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# IDEAL TYPES OF SPORT AND WELLNESS TECHNOLOGY USERS

*Research full-length paper*

*Track N°12*

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## Abstract

*A demand exists for the increasing understanding of consumers' motives and habits related to exercising and the influence of sport and wellness technology on everyday lives. This study aims to shed light to the different types of users of sport and wellness technology by examining the influential aspects of sport and wellness technology and gamification. By thematically analyzing data from 16 in-depth interviews, one group interview, and one set of observation, the study highlights the unique characteristics of the sport and wellness technology users by grouping them into ideal types that represents data as extensively as possible. An ideal type is an analytical construct to ascertain deviations and similarities of concrete cases in an individual phenomenon. This study discovered five ideal types of sport and wellness technology users: On-Off Exercisers, Confidence Seekers, Intrinsic Exercisers, Performance Improvers, and Sport Addicts. The formed ideal types are the main theoretical contribution of this study. The main practical contribution follows from suggesting the characteristics of sport and wellness technologies that are most important for each ideal type and the related gamification aspects. The providers of these technologies can utilize these insights in determining the technologies most suitable for each ideal type.*

*Keywords: Sport technology, Wellness technology, Ideal types, Users.*

## 1 Introduction

It is important to understand as much as possible about the target audience. This is just as true for the sport and wellness technology sector, as there is such a wide variety of user characteristics. There is still a great demand for better understanding of consumers' motives and habits related to exercising and other health behavior as well as related information systems use. For example, the influence of sport and wellness technology and related gamification on their use and people's everyday lives is a rather unexplored area. Thus, it is important to conduct more research on this topic. This study focuses on sport and wellness technology and their users, i.e., all kinds of users of different wearable devices, applications, and other information technology that are used for monitoring and tracking person's physical activity and wellness.

The purpose of this study is to increase understanding of the different types of users of sport and wellness technology and the influential aspects of sport and wellness technology products and gamification. To highlight these unique aspects and characteristics of the users, they were grouped into ideal types. This enables to understand different user behavior, and to utilize this knowledge for future purposes, such as understanding consumer behavior of health and wellness related information systems.

The background of the study and the creating of ideal types was based on social, psychological and gamification related theories. The study was exploratory in nature, meaning that we did not utilize any particular theoretical framework, but instead explored perspectives from different research fields to support the creation of the ideal types.

In addition to the theoretical contribution, the study aims to contribute sport and wellness technology users in practical as the providers of these technologies can utilize the insights from this study in determining the technologies most suitable for each ideal type. For example, by increasing the understanding related to sport and wellness technology users, it assists technology companies to create products that encourage people to be more physically active and thus increase their level of their health and wellness.

## **2 Background**

### **2.1 Weberian ideal types**

Ideal type is an analytical construct originally presented by the German sociologist Max Weber. It can be defined as an entity created by a researcher, with which (s)he tries to understand and describe a diverse and multifaceted social action or phenomenon. Ideal types are abstractions of reality: they are internally fully coherent constructions representing reality but impossible to be found in reality as they are presented – or as Weber has put it, they are not from the reality (*wirklichkeitsfremd*) (Giddens and Sutton, 2009; Heiskala, 1990; Kyntäjä, 1990; Weber, 1904a, 1904b, 1922/1978).

Ideal types are created to distinguish and to emphasize (or even to exaggerate) the most important aspects of a given social phenomenon. Although ideal types are based on social reality, it is important to remember that Weberian ideal types are not descriptions of reality, but measurement tools (Messlatte), with which one can describe and measure reality. They intend to reduce the complexity of social reality and thus making it possible to analytically understand (Mittelstrass, 2004; Weber, 1988). Accordingly, ideal types cannot be empirically right or wrong: they either fit or do not fit to a given situation of reality.

Weber defines sociology as an empirical science trying to understand the social created by the individuals and their behavior. The behavior of the individuals is directed by motives, which, however, cannot be observed empirically. Therefore, it is researcher's task to conceptualize and to understand these motives leading to behavior. The behavior (and the motives) of individuals can be understood through sense-making (*Sinnerfassung*), which, according to Weber, brings out the significant, not just the observed. The result of this sense-making is the definition of Weberian ideal types (Heiskala, 1990; Kaesler, 2003; Kyntäjä, 1990).

Weber stresses constantly that ideal types have a twofold function: as already mentioned, they are measurement instruments of reality, but they also make it possible to juxtapose the constructed ideal types with an empirically observed situation. This, in turn, makes it possible to identify causalities and regularities within the observed social system or phenomenon. These causalities and regularities are then used to explain and understand the social on a higher level of abstraction (Kaesler, 2003).

The Weberian thinking on ideal types has had a strong effect in design of products and technologies, and the use of fictional people on design process is widely heralded. It has been used to typologize sport-related leisure consumers more broadly, for example in tourism and wellness services (see Ahtinen, Piirainen and Vehmas, 2015; Vehmas, 2010). Cooper (1999) refers to these fictional characters as *personas*, which are constructed based on interviews and ethnographical observation – just as in our research as we will later explain. However, this approach has not been used before in the context of sports and wellness technology, although its use is highly socially motivated and constructed.

## 2.2 Social perspective in exercise

A social world can be defined as “an internally recognizable constellation of actors, organizations, events, and practices which have coalesced into a perceived sphere of interest and involvement for participants” (Unruh, 1979, p. 115). People can be divided into four different categories based on their proximity, orientation, and relationship to the social world: 1) *Strangers* are not committed to social world and they approach it from an outsider perspective; 2) *Tourists* have transient relationships to the social world and are committed to it, as long as it remains entertaining for them. Tourists are motivated by curiosity; 3) *Regulars* are integrated into everyday experiences and to other participants as an ongoing function; 4) *Insiders*, for whom the relationship to the social world is like creating their identity. They focus on creating the world for others, having intimate relationships with participants and are engaging in recruiting new participants into their social world.

Sport and exercise can also be studied from the perspective of commitment to the social world. Relationship to sport and exercise is described as a person’s own exercise habits as well as his attitude towards sport culture in general. Koski (2008) refers to this as physical activity relationship (PAR), which he has divided into four different categories: 1) A person in the first category experiences exercise only through his or her own activities; 2) In the second category, a person is interested in doing physical activity him or herself but also interested in watching other people do sports as a spectator; 3) A person in the third category is described as a producer of sports, which means organizing physical activity possibilities with friends, for the family, or for a larger group; 4) A person in the fourth category is viewing sport as a way of living. This also often includes competitive elements of sport transferred to other areas of life, such as an intense drive to “win” in work life as well.

Social interaction can be a way to motivate people to exercise more. It can increase the level of enjoyment and performance regardless of whether the social presence is face-to-face or through some communication device (Ojala and Saarela, 2010).

## 2.3 Psychological perspective

According to Bandura’s (1986) social cognitive theory, an individual’s reactions, actions, and social behavior are influenced by those actions that they have observed in other people. The theory emphasizes the role of social experience and observational learning in personality development. A person’s self-efficacy, i.e., the belief in their capabilities to perform a specific task, is developed from self-perception and external experiences. People with high self-efficacy believe they can perform well and therefore are more likely see difficult tasks as challenges, rather than avoiding them (Bandura, 1986). Self-efficacy is also related to motivation. The strength of person’s self-motivation is affected by how (s)he feels the standards and attainability of the task. Easy standards might be viewed as less challenging and therefore they do not increase the level of effort or interest. Tasks that are too demanding can also decrease one’s motivation. However, moderately difficult tasks maintain high levels of effort and can produce satisfaction through achieving sub-goals (Bandura, 1998).

Self-determination theory (Ryan and Deci, 2000) is another interesting theory about motivation and exercise. According to this theory, a person can have intrinsic motivation, extrinsic motivation, or amotivation. A person with intrinsic motivation gets satisfaction simply from the activity itself, whereas a person who is extrinsically motivated does the task in order to attain an outcome with instrumental value that is separate from the actual task. Whereas an intrinsically or extrinsically motivated person has motivation to perform a task, an amotivated person is lacking the intention or motivation to do the task at all (Ryan and Deci, 2000).

Self-determination is based on three psychological needs: autonomy, competence, and relatedness. The need for autonomy refers to the need of being self-initiating in the regulation of personal behavior. The need for competence means a person’s need to interact effectively within the environment and feeling capable of completing a given tasks. The need for relatedness describes a person’s need to feel a connection to other people. The feelings of autonomy, competence, and relatedness can together or

separately facilitate intrinsic motivation, which has an influence on a person's level of self-determination (Ryan and Deci, 2000). In this study, these theories are linked to exercise behavior and use of technology, specifically sport and wellness technology.

## 2.4 Gamification and gamer types

Gamification, from its classical definition, refers to the use of game elements in non-game contexts (Deterding, Dixon, Khaled and Nacke, 2011). The common purpose of gamification is to make the user experience more playful and enjoyable and thus, to motivate the user to behave in desired ways (Deterding, Björk, Nacke, Dixon and Lawley, 2013). Recently, it has been proposed that the concept of gamification should be divided into the “process of gamification” and the “experience of gamification” (Kari, Piippo, Frank, Makkonen and Moilanen, 2016, p. 400). Kari et al. (2016, p. 400) define the process of gamification as “using a set of activities with the aim to implement game elements to non-game context” and the experience of gamification as “a use experience in non-game context that the user perceives as gameful”. The aim of the process of gamification is to generate more gameful and enjoyable user experiences and thus, to motivate the user towards desired behaviors (Deterding et al., 2013; Kari et al., 2016). In other words, the process of gamification aims to generate an experience of gamification in the user (Kari et al., 2016).

Games, especially those that are developed for health behavior change, can potentially have an important role in the behavior change process by enhancing some cognitive elements such as selective attention, which can help direct the focus to the main message. Gaming can also generate engagement by making the process more fun, which increases emotional engagement and motivation (Paredes, Tewari and Canny, 2013).

When it comes to gaming, there are many different ways to classify different player types and usually there are either behavioral or psychographic determinants in the background (Hamari and Tuunanen, 2014). Tseng (2011) has created player typologies that are based on players' motivation. He studied online gamers in general and divided their motivation into two determinants: the need for exploration and the need for aggression. He also categorized three different gamer types: inactive gamers, social gamers, and aggressive gamers. Inactive gamers differ from the other two primarily due to their overall low motivation for exploration. Whereas social gamers and aggressive gamers both share high motivation for exploration, social gamers have less need for aggression than aggressive gamers. In other words, whereas aggressive players want to win to defeat others, social players' main purpose is to be social with other players and they might even find winning and defeating others unappealing (Tseng, 2011).

## 3 Methodology

This study followed a qualitative approach. The data was collected by using in-depth interviews and observation. In formulating the ideal types, the focus was on profiling and synthesizing the data rather than categorization. An ideal type is an analytical construct presented originally by Max Weber to ascertain deviations and similarities to concrete cases in an individual phenomenon (Weber, 1904a, 1978). The purpose was to create an ideal type or types that present the data as extensively as possible. However, all the presented features of an ideal type do not necessarily exist in all or even several answers, but instead, the key issue is the inner logic within features of the particular type. In other words, the ideal type does not necessarily represent any particular answer or person by itself, but the existence of such a person described in the ideal type should seem logical (Kalberg, 2012).

The interviewees for this study were recruited from an earlier study whose participants had expressed an interest to take part in research related to sport and wellness technology. In May 2016, an invitation e-mail for an interview was sent to 107 potential participants, out of which 11 signed up for the interview. Additionally, five other people were recruited for the interview by contacting them directly. The total number of interviewees was then 16. The age of the interviewees ranged from 21 to 65. The in-

interviewees were selected based on their age and according to their physical activity (PA) background in order to receive a heterogenic group of interviewees. The PA categories were derived from the most recent Finnish National Sport Survey (Finnish Sports Federation, 2011) and included, from the highest PA level to the lowest PA level, the following: competition athletes, fitness athletes, fitness participants, health enhancing participants, utilitarian participants, casual participants and inactive/sedentary. The distribution of interviewees between gender and different demographic categories is presented in the Appendix.

The interviews were conducted in June 2016. The interviews were held face-to-face and lasted approximately 40-45 minutes. The interviews were structured under five themes: exercise background and habits, exercise motives, relationships to technology, relationships to sport and wellness technology, and gamification related to sport and wellness technology. All the interviews were recorded and transcribed.

In addition to the individual interviews, data was also collected through a four-day observation period conducted in a Finnish Spa and Rehabilitation Center in Central Finland during April 2016. The center organizes, for example, week-long retreats for companies to give their employees a chance to get motivated and learn more about physically active and healthy lifestyles. The observed group consisted of seven employees from a Finnish company within the banking and finance industry. The employees came from different offices around Finland so they did not necessarily know each other beforehand. The group consisted of five women and two men between the ages of 35 and 60. During the four-day observation, the group participated in different physical activity sessions, varying from hiking to aqua jogging and gym activities. The individuals also had their aerobic endurance and muscle strength tested, followed by lectures about healthy lifestyle and exercise. The participants were casually interviewed throughout the observation period: before, during, and after the sessions that they participated in. Their sport and wellness technology usage was also observed during the entire period. In the end of the last observation day, the participants volunteered in an hour-long group interview where the main topic was sport and wellness technology usage. This interview was also transcribed and analyzed in order to receive additional information and insight for forming the ideal types.

The method for analyzing the data was thematic analysis. Thematic analysis is a method for "identifying, analyzing and reporting patterns (themes) within data" (Braun and Clarke, 2006, p. 79). It organizes and describes the data set in rich detail (Braun and Clarke, 2006), and is the most widely used method of analysis in qualitative research (Guest, MacQueen and Namey, 2012). According to Marshall and Rossman (1999) the phases of a thematic analysis typically include the following: organizing the data, generating categories or themes, coding the data, testing emergent understandings of the data, searching for alternative explanations of the data, and writing up the analysis.

In analyzing the data, guidelines for thematic analysis by Braun and Clarke (2006) were followed, but as they suggest, the guidelines were applied flexibly to fit the research aim and data. The analysis began by categorizing the information obtained from the interviews to a table; including all the interviewees and their individual characteristics, motives, and habits. The analysis continued by searching recurring themes and recursively reviewing them in relation to the data. Rather than comparing individuals directly according to their sport and wellness technology usage, the baseline for the analysis was to focus first on the psychological, social, and gamification related factors presented in the theory part. Interviewees' answers were organized into several sub-groups based on these factors. Then, the focus moved on determining what kind of similarities these sub-groups had regarding their sport and wellness technology usage and related aspects. Finally, the report was produced.

## **4 Results: Ideal Types of Sport and Wellness Technology Users**

This study discovered five ideal types of sport and wellness technology users. The ideal types were formed based on the most substantive and essential features of each participant as well as the relation-

ships between those features. Therefore, the participants did not belong to a single ideal type category, but their features can be seen in several different ideal type categories. The five different ideal types are presented next.

#### 4.1 Type 1 (On-Off Exercisers)

*“If you don’t move, what do you do with a sport and wellness technology device? I’m sure there is already a device in the market that is perfect for me, I just don’t know yet what it is.”*

On-Off exercisers do not see sport and physical activity as part of their lifestyle. Instead, they rather see it as a necessity that has to be done due to, for example, health issues. They exercise occasionally but do it casually and inconsistently and often prioritize other things over physical activity. The general level of their physical activity and self-efficacy related to sport and exercising are medium or low.

On-Off exercisers are not too familiar with sport and wellness technology and therefore they lack self-efficacy in using it. For some, it is not so much about the lack of talent but mostly the lack of time for learning. Therefore, the most suitable sport and wellness technology for them would be one that is easy to use and learn to use. This technology could also work as a personal trainer by giving them general and personalized information about exercise, recovery, and nutrition.

On-Off exercisers are not well aware of the technologies on the market nor their features or what would be the most suitable solution for them. They are mostly interested in heart rate monitoring, calories, steps, and other basic functions that they are most familiar with. However, they are also interested in monitoring sleep quality and recovery in case these features would be provided by the technology. For On-Off exercisers, sport and wellness technology also works as a method of increasing motivation for exercising, at least momentarily. Only buying the technology already increases the motivation for some of them. However, the long-term issue is how to maintain motivation and turn the motivation more intrinsic.

The usage of sport and wellness technology often go together with exercising, as it is seen only as an exercising tool rather than a tool for achieving a healthier lifestyle. This makes the use inconsistent. On-Off exercisers would appreciate professional guidance in choosing what technologies are best for them. The wide variety of products available might seem overwhelming and the lack of information about the products can prevent people from buying a technology at all, especially if the users are not necessarily convinced of the benefits of sport and wellness technology products in the first place.

Regarding gamification, On-Off exercisers are not too interested in sharing their exercise data with other people or in social media or competing against other people. On-Off exercisers are usually inactive gamers but could develop to be social gamers, as determined by Tseng (2011). However, they are interested in exercise related activities or even challenges offered by friends and family, since social support is important for them and a factor in making exercising a habit. Gamification might bring extra motivation to continue exercising, but can also decrease motivation if self-set goals are not met.

#### 4.2 Type 2 (Confidence Seekers)

*“It is a matter of self-esteem. I feel bad if I have a less physically active period. Health and fitness are important too but exercising also affects me mentally.”*

Confidence seekers exercise more and somewhat more regularly than On-Off exercisers (Type 1), although still not more than about 2-4 times per week. Their self-efficacy is often low, which means that their belief in their own capabilities when exercising is low and the perceived barriers for trying out new sports is rather high. For confidence seekers, sport and exercise is not considered a social phenomenon and the focus is mainly on their own activities. However, they are interested in exercising together with their friends and family who often encourage them to partake. Confidence seekers do not usually follow sports or go to sport events.

For confidence seekers, physical activity and exercise are ways of achieving health related or weight management goals. Motivation is, therefore, mostly extrinsic, since physical activity is seen as a tool for achieving other things rather than doing it out of enjoyment. For confidence seekers, exercise is also a way of improving self-esteem and feeling good about themselves. Confidence seekers are usually not competitive, at least when it comes to their sport participation.

Confidence seekers usually have low or medium interest, but high trust in technology overall. The most important reason for consuming/purchasing a sport and wellness technology product is to be able to exercise in the right intensity and to get “confirmation” that they are indeed exercising, eating, and sleeping the right way and for the right amount. Technology might also serve as a personal trainer. The purchase of a sport and wellness technology itself can function as a way to gain motivation for exercising. An ideal technology is easy to use and easy to carry along, the kind that does not cause them a lot of extra effort to use or bring along, and does not affect their image in an unwanted way. Confidence seekers think that sport and wellness technology device has an impact on a person’s overall image. Therefore, it is important that the device either looks nice or is invisible enough so that it matches with different kinds of outfits.

Gamification might increase confidence seekers’ motivation to exercise. However, they are typically not social or aggressive gamers but rather compete against oneself. Being able to reach goals is a way of getting confidence seekers feeling good about themselves. Commonly used technologies are fitness and diet applications on mobile phones or wearable activity trackers. Confidence seekers are not usually interested in sharing exercise related data with other people or in social media. However, some exercise challenges set together with friends and family might work as motivators.

### 4.3 Type 3 (Intrinsic Exercisers)

*“The most important thing is that the physical activity I do is fun and therefore I don’t think of it as exercising. People are born to be physically active.”*

Intrinsic exercisers are exercising frequently, almost on daily basis. However, they are not too interested in goal-oriented participation and their exercise is usually utilitarian by nature, meaning that it is included in the daily activities such as walking, running, or cycling to work or to the grocery store. Intrinsic exercisers are intrinsically motivated and enjoy the feeling that they get from exercising. They usually prefer being physically active alone since they do not consider sport or exercise as a social activity but rather as a way of relaxation and individual time. Intrinsic exercisers are usually not interested in watching sports or taking part in sport events.

Intrinsic exercisers usually have high level of self-control, which means that it is important for them to achieve what they have decided to do and they will not give up easily. Intrinsic exercisers are not addicted to sport and wellness technology and they do not necessarily use it consistently or even at all. Thus, technology is not directly associated with exercising, since exercising is about feeling good at the moment rather than seeking and seeing improvement over time.

One important reason for intrinsic exercisers to use sport and wellness technology is that technology prevents them to possibly cheat when exercising. This may then motivate them to even exercise more and reach self-set goals. The most frequently used technologies are activity trackers or other self-tracking devices and applications that provide basic information but do not include too much detailed information. Intrinsic exercisers might consider feedback from technology as a way of increasing motivation when reaching the daily goals. On the other hand, negative feedback could also decrease motivation as it might create extra stress. Technology may then influence sport participation motivation either positively or negatively.

Intrinsic exercisers are seldom social or aggressive gamers of sport and wellness technology. However, competing against themselves in reaching daily physical activity goals can be perceived as interesting. Intrinsic exercisers think that sport and wellness technology devices give a sportier image to a person, even though they do not see wearing a device would change their own image. They are not

interested in comparing exercise data with others but could be interested in exercise challenges introduced by their close friends or family.

#### **4.4 Type 4 (Performance Improvers)**

*“My goal is to get better and improve myself. I’ve always been interested in facts and numbers and I want to know what the level of my exercising actually is.”*

Performance improvers have integrated sport and exercise as part of their everyday life. They participate in sport frequently because they like it, which means that the motivation is intrinsic. Still, they also see exercising as a means of achieving the goals that they have set for themselves. Often their main interest is to gain better physical condition. They often participate in sport or at least have participated in competitive sport in the past. Sport and exercise is also a social phenomenon for the performance improvers and their sport participation includes often different roles, such as volunteering or organizing events. Trying out new sports and exercise related activities is also mostly seen as fun.

Performance improvers are interested in sport and health on a daily basis. They usually have some goals for exercising, which is not only related to health or weight loss but also to performance. They are interested in knowing whether they are training efficiently or getting enough recovery. Features like GPS, calorie tracking, and heart rate monitoring are seen important in their sport and wellness technology. Performance improvers want to see their development and therefore compare their results to the previous ones. They are not addicted to technology but rather see it as a way to make the training and recovery more efficient and accurate. They are usually interested in a more complex sport and wellness technologies but do not necessarily feel the need to purchase the best technology in the market. As long as the technology gives them all the required information, they are satisfied.

Performance improvers have medium or high interest towards technology in general. They are at least somewhat competitive and use also sometimes sport and wellness technology as a competition tool. They are often either social or competitive gamers. Showing data to other people and comparing it with friends is acceptable and normal. Performance improvers are eager to share and receive exercise challenges to and from others and thus, make physical activity as part of their social life. For them, gamification can be experienced as nice and motivating but not a necessary element in sports and wellness technology.

#### **4.5 Type 5 (Sport Addicts)**

*“I compare my results to other people, especially with my friends on social media and face-to-face. It is a competition without the competition and I find it motivating.”*

For sport addicts, the main motivation to exercise is intrinsic. For this type, there is nothing better than the feeling after a good workout. Sport addicts are addicted to sport. They begin to feel physically bad if they are unable to exercise. Nevertheless, sport addicts are also motivated by the extrinsic awards such as winning, fame, material rewards, and money. However, they would exercise even without extrinsic motivators since sport and exercise is a part of who they are. They usually have high goals and dreams when it comes to sport. They also have a high self-efficacy towards sport and they are prone to try new exercise related activities. Sport addicts are often current or former professional or amateur athletes. Sport is a way of living and it is not only related to their own activities. Sports addicts are eager to follow other sports and be part of organizing sport and exercise related events. Sports participation is one of their main ways of socializing with other people, and training together with other people is a daily routine.

Sport addicts usually have high interest in technology. When it comes to sport and wellness technology, they are interested in solutions that provide them with all possible data they need or can think of. They are interested in solutions that could give them a competitive advantage in their sport and training. This seems to be the main reason why they buy sport and wellness technology products. The most important reason to use sport and wellness technology is to follow the training development and ana-

lyze and compare their performances with others. Sport addicts see themselves quit using technology only if it no longer serves its purpose or is not efficient enough. This type is also aware of new technologies coming up to the market and the possible improvements that are featured. Sport addicts are usually using high-end technology products and these products are a central part of their training.

Sport addicts perceive that wearing a wellness technology device gives them a sporty image and shows that a person is interested in health related issues in general. However, they do not think that wearing a device would have an impact in their own image since their image already is sporty with or without the devices. Sport and wellness technology is a part of their everyday life and they do not care how using or not using one affects their image.

Sport addicts are usually active in social media with regards to sport, fitness, and health. They either post their own training and competition results, or at least follow other's results. Social media is also a tool to reach new ideas and trends for their own training. For some, sport related social media might also serve as the main source of keeping contact with their friends. Sport addicts are social yet often aggressive gamers by nature when it comes to sport and health. They enjoy sharing the technology produced exercise results with others, and since they are highly competitive, they get enjoyment by being the best. Therefore, for sport addicts, gamification elements that enable competing or comparisons with others, may work as a way to increase motivation.

## 5 Conclusions

The purpose of this study was to produce a better understanding of people's motives and habits about the usage of sport and wellness technology and related gamification. This was done by forming ideal types of sport and wellness technology users. This adds to the understanding of the users, and industry and researchers can utilize these for future purposes, such as understanding consumer behavior. The data was collected through 16 face-to-face interviews, an observation period, and one group interview. In total, the study included 23 participants. The data was analyzed using thematic analysis with the focus on psychological, social, and technology gamification aspects. The results highlighted five different ideal types that are summarized below. They are On-Off Exercisers, Confidence Seekers, Intrinsic Exercisers, Performance Improvers, and Sport Addicts. These ideal types are the main theoretical contribution of this study.

Type 1 – On-Off Exercisers: For On-Off exercisers, physical activity and exercise are secondary activities that are performed because of the duty sentiment. This type's interest in sport and wellness technology is guided by what has been heard from other people or from the media about the important aspects of physical activity to health. Professional guidance is seen helpful, but overall knowledge of why sport and wellness technology would even be worth their time and money is more important. Gamification could work as a tool in increasing motivation, at least for a short term.

Type 2 – Confidence Seekers: Confidence seekers acknowledge exercise as an important part of healthy lifestyle that is used as an opportunity to feel good or to be with friends. The activity itself is not necessarily satisfying. This type might use a personal trainer or any wellness technology that would serve a similar function. Using sport or wellness technology should also not be an extra burden to life. Technology should look good, be unnoticeable, and integrate into the existing technology, like an app on their phone. What is trendy is significant.

Type 3 – Intrinsic Exercisers: For Intrinsic exercisers, exercise feels good and is enjoyable. Intrinsic exercisers have integrated sport participation into their daily lives, for example, in cycling to work. Physical activity is more about feeling good right now rather than getting enjoyment from reaching long-term achievements and goals. This type prefers to exercise alone in a non-competitive setting. He or she has high personal achievement motivation and self-control. Sport and wellness technology makes this type more accountable to their own exercising and provides motivational feedback. Gamification might bring intrinsic exercisers extra motivation by providing objective affirmation of their hard work.

Type 4 - Performance Improvers: For Performance improvers, activity is more akin to sport than exercise. Performance improvers want to stay healthy, but they also want to go faster or further, possibly compared to others, either in real life or online. However, for them, there are other things to life than just sport. If they can learn new things, train more efficiently, and somehow improve themselves with the help of the technology, they are interested in doing that. Yet, they do not feel the need to spend too much money or time in buying the most expensive technologies or following the hottest trends in sport and wellness technology. Gamification helps them to see their progress, reach further, and possibly also compete against others.

Type 5 – Sport Addicts: For Sport addicts, sport is a big part of life and identity. It is important to exercise, become better, achieve personal goals, and compete. Although, this type is mostly just addicted to the rush of good feeling they get at the end of a good workout. Technology is an important if not essential tool to reach their goals, and if they find a better tool, they want that too. For the Sport addicts, exercising is not a matter of status but rather a token of performance, although in some cases, being the fastest, online or offline, definitely upgrades their status as well. Be as it may, they enjoy the pleasure of winning. For most sport addicts, gamification is not the main reason to use technology. However, for some it can be an influential aspect if it enables competing or comparison with others.

In addition to the new theoretical knowledge provided by this study, some important practical implications can be drawn. The main practical implication follows from suggesting the characteristics of sports and wellness technologies that are most important for each ideal type and the related gamification aspects. The actors providing these technologies or other health and wellness related information systems can utilize these insights in determining which kinds of technologies would be most suitable for each ideal type. This assists the providers in designing, providing, and marketing the right kind of sport and wellness technologies to right target groups.

## 6 Limitations

This study has a few notable limitations. First, although the interviews produced a valuable amount of information and insights into the motives and habits of sport and wellness technology users, the number of participants is relatively low, and thus, could have been higher. However, the amount was large enough to form and describe the ideal types. Nevertheless, similar research with larger sample could be done to verify the results from this study. Second, the interviewees' background and the overall selection process also influence the results. For example, some of the interviewees were working in the field of information systems, which may have resulted in them having a higher self-efficacy towards technology in general. However, the interviewees with higher self-efficacy with technology did not necessarily have strong interest in sport and wellness technology. Third, the interviewees with higher levels of physical activity seemed to also have higher interest in technology, particularly sport and wellness technology. Despite of this result, it cannot be said that the interest towards technology in general goes hand in hand with the interest and motivation towards sports and health.

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### Appendix 1 Description of the interviewees

	<b>Male (n = 8)</b>	<b>Female (n = 8)</b>	<b>Total (N = 16)</b>
<b>Age</b>			
<30	3	3	6
30-50	3	3	6
>50	2	2	4
<b>PA background</b>			
Competition athletes	2	1	3
Fitness athletes	3	0	3
Fitness participants	1	2	3
Health enhancing participants	1	2	3
Utilitarian participants	0	3	3
Casual participants	1	0	1
Inactive/sedentary	0	0	0
<b>Socioeconomic group</b>			
Student	0	2	2
Employed	7	5	12
Unemployed	0	1	1
Entrepreneur	1	0	1
<b>Education</b>			
Vocational degree	1	0	1
High school diploma	1	3	4
Polytechnic degree	1	0	1
Bachelors' degree	0	0	0
Masters' degree	2	4	6
Doctoral degree	3	1	4
<b>Annual income</b>			
< 19 999€	0	3	3
20 000-29 999€	1	3	4
30 000-39 999€	1	1	2
40 000-49 999€	1	0	1
50 000-59 999€	2	0	2
60 000-69 999€	1	0	1
> 70 000€	1	0	1
N/A	1	1	2