

Segregated vs. integrative service design in disability sport culture: A case study on recreational sport services in higher education.

by

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Abstract

This research aims to investigate the existing service design of athletic services offered at a higher education facility to a) develop insight on how such services may be related to concepts of segregated and integrative recreational physical activity and b) to help us understand how these services may be impacting persons with disabilities. A multi-method qualitative approach was used to develop an understanding of the perspectives and experiences of participants on these topics, with the aim of bringing together their knowledge to help inform service planning recommendations for physical recreation at higher education facilities.

The results of the methods show that, overall, segregation seemed to have a negative connotation for participants, while integration seemed to carry more positive associations. It was also reported that service design can impact concepts of segregated or integrative participation. In this case study, the services were available for all and hence, did not illustrate segregation; however, service aspects such as fitness instructors not trained in adaptive fitness, ineffective fitness training certifications, fear, misconceptions and attitudes of people involved did play a role in favoring concepts of segregated participation. The information from the study, specifically the individual voices of participants may inform future studies related to designing fitness services for people with disabilities.

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Terminology

The following are the definitions and explanations of some terms that have been used frequently within the research.

<i>Person with disabilities (PwD):</i>	In discussing disability, it's important to recognize that the term on itself has been defined and discussed in different ways by various groups and disciplines. This research study, follows the Accessibility Glossary ("Accessibility Glossary," 2019) proposed by the Government of Canada, defining the term "person with disabilities" as the designation when refereeing to any person who had or is living with a disability caused by biological, physiological or social contexts.
<i>Physical Activity:</i>	According to the Physical Activity Guidelines for Americans report (2018), physical activity is defined as "any bodily movement produced by the contraction of skeletal muscle that increases energy expenditure above a basal level".
<i>Exercise:</i>	"A form of physical activity that is planned, structured, repetitive, and performed with the goal of improving health or fitness. All exercise is physical activity, but not all physical activity is exercise" (U.S. Department of Health and Human Services, 2018).
<i>Access:</i>	"A place that is easily reached, an environment that is easily navigated or a program or service that can easily be obtained" ("Accessibility Glossary," 2019).
<i>Accessibility:</i>	"The combination of aspects that influence a person's ability to function within an environment" ("Accessibility Glossary," 2019).
<i>Participation:</i>	"Involvement in a life situation" (World Health Organization, 2001).

List of Abbreviations

WHO	World Health Organization
ICF	International Classification of Functioning, Disability and Health
CRPD	Convention on the Rights of Persons with Disabilities
PwD	Person with Disabilities

Chapter 1: Introduction

1.1 The Topic

The World Health Organization (WHO), has frequently stated that diet and physical activity are amongst the major factors that promote good health (World Health Organization, 2002). Being healthy and maintaining that health is equally important for persons with disabilities (PwD). However, PwD are at a higher risk of acquiring ailments that are secondary to their impairment; yet these secondary conditions are avoidable (Wilhite & Shank, 2009). Physical activity is known for its health benefits, yet 80% of the world's adolescent population is inactive (World Health Organization, 2018). Beyond such benefits, active living also increases intellectual, social, and spiritual wellbeing. For PwD, active living may also improve self-esteem and self-worth, contribute to a sense of belonging, nurture and promote wellness, employment, and independent living (Caldwell, 2005; United Nations, 2005).

As I went over the existing literature related to recreational physical activity for PwD, I kept coming across terms such as segregation and exclusion and their counter parts integration and inclusion. These terms were widely used, in multiple contexts, when associated with PwD. Researchers and other stakeholders have used these terms to talk about education systems, social participation, employment opportunities, residential facilities and services provided to PwD. Though it seems reasonable to use these terms, it is unclear how the experience of PwD varies when participating in segregated versus integrative physical recreation settings. The literature is also limited when it comes to the perceptions of clients using such settings or facilities (in this case, persons with

disabilities) and other stakeholders regarding segregated versus integrative participation. The literature establishes the importance of physical activity for all and speaks to the overall barriers and facilitators to physical activity for PwD but, is limited when it comes to understanding the role of service providers and how they envision segregated versus integrative settings.

To this end, this research aims to investigate the existing design of athletic services offered at a higher education facility to a) develop insight on how such services may be related to concepts of segregated and integrative recreational physical activity and b) to help us understand how these services may be impacting PwD. Higher education facilities were chosen as a focus since they may act as a concentric point for the community. Members of the community attending higher education may use their athletic facilities and people may come from a variety of places to attend a particular higher education institute. Furthermore, most higher education fitness facilities are open to public which means a wide range of people may use such facilities.

The research objectives are two-folded: 1) to contribute to our understanding about the terms segregated and integrative recreational sport as seen/perceived by persons with and without disabilities; and 2) to understand if and how the design of physical recreation services may be related to concepts of segregation and integration. This research will allow multiple stakeholders (persons with disabilities, fitness/sport subject matter experts) to participate in building this understanding, which in turn, may help inform decisions related to service design, facility design, policy making, coaching techniques, and other relevant areas.

1.2 Research Goals, Question & Sub-questions

The study investigates the broader question of, “What is the impact of service design on the concepts of segregated and integrative participation of persons with disabilities in recreational fitness activities, as perceived by clients and involved stakeholders?”; with sub-questions shown below (Illustration 1).

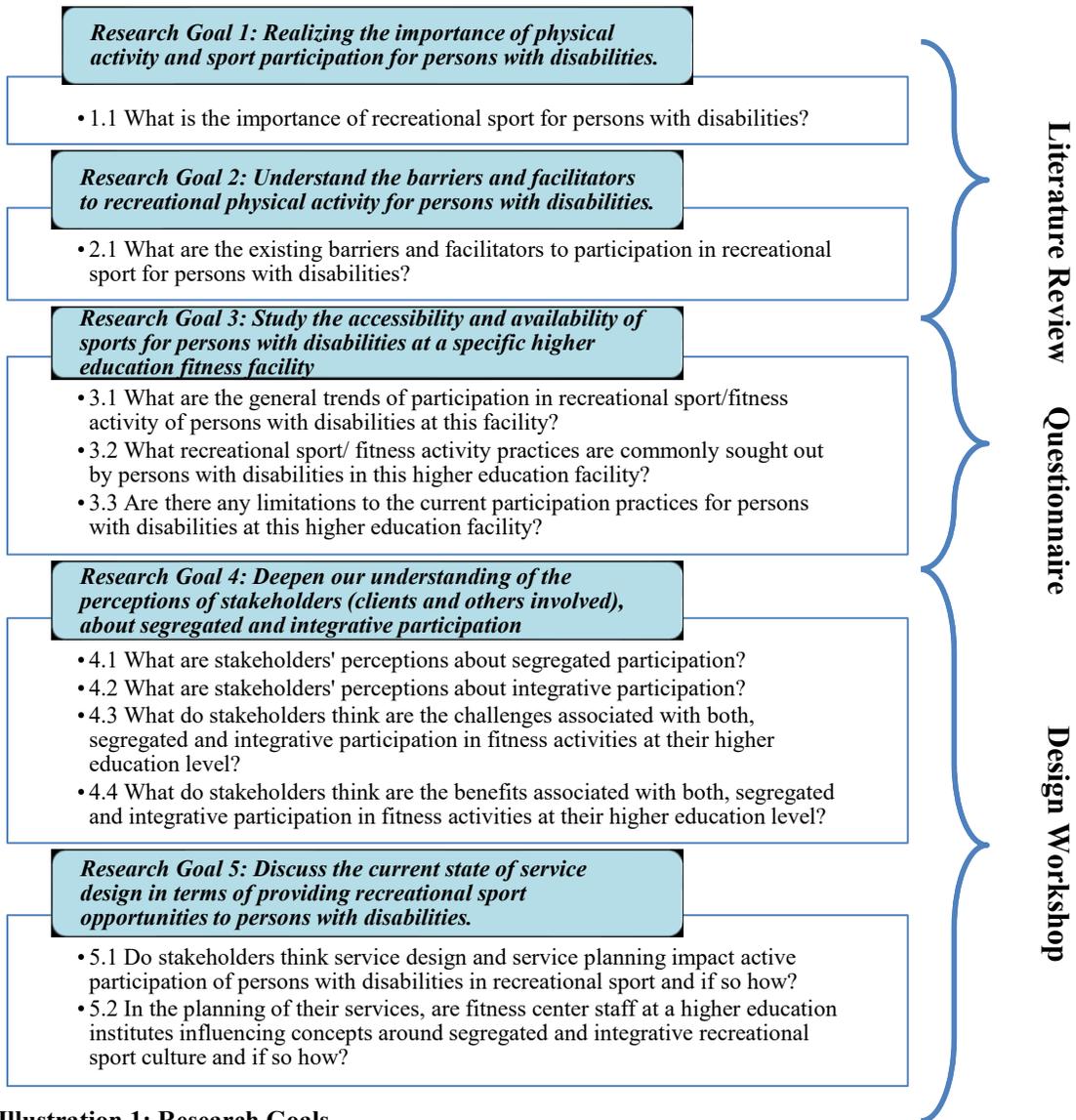


Illustration 1: Research Goals

1.3 Outline of the Thesis

The thesis starts with Chapter 1, which introduces the study, summarizes the key points in the literature, presents the research questions and corresponding methods selected to answer the research questions.

Chapter 2 digs a little deeper and lays the foundation of the research by reviewing the literature available. It starts with defining disability and how its meaning has evolved over the years. It continues to explore the situation of recreational disability sport culture in higher education reviewing the associated benefits and challenges. Towards the end of the chapter, a discussion around segregated and integrative services lead us to the intent to study the perceptions of persons with disabilities and other stakeholders around the terms or concepts of segregated and integrative participation. This foundation then facilitated the selection of appropriate methods to conduct the study.

The 3rd chapter includes a detailed explanation of the methods that were employed, and Chapter 4 presents the results from each method. The collective findings of the research are presented and discussed in Chapter 5, ending with the conclusion of the study in Chapter 6.

Chapter 2: Literature Review

2.1 Understanding Disability

2.1.1 Defining Disability

Over the years, the meaning of the term “disability” has evolved as we continue to improve our understanding of the dynamics surrounding this subject. A simple definition from the Merriam-Webster dictionary suggests that disability is “a physical, mental, cognitive, or developmental condition that impairs, interferes with, or limits a person's ability to engage in certain tasks or actions or participate in typical daily activities and interactions” (“Disability,” 2019). Pope and Tarlov (1991), present a similar definition of disability, stating that disability occurs when one or more medical condition(s) effects the physical or mental capacity of a person in carrying out particular social tasks. Later, Brandt and Pope (1997) expanded this definition by including the aspect of environment and how it limits the level of a person’s interaction with their surroundings. At present, a well-recognized definition of the term “disability”, established in the “Convention on the Rights of Persons with Disabilities” by The United Nations (UN), states that “disability is an evolving concept and that disability results from the interaction between persons with impairments and attitudinal and environmental barriers that hinders their full and effective participation in society on an equal basis with others” (United Nations, 2006).

2.1.2 Disability – A Brief History

In the medieval ages, perceptions towards disability varied amongst communities. Some communities believed that disability was a punishment from God (Oliver, 1990) or on the

contrary a blessing from God, for a sin or good deed committed by either the person or the person's parents (Diken, 2012); some believed that disability was attained when a child was born at a time when the planet Saturn was in an aggressive state (Historic England, 2019b). For a long time, such religious and cultural views were the only views on disability. However, with the advent of industrial capitalism, paid labor became the most desirable way of earning; this new construct led to the exclusion of those who could not work in industrial setups due to their disabilities (Oliver & Barnes, 2012; Russell & Malhotra, 2001). This industrialization excluded the disabled from finding paid work since they were now seen as "less fit for work" and therefore, a class of 'disabled' was created who were now seen as a social problem, leading to the segregation of the 'disabled' from mainstream life (Russell & Malhotra, 2001).

After World War I, when millions of persons returned to their homelands from their service with newly acquired disabilities, people started to realize that attitudes towards disability needed to change (Historic England, 2019a). During World War II, when many employed able-bodied people left to fight, labor shortage resulted in the employment of PwD; however, as the veterans started returning and acquiring back their jobs, PwD once more found themselves in economic uncertainty (Jennings, 2016).

Medical practitioners, physiotherapists and/or researchers started to work in the field of disabilities, which led to the development of a medical approach of explaining disability. The medical model explains disability as just an impairment; it is a perspective that characterizes a PwD as a patient and explains disability as a disease that needs to be diagnosed, treated if possible and concludes with rehabilitation (Disabled World, 2017). Hence, the medical model recognizes any limitations faced by a PwD as a response to

their impairment. On the contrary, the social model adapted a more communal approach. The social model sees disability in relation to society and explains that disability is not a characteristic of an individual, but rather is a constraint created by the social environment towards a PwD (Oliver, 1996). For decades, representatives of each model, medical and social, have argued the competence of either model (Williams, 2001).

More recently, researchers have moved towards a more inclusive model, the biopsychosocial model, which encompasses three major factors: the biological characteristics of a person, psychological characteristics of a person, and social construct of the society. Approved by the International Classification of Functioning, Disability and Health (ICF) by the World Health Organization (WHO), the “biopsychosocial” model integrates the medical and social models (World Health Organization, 2001). The biopsychosocial model, as explained by Iezzoni (2003), approaches disability from three aspects: (1) impairment - similar to the medical model, it relates to the loss of physical or mental function; (2) action - the ability of the person to perform a task; and (3) environment - the limitations created by the built environment.

It can be noted that defining disability is not as simple as it seems; scholars from different disciplines have understood and perceived disability in accordance to the knowledge relevant to their professional association. As time lapsed, the term disability evolved, and it may continue to evolve over the coming years; mostly to accommodate the growing need to better understand the domain, but to also support the prosperity of the community (stakeholders) involved. For the purpose of this research, this study uses the definition of disability proposed by the United Nations which speaks of disability within the

biopsychosocial model; accepting that disability is the interaction between the biological, physiological and social contexts.

2.1.3 ICF as a Classification Framework

The biopsychosocial model of disability is connected with WHO's International Classification of Functioning, Disability and Health (ICF) (World Health Organization, 2001). ICF classifies people's health characteristics in relation to their individual life situations and environmental contexts. ICF conceptualizes disability as starting with a health condition, which is connected to various components (e.g., body structures and functions, activity, participation, environmental factors and personal factors) (Kiuppis, 2018). It helps explain the relationship between health characteristics (i.e. impairment) and the contextual factors that can contribute to the experience and classification of disability. ICF's structure has two main subdivisions: 1) Functioning and Disability; and 2) Contextual Factors.

Part 1 of the model covers Functioning and Disability, which speaks more about the health characteristics of a person and is further subdivided into 2 components: 1.1) Body Functions and Structures; and 1.2) Activities and Participation. Part 2 of the model, Contextual Factors, covers 2.1) Environmental Factors (further divided into 5 aspects) and 2.2) Personal Factors (which is not elaborated on in the ICF model, but proposed to play a role in disability at any level). Contextual Factors are discussed in more detail here as it is, the category most closely associated to factors one might be able to address in designing services.

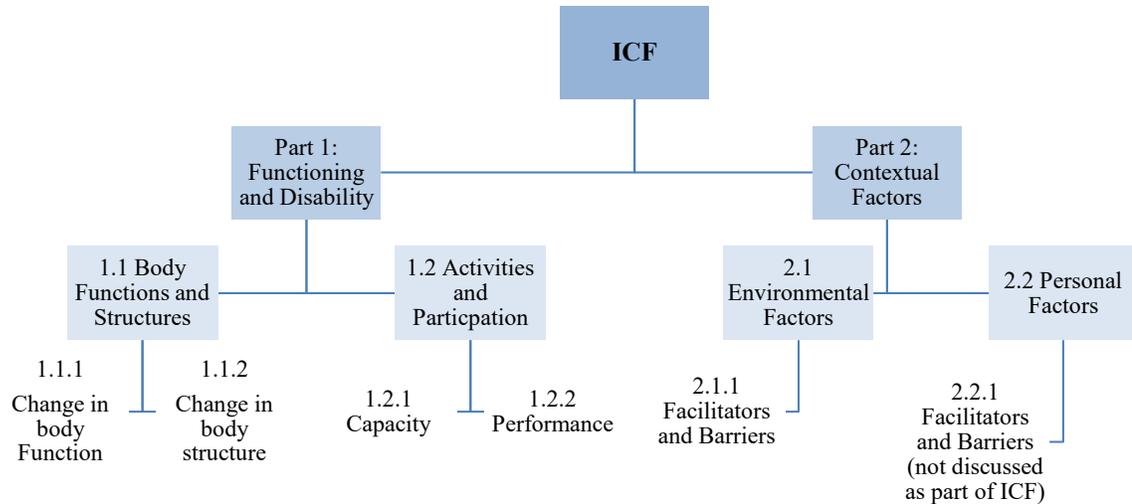


Illustration 2: ICF's Classification Framework on Disability

Under Part 2 Contextual Factors, the category of Environmental Factors includes positive and negative aspects of the physical, social and attitudinal environment in which people live. The ICF model discusses 5 aspects of the environment that may influence people's

ability to participate:

- 2.1.1.1) Products and technology,
- 2.1.1.2) Natural environment and human-made changes to the environment,
- 2.1.1.3) Support and relationships,
- 2.1.1.4) Attitudes, and
- 2.1.1.5) Services, systems and policies.

Continuing on with the breakdown of Part 2: Contextual Factors, the 2.2 category of Personal Factors includes the background of an individual and covers characteristics of the individual that are not part of a health condition (e.g. gender, race, age, fitness, lifestyle, habits, social background, education, profession, behavior pattern, individual psychological assets and other characteristics).

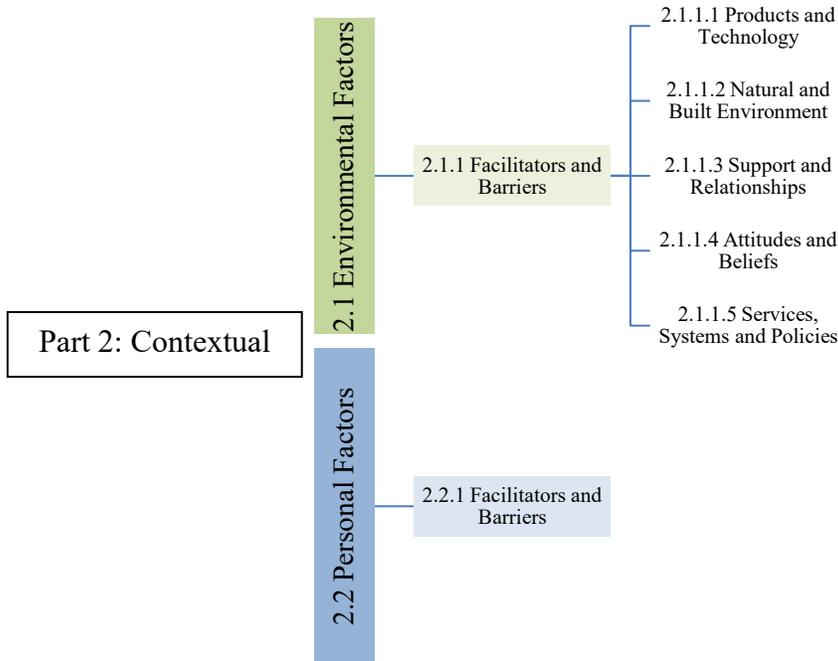


Illustration 3: ICF's Breakdown of Contextual Factors Influencing Participation

The ICF model proposes that a shift in one component can impact changes in all corresponding components, which makes the model of relevance to sport (Kiuppis, 2018) since all of these elements may relate to sport culture and activity.

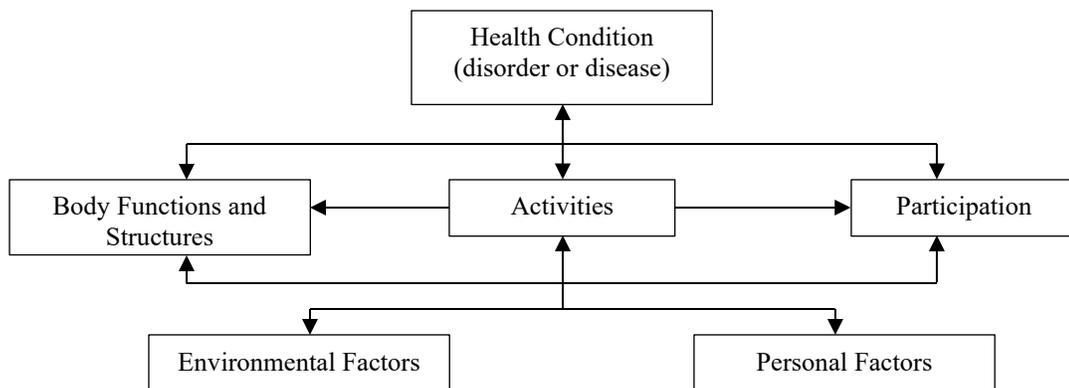


Illustration 4: ICF model; interaction between each component

2.2 Contextual Facilitators and Barriers to Participation in Physical Activity for PwD.

As discussed in the previous section, the International Classification of Functioning (ICF) (World Health Organization, 2001) framework can be used to study contextual facilitators and barriers to participation in sport culture and activity. Some examples of barriers and facilitators are presented in more detail below.

2.2.1 Contextual Factors – Facilitators

2.2.1.1 Environmental Factors

Rimmer et al. (2004) reported that human-made changes to the environment now incorporate accessible features, such as accessible parking spaces, push-button operated doors, multilevel front desks, family changing rooms, etc. Positive social interactions can enhance the physical activity experience, as well as develop social bonding and friendships, with both the fitness instructors and other participants (Allen, Dodd, Taylor, McBurney, & Larkin, 2004). In reference to attitudinal facilitators, a positive outcome of participation is that it is leading to reducing stigma as well as negative stereotypes (Martin, 2013).

2.2.1.2 Personal Factors

Support for physical and cognitive functioning has been reported as one of the more common facilitators enabling PwD to conduct their daily lives (U.S. Department of Health and Human Services, 2018). Aside from physical fitness, participation in physical activity reduces secondary mental health problems (Latimer, Martin Ginis, & Hicks,

2005), builds self-esteem and self-efficacy (Martin, 2013) and supports emotional functioning (Giacobbi et al., 2006).

2.2.2 Contextual Factors – Barriers

2.2.2.1 Environmental Factors

Natural environment and human-made changes to the environment may cause access concerns such as, inconvenient location of fitness facilities can pose accessibility barriers by not allowing people to get to the facility at all (French & Hainsworth, 2001). Where available, facilities can often have other extrinsic accessibility issues, such as sidewalks or curb cuts, that can limit participation (French & Hainsworth, 2001).

In examining 35 health clubs in the USA with regards to accessibility, Rimmer et al. (2004) reported that people with physical and visual impairments were most likely to “have difficulty accessing various areas of fitness facilities and health clubs”. This was concluded because though most facilities had covered the basic parameters in making their facilities accessible, they had not foreseen the usage constraints. For example, while there was accessible equipment, the study found inadequate space around the equipment to allow for transfers from a wheelchair. Other built environment characteristics that can hinder participation include deficiencies in thermal, lighting, and acoustic design (Rimmer, Riley, Wang, & Rauworth, 2004). Other product and service-related barriers include the unavailability of necessary adaptive equipment, making participation in physical activity difficult or impossible for people with disabilities (Lieberman & MacVicar, 2003; Martin, 2013). This also brings to attention the financial barriers as most of the equipment is costly (Martin, 2013).

Attitudes and perceptions can be detrimental to participation for PwD (Law et al., 1999). For example, Heller et al. (2002) found that when caregivers of people with cerebral palsy felt physical activity would not help their resident or cause harm, that this reduced participation. Lack of knowledge about where to exercise has been identified as a significant barrier to physical activity (Heller et al., 2002; Rimmer, Rubin, & Braddock, 2000). Concerns have also been raised about community recreation personal limited knowledge of adapting games for PwD (Lieberman & MacVicar, 2003). PwD perceive that this lack of knowledge may be the reason employees at fitness centers view accessibility as unimportant (Rimmer, Riley, Wang, Rauworth, et al., 2004).

Parents of children with disabilities have expressed that “indifference and lack of disability awareness of recreation providers” acts as a barrier to participation (Scholl, McAvoy, Rynders, & Smith, 2003). Children with disabilities require assistance, mostly by their parents, to facilitate participation in physical activity; dependence on parents can also be for transportation, equipment, functional assistance, and/or financial assistance (Scholl et al., 2003). Even when assistance is not required, lack of peers participating has been another significant barrier (Lieberman, Robinson, & Rollheiser, 2007).

2.2.2.2 Personal Factors

Studies show that many PwD report their injury or disability as a major barrier preventing them from participating in physical activity (Finch, Owen, & Price, 2001). In some instances, parents of children with disability have reported that participation is hindered by the severity of the disability (Lieberman & MacVicar, 2003). Apart from their disability, general behavioral characteristics such as, lack of interest and motivation have

also contributed to decreased levels of participation in physical activity (Rimmer et al., 2000).

2.3 Understanding Recreational Sport for People with Disabilities

An active lifestyle promotes physical and mental health; where healthy individuals engage themselves within the society and are unlikely to develop ailments that might lead to unnecessary utilization of healthcare resources (Sport England, 2002). Beyond the physical benefits, active living also increases intellectual, social, and spiritual wellbeing. For people with disabilities, active living may also improve self-esteem and self-worth, contribute to a sense of belonging, nurture and promote wellness, as well as improve one's chances of employment, and independent living (Caldwell, 2005; United Nations, 2005).

There is a communal interest in encouraging Canadians to stay active and healthy; yet, only 3 percent of 4.4 million Canadians with a disability participate in organized sports (Standing Senate Committee on Human Rights, 2012). Promoting active living and being empathetic about including PwD are amongst the foremost priorities for the Canadian Government (Arbour-Nicitopoulos & Ginis, 2011). Similarly, many non-governmental organizations are also working towards the goal of encouraging PwD to participate in organized sport activities to support achieving a healthy lifestyle, with some examples including the "Active Living Alliance for Canadians with Disabilities" (ALACD) and the "National Center on Physical Activity and Disability" (NCPAD). These organizations strive for achieving goals centered on promoting accessible opportunities by encouraging physical activity and creating spaces that not only meet the minimum standards of

universal accessibility (Skulski, 2007), but are operational and function effectively for PwD (Goldman, 1991).

2.3.1 What is Sport for Persons with a Disability?

Sports for PwD often means modifying the sport in question to accommodate the needs of the player and is commonly referred to as Adaptive Sports, Disability Sports or Parasports (Disabled World, 2019). "Sport for persons with a disability" covers sport activities for people with disabilities at all levels (e.g. competitive, recreational) and in all forms of participation (e.g. athletes, coaches) (Government of Canada, 2006). The Policy on Sport for Persons with a Disability (Government of Canada, 2006) outlines the different levels of sport within this context:

1. High Performance Sport

- *Competitive sport practised at the highest national and international levels by elite athletes that requires high degrees of physical, mental, technical and tactical preparedness, as well as experience.*

2. Competitive Sport

- *Sport activities for teams or individuals to prepare for and take part in competitions.*

3. Recreational Sport

- *Sport activities pursued as a pastime or leisure activity.*

4. Mainstream Sport

- *All organized sport activities that fall under "able-bodied" sport.*

Illustration 5: Levels of sport identified in the Policy on Sport for Persons with a Disability

According to French and Hainsworth (2001), if we look at sport as a continuum, disability sport is mostly viewed as a rehabilitative sport on one end and an elite sport at the other; conversely, mainstream sport moves from recreational on one end and competitive on the other. This view of non-competitive sport as mainly rehabilitation

sport sets PwD apart from the rest of society (French & Hainsworth, 2001) requiring a call for advocating for inclusion in recreational sport for PwD.

Spaaij, Magee, and Jeanes (2014) discuss a progressive *Sports Development Continuum*, ranging from basic to excellence level; or as mentioned “a logical progression from learning the basic skills at a foundation level to performing as an elite performer at the excellence level”. The *Sports Development Continuum* (Illustration 6) argues that participation in elite sports is of equal importance as participation in recreational sports for PwD (Kiuppis, 2018).



Illustration 6: Sports Development Continuum Model

On the other hand, the *Integration Continuum for Sport Participation* (Illustration 7) is a framework that discusses a five-level continuum which outlines different categories of sport for PwD. These categories range from regular sport with no modifications to segregated sport (Winnick, 1987), and are distinguished on the basis of the “degree of integration and sport type”.

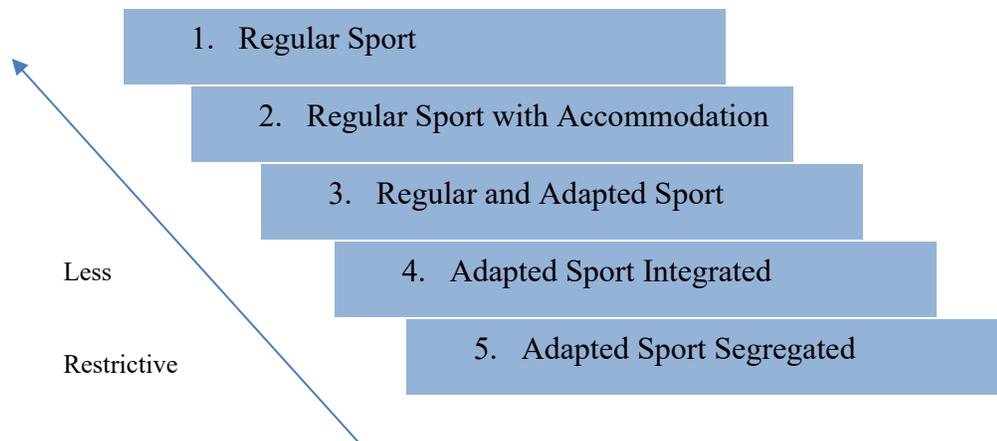


Illustration 7: Integration Continuum for Sport Participation

2.3.2 Rights of persons with disability and access.

Throughout North America, civil and human rights movements have advocated for equal opportunities, integration and social participation of discriminated populations, including PwD (Americans with Disabilities Act, 1990; Canadian Human Rights Act, 1977; The Canadian Charter of Rights and Freedoms, 1982). The recent United Nations Convention on the Rights of Persons with Disabilities (CRPD) has highly emphasized the importance of the fundamental rights of PwD (United Nations, 2006). The CRPD (2006) document discusses the right to cultural life, as well as the right to enjoying life and being part of recreational activities to promote quality of life. Many of these movements have led to increased discussions around the availability and accessibility of recreational opportunities for PwD, including sport.

Recent development of legislation and policies has promoted the accessibility of built structures. As accessibility has been mostly associated with the tangibility of spaces or products, more physically accessible spaces are available than ever before (Iwarsson & Ståhl, 2003).

2.4 Understanding Segregation vs. Integration

Society has created a set of standards and when humans fail to adhere to such standards or do not 'fit' standards because of their biological make up, they may be considered inferior (Devine, 1997); these standards create societal practices that have led to exclusion of PwD. This is more prominent in the field of sports where characteristics such as strength and endurance are being tested (Brittain, 2004). Multiple, national and international laws are now promoting equality within society and questioning such standards. In Canada, the Canadian Human Rights Act has supported equality and inclusivity, rejecting any discrimination based on disability (Canadian Human Rights Act, 1977). Worldwide, the "United Nations Convention on the Rights of Persons with Disabilities" has taken a stance for empowerment and equality of PwD (United Nations, 2006).

Regardless of these formal agreements, inequality towards PwD still prevails in our society, specifically in terms of participation in sport and physical activities (Legg & Steadward, 2011). Devine (1997) emphasizes that inclusion may be achieved when society starts treating PwD as an "integral part of our world". Valet (2018) speaks more about participation of PwD and notes that "more participation does not mean more inclusion – segregated participation can occur". Valet (2018) is convinced that the world we live in does not fully appreciate diversity and to that end, we have created "exclusive hierarchies". These exclusive hierarchies create an exclusion culture based on a variety of attributes, disability being one of them. This, in turn, has facilitated the segregated participation of PwD in sports (Valet, 2018) creating a situation where PwD participate

amongst themselves. This may not be considered inclusive as they remain a separate a group of people in this situation based on the attribute of “disability”.

Social participation is the degree of individual involvement in a variety of social settings and activities (Levasseur, Richard, Gauvin, & Raymond, 2010). Social participation may sound like a simple process, but meaningful social participation may be harder to achieve. The key elements of social participation includes: “activity – doing something; interaction – at least two people need to be involved in this activity; social exchange – the activity involves giving or receiving something from others; and lack of compulsion – there is no outside agent forcing an individual to engage in the activity” (Prohaska, Anderson, & Binstock, 2012). To this end, segregated sports may be viewed as a forced choice for PwD rather than a free choice (Valet, 2018) wherein, PwD, do not get to choose what to play and with whom.

Integration or inclusion discussions emerged within the domain of education (Kiuppis, 2018); however, with the increase in legislation regarding rights of persons with disabilities, scholars have discussed inclusion in the context of other areas of life, such as work and employment (Hall & Wilton, 2011), cultural life and leisure (Singleton & Darcy, 2013), recreation (Gray, Zimmerman, & Rimmer, 2012) and sport (Law, Petrenchik, King, & Hurley, 2007; Nixon, 2007; Valet, 2018).

Integrated or inclusive recreation programs (programs that welcome PwD) are uncommon compared to recreation programs for mainstream users and were initially developed to provide opportunities for participants with and without disabilities to meet government regulations. Integrated activities are considered to "bring together people of

mixed abilities" (Schleien & Ray, 1988, p.24); however, many disregard the social inclusion of the participant in such integrated settings (Kathleen Grace Scholl, 2002). For many, the crucial aspect of integrated recreation is the “physical and social integration of all persons with and without disabilities into an activity that supports active involvement and interaction needs” (Scholl, 2002).

In the context of recreational sport participation, the *Integration Continuum for Sport Participation* is a five-level service continuum that scaffolds access to a wide range of abilities; the levels being 1. Regular Sport, 2. Regular Sport with Accommodation, 3. Regular and Adapted Sport, 4. Adapted Sport Integrated and 5. Adapted Sport Segregated, with 1. Regular Sport being the most integrated and 5. Adapted Sport being the most restrictive and segregated (refer to Illustration 7) (Winnick, 1987). Though the model relates to multiple ways of engaging PwD and aims to provide access to participation to most PwD; however, by locating PwD in selected levels, this act alone continues to fuel inclusion debates in sport (Kiuppis, 2018).

2.5 Service Design and Accessibility

It is important to understand that any service provided to any target audience, needs to be well planned so that the service effectively reaches the target audience without any implications, such as exclusion, inaccessibility; this may include planning of the tangible (physical spaces, products) or the intangible (marketing, publicizing, accessibility, timing, length, training, coaching) service elements. Service Design, at its core, follows a Human-Centered Approach, that holistically considers the quality of a customer service experience (IDEO, 2019; Saco & Goncalves, 2008) and seamless service delivery

(“Service Design 101,” 2019). “Service design helps organizations see an end-to-end, surface-to-core perspective, enabling understanding services from a customer perspective” (“Service Design 101,” 2019); including collaborations between clients and service providers.

It can be safely said, service design, though at its developing stages as a design field, is the design that will contribute to the effective implementation of any given service. Lawrence (2019) describes service design as a “doing” discipline, which involves “practical activities which engage a range of stakeholders in an ongoing, iterative, facilitated process”. Lawrence (2019) further explains that Service Design Activities can essentially be grouped into four categories: research, ideation, prototyping, and implementation (see Illustration 8); where *research* includes both quantitative and qualitative data that can facilitate understanding of user’s “practices and routines”, *ideation* relates to the outcomes of systematically producing, selecting, distilling or evolving ideas, *prototyping* encompasses around exploring ideas and concepts to further understand people’ interactions, experiences and behaviors with the given service, and *implementation* is associated to the final production.

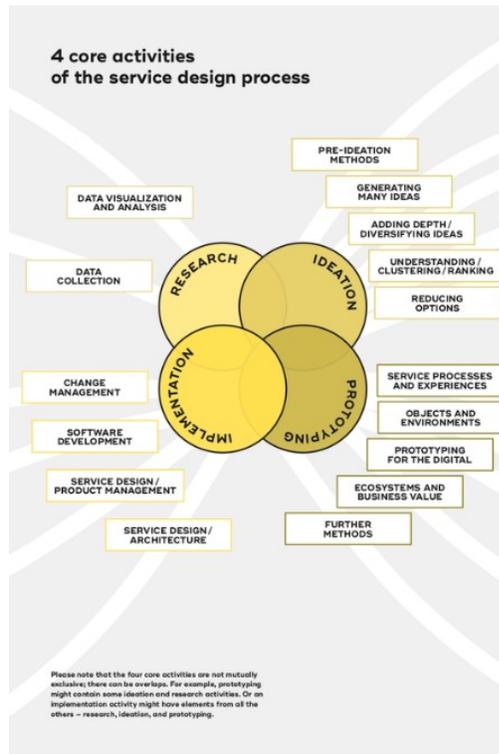


Illustration 8: Four core activities of the service design process

At its core, Service Design Activities usually follow the divergent and convergent thinking approach (Hormess, Stickdorn, Lawrence, & Schneider, 2018). In each service design activity, diverging and converging takes place; for example, in research, a lot of knowledge is obtained from existing sources or new research methods which is then sifted and organized into key insights. Similarly, during ideation, diverging and converging of opportunities and promising ideas may take place (Hormess et al., 2018).

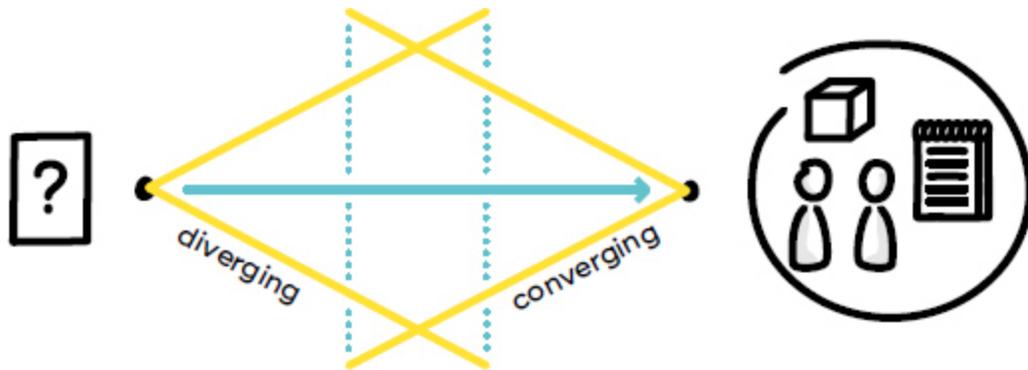


Illustration 9: Divergent phases (seeking opportunities) and Convergent phases (making decisions).

Polaine, Løvlie, & Reason, (2013), exemplify the *classic service design* approach taken by the Gjensidige project; using insights research, workshops, service blueprinting, journey mapping, personas, service proposition development, concept sketches and presentations, experience prototyping, testing, and delivery.

Service blueprinting is seen a key research method in service design as it allows people to visualize the relationship between service components and customer touchpoints (Joyce & Gibbons, 2019). Customer touchpoints are interaction instances (Flaherty, 2016) a user may interact with in an organization several times to obtain a service.

Though in many types of research methods, techniques such as ideation, prototyping and implementation can lead to a great service design, the key principles of service design remain the same: service design is human centered, collaborative, iterative, sequential, real, and holistic (Lawrence, 2019).

The definitions around accessibility are interesting in relation to how service design is defined, and there appear to be fundamental affinities between the two concepts. The most common use of the word ‘accessible’ is as an adjective; where accessible means

capable of being reached or used or seen (Merriam Webster, n.d.). On a technical note, accessibility is an umbrella term, that relates to human functioning, and may be used with the usability of all aspects of an environment (Iwarsson & Ståhl, 2003; Pirie, 1979). Nowadays, accessibility is commonly seen as a ‘removal of a barrier or barriers’ or the ‘addition of special features’ for persons with disabilities (Gossett, Mirza, Barnds, & Feidt, 2009). However, a change is being seen where ‘accessibility for all’ is being promoted rather than for just one population segment (European Commission, 2003; Gossett et al., 2009). Today, accessibility is also seen as a multi-dimensional phenomenon, where the three common dimensions are accessibility to the physical environment, accessibility to information, and accessibility to social activities and services (United Nations, 1993, 2006). Over the years, accessibility to the physical environment has been addressed through legislation and standards, however accessibility to information and to social activities and services are rather still overlooked (Iwarsson & Ståhl, 2003). Today, accessibility is becoming an important aspect of service design; recently introduced “The Accessible Act Canada” has included service design as a key element in accessibility (Government of Canada, 2019). Similarly, the *Integration Continuum for Sport Participation* is a ‘service’ continuum that relates to 5 levels or ways of providing sport services to PwD. Services are also included under the Environmental Factors that affect the ICF model and hence have a direct impact on activities and participation (World Health Organization, 2001).

A lack of recreational sport programs for PwD may signal that recreation providers or stakeholders need more information to help facilitate the development of such programs (Scholl, 2002). Providers of recreation services may require additional understanding of

the needs, desires, and abilities of participants (Orthner, 1998). The quantity and quality of recreational services may also require continuous development to ensure enhanced user experience and better participation in the said activity (Schleien & Ray, 1988).

2.6 Study Overview & Direction

The literature was used to “distill information from published sources, capturing the essence of previous research or projects as they might inform the current project” (Hanington & Martin, 2012b); thereby building the foundation of the study. The literature discussed here captures the importance of recreational sport for PwD and an overview of existing barriers and facilitators to participation in recreational sport for PwD, contributing to our understanding of Research Goals 1 and 2 (Illustration 1).

Apart from what we learned through the literature review, I designed a questionnaire to provide more detailed information on the participation of PwD in recreational sport at a specific higher education facility. The questionnaire was used to answer the questions specific to this case study captured under Research Goal 3.

Research Goal 3: Study the accessibility and availability of sports for persons with disabilities at a specific higher education fitness facility

- 3.1 What are the general trends of participation in recreational sport/fitness activity of persons with disabilities at this facility?
- 3.2 What recreational sport/ fitness activity practices are commonly sought out by persons with disabilities in this higher education facility?
- 3.3 Are there any limitations to the current participation practices for persons with disabilities at this higher education facility?

Terms such as segregation and exclusion and their counter parts integration and inclusion were widely mentioned in the literature, in multiple contexts, when associated with PwD.

Researchers and other stakeholders have used these terms to talk about education

systems, social participation, employment opportunities, residential facilities and other services provided to PwD. Though it seems reasonable to use these terms, it is unclear how the experience of people with disabilities varies when participating in segregated vs integrative settings of recreational physical activity. The literature is also limited when it comes to the perceptions of the user (in this case, people with disabilities) and other stakeholders regarding segregated vs. integrative participation. Research Goal 4 was developed to contribute to the understanding to such perceptions.

Research Goal 4: Deepen our understanding of the perceptions of stakeholders (clients and others involved), about segregated and integrative participation

- 4.1 What are stakeholders' perceptions about segregated participation?
- 4.2 What are stakeholders' perceptions about integrative participation?
- 4.3 What do stakeholders think are the challenges associated with both, segregated and integrative participation in fitness activities at their higher education level?
- 4.4 What do stakeholders think are the benefits associated with both, segregated and integrative participation in fitness activities at their higher education level?

The literature establishes the importance of physical activity for all, including people with disabilities and speaks more to the overall barriers and facilitators to physical activity for people with disabilities but, is limited when it comes to understanding the role of service providers and how they envision segregated vs. integrative settings. To this end, this research aims to investigate the existing design of athletic services offered at a specific higher education facility to a) develop insight on how such services may be related to concepts of segregated and integrative recreational physical activity and b) to help us understand how these services may be impacting persons with disabilities. Research Goal 5 was developed to understand the state and role of service design.

Research Goal 5: Discuss the current state of service design in terms of providing recreational sport opportunities to persons with disabilities.

5.1 Do stakeholders think service design and service planning impact active participation of persons with disabilities in recreational sport and if so how?

5.2 In the planning of their services, are fitness center staff at a higher education institutes influencing concepts around segregated and integrative recreational sport culture and if so how?

A design workshop was conducted to contribute to our understanding of Research Goal 4 and 5 as the workshops would provide direct input of stakeholders; as participants voice their thoughts through more than just verbal or written expression (Kirk, McClelland, & Suri, 2015).

These questions and methods were designed to 1) contribute to our understanding about the terms segregated and integrative recreational sport as seen/perceived by persons with and without disabilities; and 2) to understand if and how service design may be related or played a role in forming or influencing these views.

Chapter 3: Methods

3.1 Research Process Overview

The study involved three main steps; planning, conducting and concluding the research. 'Planning' included reviewing the literature, informal discussions with stakeholders, developing research objectives and questions, identifying the methods for data collection and analysis, and preparing the ethics protocol to work with participants. The 'conducting' phase involved recruitment, collecting data from participants, and analyzing the data. The concluding phase involved presenting the results, discussing and interpreting the final findings and assessing the limitations of the research.

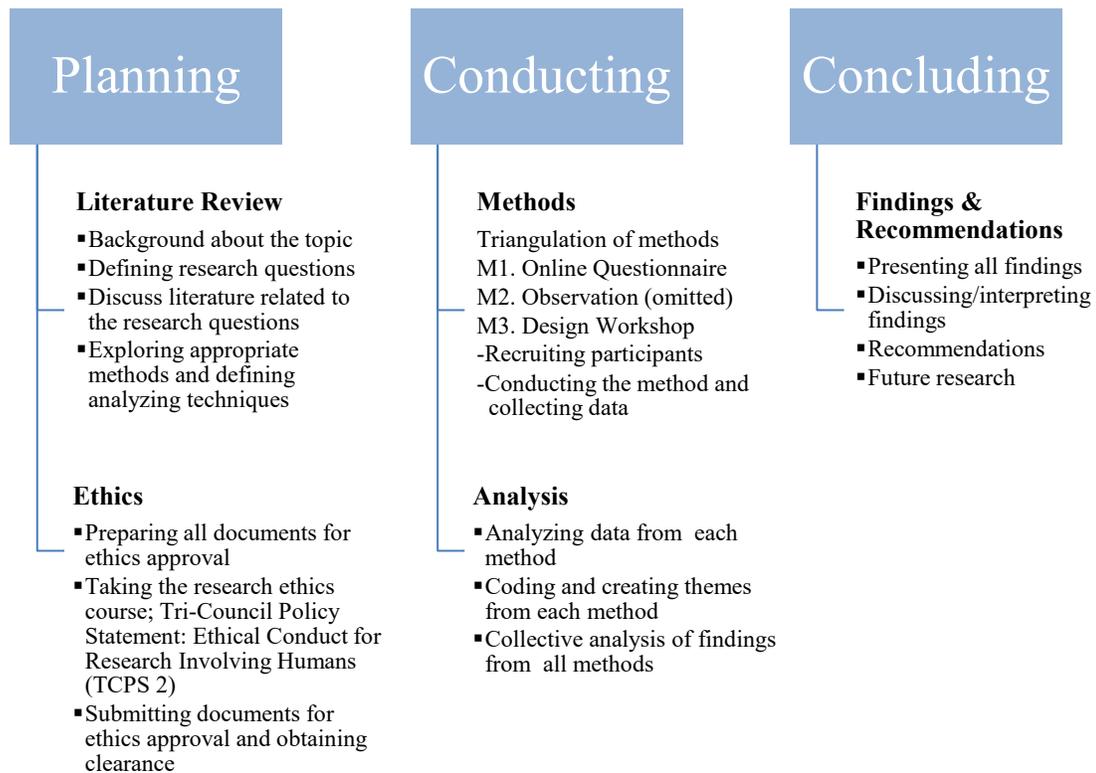


Illustration 10: Research Phases

3.2 Methods Overview

Triangulation is a way of collecting evidence on a particular research question through different methods and converging all the collected information to achieve accurate findings or results; allowing for the elimination of discrepancies that can be associated by using only one method (Martin & Hanington, 2012; Webb, 1966). I proposed a triangulation of 3 data collection methods to help mitigate weaknesses resulting from the use of individual methods in isolation (B. Martin & Hanington, 2012b). The data collection methods proposed included 1) a Questionnaire, 2) Observation (later omitted) and 3) a Design Workshop. The first step in the process involved conducting the questionnaire. The questionnaire was also used to recruit participants for the subsequent research methods. Unfortunately, no participants were recruited for the observation sessions and those that were recruited cancelled their appointments. For the design workshop, a smaller number of participants contributed to the collection of qualitative data that helped inform the conclusions of the research study.

3.2.1 Participants, Recruitment & Ethics Clearance

Participant recruitment was facilitated through the University's Centre for Students with Disabilities, the University's Athletics Facility, and the University's Intranet newsletter. All participants were required to be English-speaking and above the age of 18. These recruitment approaches were used to target specific participants required for each research method. The questionnaire and observations (later omitted from the study due to lack of participants) were targeted to students with disabilities who were recruited through University's Centre for Students with Disabilities, whereas the design workshop

targeted relevant stakeholders from the University (e.g. clients with disabilities who may use the athletics facility and athletics personnel) who were recruited through University's Centre for Students with Disabilities, the University's Athletics Facility, and the University's Intranet newsletter.

For the questionnaire and observation sessions, recruitment emails were sent out to students with disabilities registered with the University's Centre for Students with Disabilities, with a link to the questionnaire. A recruitment message was also posted at the end of the questionnaire to recruit participants in the observation session which offered a 10\$ gift card as compensation. To participate in the questionnaire and/or observation session, participants had to self-identify as a person with a disability and have or still participate in a recreational sport/fitness activity. An important aspect of participant selection was asking the participants with disabilities to self-identify as a person living with a disability. This approach was taken to ensure they were comfortable and open to provide information related to their disability and lived experiences. The questionnaire had in total 44 responses, and while 2 people were recruited for the observations, they later cancelled their appointments.

For the Design Workshop recruitment was facilitated through the University's Centre for Students with Disabilities, University's Fitness Center and the University's Intranet newsletter. To participate, participants were required to either be: a stakeholder working with, having knowledge of or in the field of disability sport, with or without a disability; or individuals who self-identify as a person with a disability, having participated in recreational sport/fitness.

This study involved completing the Tri-Council Policy Statement (TCPS 2) training and was reviewed and approved by the Carleton University Research Ethics Board-[B] (CUREB-B).

3.3 Method 1 - Online Questionnaire

Questionnaires are a primary method of self-reporting data collection (B. Martin & Hanington, 2012a); that is, they allow people to convey their personal thoughts and perceptions on a given issue. Given their self-report nature, questionnaires, on their own, may not be a very reliable method to deduce the true thoughts or perceptions of individuals (Robson, 2002). Questionnaires are a very common, convenient and low-cost data collection method, however they need to be paired up with other methods of data collection to increase reliability (B. Martin & Hanington, 2012a). Online distribution of questionnaires has proven advantageous and time efficient by reducing the time to transfer data from paper to spreadsheets; it also makes access easier and provides flexibility to the participants (Sharples & Cobb, 2015).

3.3.1 Planning the Questionnaire

The questionnaire for this study had thirteen questions, consisting of close-ended and open-ended questions (see Appendix A.3 to review the questionnaire design). These were designed to gather both qualitative and quantitative data and provide information on the participation of PwD in recreational sport at a higher education facility. Some questions had skip logic applied to them, therefore depending on the participant's response, each participant would have responded to a different number of questions.

The questionnaire was developed as a profile survey (surveys intended to get a snapshot of the demographics involved) (Goodman, Kuniavsky, & Moed, 2012) to better understand the individuals involved (PwD participating in this specific recreational sport/fitness activities). Since we had nominal knowledge about these individuals, the intent was to use the information collected in the questionnaire to reveal characteristics about this audience and extract patterns or outliers that could potentially assist with planning the other qualitative methods (Goodman et al., 2012).

Eight questions were close-ended to identify potential trends associated with participation of PwD in recreation sport/fitness activity at this higher education institute. These questions focused on developing a better understanding of: who is participating, what types of disability they have lived with, how much they participate, where they participate, and what types of fitness activities they participate in. Five open-ended questions were included to allow individuals to comment in depth about their participation habits. These questions were designed to allow them to elaborate on things such as: what is available to them, how they are using what is available, where and how they may not be participating and why.

The questionnaire was created using a web-based service (Qualtrics). This service was selected mainly for its data protection policies and convenient availability through the institution of study. Once the questionnaire was developed on the online platform, a pilot test was run with 5 participants. This was done to counter any unforeseen errors, eliminate leading questions and reduce bias. After receiving ethics clearance, the recruitment emails containing the link to the questionnaire were sent to the 3rd party recruiter to circulate among prospective participants. The questionnaire was active for 6

weeks, to give participants enough time to fill in their responses. A total of 44 participants responded.

3.3.2 Conducting the Questionnaire

Once the participant clicked on the link to the questionnaire, they were asked to digitally consent to voluntarily participate (see Appendix A.2 for questionnaire consent form text) and the questionnaire would only move forward for participants who provided consent. If they did not consent, the participant was brought to a message at the end of questionnaire that thanked the participants for their time. The first question asked the participant if they self-identify as a person with a disability. The questionnaire only continued for participants who self-identified as a person with a disability; any participant who did not self-identify as a person with disability was taken to the same message at the end of the questionnaire. During the questionnaire, participants could exit the questionnaire at any time by clicking on the ‘end questionnaire button’ at the end of the page or by closing the web page. As the questionnaire was anonymous, participants could not withdraw after submitting their responses and this was explained in their consent form (Appendix A.2).

3.3.3 Analysis of the Questionnaire

Analysis of the close-ended questions involved simply “counting” response values and tabulating them to identify potential trends and outliers, if any (Goodman et al., 2012). For the open-ended questions, Saldaña’s (2009) method of cyclical coding was used. Coding enables the organization and grouping of data into categories because of a shared characteristic – filtering raw data into patterns (Saldana, 2009). During the first cycle of coding, ‘Descriptive Coding’ was used, while ‘Pattern Coding’ was used in the second

cycle of coding. Descriptive coding uses a small descriptive word or phrase explaining the overall content (Saldana, 2009); developing the foundation of the qualitative inquiry (Wolcott, 1994). Pattern coding uses the initial codes from the first cycle, pulling together multiple initial codes into more meaningful themes (Miles & Huberman, 1994). The coding was done manually; a key benefit to this approach is being able to identify emergent codes and is also an effective and cheaper way of coding for smaller sets of data (Watermelon Research, 2019). The responses of all the participants were compared to find similarities and key words. To do this the questionnaire data was printed, and different colored markers were used to highlight/underline words into codes. During the second round of coding, I took keywords from each participant's answers and wrote them on individual post-it notes and laid all these notes on a large paper. In reviewing the data a second time and referencing back to the codes developed in the first cycle, I started to categorize the notes into themes which helped start visualizing the themes.

3.4 Method 2 - Design Workshop

Design Workshop is a generative research method, including participatory sessions focused on codesign exercises (Hanington & Martin, 2012a); workshops can provide direct input of stakeholders/end-users through activity-based research. Facilitated by a design researcher, design workshops are a valuable data collection method since they produce tangible evidence; as participants voice their thoughts through more than just verbal or written expression (Kirk et al., 2015). Depending on how you structure your workshop, a design workshop, through evaluative sessions at the end, may offer immediate feedback and verification of ideas, and this contributes to insights for refinement (Hanington & Martin, 2012a).

The researcher planned two workshops – one with fitness instructors and one with PwD and other fitness stakeholders. The first part of the workshop was designed to have individuals reflect upon, from their experience, the ‘Pains’ and ‘Gains’ of a segregated versus integrated design of sport/recreation service model. The second stage involved creating a ‘What If’ scenario where the participants, using their experience and previous discussions envision their ideal fitness facility; discuss the current state of service design in terms of disability sport and what the future should be.

3.4.1 Planning the Design Workshop

With regards to any physical activity, recreational, therapeutic or competitive, we see the presence of facilitators, therapists, coaches and/or trainers. It is important to acknowledge the role these experts play, in guiding their participants. These stakeholders play a crucial role, in guiding both able-bodied persons and persons with disabilities in physical activity while reducing the risk of injury or developing secondary health conditions.

The first workshop was planned for group fitness instructors only to provide them with the opportunity to speak openly about any potentially sensitive challenges they face in providing services to their clients with disabilities which may stem from systemic circumstances/barriers which they feel may be beyond their control. The second workshop would involve potential or actual clients with disabilities and stakeholders related to providing services (fitness instructors, service planners, policy makers, etc.) The workshop was meant to be a diverse platform to discuss challenges or successes people experience and the potential to improve current service models.

3.4.2 Conducting the Workshop

During the workshop, three main elements were discussed, the ‘Pains’, the ‘Gains’ and the ‘What If’ of segregating and integrating participation.

1. Pains: This included anything from hardships and challenges, frustrations, or unpleasant experiences that the client participants had regarding their participation in both segregated and integrative recreational sport/fitness activities. For service provider participants, these included challenges or difficulties they encountered when they wanted to make their services/facilities more accessible.

2. Gains: Contrary to the pains, gains were any form of facilitators, motivating elements, or pleasant experiences/memories associated with participation in recreational segregated and integrative sport/fitness activities.

3. What Ifs: Together, the ‘Pains and Gains’ served to demonstrate the current state of the disability sport culture. In the ‘What Ifs’ part of the workshop, the participants, provided solutions or actions to help define the future state of disability sport culture.

At the start of the workshop, the participant was given an overview of the workshop agenda and provided a consent form (see Appendix B.2 for workshop consent form text) where they consented to voluntary participation and audio recording of the session. The workshop began with personal introductions, an overview of the topic and explanation of the agenda. This included explaining the process, particularly for people who might be attending a design workshop for the first time, defining jargon or terms that might be vague or unfamiliar. The workshop addressed three elements: the ‘Pains’, ‘Gains’ and ‘What If’ of segregated and integrative participation in recreational sport. Through the workshop the researcher aimed to understand the challenges and benefits of both,

segregated and integrative participation. By bringing their knowledge and experiences together, the workshop participant created ‘What If’ scenarios to provide some insight on what participants would like improved and how it might be improved in regard to service planning of recreational sport for persons with disabilities.

3.4.3 Analysis of the Design Workshop

The audio recording of the workshops were transcribed. The text from the transcript was then analyzed for key themes. For the workshop, Saldaña’s (2009) method of cyclical coding was used (as already discussed in Section 3.3.3 Analysis of the Questionnaire). The first cycle of coding was done on each workshop session using Descriptive Coding. Then to bring the information from all the sessions together, Pattern Coding was used.

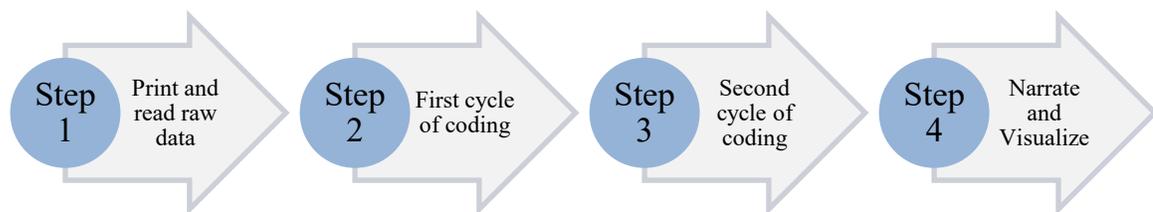


Illustration 11: Summary of Analysis Phases

3.5 Adjustments

The original research plan included participant observations as a method. This method was not completed due to lack of participation. Initially, after the recruitment emails were sent out, 2 participants responded that they would like to participate, but later canceled.

Also, the workshop was planned as a group activity, with multiple participants interacting at the same time, however, to accommodate the different scheduling needs of the participants, 4 sessions were conducted. With a total of five participants, three sessions

were conducted with one participant and one session had two participants. Ideally, the workshop would have clients and other stakeholders interacting together in one session; however, no clients were recruited for the workshop and hence, all the workshops were conducted with subject matter experts.

Keeping in mind the change in the nature of interactions between the researcher and participant(s) and for the clarity of the research methods, the session conducted with 2 participants was conducted as a workshop, while individual participation was conducted as an interview. The workshops were originally planned as group activities; by conducting the workshop with one person the dynamics of a group setting were not established and hence these adjustments were made. The main structure of the workshop (the 'Pains', 'Gains' and 'What Ifs') remained as is, however in sessions where there was just one participant this activity was run more in the style of an interview, rather than a collaborative session.

Chapter 4: Results

This chapter presents the results of each method in detail. Though, cyclical coding was used to analyze the open-ended answers in the questionnaire data, I present here only the results from the second cycle of coding. For more information on the results from the first cycle of coding please refer to Appendix D - First Cycle Coding Results from the Questionnaire. For the Design Workshop, the first cycle coding results from each individual workshop session can be found under Appendix E - First Cycle Coding Results from the Design Workshop. During the first cycle of coding, each workshop session was individually coded as the characteristics of participants differs and their narratives offer a rich perspective on the research topic. This first cycle coding is then revisited to arrive at collective themes that emerge from their narratives (discussed below in this section). The results from each method are synthesized at the end of the chapter into key themes.

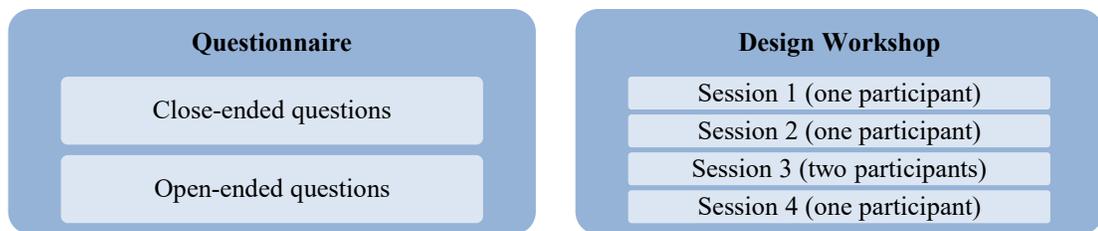


Table 1: Results Categories

4.1 Questionnaire

4.1.1 Overview of recreational fitness participant characteristics – Results from close-ended questions.

The questionnaire had 44 participants in total of which, 38 participants self-identified as a person with a disability and were able to continue with the questionnaire. Four participants did not self-identify as a person with a disability, and 2 withdrew from the questionnaire (Table 2). The number of participants for the questionnaire seem low if compared to the number of students registered with the University’s Centre for Students with Disabilities. Around 3700 students registered with the University’s Centre for Students with Disabilities. Relating this to the Standing Senate Committee on Human Rights (2012) that state 3 per cent of individuals with disabilities may be participating in physical activity, a total of 140 out of 3700 could be participating in physical activity, however only about 1/3rd (44 participants) responded.

1	Yes	90.48 %	38
2	No	9.52 %	4
			42

Table 2: Do you self-identify as a person with a disability?

Participants were then asked which disability group they identified as. Out of the 38 participants, 23 identified themselves under more than one disability, while the other 15 self-identified with having one disability. At 24 participants, mental health was the most frequently identified disability. Amongst these 24 participants, only 6 participants individually identified as having a mental health disability, while the other 18 identified with mental health plus one or more disability (Table 3).

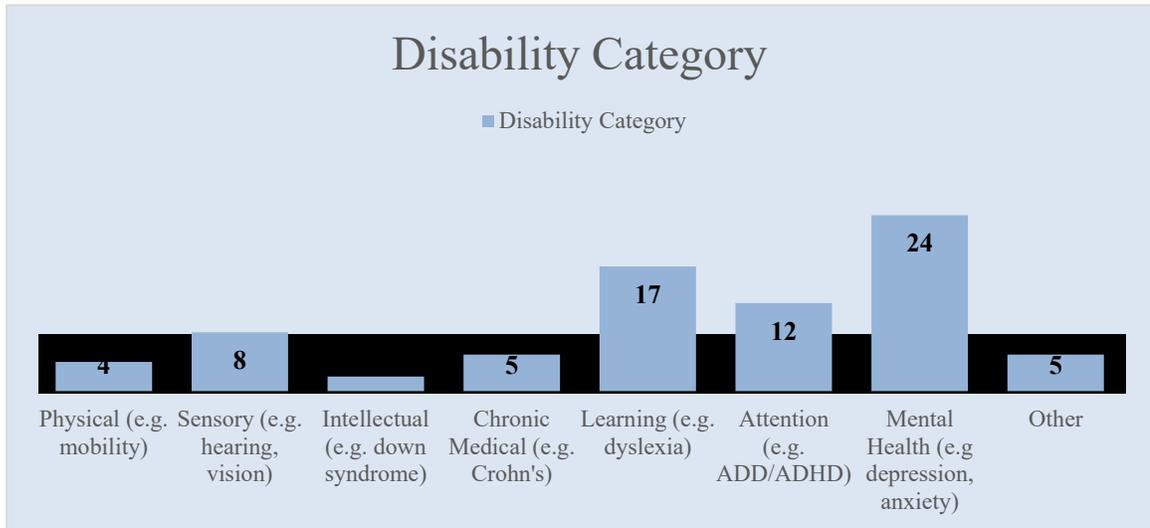


Table 3: What disability category/categories do you identify with?

Of the 38 participants, 37 reported having participated in some form of recreational sport/fitness activity in general. These 37 participants were then asked about their participation at their higher education facility, of which 26 participants (70%) responded that they did participate in recreation at their higher education facility (Table 4).

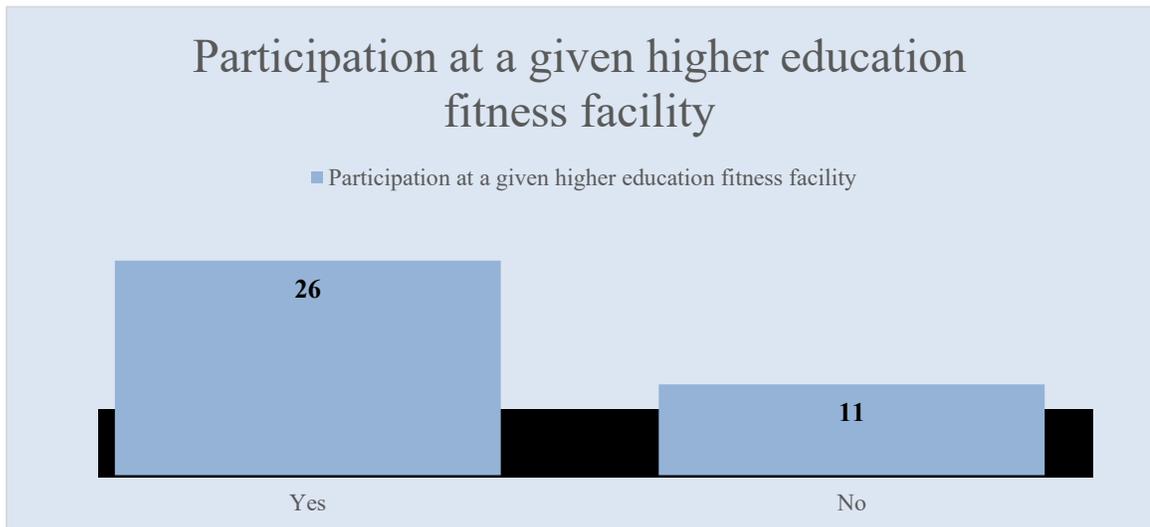


Table 4: Participation at a Higher Education Fitness Facility

Of the 26 participants who had participated in recreational sport/fitness activities at their higher education facility, the frequency of participation was as follows (Table 5):

- 14 participated once a week;
- 3 participated only once;
- 8 participants checked other instead of the predefined categories and answered:
 - 3 participated 5 to 7 times a week (everyday);
 - 2 participated 2 to 4 times;
 - 1 participated biweekly;
 - 2 had previously participated but currently are not participating; and
- 1 never participated (we can only assume they had participated at one point but no longer participate and this points to perhaps a deficiency in the questionnaire design).

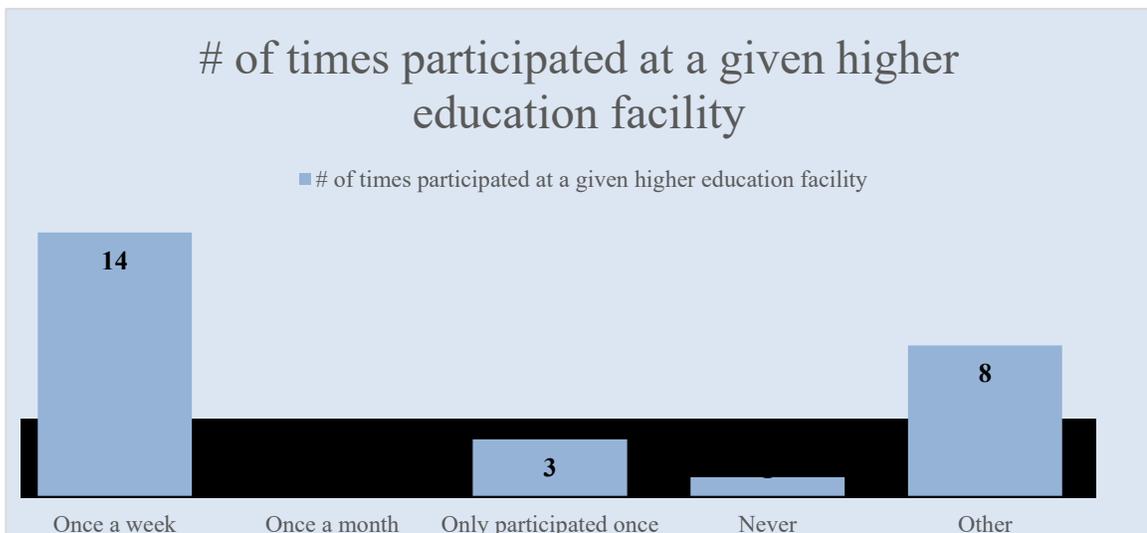


Table 5: Number of times participated in a recreational sport or exercise activity/session

When asked if they had participated in recreational sport/fitness activities at their higher education exclusive to people with disabilities, 100% of participants said no (Table 6).

1	Yes	0 %	0
2	No	100 %	26
			26

Table 6: Participation in exclusive recreational fitness activities at their higher education facility

When asked if they had participated in recreational sport/fitness activities at their higher education facility which are inclusive (including mainstream users and people with disabilities), 84% of the respondents (21 participants out of 25) said yes while 16% of the respondents (4 participants out of 25) said no (Table 7).

1	Yes	84 %	21
2	No	16 %	4
			25

Table 7: Participation in integrative recreational fitness activities at their higher education facility

When asked if they wanted more inclusive and integrative recreational sports/fitness activities at their higher education facility, 80% of the respondents (28 participants out of 35) said yes while 20% of the respondents (7 participants out of 35) said no (Table 8).

1	Yes	80 %	28
2	No	20 %	7
			35

Table 8: Need more inclusive and integrative recreational fitness activities at their higher education facility

4.1.2 Overview of participant comments on preferences in recreational fitness – Results from open-ended questions.

4.1.2.1 Open responses to Question # 4: At what place/places did you participate in this recreational sport or exercise activity/session?

Thirty-six participants answered the question. Each participant wrote about one or more place(s) that they had used to participate in a fitness activity. For first cycle of coding to this question see Appendix D.1 (Table 22).

Results from the second cycle of coding

After going through the data again word by word and using second cycle coding to refine the categories, two key higher-level themes emerged describing factors related to participation: 1. Type of Environment and 2. Type of Activity. Though the intent of the question was to understand the types of facilities people use, types of activities they participate in came as supplemental theme in their narrative (Table 9).

Category	Subcategory
Type of Environment	School
	Higher education facility
	Home
	Outdoors
	Community centers
	Leagues and clubs
	Other
Type of Activity	Gym
	Hockey
	Dance
	Yoga
	Aquatics
	Other

Table 9: Second Cycle Coding to Question # 4

A key finding influencing current levels of participation in recreational fitness from Question 4 was participation in the early years of schooling, primarily high school. A lesser number of participants responded “at home” or in “the general outdoors” as their environment of participation (Table 10).

Participants' responses to Question 4 also revealed the specific type of fitness activities they choose to participate in. Gym, which includes using machines to exercise and weightlifting, was a popular choice with 15 participants. Yoga was the second choice with 10 participants. All other activities had lower numbers (Table 11).

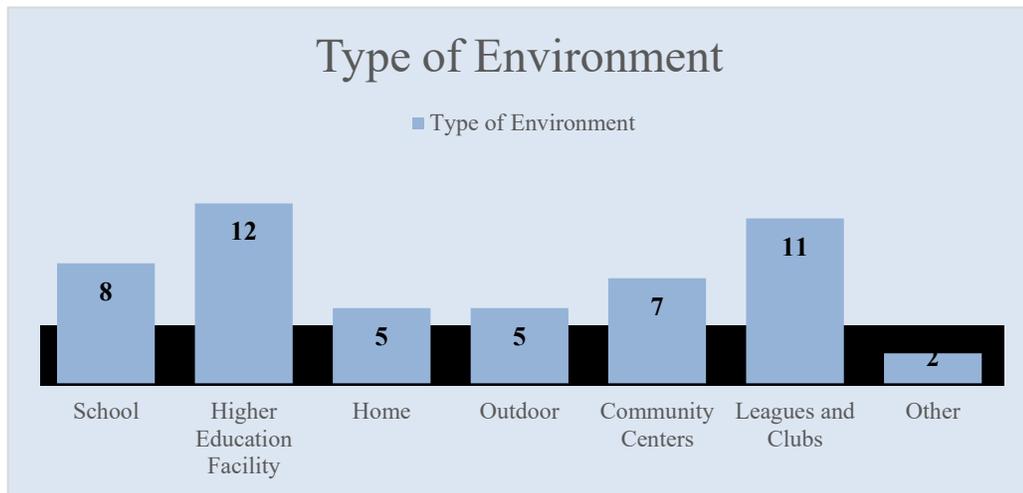


Table 10: Category – Type of Environment

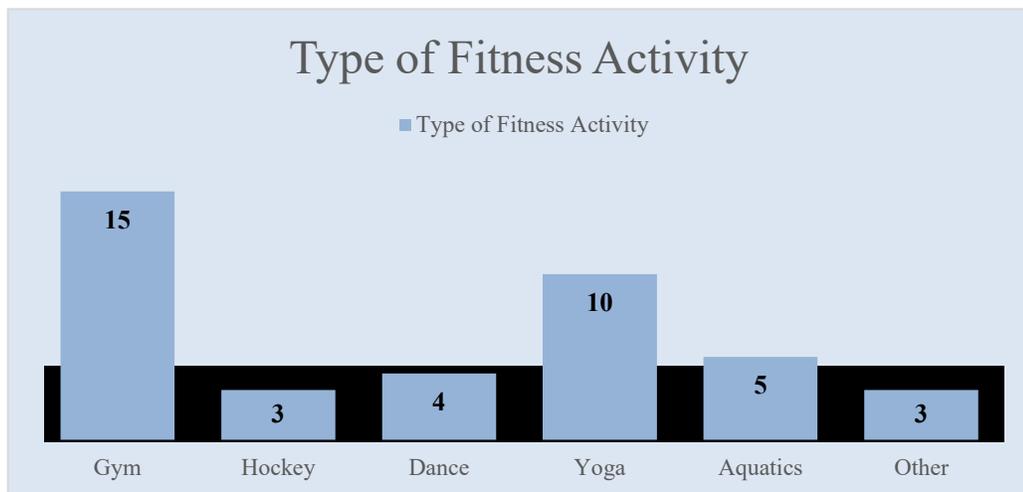


Table 11: Category – Type of Activity

4.1.2.2 Open responses to Question # 7: What type of recreational sport or exercise activity/session did you participate in at the higher education fitness facility?

Twenty-six participants answered this question with each participant writing about one or more recreational sport that they had participated in. For first cycle of coding to this question see Appendix D.2 (Table 23).

Results from the second cycle of coding

After reviewing the data word by word and refining the categories along the way. Under the theme of “Type of Activity”, multiple subcategories were created (Table 12)

Subcategory	Explanation
Gym	This category included the words gym, workout, weight lifting, cardio machines, and weight training.
Intramural	This category included team sports such as hockey, football, dodge ball volleyball, basketball. It also included the term intramural when mentioned on its own.
Group Fitness	Participants mentioned the term group fitness; in some cases, participants mentioned particular group fitness activities, which were also included in this category. Some popular group fitness activities were Yoga, Zumba, Kickboxing, and Dance Classes.
Aquatics	This included the mention of swim team, swimming, pool and similar terms.
Other	Some special activities were included in this category such as Archery, Mixed Martial Arts, and Muay Tai.

Table 12: Second Cycle Coding to Question # 7

Participants’ responses to Question 7 showed a more diverse list of fitness activities.

Participation in the group fitness activities was highest, while participation at the gym and in intramurals/team sports followed close behind (Table 13).

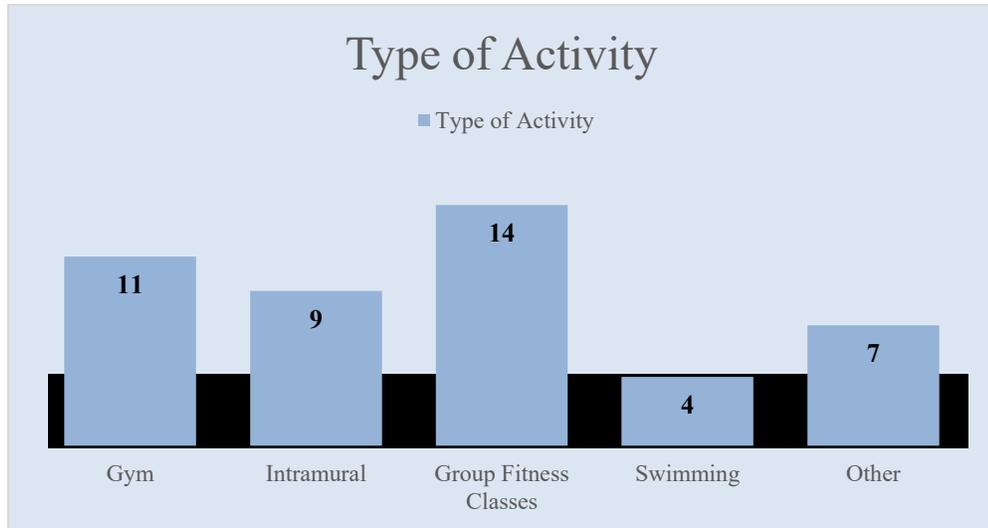


Table 13: Category – Type of Activity

4.1.2.3 Open responses to Question # 12: If given the chance, what type of recreational sport or exercise activity/session would you like to participate in?

Thirty participants answered this question. Each participant wrote about one or more recreational sport that they wanted to participate in. For first cycle of coding to this question see Appendix D.3 (Table 24).

Being an open-ended question, the responses also included some suggestions and improvements based on participants' experiences. Therefore, these comments were separated from the list of activities and were categorized separately. As suggestions may connote dissatisfaction with the current status, we report them here as they may indicate some barriers and/or challenges participants are experiencing. Some interesting examples of participant comments are included below (Table 14):

P4

I would like the gym to not blast music because sensory issues and to be better climate controlled

P14	<i>A class or tutorial on how to build a better workout schedule and plan</i>
P24	<i>Something aimed at supporting people with mental health issues via exercise</i>
P28	<i>Group exercise for people who get anxious in groups; guided workouts for people who are still kind of scared of the gym staff</i>
P29	<i>I would ask that we have the opportunity to work with trainers in the gym- we often don't feel welcome and therefore our ability to learn about the gym and feel comfortable is minimized. Perhaps a group training session?</i>
P35	<i>Horseback riding, or basketball. It is hard to search for clubs on campus.</i>

Table 14: Excerpts from the Questionnaire Data (Question 12)

Result from the second cycle of coding

Referencing back to the codes developed in the first cycle and refining the categories along the way, two main categories were created to group the participants' answers. First category was "Type of Activity", showing the popularity of a few fitness activities. Second category was "Improvements" which developed from the suggestions by the participants.

The subcategories under "type of activities" that participants wished to be involved in were as follows (Table 15);

Subcategory	Explanation
Gym	Mention of strength training, weightlifting and spinning.
Intramurals	Team sports such as softball, touch football, badminton, basketball and dodge ball; also mention of intramurals, team sports or non-competitive participation
Group Fitness	Mention of fit-pass, fitness classes, group classes, yoga, dance classes
Swimming	Mention of swim team, swimming and pool

Winter Sports	Mention of skiing and skating
Other	Mention of archery, martial arts, cycling, track and field

Table 15: Second Cycle Coding to Question # 12

Participants showed the widest interest in Intramurals which had 8 instances of occurrence, group fitness activities being shortly behind (7 times). As Question 12 was related to participants’ desire to participate, participants mentioned some unique activities that they wished to participate in (Table 16).

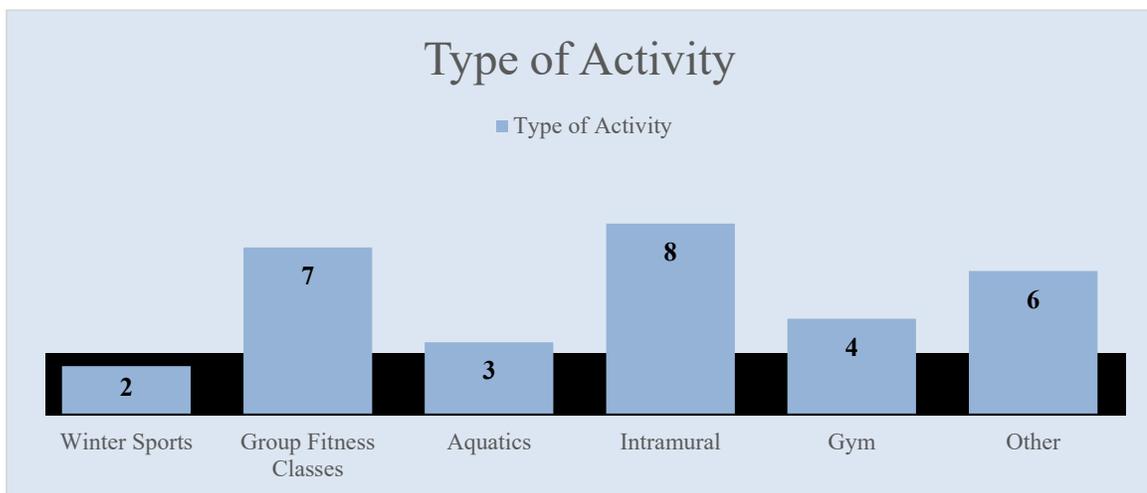


Table 16: Category – Type of Activity

Apart from the preferences for activities, participants had general comments regarding improvement of the fitness facility and were classified in the following subcategories:

Subcategory	Explanation
Climate and Environment	Includes comments related to managing the climate and environment within the fitness facility which includes but was not limited to sound control, particularly the volume of the music
Lack of skill	Includes comments that reflected or expressed the need of opportunities to learn how to exercise
Intimidated by the trainers	Includes comments related to feeling unwelcomed at the gym or being scared of the trainers
Guided focus on mental health	Includes comments on the impact of anxiety on participation and suggested that measures be taken to support people who are anxious; particularly when they feel unwelcomed by the fitness facility staff

Lack of information

Includes comments related to being able to find information regarding clubs and leagues

Table 17: Category – Improvements**4.1.2.4 Open responses to Question # 13: Please list any other relevant information that you would like to share about your participation in recreational sport or exercise activity/session.**

Twelve participants answered this question. Some interesting examples of participant comments are included below (Table 18). Some comments may appear harsh but are useful in understanding participant experience. For first cycle of coding to this question see Appendix D.4 (Table 25).

P4	<i>I also think that there is a misogynistic whitewashed gym culture at this facility I would like erased</i>
P14	<i>The Gym was always too crowded, so I started going elsewhere.</i>
P26	<i>I have severe anxiety, so I feel uncomfortable out in public or alone at night (I was stalked for years)</i>
P28	<i>If there were more options for people with joint pain, my spouse would have been able to join me</i>
P29	<i>I think that if we had more core strengthening classes that address the stress on students' bodies (stress, poor posture, loss of core strength) that would be great!</i>
P30	<i>More support people available for activities for people with severe disabilities. An overhead sling type lift would be more helpful for people with a severe mobility impairment. More varied service hours not during class time</i>

P33	<i>Th facility is not the place to participate in rec sports. It has a "bro" culture that can be real toxic. Also, the gym is really busy during the school year.</i>
P34	<i>I don't feel comfortable with the facilities gym because its co-ed</i>
P42	<i>I know this has been done, but I really, really wish there was a woman's only space. I'm really, really self-conscious about myself. OR if there were classes/spaces specifically for users with disabilities.</i>

Table 18: Excerpts from the Questionnaire Data (Question 13)

Results from second cycle of coding

Referencing back to the codes from the first cycle and refining the categories, some key themes emerging from participants’ suggestions can be categorized as follows (Table 19):

Category	Explanation
Climate	Issues concerning the indoor temperature of the fitness center, particularly the fitness center being hot and making the participants nauseous.
Social Environment	Participants used terms such as “misogynistic”, “whitewashed” and “bro culture” to comment about the social environment of the fitness center.
Self-Image and Sense of Security	Participants are self-conscious for reasons such as severe anxiety, feeling uncomfortable out in public, because the facility is co-ed; expressing a desire for a woman's only space.
Support Services	This category includes discussions around support by staff members to help people with disabilities and support through product and technology (such as an overhead sling for transferring people).
Overcrowded	Concerns about the gym being crowded, particularly during the school year.
Support for Family	Participants wanted more options for targeted or focused classes to be able to participate with their family member (e.g. spouse) with disabilities.
Stress on students	Recommendations to have classes that address the stress on students’ bodies.
Varied options for PwD	Participants discussed the need for classes/spaces specifically for people with disabilities, with more varied service hours.

Table 19: Second Cycle Coding to Question # 13

4.2 Design Thinking Workshop and In-depth Interviews

4.2.1 Participants of the Workshop

(W_P1)	The participant is a Yoga and Zumba group fitness instructor at a higher education fitness facility. The participant describes yoga as a meditation practice with body movements while Zumba is high energy dance routine to upbeat music.
(W_P2)	The participant is a person with a mobility impairment which was caused by spina bifida, a birth defect. The participant is now a fitness trainer and runs their own fitness center.
(W_P3)	The participant is a fitness instructor at a higher education fitness facility and also, works as a program coordinator (management position) with the higher education fitness facility.
(W_P4)	The participant was a sports therapist, now working in a management position with the higher education fitness facility.
(W_P5)	The participant is an alumni relations manager at a higher education facility and has been a sports coach outside of the higher education facility for many years.

Table 20: Overview of the Workshop Participants

4.2.2 Collective Results of Design Workshop Sessions – Key Themes

For first cycle of coding from each individual session refer to Appendix E. Below are the seven key themes that were identified collectively from the individual design workshop sessions.

4.2.2.1 Theme 1 - Reasons for Segregation

The participants discussions were very comprehensive and covered a wide range of barriers and facilitators that may lead to segregated participation.

While comparing group fitness to personal training, fitness instructors commented that group settings have more challenges as it requires management of and adjustments for multiple people at the same time; other factors such as *Time Constraints*, including limited time to conduct a fitness session (about 45 min to an hour), limited time for

preplanning or preparing or in some cases no direct connection with the clients ahead of time and hence instructors cannot preplan.

Other barriers included *Financial Constraints*, where participation can be expensive due to membership cost, transport cost and in some cases cost of hiring a personal support worker. *Safety and Security* being another barrier, where safety of the participant or peers might serve as factor promoting segregation; in some cases, these safety concerns may be due to a personal support worker following a person with disability within a fitness space or sport area (on the field etc.). For some disabilities, such as intellectual disabilities, where participants might not be able to decide or advocate for themselves, security issues can limit their participation in integrative settings. Workshop participants explain that criminal checks are required for working with people with disabilities, and in integrative settings it can be difficult to obtain these criminal checks for peers or other support workers or family members coming in with a person with disability.

Challenges associated with the move from segregated to integrated participation include General *Attitudes* of people managing and running the spaces and activities; fitness instructors state that participants with disabilities may not be able to keep up with mainstream users. These attitudes combined with *Fear* of injury, felt by both instructors and participants, can hinder participation in fitness activity; where instructors feel that they might injure the participant and participants feel that physical activity might injure them and increase the intensity of their disability. Fear is an overlapping category and is discussed more later as well. *Scheduling* and *Availability* of instructors can affect the organization of fitness sessions for people with disabilities; where preference is given to mainstream users. It is argued that, in some cases, people with disabilities may not be

able to follow routine or schedules because of the emotional or physical distress their impairment may cause; affecting regular participation.

Some facilitators that lead to segregated participation to fitness activities are *Comfort and Convenience*, where workshop participants believe that generally children with disabilities get used to being segregated and build friendships with other children with disabilities and are more comfortable participating with these friends; and *Easier Instruction*, where fitness instructors find it less challenging to work with people with disabilities in segregated settings or one-on-one basis. In segregated settings, instructors can provide more individual attention.

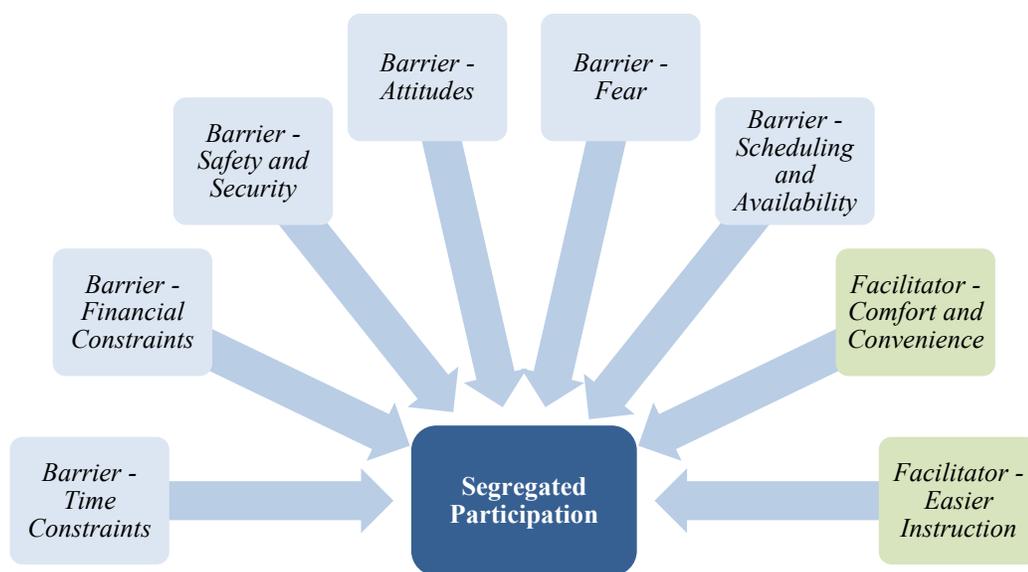


Illustration 12: Reasons for Segregated Participation

4.2.2.2 Theme 2 - Reasons for Integration

Workshop participants discussed a number of positive aspects of participating in group fitness activities, such as; *Group Dynamics* allows the person to not look out of place

will doing their fitness routine (everyone is exercising); and group settings also develops life skills such as comradery, teamwork, and is overall beneficial to the human spirit.

Integrated settings were seen as a *Community Development* opportunity, allowing people to create a family outside their house; finding peers to talk to and supporting building of new relations. These opportunities for people to interact with other people *Support Mental Health and Wellness*; this was corroborated by each workshop participant.

In relation to participation opportunities, workshop participants discussed that in integrated settings more people can participate together, this increases the pool (# of clients) of people and the management is able to offer more times or other activities; *Wider the Pool, Wider the Opportunities*. On the contrary, it is also believed that segregated settings, limited to people with disabilities have a very small target audience; this makes it difficult to sustain segregated programs. In relation to the financial constraints, integrated participation allows for *More Funding Opportunities* (government or private), as there is more funding for able-bodied/mainstream sports or for activities that have a larger interest from people.

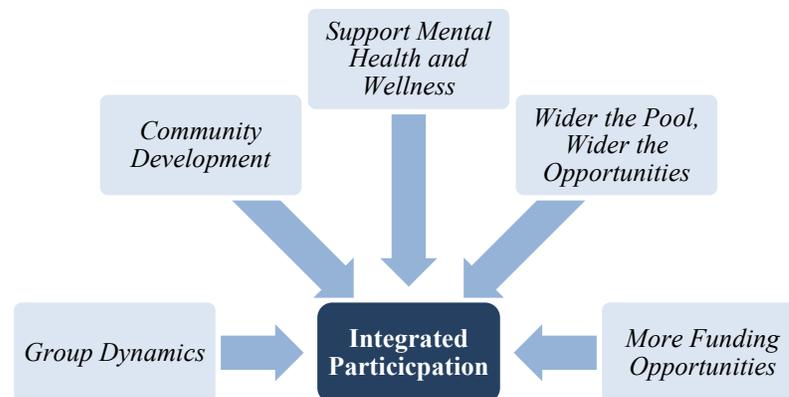


Illustration 13: Reasons for Integrated Participation

4.2.2.3 Theme 3 - Fear, Misconception and Communication

Fear was a reoccurring theme, discussed within different contexts. Workshop participants narrate that people with disabilities may have a *Fear of Injury*, particularly children with disabilities whose parents are scared that their child might get hurt. Parents of able-bodied children may have similar fears where they feel scared for their child if another child with a disability playing on the same team as their child; fear of being harmed or injured as a result of the child with a disability playing or performing incorrectly. Similarly, fitness instructors fear that they may become the cause of injury to a person with a disability; this may also lead to a *Fear of Liability*. The fear instructors face may come from an inadequate knowledge to work with people with disabilities (discussed in detail under Job Design). No previous experience or knowledge to rely may make it more intimidating to work with people with disabilities; fitness instructors may be embarrassed of making mistakes. Fitness instructors also don't want to embarrass people with disabilities, particularly in a group setting, by making them do something that doesn't work well; this may lead to a *Fear of Embarrassment* and may demotivate, both, the instructor and the participant.

Fear of Communicating Freely may be associated with asking questions or using terms that may seem or be perceived as insensitive; fitness instructors may feel hesitant and intimidated to communicate freely with the participant. Similarly, the participants may be reluctant to communicate freely because of the belief that they might be judged on their ability. Sometimes *Unrealistic Expectations of the Coaches*, particularly by parents with disabilities can lead to a conflicted relation between the parent and coach; as parents

might believe that the coach is responsible for just their child as opposed to all the children.



Illustration 14: Fear, Misconception and Communication

4.2.2.4 Theme 4 - Aspects of Design

Course Design is involved with the field of recreational fitness in two keyways; 1) Courses and Modules for fitness trainers as part of their education, and 2) Program Design or Planning done by the fitness instructors for their clients.

There are a lot of fitness trainings and certifications available, however, participants reported that the courses lack in depth information relevant to involving PwD's. These courses are ineffective as they only teach with a focus on able-bodied individuals (mainstream users) and hence the instructors are not exposed to the challenges involved with modifying workouts. Participants reported that fitness instructors do not get enough guidance, through their courses, on how to know or ask the right questions to develop a better understanding of their clients with disabilities and their goals. This deficiency in course design reduces the fitness instructors' ability to develop a better understanding of

their client's constraints and limitations, which in turn, impacts the development and design of fitness programs designed for PwD. It also impacts the overall ability of the fitness instructors to modify fitness moves, adapt equipment and or adapt the sport to the individual.

After Course Design, *Job Design* becomes a key factor impacting client experience at a fitness facility. Though existing courses for fitness instructors lack specific information regarding working with people with disabilities, fitness facilities also do not provide training opportunities that support instructors with their continued education and learning process. Fitness instructors are also hired as part time trainers (either working at multiple fitness centers) or fitness training is the instructor's second job while they do another full-time job somewhere else. This is very common for group fitness instructors who teach their fitness activity at many different fitness facilities. This effects the focus on the clients at a particular fitness center, as instructors only see them once a week; this also reduces the time for pre-planning and getting to know your participants as instructors who might have too much on their plate. Consequently, preference is mostly given to fitness sessions for mainstream users and anything else (e.g. segregated sessions for people with disabilities) are either cancelled or not scheduled because instructors work part-time and are only available for reduced time. Workshop Participants see benefits of having at least one coach or fitness instructor who is trained in adaptive fitness available in every working shift at a fitness facility; particularly at higher education centers where disability centers support education for all, so that registered students get an all rounded university experience as opposed to just taking courses.

When discussing product and technology, workshop participants agreed that there are many adaptive products available in the market now, however a key concern was related to *Instructional Design*, that is, the design of instructions, manuals and so forth related to the products. It is believed that adaptive equipment is not always used to its fullest potential as people do not understand how to use these products. Participants reported this could include having more visuals or poster placed within the fitness centers to explain the use of product. This benefits the clients of the fitness facility, but also benefits the instructors to recall fitness moves and prompt creativity to use the equipment.

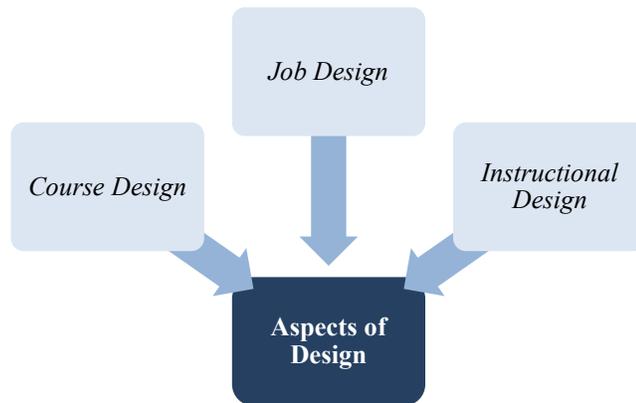


Illustration 15: Role of Design

4.2.2.5 Theme 5 - Aspects of Service Design

To start with, workshop participants discussed the overall *Structural Accessibility* needed to plan and conduct fitness services; this included the overall built environment and specific accessibility features of pools, saunas, open spaces, activity rooms, tracks etc.

Having *Adaptive Fitness Equipment* at the fitness center was also associated to better service provision. Workshop participants believe that lack of information regarding what people want can make it difficult to *Plan for Fitness Activities*; and since its already

difficult to know what people want, getting to know what people can or cannot do can become a significant challenge. Other factors such as *Resource Management* can also affect program development; where resources may be in the form of equipment, space, time and or creative planning. *Promotion and Publicity* is important as many people with disabilities or their families are unsure of where to participate in fitness activities; being vocal about the accessibility of a fitness center and what are some of the services offered; this might invite people to come talk or voice their requests and concerns about accommodations. It is also important to understand that service providers and organizations shouldn't make determinations about how a person can participate or what a person can and cannot do, but rather, it should be up to the person; people with disabilities should determine their own physical limitations and be vocal about the required accommodations. This reflects the *Importance of Choice*.

Diverse Hiring Practices and reflection of people with disabilities is important as this may promote awareness and acceptance of recreational fitness for PwD and will also attract and encourage more people with disabilities to participate in fitness activities. PwD need to see themselves reflected in other people at the fitness facility; not only in peers but also in instructors and other support staff etc. Hiring practices (also related to *Job Design*) should also review the educational background of prospective hires and prioritize people who are specifically trained in adaptive fitness. This reflection might communicate the concept of integration and also allow for more open communication; as instructors with disabilities might be more comfortable asking questions regarding client's disability; and similarly, participants with disabilities might feel more comfortable discussing their disabilities and fitness goals.

Finally, *Public Relations and Collaboration* are key for promoting the services that are available. Collaboration may include working with other facilities, clubs, disability centers and societies on-campus and off-campus; this also provides a platform to exchange knowledge and learn from what other places are doing in regard to adaptive fitness. Workshop participants also mentioned a few grassroots facilities that serve smaller communities, but since collaboration among larger facilities is minimal, people remain unaware of what types of activities are available at a community level.

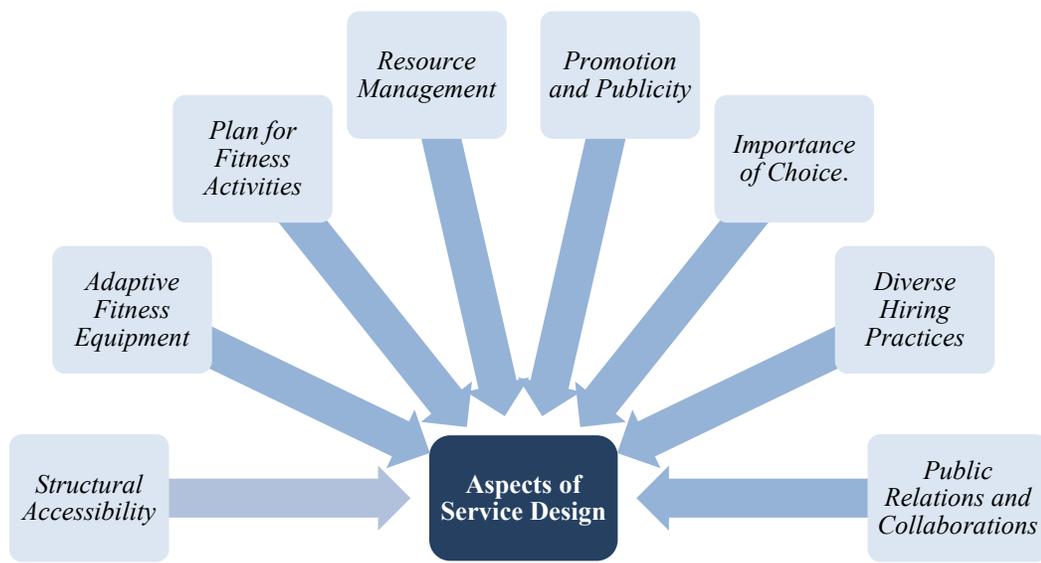


Illustration 16: Aspects of Service Design

4.2.2.6 Theme 6 - Role of Higher Education

The need for a *Holistic Experience* while at the higher education institute was discussed. Students compare their experiences with their peers or friends; also, participation as a group of friends is more popular, therefore it is important that all aspects at a higher education institute support group participation. The experiences of the students inform their perception of the higher education institute and effects the overall reputation of the

institute; the better the university experience of a student, the more likely it is that they'll stay connected after graduation. This cultivates better *Alumni Relations* and leads to more donations and funds or scholarship setups, funding which may foster further development in sport and recreation for persons with disabilities.

4.2.2.7 Theme 7 - Role of Communities, Families and Individuals with Disabilities

Workshop participants emphasized *Early Age Participation*. Children with disabilities require a positive attitude from their parents to motivate the child about their ability rather than focus on their disability at an early age. This could include children with disabilities going to fitness centers with their parents. However, workshop participants also discussed that parents of children with disabilities fear fitness activities will injure their child; this needs to be addressed to foster early age participation. Participants reported that parents should try and find appropriate fitness activities for their child with a disability; giving the child the experience. This may develop a habit of being active that can last a lifetime and lead to continuous participation at their higher education level.

Participants expressed that individuals with disabilities choosing to participate in recreational fitness should be able to advocate for themselves. This may help reduce communication barriers and support the effectiveness of instructors by involving the clients in decisions related to their fitness goals and performance. It is important that people with disabilities are somewhat aware of their abilities; know what they can and cannot do which falls under the importance of *Understanding Your Own Disability*.

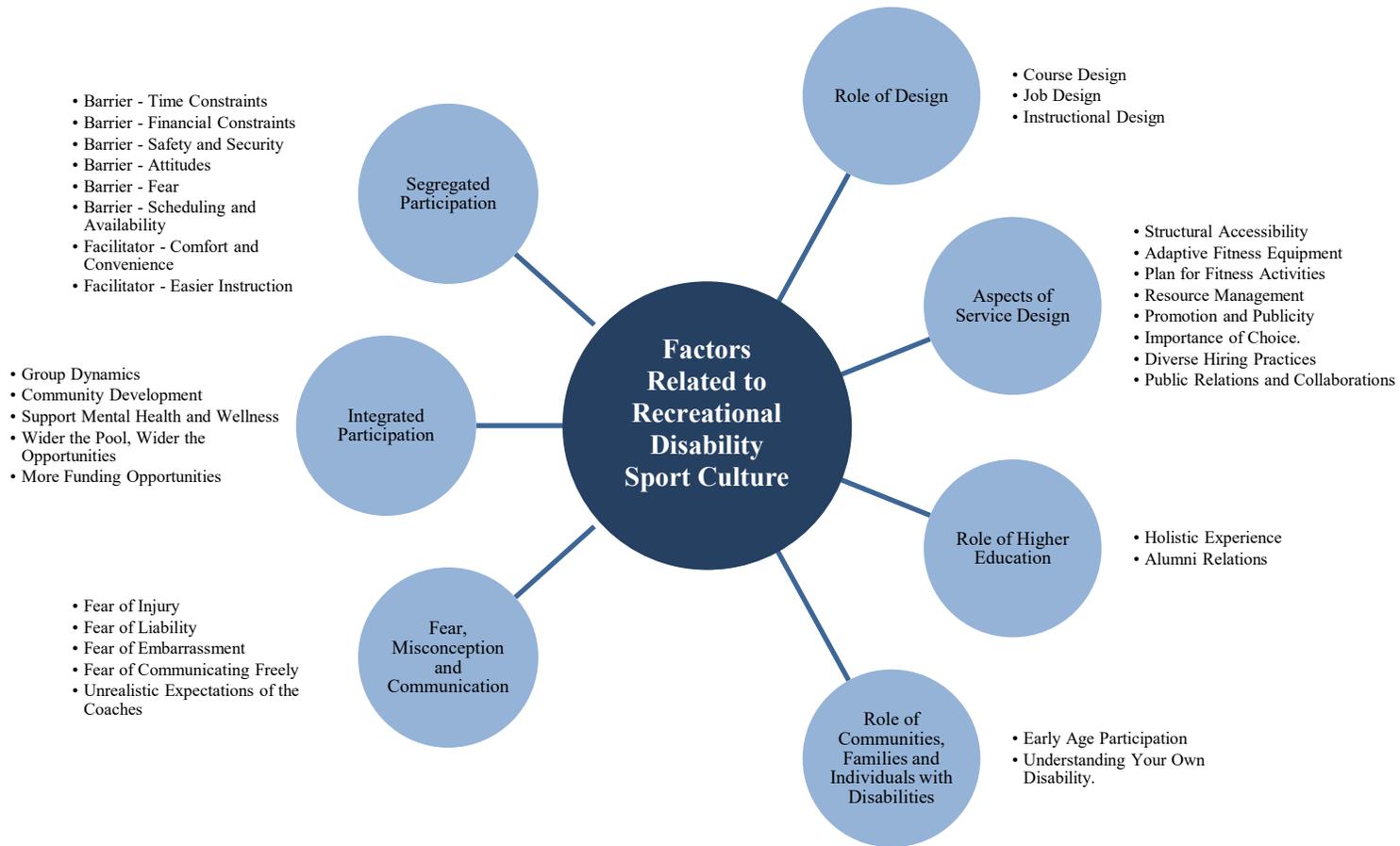


Illustration 17: Summary - Workshop Findings

Chapter 5: Discussion

5.1 Overall Interpretation

This chapter discusses the results in reference to the research goals and questions described in Chapter 1 and the literature review presented in Chapter 2. The final interpretive framework for this study concludes this section of the thesis.

It is important to note here that the sample size for this research study was small, and most of the participants identified as people with mental health disabilities. Therefore, the results of the study are not generalizable, but rather, highlight the narratives of real people with mental health disabilities whom have experienced this fitness service. Such narratives and voices are important to consider in preliminary studies in accessible and inclusive sport as they can inform the creation and implementation of future research studies.

5.1.1 Research Goal 1: Realizing the importance of physical activity and sport participation for people with disabilities.

Question 1.1: What is the importance of recreational sport for people with disabilities?

The results of this study supported by the literature on sport and recreation for persons with disabilities reveals many benefits to recreational fitness for this population. The most noticeable benefits are associated with physical and mental wellbeing. With regards to physical health, participants emphasized general physical health benefits such as keeping weight down, improving digestion, building body flexibility, release of toxins through perspiration and improving skin condition; these benefits can be related to the

prevention of secondary health conditions (van der Ploeg, van der Beek, van der Woude, & van Mechelen, 2004; Wilhite & Shank, 2009). Improved mental health was associated with social integration and being able to interact with other people. From the 44 questionnaire participants, 24 identified as having a mental health concern and were participating in fitness activities of some sort. Questionnaire participants also commented how they would like to participate in fitness sessions that can mitigate anxiety and stress. Similarly, workshop participants commented that participation in fitness helps with anxiety, depression, stress and sleeping problems. These reports are supported by the literature where scholars have emphasized the mental health benefits of fitness participation (Giacobbi et al., 2006; Latimer et al., 2005; Sport England, 2002). The relationship of participation in fitness activities and improved physical and mental health is crucial as poor physical and mental health burdens public health (Sport England, 2002; van der Ploeg et al., 2004).

Camaraderie, teamwork, motivation, developing an everyday routine, developing better eating habits and developing social skills are some life skills that can be improved through participation in fitness activities, as discussed in the Design Workshops. These skills may contribute to a sense of belonging, nurturing and promote wellness, as well as improve one's chances of employment, and independent living (Caldwell, 2005; United Nations, 2005); thereby improving one's overall quality of life.

5.1.2 Research Goal 2: Understand the barriers and facilitators to recreational physical activity for people with disabilities.

Question 2.1: What are the existing barriers and facilitators to participation in recreational sport for people with disabilities?

The literature review uncovered a range of barriers and facilitator to participation in recreational fitness. Some of the barriers and facilitators found within this study overlap with the existing literature. Using the ICF model (World Health Organization, 2001), barriers and facilitators that are of most relevance to the study of service design are discussed under contextual factors which are comprised of environmental and personal factors.

Contextual Factors – Barriers

Environmental Factors

Most participants seemed to believe that though structural accessibility is important, most fitness facilities are already following regulations and are doing well with structural accessibility; however, they can always keep improving the built structure. This suggests the acceptance of accessibility in terms of built structure; moving towards normalization of accessibility. Contrarily, the literature still suggests that fitness facilities are inaccessible in term of their built structure (French & Hainsworth, 2001; Rimmer, Riley, Wang, Rauworth, et al., 2004)

Scholars have also discussed other built environment characteristics such as temperature, lighting, and noise that hinder participation (Rimmer, Riley, Wang, Rauworth, et al., 2004). Related to this, questionnaire participants provided comments about the ‘gym being hot’ or issues with ‘loud music’ which provides some validation for this concern.

However, the discrepancies around what constitutes ‘accessibility’ in the built environment makes one wonder about the understanding of people regarding what accessibility features are included in assessing the built environment.

With reference to environmental factors, the attitudes of people managing and running the spaces and activities was addressed as a barrier to participation in this study as well as the existing literature (Heller et al., 2002; Law et al., 1999). People with disabilities perceive that a lack of knowledge about PWDs relative to sport and recreation causes employees at fitness centers to view accessibility as unimportant (Rimmer, Riley, Wang, Rauworth, et al., 2004). These attitudes and perceptions may be due to lack of knowledge and preparation (Lieberman & MacVicar, 2003). Similarly, this study found evidence of this lack of knowledge resulting from ineffective course material and training available to fitness instructors; and teaching models focused on working mainly with able-bodied individuals. This limited training and learning may contribute to the lack of knowledge which in turn becomes the cause of stigmas and negative attitudes. Lack of knowledge also inhibits the fitness instructor’s ability to fully understand the constraints and limitations of their clients which in turn impacts the development and design of fitness movements, accommodations and modifications for PwD.

Parents of children with disabilities have expressed that “indifference and lack of disability awareness of recreation providers” acts as a barrier (Kathleen G Scholl et al., 2003). This was seen in some comments from the questionnaire participants expressing that they are ‘scared’ of the gym staff. The fitness staff is there to help participants; however such feelings can obstruct the communication and relation between the fitness instructor/staff and the client. Contrarily, fitness instructors are also scared of injuring or

hurting the client with a disability. A thing to question here is whether increased information and better learning processes for fitness instructors might reduce these fears experienced by fitness instructors. Another barrier discussed in the literature was the unavailability of the necessary adaptive equipment, making participation in physical activity difficult for PwD (Lieberman & MacVicar, 2003; J. J. Martin, 2013). Similarly, questionnaire participants felt that there was a need to have more adaptive equipment for clients with severe disabilities, while workshop participants discussed the need to support knowledge regarding the use of adaptive equipment. The study revealed that financial constraints can impact participation, where expenses related to memberships and registrations, transportation, and in some cases, hiring of a personal support worker may contribute to the increased cost of participation.

Personal Factors

An unexpected, personal barrier in considering accessibility in sport and recreation that was identified during the study was the importance of having a 'sense of security'; some clients expressed needing to feel safe in the environment they are participating with some participants emphasizing gender-based concerns. This did not figure prominently in the literature. During the questionnaire, participants comments related to anxiety, shyness, being uncomfortable in public, scared of gym staff - all relating to a 'sense of security'. Somewhat related, the importance of safety of clients was discussed in the workshop. If clients don't feel safe in an environment, they might end up leaving that unsafe environment. This 'sense of security' could also apply to the fear of injury clients with disability may feel. Comments from the questionnaire reveal that participants want to share fitness experiences with their partners (spouses with disabilities); support from

family members can encourage and motivate people with disability. Participating in fitness with family members may support the client's overall sense of security, and family members can also act as peers participating in fitness. Similarly, the literature expresses that a lack of peers to participate can act as a barrier to participation (Lieberman et al., 2007).

5.1.3 Research Goal 3: Study the accessibility and availability of sports for people with disabilities at a specific higher education fitness facility.

Question 3.1 What are the general trends of participation in recreational sport/fitness activity of people with disabilities?

Out of 38 questionnaire participants, 23 identified themselves under more than one disability, while the other 15 self-identified with having one disability. At 24 participants, mental health became the most frequently identified disability. Amongst these 24 participants, only 6 participants individually identified as having mental health concerns, while the other 18 identified with mental health plus one or more disability. Only 4 people with physical disabilities participated in the questionnaire and all 4 reported that they have participated in fitness activities at the higher education fitness facility. From the 24 people who had mental health concerns, 9 did not participate at the higher education fitness facility. The participants with mental health, commented about the 'gym being overcrowded', not participating as the fitness center is 'co-ed', feeling anxious and nauseous, body consciousness and feeling insecure. Though the questionnaire shows that there are people with disabilities participating at fitness facilities, more responses from people with mental health disabilities were obtained. The questionnaire recruitment

criteria included people with disabilities who participate in recreational sport. More responses from people with mental health disabilities may be an indication that there may be more participation in this fitness centre by people with non-visible disabilities as compared to visible disabilities. Related to this, the workshop participants believed that participation by people with disabilities was very low; but this may be an assumption based on seeing fewer people with visible disabilities.

Most of the participants, are active and participate in fitness activities. The majority of the participants (84%) responded 'yes' to participating in inclusive recreational sport/fitness activities at their higher education facility. When asked if they wanted more inclusive and integrative recreational sports/fitness activities at their higher education facility, 20% of the respondents (7 participants out of 35) said no while 80% (28 participants) said yes. Related to this, workshop participants saw some benefits to providing segregated participation.

Question 3.2 What recreational sport/fitness activity practices are commonly sought out by people with disabilities in a higher education institute?

The questionnaire revealed that participants participate in 4 main categories at their higher education facility: gym, swimming, group fitness and intramural teams. When asked what type of fitness activity they wished to participate in, similar categories were seen (intramurals, group fitness, swimming, gym and winter sports). What is curious here (Table 21) is that most of these activities are available at the higher education facility, however people do not access these activities yet wish to do so. It is unknown if or any of these participants face barriers to participate in these activities. Looking at all the barriers

revealed in the study, some possible explanations for this could be related to the inaccessibility of existing features that may not be up to current accessibility design standards and guidelines such as the swimming pool and ice rink. For example, in discussing the ice rink, a workshop participant explained that the transfer from floor to ice rink can be a reason for inaccessibility. Limitations with the design of the pool were also discussed, since it does not have an operational lift or a more normalized feature such as a zero-level entry to the pool, thereby restricting people with disabilities to enter the pool easily.

Another possible reason for not participating in available sports and recreation could be, as revealed in the questionnaire, not wanting to participate in ‘co-ed’ spaces. However, the pool at this higher education fitness facility has ‘women’s only time’, but that is very minimal and restricted as it only happens twice a week for an hour which may not be convenient for participants. Similarly comments from the questionnaire discussed climate control, which could impact the humid environment around the pool and locker rooms, hindering participation.

Question # 7: What type of recreational sport or exercise activity/session did you participate in at the higher education fitness facility?	Question # 12: If given the chance, what type of recreational sport or exercise activity/session would you like to participate in?
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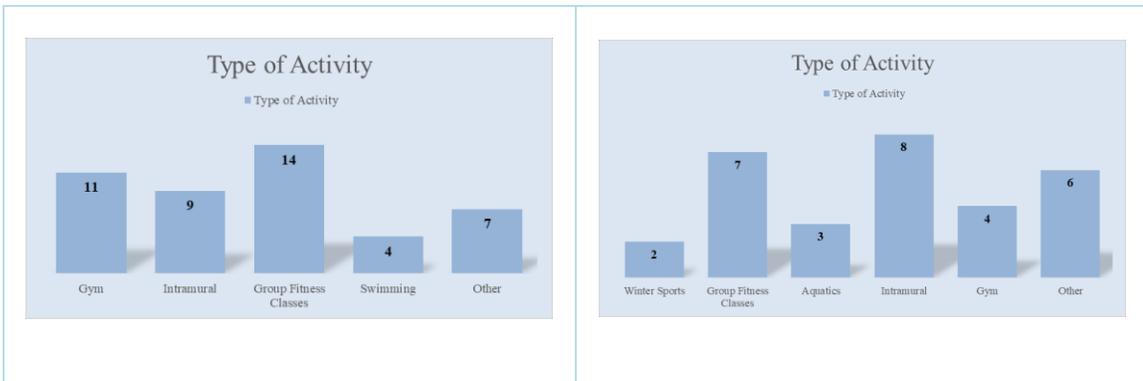


Table 21: Comparison between Question # 7 and Question # 12

Question 3.3 Are there any limitations to the current participation practices for people with disabilities at a higher education facility?

The comments and suggestions within the questionnaire are based on individual participant experience. These experiences may suggest dissatisfaction but reveal some limitations participants face that reduce that instances of their participation in fitness activities.

The social environment of the fitness center may impact participation. Participants expressed feeling unwelcomed, being self-conscious about their body image, feeling insecure in a public space, having severe anxiety, and the gym being overcrowded. These factors are interconnected with regards to social interaction and design to support social interaction. For example, if a person with anxiety comes to the fitness center and feels unwelcomed, this can demotivate them or trigger their anxiety. Similarly, overcrowding of the gym might make people more anxious or feel more unsafe and insecure; it can also increase people's concerns about their body image. Though the study didn't focus on specific practices that can help people with these social issues, a workshop participant did share an example of how they try to mitigate this concern:

Some people are very shy and very nervous, and they say people are watching me and I tell them you can go to the end... nobody will watch you; you watch everyone...you don't worry about that.

Illustration 18: Quote from workshop session 1

Environmental factors which may limit participation include sound control, particularly the volume of music, issues concerning the indoor temperature of the fitness center, particularly the fitness center being hot and making some participants nauseous. Though sound is something that might be managed by the staff at the fitness center, climate may be more difficult to address as this would require intervention to fixed structures, such as air ventilation systems.

As the context of the research study was a higher education facility, questionnaire participants expressed interest in more support for students by providing them with opportunities to learn how to exercise, having classes that address stress on students' bodies, having varied service hours for activities that do not conflict with class scheduling and being able to find information regarding other available clubs and leagues. This relates to the importance of receiving a holistic health and wellness experience at the higher education institute.

The fitness facilities are 'co-ed' and, as mentioned earlier, some participants found that to be a barrier, wanting a women's only space. Currently, higher educational fitness facilities do offer some 'women's only time' at the pool or in some group activities, however the gym and most of the fitness activities are co-ed. Some people also find it difficult to participate with their family member with disabilities as they believe there aren't modifications that are targeted to meet the needs of their family member. However,

though this is a limitation, a fitness instructor explained during the workshop how she provides multiple options to her clients:

I always give options... you can do this, or if you can't, you do that... or maybe you do this (the simplest version)... or if you cannot follow any of this you can do your own modification.

Illustration 19: Quote from workshop session 1

This also goes back to one of the workshop themes of “*Understanding Your Own Disability*”. When people know their own disability, they are able to reflect on their abilities and can support fitness instructors by making their own modifications.

5.1.4 Research Goal 4: Deepen our understanding of the perceptions of stakeholders (clients and others involved), about segregated and integrative participation.

Throughout the research study, whenever research participants were asked to discuss their perception of segregated participation, they mostly ended up discussing barriers that lead to segregated participation; however, when discussing integrative participation, participants were more vocal about the benefits associated it.

Most participants believed that there was ‘no need for segregation’ on the basis of abilities, unless there was a legitimate safety concern. However, the same participants also discussed a range of challenges related to integrative participation.

Question 4.1 What did segregated participation mean to stakeholders?

For the purpose of this research, segregated participation in recreational fitness activities meant participation of people with disabilities within their own group. However, during the research study it was observed that, as per their experiences, segregated participation meant something different to every participant. Some workshop participants associated segregated participation to individual participation, or a one-on-one personal training model. Others saw segregated participation as separation of groups based on their abilities, and discussed segregation based on type of disability, such as cognitive disability. Overall, participants understood segregation as separation from the rest of society. The data also revealed a general impression of segregation being a negative phenomenon. However, within the study, clients comments relating to feeling insecure in group settings or instructors comments regarding being able to supervise more effectively and safely, combined with discussion on segregation within the existing literature, support the view that segregation can be beneficial depending on the needs of the individual (Ryan & Ryan, 2014).

Question 4.2 What did integrative participation mean to stakeholders?

For the purpose of this research, integrative participation meant combining people with disabilities with able-bodied individuals. This idea resonated well with most of the research study participants. Even though participants discussed many challenges associated with integrative participation in recreation fitness activities, their ability to comprehend and discuss candidly the ideas around integrative participation showed a prevalence for supporting a more accommodating sport culture.

Question 4.3 What are the challenges associated with both, segregated and integrative participation in fitness activities at the higher education level?

Key Challenges to Segregated Participation:

Segregated sessions are difficult to run and sustain on a regular basis because of a very limited target audience. This challenge relates to the overall business model of the service providers. To run a fitness facility, it is important to have many people come in and engage in participation.

The point being that there is only 4.7 million people in all of Canada with a disability. If you take babies out of that, the older people out of that, you take cognitive disabilities out of that, you take severe disabilities out of that you end up with a very, very, very small portion of the population that is able to actually even go and do recreational sport. We need to bring in able-bodied people to fill in the fill in the gap.

Illustration 20: Quote from workshop session 2

Related to this is also the availability of fitness instructors to do fitness sessions for mainstream users and separate fitness activities for people with disabilities. This relates to the challenge mentioned above; the fewer people participating in an activity, the more unlikely that the activity can be run due to the cost/economic constraints related to execution of the activity.

And then they can't get a coach to come to two different sessions. And so, then oh, well, we're not going to offer that anymore.

Illustration 21: Quote from workshop session 4

Key Challenges to Integrative Participation:

Recalling the ICF model and barriers discussed previously by participants, some key environmental challenges to integrative participation in fitness activities are related to time management, attitudes, fear and misconceptions, information and knowledge; personal challenges also the impact of integration.

The challenge of ‘time’ provided for running fitness session and not having enough ‘time’ during the fitness sessions to modify or accommodate individuals can be related to the service model of the fitness facility, and hence, needs to be addresses at a larger scale. This can be addressed by increasing the time for each fitness session (including buffer time for modifications), or provide instructors paid time for pre-planning modifications.

The study revealed that the attitudes of people managing and running fitness spaces and activities may impact participation; and that progressive attitudes can be fostered through better training programs and continuous experience of working with people with disabilities;

I think it's a fear of the unknown that makes us a bit apprehensive. And if you get the opportunity to work with different individuals, I think you start to feel more comfortable with them, and then it gets a lot easier.

Illustration 22: Quote from workshop session 3

These attitudes combined with *fear* can hinder participation in fitness activity. *Fear* is felt by almost everyone, instructors have the fear of injuring or demotivating the client by making a mistake, clients fear injury or are intimidated by the instructor, families and parents fear that their child with a disability might get injured, families of able-bodied children fear that individuals with disabilities in integrated settings might harm their child and the fear of being perceived as ‘negative’. The role of *fear* can be seen as a very

complex phenomena and needs to be addressed in depth in future research studies. Within this research, knowledge, experience and active discussions might be able to reduce these feelings of intimidation and *fear*.

We find that children with a mobility impairment hardly even ever become active. Yeah, primarily because they're coddled so much. No, no, no, Johnny don't Yeah, no, no, no, Billy, don't do that you're going to get hurt. And so, we found over time, I'm that instead of talking to the kids, we needed to talk to mom and dad, we needed to get the parents comfortable with allowing the children to do something.

Illustration 23: Quote from workshop session 2

Fitness instructors train for their job, they do courses and receive certifications, however the research study shows that these course modules don't focus in depth on participation of people with disabilities. This inhibits the fitness instructors' abilities to provide modifications and accommodations or even gain fruitful learning experiences of working with people with disabilities. The lack of knowledge doesn't allow them to ask appropriate fitness-related questions to their participants and hence planning for modifications becomes difficult. The information gathered from this study indicates that challenges to integration seem more numerous than challenges to segregation.

Personal Challenges

For group fitness activities or integrated activities, following through can be difficult for certain people with disabilities. Most integrated or group activities are run as a monthly or quarterly program rather than just a one-day activity with registration open for the whole program as opposed to a one-day participation. A person with a disability might be able to attend one session of group fitness and might not be able to attend the subsequent

sessions because of health reasons or being physically or emotionally unstable. This makes it harder for people with disabilities to develop initial interest, let alone a routine of participating in fitness activities.

Question 4.4 What are the benefits associated with both, segregated and integrative participation in fitness activities at the higher education level?

Key Benefits to Segregated Participation:

Key benefits to segregated participation were comfort and convenience of the clients, ease of instruction for the fitness instructors and safety concerns. Twenty percent of questionnaire participants did not want more integrative settings, revealing that segregation is still a choice amongst participants and that some people with disabilities might feel more comfortable participating in segregated settings. The reason for this is not clear but could relate to supporting people who feel self-consciousness and are concerned about body image as mentioned in the questionnaire. Similarly, discussion around a women's only space also relates to the desire for segregation based on gender.

Though, ease of instruction was discussed as a benefit, where fitness instructors find it less challenging to work with people with disabilities in segregated settings or on a one-on-one basis to provide more individual attention; workshop participants also expressed that there is no need for segregation unless there is a safety concern.

The discussion of benefits to segregation were limited in this study, but are relevant to understanding the right of choice when it comes to participation in settings; as Valet

(2018) discusses the 'right of choice' is a factor in determining the quantity and quality of participation.

Key Benefits to Integrative Participation

The most discussed benefits of integration within this study were social integration and improved mental health. Social integration referred to the overall group dynamics and not looking out of place, perhaps becoming a path to normalization. Participation to support both physical and mental wellbeing was discussed by all workshop participants.

Improved mental health was important here, as 24 of the 44 participants reported issues with mental health. Workshop participants commented on how participation in fitness activities made people happy, or how people were eager to continue performing fitness activities. Although workshop participants touched briefly on the health benefits of participating in fitness activities, they were keener to share the social benefits of participation. They also mentioned that integrated settings also allow for building new relations outside in the community, thereby playing a larger role in community building.

Having a smaller target audience was a challenge for supporting segregated activities, and hence, a benefit to integrative participation. Workshop participants discussed that in integrated settings more people can participate together, which increases the number of clients and diversity in what can be offered in terms of activities and scheduling.

Integration was also seen as beneficial to receive funding from national bodies.

5.1.5 Research Goal 5: Discuss the current state of service design in terms of providing recreational sport opportunities to people with disabilities.

Question 5.1 Do stakeholders think service design and service planning impact active participation of people with disabilities in recreational sport and if so how?

As Service Design holistically considers the quality of a customer service experience (IDEO, 2019; Saco & Goncalves, 2008) and seamless service delivery (“Service Design 101,” 2019), it can include a wide range of considerations that impact the overall customer experience.

In reference to recreation and sport services that plan to serve PWDs, this naturally starts with the design of the organization, where representatives make decisions regarding structural accessibility (built environment) and what is needed to provide appropriate fitness services. Regardless of efforts to make the built environment accessible, if people within the organization perceive accessibility as unimportant, this may impact the overall experience of the client and reduce participation as clients may not be able to access the facility for other reasons that lie beyond the basic accessibility requirements of the built environment . This might require implementation of accessibility measures and components beyond existing building codes and continuously improving organizational policies that support access. Having adaptive fitness equipment was also associated to better service provision. For example, an overhead sling to make transfer easy for people with severe disabilities was mentioned, while workshop participants supported having accessible equipment to better support PWDs, able-bodied individuals and individuals with varying abilities. But participants noted that the use of the equipment depends on one’s knowledge. Some of the workshop participants believed that though the equipment is there, many fitness instructors or users are unable to use it to its fullest potential.

Workshop participants also discussed that lack of information regarding what their clients want can make it difficult to plan for fitness activities; if service design includes quality of a customer service experience, it is key to understand what the customer wants to be able to create a meaningful experience of that service. This requires continuous involvement or collaboration of the clients in the research and development process of the service providers.

It is also important to look at who gets to deliver these services to the clients. In this study, fitness instructors were key as they are the face of the service provider. Their ability to provide the service (facilitating fitness activities) can impact participation. However, the knowledge of fitness instructors is dependent on the training they receive which may not include training on working with PWDs. A lack of diverse hiring practices may limit the service provider's ability to reflect or model people with disabilities as examples of leadership in sport and recreation. Therefore, hiring practices should examine the education backgrounds of candidates to better support these factors.

PwD or their families are unsure of where to participate in fitness activities; being vocal about how accessible a fitness center, invite people to come talk or voice their requests and concerns about accommodations. This again relates to normalization of accessibility. Public relations and collaborations are key for promoting the services available. As collaborations with clients is important to build better customer service experience, collaborations with other facilities, clubs, disability centers and societies on-campus and off-campus is also essential and creates a platform to exchange knowledge and learn from what other places are doing regarding adaptive fitness; this is important in terms of continuous research and development and improving services. Workshop participants

also mentioned a few grassroots facilities that serve smaller communities but since collaboration from bigger facilities is minimal, people remain unaware of what types of activities are available.

It is also important to understand that service providers and organizations shouldn't make determinations about how a person can participate or what a person can and cannot do, it should be up to the person; people with disabilities should determine their own physical limitations and be vocal about the required accommodations. This reflects the Importance of Choice.

Question 5.2 In the planning of their services, are fitness center staff at a higher education institutes influencing concepts around segregated and integrative recreational sport culture and if so how?

Programming and planning of fitness services at higher education fitness facility requires instructors with more knowledge regarding adaptive participation in recreational sports. Workshop participants expressed the need for having a fitness instructor trained in adaptive fitness at every working shift to foster integration.

Another important aspect discussed in relation to higher education institutes was collaborations with other facilities and center. Workshop participants discussed that higher education institutions have student disability centers that support the education and learning experiences of students with disabilities. It is important to collaborate with these disability centers to provide a more holistic learning experience. Collaboration with other clubs and societies on campus and off campus. This relates to promotion of offerings and reaching out to the target audience. Sometime people don't know where to

participate, and can be a barrier to participation; lack of knowledge about where to exercise has been identified as a significant barrier to physical activity (Heller et al., 2002; Rimmer et al., 2000). If information regarding participation is not readily available, this can also inculcate concepts of segregated environments.

Diverse hiring practices can be a factor contributing to the normalization of the role of people with disabilities in fitness provision and participation; however, the research study shows that there is lack of knowledge for instructors and hiring practices don't show much reflection of people with disabilities at a fitness center, reflecting segregated practices. Referring back to the *Sports Development Continuum* (Spaaij et al., 2014), focuses on the level of sport performance (1. Foundation, 2. Participation, 3. Performance, and 4. Excellence); the higher education fitness facilities should encourage the progression of sport performance for PwD from foundation level to excellence.

Research Goal 1: Realizing the importance of physical activity and sport participation for people with disabilities.

Question 1.1: What is the importance of recreational sport for people with disabilities?

- Improved mental health
- Social integration
- Camaraderie, teamwork
- Motivation

Research Goal 2: Understand the barriers and facilitators to recreational physical activity for people with disabilities.

Question 2.1: What are the existing barriers and facilitators to participation in recreational sport for people with disabilities?

- Environmental characteristics
- Lack of knowledge
- Stigmas and negative attitudes
- Fear
- Lack of adaptive equipment
- Financial barriers
- Sense of security
- Body image

Research Goal 3: Study the accessibility and availability of sports for people with disabilities at a specific higher education fitness facility.

Question 3.1 What are the general trends of participation in recreational sport/fitness activity of people with disabilities?

- Lesser number of people participated in the questionnaire
- Mental health being the most frequently mentioned
- Personal factors and experiences impact participation
- Participation by people with disabilities was very low
- Participants have participated in integrative settings
- Some participants who do not want more integrative (see benefit to segregated participation)

Question 3.2 What recreational sport/fitness activity practices are commonly sought out by people with disabilities in a higher education institute?

- Participants participate in 4 main categories at their higher education facility: gym, swimming, group fitness and intramural teams.
- Participants wished to participate in similar categories (intramurals, group fitness, swimming, gym and winter sports)
- The reason for this overlap are unknown; some conclusive reasons are discussed in the light of questionnaire and workshop findings

Question 3.3 Are there any limitations to the current participation practices for people with disabilities at a higher education facility?

- Social environment
- Physical environment
- Physical education - clients want to learn how to participate
- Participate with family members

Research Goal 4: Deepen our understanding of the perceptions of stakeholders (clients and others involved), about segregated and integrative participation.

- *Question 4.1 What did segregated participation mean to stakeholders?*
 - Segregation as separation from the rest of society
 - General impression of segregation being a negative phenomenon
 - Segregation can be beneficial depending on the needs of the individual
- *Question 4.2 What did integrative participation mean to stakeholders?*
 - Participants discussed many challenges associated with integration
 - Discussions showed a prevalence for supporting a more accommodating sport culture
- *Question 4.3 What are the challenges associated with both, segregated and integrative participation in fitness activities at the higher education level?*
 - Segregated participation - challenge; limited target audience
 - Integrative participation - challenge; fear, lack of knowledge, time management, attitudes, routine development for people with disabilities
- *Question 4.4 What are the benefits associated with both, segregated and integrative participation in fitness activities at the higher education level?*
 - Segregated participation - benefits; comfort and convenience, ease of instruction and safety
 - Integrative participation - benefits; social integration, improved mental health, increased target audience

Research Goal 5: Discuss the current state of service design in terms of providing recreational sport opportunities to people with disabilities.

- *Question 5.1 Do stakeholders think service design and service planning impact active participation of people with disabilities in recreational sport and if so how?*
 - Built accessibility
 - Lack of information regarding clients wants and needs
 - Lack of knowledge of fitness instructors
 - Diversity in hiring practices
 - Promotion and normalization of accessibility
 - Collaborations with outside sources
- *Question 5.2 In the planning of their services, are fitness center staff at a higher education institutes influencing concepts around segregated and integrative recreational sport culture and if so how?*
 - Need for scheduling of instructors trained in adaptive fitness
 - Collaborations with disability centers and other on campus facilities
 - Reflection of PwD in peers and instructors

Illustration 24: Summary of Discussion

5.2 Recommendations and Contribution

As the scope of this research focused on one case (one facility) and the sample size was small it is difficult to draw any conclusions from the study. However, the contribution of the individual voices of study participants are key as these can be used to inform future research studies with larger participant populations. Research on recreational fitness facilities in higher education for PwDs is meager, hence the voices of individual participants are vital to increasing our knowledge in this area. This research may be seen as a source of information for service designers to delve into the field of sports/fitness

activities for people with disabilities at higher education fitness facilities. Based on the results gathered from all the methods, some recommendations and questions emerge for future studies that can be beneficial and might improve general practices while planning fitness services for people with disabilities.

5.2.1 Recommendations

Accessible Built Environment:

An aspect that was brought up by each participant focused on having an accessible built environment. When planning for services, each customer touchpoint needs to be accessible. The human-centered and holistic nature of service design includes built and structural accessibility of organizations and customer touch points. This includes but is not limited to all the spaces related to the facility, such as a) the building's exterior aspects, parking lots, parking spaces, sidewalks and b) the building's interior aspects, such as the lobby, corridors, washrooms, locker rooms, showers, change rooms, fitness spaces, door openings and so forth. This might require implementation of accessibility components beyond existing building codes and continuously improving organizational policies that support access. Together with the Accessible Built Environment, accessible and adaptable equipment can enhance the overall accessibility of the fitness facility. Equipment and technology not only includes fitness equipment, but also covers the broader scope of incorporating a piece of technology to improve accessibility, such as lifts as well as more normative devices or designs to transfer people with disabilities in change rooms, pools or fitness centers.

Though availability of adaptive fitness equipment is key, the use of that equipment to its fullest potential will depend on how well it is designed, the cost of the equipment and how well instructors and associated staff are trained in operating that piece of equipment. Having clear affordances and instructions to guide people on how to use and modify the equipment should be part of the selection.

These aspects along with features of the built environment together can act as physical signs conveying the normalizing presence of accessible design within facilities.

Knowledge, Diversity & Reflection:

This refers to people involved in providing services at recreational fitness facilities. All personnel should have an accessibility mindset. This can be fostered by diverse hiring practices, and specifically, hiring people with varied abilities as employees of the fitness facility to provide models of leadership. Staff with basic knowledge of adapting and accommodating techniques should be hired. All staff should go through training either included in their certification course or supported through the employer that teaches them how to work with people with disabilities. Fear of liability limits instructor's creativity when adapting fitness sessions; therefore, instructors and coaches should be supported by the employer in terms of liability.

Instructors and coaches should use their knowledge and experience to plan fitness evaluations of people with disabilities where they assess their goals and abilities. Such evaluations can assist instructors to find a good fit with regards to appropriate activities. Lastly, provided there is additional funding to support this initiative, fitness facilities should provide instructors with the time and resources to develop programs that can

support greater inclusion of people with varying abilities. Attention to diversity also includes an understanding that everybody is different, with different responses and learning curves; therefore, it is important to give people time and support to learn.

Programming:

Some key programming initiatives that were discussed involved having each fitness activity at varied service hours to address issues with the irregularity of course schedules. This may support students with disabilities by allowing them to participate outside class hours, or in the case of children with disabilities, who may be dependent on their parents and their work schedules to bring them to the fitness facility. Though this seems reasonable, it can only be feasible and achieved if there is a constant interest and a wider audience for this service. The more people attending these sessions, the more likely the same activity can be held on different days and times or that diverse offerings can be scheduled in terms of activities. This might be achieved by opening higher education recreational fitness activities to a larger population; having friends and family, or parents and children welcome together to increase attendance and revenue.

Having the choice of being able to participate in segregated or integrative sessions may also promote participation. Also being able to include able-bodied individuals in adaptive activities such as wheelchair basketball can support reverse integration.

Instructors and coaches need repetition and practice to develop their comfort levels in working with PWDs and to normalize working with such individuals. This would require encouraging more people with disabilities to take part in fitness activities to build that experience; workshop participants mentioned that the fitness facility has open-house

sessions open for all. This could be used to publicize accessible services to attract PwD to the facility. This also means that there should be a fitness facilitator trained in adaptive techniques always present at the facility during working hours.

Financial Support:

The fitness facility should be able to, to some extent, support people with disabilities with the costs required to achieve participation; this may include providing a subsidized fitness pass or membership. Fitness centers should be knowledgeable of and advertise external resources that can help people with disabilities to cover the cost of fitness activities; such as government funding, private funding, special programs, promotions, etc.

Awareness, Education & Engagement:

This includes the education of instructors, participants, families, and society. Instructors should be given opportunities to continuously learn and grow by having creative workshops, seminars or even going back to school. Educating parents and families of individuals with disabilities about the importance of fitness activities can contribute to the reduction of some fears and misconceptions associated with participation in recreational fitness activities and physical injury. This can be done by involving families, parents, spouses, children, siblings together with the individual with disability.

In terms of fitness facilities at higher education institutes, collaborating with the disability centers on campus may help increase the participation of people with disabilities; other collaborations can include engaging with other clubs and societies running programs for people with disabilities. Actively promoting the offerings at the fitness center, featuring

accessibility and availability of adaptive equipment may improve participation. This involves being more active about customer engagement; allowing people to ask questions and bring concerns to the forefront so their fitness needs can be supported.

5.2.2 Questions for Service Designers:

Within the framework of service design's 4 core activities (research, ideation, prototyping, and implementation), this study focused on the research aspect of service design. Service design is holistic in nature and discusses the importance of user behavior and how these behaviors impact experiences. This study found that specific emotions, such as fear, may hinder participation in services or providing services. The concept of fear in decision making and experiencing services could impact how we go about designing fitness services, however there is currently little understanding about this to inform this case study. At a broader level, the role of emotions may be studied further within the context of fitness services, specifically how personal anxiety and fear can hinder people's desire and ability to access services. Similarly, a sense of personal security and safety is something very personal that emerged from this study, and may have an impact on participation.

The recommendations above are limited and are of general interest. Each recommendation can be further researched, ideated, prototyped and finally implemented.

5.3 Limitations:

Every person has different experiences: this study took a user experience approach to better understand the current state of recreational fitness for people with disabilities

within a specific higher education facility. These are narrated in the form of personal experiences and stories and/or heard experiences. Though the questionnaire had a fair response of 38 client participants who self-reported as having a disability (mainly mental health disabilities), the workshop only had 5 service provider participants, with only one service provider participant being a person with a disability. Further, the perspectives of people with disabilities was not captured in the workshop sessions due to unsuccessful recruitment for this activity. However, every person who participated in the research study had different experiences and therefore different opinions which added value to the study. But without more participants, it was difficult to gain a sense of patterns and outliers with regards to the topics being discussed. The study was being conducted at a higher education facility with support of the student disability center. The research was conducted in the summer term when most students are away, which may have affected the response rate; particularly for the observation method, where there were only two recruited participants who then canceled their sessions.

Even though the workshop was planned as a group activity, due to the accommodations and scheduling needs of participants, the sessions were conducted individually; this changed the dynamic of the workshops which had only one participant. Individual participants were hesitant to do the workshop activities on their own and were more comfortable talking and discussing about their experience, which I adapted the methods to better respond to their comfort in participating. Another challenge of having multiple workshop sessions is that I learned something from each session, which moving forward impacted the subsequent sessions; the information gathered in each workshop session therefore influenced my perceptions about the topic as the study progressed.

5.4 Flexibility and Adaptation

It is important to understand that when working with people with disabilities, the researcher has to be as flexible, adaptive and accessible as possible. Planning for contingencies and having alternate plans is crucial. Even after detailed planning, there are times when you have to adapt or rethink not only your methods but maybe larger aspects of the study. For example, in scoping this study, a narrow target audience was recruited who self-identify as having a disability and participating in fitness activities at a given higher education facility. In some case adjustments to recruitment were made to accommodate the participant's situations. Another crucial aspect providing sufficient time in conducting research with people with disabilities to support recruitment and study modification as required.

Chapter 6: Conclusion

6.1 Summary

The research objectives were to contribute to our understanding about the terms segregated and integrative recreational sport as seen/perceived by persons with and without disabilities at a higher education facility and to understand how service design is related or has played a role in forming or influencing these views.

By conducting a literature review and using multiple methods (Questionnaire and Design Workshop), this case study aimed to improve our understanding of the experience of sport and recreation for people with disabilities by engaging stakeholders at a higher education facility. This information was then used to develop pilot recommendations that may contribute to the planning and/or improvement of recreational fitness services for people with disabilities at higher education fitness centers.

The perspective of participants showed that the concept of segregated sport and recreation may have a negative connotation but could be beneficial depending on the individual's needs. The study showed that integration seemed to have a more positive appeal, but in practice may be more challenging to achieve. The vast challenges associated with integrated recreational fitness activities may help explain the limited recreational fitness opportunities for students with disabilities at this higher education institute. Limitations to opportunities for participation in recreational fitness resonate with the inaccessibility of services and endorse the perception of segregated participation. Other factors such as the unavailability of instructors and staff trained in adaptive

techniques, a lack of diversity and reflection of people with disabilities in employees or peers, lack of collaboration with disability centers and outside clubs on campus may also influence concepts of segregated participation.

The research study explored a range of benefits and challenges to both, segregated and integrative participation. As the discussion covered individual concerns raised by participants and more specifically, participants identifying with a mental health disability. There it is difficult to provide recommendations from this study that would support a broader range of people with disabilities. However, the voices of these participants are crucial to the field of research regarding fitness activities for people with disabilities. These voices may inform future research studies with a larger and more diverse population.

6.2 Future Research Considerations

1. During the research study, participants emphasized the role of parents and the fears and challenges that parents encounter around participation of their child with a disability in recreational fitness/physical activity/recreational sport. Though this research targeted higher education fitness facilities, future studies could investigate the impact of families on the active participation of people with disabilities in recreational fitness activities; and how families influence views of segregation and integration participation.
2. The research study was also limited in terms of research participants who have a disability; future research can collaborate with hospitals, rehabilitation centers and other sources of possible participants to involve more people with disabilities within the research.

3. Future studies can also investigate the current certifications and training available for fitness trainers and coaches; and how to, if needed, improve the training modules to provide more knowledge and skills related to adaptive techniques in fitness for people with disabilities.

Appendices

Appendix A - Questionnaire Package

A.1 Questionnaire Recruitment Email



Subject: Invitation to participate in a research project on "*Segregated vs. integrative service design in disability sport culture: a case study on recreational sport services in higher education*".

Dear Sir or Madam,

My name is Maham Farooq and I am a Master's in Design student in the Department of Industrial Design at Carleton University. I am working on a research project under the supervision of Assistant Professor Chantal Trudel.

I am writing to you today to invite you to participate in a study entitled "*Segregated vs. integrative service design in disability sport culture: a case study on recreational sport services in higher education*".

This study will investigate the existing design of athletic services offered in a higher education facility (namely Carleton) to:

- a) develop insight on how such services may be influencing concepts around segregated and integrative recreational sport culture and
- b) to help us understand how that may be impacting persons with disabilities.

To be eligible, you must self-identify as a person with a disability, have or still participate in a recreational sport/fitness activity, be English-speaking, and be at least 18 years of age.

This study involves a brief questionnaire that is available at the link https://carletonu.az1.qualtrics.com/jfe/form/SV_0uISwL9pSjXpEnb. You will be asked to answer a series of open and close ended question. The study will take place on online and should not take approximately 15 minutes to complete.

You will see a consent form at the beginning of the questionnaire. Once you consent, the questionnaire will begin. Care will be taken to protect your identity. This will be done by keeping all responses anonymous. The questionnaire is anonymous, as a result, participants cannot withdraw after they submit them online.

All research data will be password protected. Any hard copies/printed copies of data (including any handwritten notes) will be kept in a locked cabinet. Research data will only be accessible by the researcher and the research supervisors.

The ethics protocol for this research has been reviewed and approved by the Carleton University Research Ethics Board [B] (CUREB-B), which provided clearance (CUREB-B Clearance # 110534) to carry out the research (Clearance expires on: May 31, 2020).

CUREB-B:

If you have any ethical concerns with the study, please contact Carleton University Research Ethics Board-B (by phone at 613-520-2600 ext. 4085 or via email at ethics@carleton.ca).

For any further questions, please contact me at mahamfarooq@cmail.carleton.ca.

Sincerely,

Maham Farooq

A.2 Questionnaire Consent Form



Name and Contact Information of Researcher

Maham Farooq, Carleton University, School of Industrial Design,
Faculty of Engineering and Design

Email: mahamfarooq@cmail.carleton.ca

Project Title

"Segregated vs. integrative service design in disability sport culture: a case study on recreational sport services in higher education"

Project Funding

The researcher receives funding from NSERC CREATE READi training program.

Carleton University Project Clearance

Clearance #: 110534

Date of Clearance: May 13, 2019

Invitation

We are asking you to complete this questionnaire because you self-identify as a person with a disability, have or still participate in a recreational sport/fitness activity, are English-speaking, and are at least 18 years of age.

This questionnaire is being conducted by Maham Farooq of the Carleton University School of Industrial Design, Faculty of Engineering and Design (mahamfarooq@cmail.carleton.ca) under the supervision of Professor Chantal Trudel.

Objectives and Summary

This study will investigate the existing design of athletic services offered in a higher education facility (namely Carleton) to:

- a) develop insight on how such services may be influencing concepts around segregated and integrative recreational sport culture and
- b) to help us understand how that may be impacting persons with disabilities.

We estimate that the questionnaire will take about 15 minutes to complete. Your participation in this questionnaire is voluntary, and you may choose not to take part, or not to answer any of the questions.

An end survey/withdraw from study button will allow participants to withdraw anytime during attempting the questionnaire. However, since the questionnaire is anonymous, as a result, participants cannot withdraw after they submit them online.

Risks and Benefits

We do not anticipate any risks from taking the survey, nor do we anticipate that you will derive any benefit.

Confidentiality and Data Storage

We will treat your personal information as confidential, although absolute privacy cannot be guaranteed. Data will be stored and protected by Qualtrics on Toronto-based servers but may be disclosed via a court order or data breach.

This is an anonymous questionnaire. The data retrieved by the Primary Investigator will be kept in a password-protected file on a secure computer/password protected USB. We will password protect any research data that we store or transfer.

Data Retention

After the study is completed, the anonymous data will be retained for future research use.

REB Review and Contact Information

The ethics protocol for this research has been reviewed and approved by the Carleton University Research Ethics Board [B] (CUREB-B), which provided clearance (CUREB-B Clearance # 110534) to carry out the research. (Clearance expires on: May 31, 2020.) If you have any ethical concerns with the study, please contact Carleton University Research Ethics Board (by phone at 613-520-2600 [ext. 4085 for CUREB B] or by email at ethics@carleton.ca).

Direct Consent

I voluntarily agree to participate in this study.

- Yes
- No

A.3 Questionnaire Design

1. Do you self-identify as a person with a disability?
 - a. Yes (take you to question 2)
 - b. No (disqualifies you from the survey)

2. What disability category/categories do you identify with?
 - a. Physical (e.g. mobility)
 - b. Sensory (e.g. hearing, vision)
 - c. Intellectual (e.g. down syndrome)
 - d. Chronic Medical (e.g. Crohn's)
 - e. Learning (e.g. dyslexia)
 - f. Attention (e.g. ADD/ADHD)
 - g. Mental Health (e.g. depression, anxiety)
 - h. Other Please Specify _____

3. Have you ever participated in any recreational sport or exercise activity/session?
 - a. Yes (takes to Question 4)
 - b. No (takes to Question 5)

4. At what place/places did you participate in this recreational sport or exercise activity/session?
 - a. Comment Box

5. Describe why you haven't participated or been able to participate in any recreational sport or exercise activity/session?
 - a. Comment Box

6. Have you ever participated in any recreational sport or exercise activity/session at your higher education institute fitness facility?
 - a. Yes (takes to Question 7)
 - b. No

7. What type of recreational sport or exercise activity/session did you participate in at your higher education institute fitness facility?
 - a. Comment Box

8. How often do you participate in a recreational sport or exercise activity/session at your higher education institute fitness facility?
- Once a week
 - Once a month
 - Only participated once
 - Never
 - Other Please Specify_____
9. Did/Do you participate in recreational sport or exercise activity/session at your higher education institute fitness facility that are exclusive to people with disabilities?
- Yes
 - No
10. Did/Do you participate in recreational sport or exercise activity/session at your higher education institute fitness facility that are inclusive (including mainstream users and people with disabilities)?
- Yes (takes to Question 11)
 - No
11. Would you want access to more integrative recreational sport or exercise activity/session at your higher education institute fitness facility?
- Yes
 - No
12. If given the chance, what type of recreational sport or exercise activity/session would you like to participate in?
- Comment Box
13. Please list any other relevant information that you would like to share about your participation in recreational sport or exercise activity/session.
- Comment Box

Appendix B - Design Workshop Package

B.1 Design Workshop Recruitment Email



Subject: Invitation to participate in a research project on "*Segregated vs. integrative service design in disability sport culture: a case study on recreational sport services in higher education*".

Dear Sir or Madam,

My name is Maham Farooq and I am a Master's in Design student in the Department of Industrial Design at Carleton University. I am working on a research project under the supervision of Assistant Professor Chantal Trudel.

I am writing to you today to invite you to participate in a study entitled "*Segregated vs. integrative service design in disability sport culture: a case study on recreational sport services in higher education*".

This study will investigate the existing design of athletic services offered in a higher education facility (namely Carleton) to:

- a) develop insight on how such services may be influencing concepts around segregated and integrative recreational sport culture and
- b) to help us understand how that may be impacting persons with disabilities.

To be eligible, you:

<ul style="list-style-type: none"> ✓ are working with, have knowledge of or are in the field of disability sport ✓ may or may not have a disability ✓ are English-speaking ✓ are above the age of 18 	OR	<ul style="list-style-type: none"> ✓ self-identify as a person with a disability ✓ have participated in a recreational sport/fitness activity ✓ are English-speaking ✓ are above the age of 18
--	----	--

This study involves one 90-minute Design Thinking Workshop that will take place at Carleton University. With your consent, the workshop session will be audio and video recorded. Care will be taken to protect your identity. This will be done by providing an option of remaining anonymous (names will be coded as P1, P2, P3...) or known (i.e. include your name or your organization's name to be published in the research).

You will have the right to end your participation in the study at any time, for any reason, up until 3 weeks after your participation. If you choose to withdraw, all the information you have provided will be destroyed.

As a token of appreciation, you will be given a \$10 Tim Hortons gift card. I will also be providing you with light refreshments during the workshop. Parking passes will be provided, if required.

All research data will be password protected. Any hard copies/printed copies of data (including any handwritten notes) will be kept in a locked cabinet. Research data will only be accessible by the researcher and the research supervisors.

The ethics protocol for this research has been reviewed and approved by the Carleton University Research Ethics Board [B] (CUREB-B),

which provided clearance (CUREB-B Clearance # 110534) to carry out the research. (Clearance expires on: May 31, 2020.)

CUREB-B:

If you have any ethical concerns with the study, please contact Carleton University Research Ethics Board-B (by phone at 613-520-2600 ext. 4085 or via email at ethics@carleton.ca).

If you would like to participate in this research project, or have any questions, please contact me at mahamfarooq@cmail.carleton.ca.

Sincerely,

Maham Farooq

B.2 Design Workshop Consent Form



Name and Contact Information of Researcher

Maham Farooq, Carleton University, School of Industrial Design,
Faculty of Engineering and Design

Email: mahamfarooq@cmail.carleton.ca

Project Title

"Segregated vs. integrative service design in disability sport culture: a case study on recreational sport services in higher education"

Project Funding

The researcher receives funding from NSERC CREATE READi training program.

Carleton University Project Clearance

Clearance #: 110534

Date of Clearance: May 13, 2019

Invitation

You are invited to take part in a research project because you:

✓ are working with, have knowledge of or are in the field of disability sport	OR	✓ self-identify as a person with a disability
---	----	---

<ul style="list-style-type: none"> ✓ may or may not have a disability ✓ are English-speaking ✓ are above the age of 18 		<ul style="list-style-type: none"> ✓ have participated in a recreational sport/fitness activity ✓ are English-speaking ✓ are above the age of 18
---	--	---

The information in this form is intended to help you understand what we are asking of you so that you can decide whether you agree to participate in this study. Your participation in this study is voluntary, and a decision not to participate will not be used against you in any way. As you read this form, and decide whether to participate, please ask all the questions you might have, take whatever time you need, and consult with others as you wish.

What is the purpose of the study?

This study will investigate the existing design of athletic services offered in a higher education facility (namely Carleton) to:

- a) develop insight on how such services may be influencing concepts around segregated and integrative recreational sport culture and
- b) to help us understand how that may be impacting persons with disabilities.

What will I be asked to do?

If you agree to take part in the study, we will ask you to:

- participate in a 90 min design thinking workshop.
- reflect on your individual experience and share those experiences with a group of people
- The workshop will take place at Carleton University.
- The workshop will be audio and video recorded. If you choose to be a part of this workshop, you may decline to be video recorded however, as part of the group exercise, audio recording is a necessary component.

Risks and Inconveniences

We do not anticipate any risks to participating in this study.

Possible Benefits

You may not receive any direct benefit from your participation in this study. However, your participation may allow researchers to better understand the terms segregated and integrative sports as seen/perceived by people with disabilities and to understand how service design is related to people’s experience of segregation or integration.

Compensation/Incentives

Each participant will be given a \$10 Tim Hortons gift card. You will be provided with light refreshments during the workshop. Parking passes will be provided if required.

No waiver of your rights

By signing this form, you are not waiving any rights or releasing the researchers from any liability.

Withdrawing from the study

If you withdraw your consent during the course of the study, all information collected from you before your withdrawal will be discarded. You may request that your data be removed from the study and deleted within 3 weeks after the completion of the workshop, by notice given to the Principal Investigator (named above).

Confidentiality

We will remove all identifying information from the study data as soon as possible, which will be after completion of the analysis. We will treat your personal information as confidential, although absolute privacy cannot be guaranteed. No information that discloses your identity will be released or published without your specific consent. Research records may be accessed by the Carleton University Research Ethics Board in order to ensure continuing ethics compliance. All data will be kept confidential, unless release is required by law (e.g. child abuse, harm to self or others).

Any photos taken during the research, when used in publications, will be edited (cropped or blurred) to protect the identities of participants and/or any organizations.

No videos will be shown in public presentations or conference proceedings, however if needed, screenshots of certain parts may be used as images within written publications; again, the images will be edited to preserve participants identifies. Photos/images will only be used when visuals are needed to support the explanation of corresponding content.

The results of this study may be published or presented at an academic conference or meeting, but the data will be presented so that it will not be possible to identify any participants unless you give your express consent.

If a participant chooses to be identified, the only identifying data that may be used in publications will be the participant name and/or organization name and participants will have the opportunity to review any publication prior to release and include/remove their identification.

B.2: Workshop Consent Form

Would you like to remain anonymous in published work?

Yes No

Would you like to have your name/organization name known in published work?

Yes No

Email (to receive and review publication prior to release):

If you choose to remain anonymous, you will be assigned a code [or pseudonym] so that your identity will not be directly associated with the data you have provided. All data, including coded information, will be kept in a password-protected file on a secure computer/password protected USB. We will password protect any research data that we store or transfer.

Data Retention

After the study is completed, your de-identified data (transcriptions and analysis) will be retained for future research use. Any identifiable data (photos and videos) will be retained for a period of 5 years and then securely destroyed.

New information during the study

In the event that any changes could affect your decision to continue participating in this study, you will be promptly informed.

Ethics review

The ethics protocol for this research has been reviewed and approved by the Carleton University Research Ethics Board [B] (CUREB-B),

B.2: Workshop Consent Form

which provided clearance (CUREB-B Clearance # 110534) to carry out the research. (Clearance expires on: May 31, 2020.) If you have any ethical concerns with the study, please contact Chair, Carleton University Research Ethics Board (by phone at 613-520-2600 [ext. 4085 for CUREB B] or by email at ethics@carleton.ca).

Statement of consent – print and sign name

I voluntarily agree to participate in this study. Yes No

I agree to be photographed Yes No

I agree to be video recorded Yes No

Please note, video recording of the workshop is optional, however, since this is a group activity, audio recording is necessary.

(If applicable) I agree to be contacted for follow up research

Yes No

The researcher may contact me (the participant at)

Email: _____

Signature of participant

Date

Research team member who interacted with the subject

I have explained the study to the participant and answered any and all of their questions. The participant appeared to understand and agree. I provided a copy of the consent form to the participant for their reference.

Signature of researcher

Date

Appendix C - Ethics

C.1 Ethics Clearance



Office of Research Ethics
503 Robertson Hall | 1125 Colonel By Drive
Ottawa, Ontario K1S 5B6
613-520-2600 Ext: 4085
ethics@carleton.ca

CERTIFICATION OF INSTITUTIONAL ETHICS CLEARANCE

The Carleton University Research Ethics Board-B (CUREB-B) has granted ethics clearance for the research project described below and research may now proceed. CUREB-B is constituted and operates in compliance with the *Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans* (TCPS2).

Ethics Protocol Clearance ID: Project # 110534

Research Team: Ms. Maham Farooq (Primary Investigator)
Chantal Trudel (Research Supervisor)

Project Title: Segregated vs. integrative service design in disability sport culture: a case study on recreational sport services in higher education.

Funding Source (If applicable):

Effective: May 13, 2019

Expires: May 31, 2020.

Please ensure the study clearance number is prominently placed in all recruitment and consent materials: **CUREB-B Clearance # 110534.**

Restrictions:

This certification is subject to the following conditions:

1. Clearance is granted only for the research and purposes described in the application.
2. Any modification to the approved research must be submitted to CUREB-B via a Change to Protocol Form. All changes must be cleared prior to the continuance of the research.
3. An Annual Status Report for the renewal of ethics clearance must be submitted and cleared by the renewal date listed above. Failure to submit the Annual Status Report will result in the closure of the file. If funding is associated, funds will be frozen.
4. A closure request must be sent to CUREB-B when the research is complete or terminated.
5. During the course of the study, if you encounter an adverse event, material incidental finding, protocol deviation or other unanticipated problem, you must complete and submit a Report of Adverse Events and Unanticipated Problems Form, found here: <https://carleton.ca/researchethics/forms-and-templates/>

Failure to conduct the research in accordance with the principles of the *Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans 2nd edition* and the *Carleton University Policies and Procedures for the Ethical Conduct of Research* may result in the suspension or termination of the research project.

Upon reasonable request, it is the policy of CUREB, for cleared protocols, to release the name of the PI, the title of the project, and the date of clearance and any renewal(s).

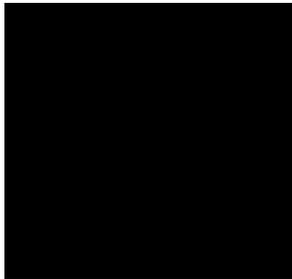
Please contact the Research Compliance Coordinators, at ethics@carleton.ca, if you have any questions.

CLEARED BY:

Date: May 13, 2019



Bernadette Campbell, PhD, Chair, CUREB-B



Natasha Artemeva, PhD, Vice-Chair, CUREB-B

Appendix D - First Cycle Coding Results from the Questionnaire

D.1 First cycle of coding of Question 4

Open responses to Question # 4: At what place/places did you participate in this recreational sport or exercise activity/session?

The first cycle coding analysis of the responses to this question revealed the following categories of participation (Table 22):

Code	Explanation
School	Participation during early schooling (elementary, secondary, high school)
Aquatics	Water sports
Gym	Exercise using machines and weights
Higher education facility	Participation at a higher education facility
Home	Participation in exercise at home
Outdoors	Participation in exercise in the general outdoors, using pathways, trails etc.
Private	Participation at a private center
Community	Participation at a community center

Table 22: First Cycle Coding to Question # 4

D.2 First cycle of coding of Question 7

Open responses to Question # 7: What type of recreational sport or exercise activity/session did you participate in at the higher education fitness facility?

The first cycle coding analysis of the responses to this question revealed the following categories of participation at their higher education facility (Table 23):

Code	Explanation
Gym	Included terms related to gym, weightlifting, workout, cardio
Swimming	Mention of swimming or pool
Intramural	Team sports including football, dodgeball, volleyball, basketball
Kickboxing	Kickboxing was mentioned a few times, therefore assigned its own category
Yoga	Yoga was mentioned a few times, therefore assigned its own category
Hockey	Hockey was mentioned a few times, therefore assigned its own category

Table 23: First Cycle Coding to Question # 7

D.3 First cycle of coding of Question 12

Open responses to Question # 12: If given the chance, what type of recreational sport or exercise activity/session would you like to participate in?

The first cycle coding analysis of the responses to this question revealed the following categories of activities in which participant wish to participate (Table 24):

Code	Explanation
Intramurals	The mention of team sports such as softball, touch football, badminton, basketball and dodge ball
Group Fitness	The mention of fit-pass, fitness classes, group classes, yoga, and dance classes
Swimming	The mention of swim team, swimming and pool
Other	The mention of archery, martial arts, cycling, track & field, skating and skiing

Table 24: First Cycle Coding to Question # 12

D.4 First cycle of coding of Question 13

Open responses to Question # 13: Please list any other relevant information that you would like to share about your participation in recreational sport or exercise activity/session.

Participants' responses were diverse and reflected their own personal experiences. For this question, some initial codes were developed (Table 25):

Code	Explanation
Women's only space and self-consciousness	Participants expressed a need for a women's only space; body image and feelings of security being factors related to this need. Participants expressed that they are self-conscious and are uncomfortable participating in fitness areas that are co-ed; this self-consciousness may be more prevalent more if the person has a disability. This self-consciousness may result from anxiety.
Being able to participate with a partner with disability	Participants express the desire to participate in activities with their spouses.
Classes targeting specific needs	This includes a few different aspects; fitness for people with disability, fitness for women only, fitness for students to elevate the stress of their studies.
Availability of appropriate fitness equipment	Participants expressed a need for more targeted equipment; such as overhead slings for transferring people with severe disabilities.
Gym culture	Though this code is unclear, it points to participant concerns with sexism, misogyny, and racism.

Table 25: First Cycle Coding to Question # 13

Appendix E - First Cycle Coding Results from the Design Workshop

E.1 Session 1 - Overview:

Some key themes that came out of this session were as follows:

Barriers to participation	
Financial	<ul style="list-style-type: none"> i. Fitness memberships are costly. ii. Some people with disability need additional support/assistance personnel; hiring these additional personnel increases the cost of participation.
Transport	<ul style="list-style-type: none"> i. Some, not all people with disabilities may require special transport. ii. In terms of children, if the parent isn't around or is working, getting to a fitness center may be difficult.
Lack of people with disabilities going to a higher education institute.	<ul style="list-style-type: none"> i. People with severe disabilities may not attend a higher education institute.
Benefits to participation	
Physical benefits	<ul style="list-style-type: none"> i. Change in body physique. ii. Improvement in your skin. iii. Better digestion. iv. Improved flexibility of body.
Mental Health benefits	<ul style="list-style-type: none"> i. Coping with depression. ii. Coping with anxiety. iii. Better sleep routine.
Routine benefits	<ul style="list-style-type: none"> i. Helps build a routine. ii. Build muscle memory. iii. Develops a lifestyle.
Modifications to increase participation	
Change the fitness moves	<ul style="list-style-type: none"> i. Make the moves simple. ii. Slow down.
Face the participants	<ul style="list-style-type: none"> i. Don't look into the mirror, instead face the participants; this helps the instructor to keep the participants engaged and focused.
Repeat	<ul style="list-style-type: none"> i. People will forget. ii. People need to see it repeatedly to follow.
Be patient	<ul style="list-style-type: none"> i. People need more time to learn. ii. Give time to build muscle memory.
Shy, anxious or conscious people	<ul style="list-style-type: none"> i. Help them find a space they are comfortable with.
Reasons to exercise	
<ul style="list-style-type: none"> i. Motivation to change. ii. Parents want the children with disabilities to have some activities to participate in while they go to work. 	

Varied schedule	
<ul style="list-style-type: none"> i. People with disabilities may not have a fixed schedule. ii. They may be unable to follow a fixed schedule. iii. May be emotionally or physical distressed that may affect regular participation. 	
Participation at an early age	
<ul style="list-style-type: none"> i. Develops habit. ii. Children can participate with their parents. 	
Reason for segregated participation	
Safety	<ul style="list-style-type: none"> i. People with intellectual disability may not be able to decide for themselves; require a support worker with them. ii. Can be very trusting; will accept or believe what people will tell them and this may potentially lead to security and safety issues. iii. Criminal checks for instructors and personal support workers; in integrative settings it will be difficult to get criminal checks for everyone coming to the session.
Comfort	<ul style="list-style-type: none"> i. When children grow up participating in segregated environments, they become used to that. ii. They become friends and become comfortable with the people they participate with.

Table 26: First Cycle Coding - Workshop Session 1

E.2 Session 2 - Overview:

Some key themes that came out of this session are as follows:

Fear and Misconception	
Trainers are scared	<ul style="list-style-type: none"> i. Of hurting/injuring PwD's. ii. Of causing more damage. iii. Of liability.
Parents are scared	<ul style="list-style-type: none"> i. Of children getting injured.
Not enough Knowledge	
<ul style="list-style-type: none"> i. Educational courses for coaches and trainers are ineffective. ii. Courses lack in-depth information relevant to involving PwD's in fitness activities. iii. Not enough guidance on how to know or ask the right questions to know your client better. 	
Know your Client	
<ul style="list-style-type: none"> i. Know your client's goals. ii. Know their constraints and limitations to better help them with fitness activities. 	
Modifications	
<ul style="list-style-type: none"> i. Knowing how to modify for every individual. ii. Knowing how to modify equipment. iii. Adapting the sport rather than the individual. 	
General benefits to fitness activities	
<ul style="list-style-type: none"> i. Keeps you active. ii. Helps you watch your weight. iii. Social aspects such as interacting with other people, teamwork etc. 	
Advantages to Integrative	
<ul style="list-style-type: none"> i. More people can join in the same activity. ii. If only for people with disabilities, restricts the users, very small target audience. iii. For government funding. iv. More funding for able-bodied/mainstream sports. 	
Starting in the early years	
<ul style="list-style-type: none"> i. Developing a habit that can last for life, start as early as possible. ii. Not many young Paralympians, because not many young adults with disabilities participate in sports. 	

Table 27: First Cycle Coding - Workshop Session 2

E.3 Session 3 - Overview:

Some key themes that came out of this session were as follows:

Personal training vs. Group fitness	
Personal Training	<ul style="list-style-type: none"> i. Even though one on one can be challenging, it is doable. ii. Can spend more one on one time and provide individual attention. iii. Easier to make adjustments for that one person.
Group Fitness	<ul style="list-style-type: none"> i. This can be more challenging than personal training. ii. Management of and adjustments for multiple people at the same time. iii. Time constraints, such as limited time (about 45 min) for each fitness session. iv. Not much time for preplanning or preparing and usually don't know ahead of time about the participants and hence cannot preplan.
Programming challenges for management and instructors	
Fear of unknown	<ul style="list-style-type: none"> i. Instructors learn to teach with a focus on able-bodied individuals (mainstream users); only learn the standard ways to work out; not exposed to the challenges involved with modifying work outs right off the bat. ii. Instructors and management might not have previous experience and knowledge to go on with and are therefore intimidated; scared of making mistakes, asking questions that may seem or be perceived as insensitive. iii. Instructors don't want to do something, particularly in a group setting, that might embarrass or make it awkward for a person with different ability; this can demotivate the participant from coming back to the class.
Inadequate information and resources	<ul style="list-style-type: none"> i. No information regarding what people want. ii. Already difficult to know what people want, let alone knowing what people can or cannot do. iii. Not enough resources such as equipment, space, time and or creative planning. iv. Learning process for instructors doesn't provide information regarding specific training techniques for people with disabilities.
Fitness training; a secondary job	<ul style="list-style-type: none"> i. Many fitness trainers are only part time trainers. ii. Fitness training is their second job while they do another full-time job. iii. Group fitness instructors work at multiple places at the same time. iv. This decreases the focus on participants at particular fitness centers, as instructor only sees them once a week. v. This also reduces the time for pre-planning and getting to know your participants.

Self-identifying or knowing your disability	
	<ul style="list-style-type: none"> i. It is important the people are aware of their abilities; know what they can and cannot do; know when to stop. ii. People should be able to advocate for themselves and hence involving them in all the decisions is key; what type of movements, workouts etc. suit that person abilities. iii. People, when participating in group settings should be able to manage or follow basic instructions.
Segregated vs. Integrative	
Segregated	<ul style="list-style-type: none"> i. Some participants might feel more comfortable in segregate settings. ii. Sometimes segregation makes things logistically easier.
Integrative	<ul style="list-style-type: none"> i. Many positive aspects of participating in group fitness activities, such as: the group dynamics allows the person to not look out of place while doing their fitness routine (everyone is exercising); allows people to create a family outside their house; people have peers to talk to (promoting mental health). ii. Overall beneficial to the human spirit; teaches people understanding and teamwork.
Communication barrier	
	<ul style="list-style-type: none"> i. Instructors feel hesitant and intimidated to communicate freely with the participant. ii. Similarly, the participants are reluctant to share; fear of being judged by the instructor.
Diversity and reflection	
	<ul style="list-style-type: none"> i. It is important that people with disabilities see themselves reflected in other people at the fitness facility. ii. Not only in peers but also in instructors, front desk, etc. iii. This might communicate the concept of integration to everyone around. iv. This will also allow for more communication as instructors with disabilities might be more comfortable asking questions regarding client's disabilities, abilities and goals; similarly, participants will feel comfortable answering questions.
Outside Collaborations	
	<ul style="list-style-type: none"> i. Important to collaborate with other facilities, clubs, disability centers; this allows for promotion advertisement, and knowledge transfer. ii. Many grassroots facilities out there, but since collaboration is minimal, no one really know what's available. iii. More volunteer opportunities to build awareness amongst the upcoming generation.
Roles of families (particularly parents)	
	<ul style="list-style-type: none"> i. A positive attitude from the parents motivates the child; show the child's ability rather than disability. ii. Parents should try and find appropriate fitness activities for their child with a disability; give the child experience.

Table 28: First Cycle Coding - Workshop Session 3

E.4 Session 4 - Overview:

Some key themes that emerged from this session are as follows:

Reasons for Segregation

- i. Physical activities that begin as integrated activities, are later converted to or separated into segregated activities; originally starting as a good intention, later split saying that participants with disabilities can't keep up with mainstream users.
- ii. It is believed that segregated physical activities sessions will provide more attention to participants with disabilities, however, due to scheduling and unavailability of coaches for training different sessions (separate sessions for mainstream users and sessions for people with disabilities), preference is given to sessions for mainstream users and the segregated sessions are cancelled.
- iii. Sometimes safety concerns can lead to segregation of activities; these safety concerns can be mitigated by a support person and can be related to the individual or other participants around.
- iv. General attitudes of people managing and running the spaces and activities can also contribute towards segregated activities.
- v. Fear of injury, felt by both instructors and participants, can hinder participation in physical activity; where instructors feel that they might injure the participant and participants feel that physical activity might injure them and increase the intensity of their disability.

Reasons for Integration

- i. Social integration of people supports building of new relations and improve mental health of participants; more opportunities for people to interact with each other.
- ii. Integrated participation means that you have a wider target audience for an activity, this means you can have more participants in one session.
- iii. When more people are participating, service providers can provide more offerings or more timings for the same activity; this allows for hiring instructors full time at a regular rate.

Role of Parents

- i. Parents have unrealistic expectations of the coaches; they believe that the coach is responsible for their child as opposed to all the children present; this leads to a conflicted relation between the parent and coach.
- ii. Similarly, parents of able-bodied children feel scared if a person with a disability is playing on the same team as their child; fear of their child being harmed or injured as a result of a person with disability playing or performing incorrectly.

Relation to Higher Education

- i. The reputation and perception of any higher education depends upon the experiences of the students; the better the university experience of a student, the more likely it is that they'll stay connected after graduation.
- ii. Students connection to their higher education institute after their graduations leads to more donations and funds or scholarships setups.
- iii. Students compare their experiences with their peers or friends; also, participation as a group of friends is more popular, therefore it is important that all aspects at a higher education institute account for group participation.

Structural and Built Accessibility

- i. To start with, the building, built structure and other built features at a fitness center need to be fully accessible to a wide range of abilities; built features may include pools, saunas, open spaces, activity rooms, tracks, etc.
- ii. Secondly, all heavy equipment and/or physical products need to be accessible.

Diversity and Reflection

- i. Diverse hiring practices, with coaches and fitness instructors who are differently abled will not only lead to awareness and acceptance of physical activity for people with disabilities but will also attract and encourage more people with disabilities to participate in fitness activities.
- ii. Hiring practices should also look in education backgrounds where people who are specifically trained in adaptive sports should be hired.
- iii. People with disabilities need more reflection of themselves in their instructors and peers.

Programming and Planning

- i. Fitness centers should have at least one coach or instructor who is trained in adaptive fitness available in every working shift; particularly at higher education centers where disability centers support education for all, so that registered students get an all rounded university experience as opposed to just taking courses.

Promotion and Advertisement

- i. Many people are unsure or do not know whom to contact, being vocal about how accessible a fitness center and what are the offerings is important.
- ii. If you cannot publicize everything have something that invites people to come talk or bring up their requests and concerns about accommodations to you.

Outside Collaborations

- i. Collaboration with other clubs and society on-campus and off-campus is important to extend the use of the fitness facilities; this also provides a platform to exchange knowledge and learn from what other places are doing.
- ii. This also encourages institutes or centers that are specifically for people with disabilities to involve mainstream users within their activities; integration needs to be both ways.

Product Knowledge

- i. Though there are many products out there that can be used for adaptive fitness, people don't understand the usage of those products; manufacturers need to do a better job at explaining what a piece of equipment can do.
- ii. This could include more visuals, poster that can be placed within the fitness centers etc. Such practices can also prompt creativity to use the equipment.

Choice to Participate

- i. The most important thing is "choice"; organizations shouldn't make determinations about how a person can participate or what a person can and cannot do, it should be up to the person.
- ii. People should determine their own physical limitations and come up and say that they require accommodation

Table 29: First Cycle Coding - Workshop Session 4

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