



Picture 5. The raiser the universal joint and the adapter



Picture 6. The wetsuit



Picture 7. Clothing and lifevest



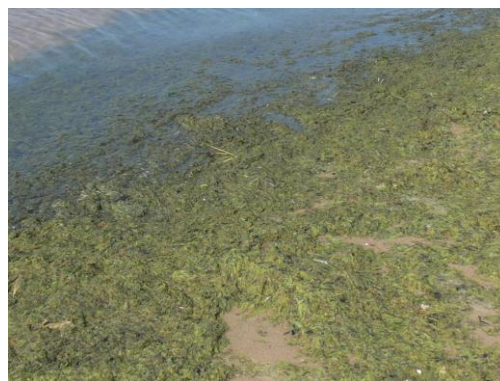
Picture 8. Shoes



Picture 9-10. Cleaning the wooden path from the sand for better environmental access



Picture 11. The threshold and the wooden path



Picture 12. The seaweeds



Picture 13. Wheelchair with the third wheel



Picture 14-15. The multifunctional hippocamp wheelchair in the sand and in the water



Picture 16. Third wheel is suitable to overcome the threshold independently.

In addition gloves reduce friction and prevent skin from injury

APPENDIX 1/5



Picture 17. The teammate assists the wheelchair user to overcome the threshold



Picture 18. Wet shoes are easier to take on



Picture 19. Taking off the wetsuit



Picture 20. Transferring the board to the beach

APPENDIX 1/6



Picture 21. Transferring the sail to the beach



Picture 22. Attaching the universal joint and the adapter to the board



Picture 23. Attaching the sail with the board



Picture 24. Getting on the board and balancing



Picture 25. One-leg standing and balancing

APPENDIX 1/7



Picture 26-27. Exercises and rowing with the paddle



Picture 28. Jumping and turning on the board

APPENDIX 2

Hyväksyn, että audiovisuaalinen aineisto on tallennettu surffikurssin aikana Yyterin uimarannalla Porissa (5.8.2010 – 8.8. 2010) ja annan suostumukseni Satakunnan Ammattikorkeakoululle käyttää tätä aineistoa opetus- ja tutkimustyön tarkoituksiin.

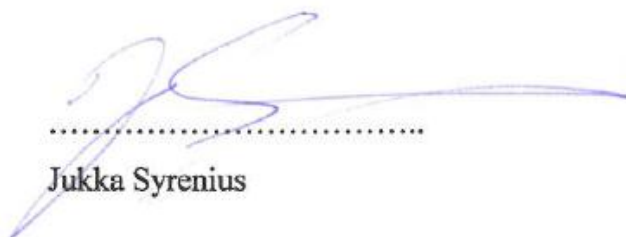
I understand the fact that audio-visual material is recorded during the whole period of the windsurfing course in Yyteri Beach (5.8.2010 – 8.8. 2010) and I hereby give my complete and explicit permission to use it for educational purposes and research work at Satakunta University of Applied Sciences.

Allekirjoitus:

Pori, 5.8.2010

APPENDIX 3/1

I hereby give my complete and explicit permission on behalf of Elonkorjuu to use the band's 'Le Champion' song from the 4th February 2011 concert record for musical background in the thesis of Eszter Vörösvári, which will be used for educational purposes at the Satakunta University of Applied Sciences.



.....
Jukka Syrenius

I hereby give my complete and explicit permission on behalf of Kiscsillag to use the band's records for musical background in the thesis of Eszter Vörösvári, which will be used for educational purposes at the Satakunta University of Applied Sciences.



.....
András Lovasi, Gábor Leskovics

APPENDIX 3/2

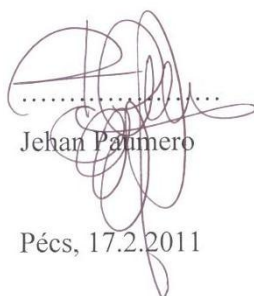
I hereby give my complete and explicit permission on behalf of Psycho Mutants to use the band's records for musical background in the thesis supplement of Eszter Vörösvári, which will be used for educational purposes at the Satakunta University of Applied Sciences.



Jehan Paumero

Pécs, 17.2.2011

I hereby give my complete and explicit permission on behalf of Ez3kiel to use the band's records for musical background in the thesis supplement of Eszter Vörösvári, which will be used for educational purposes at the Satakunta University of Applied Sciences.



Jehan Paumero

Pécs, 17.2.2011