Personal content in online sports communities: motivations to capture and share personal exercise data

Jarno Ojala
Tampere University of Technology,
Korkeakoulunkatu 1, 33720 Tampere, Finland
E-mail: jarno.ojala@tut.fi

Abstract: Web services that support exercise have become increasingly popular in the last couple of years. This paper describes a qualitative case study that includes a trial use and interviews with 20 users of three different online sporting communities. These services enable users to add the training content from their personal tracking devices. In the interviews, data was gathered on the users’ experiences and their opinions on the social needs and motivation to share content in online sports communities. The answers from the interviews were categorised into three main classes: social needs in sports communities, motivation for sharing content, and motivation for adding personal content to the services. As a result, users were motivated to create a personal exercise diary and content inventory online and also to share it with others in order to gain important information on exercising as well as peer support. Though the primary need for most users was a personal training diary, they also saw major advantages in sharing their data with the other members of the community.

Keywords: online communities; social features; social interaction; exercise; health; online communities; social media; personal content; personal inventories; design.

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Biographical notes: Jarno Ojala is a Researcher from the Unit of Human-Centered Technology, Tampere University of Technology.

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1 Introduction

Devices and technology to capture exercise data have made great strides in recent years. The development of heart rate monitors (HRMs) and GPS devices has created new possibilities for recording ever more detailed data on personal training. The developments
in automatic monitoring and online coaching can motivate users to exercise more and also help professionals in their training exercises.

The need to store, utilise, share, analyse, and understand this plethora of data also poses certain challenges. Until recently, this utilisation process was performed by transferring the data to one’s own personal computer. Now, however, the development of online sports communities has given athletes the opportunity to share their training diaries online which has also added a social dimension to the process. The traditional use of a handwritten training diary has now been superseded.

Users benefit from online sports communities in numerous ways. They can be motivated to exercise more and attain greater fitness, and communities can also generate essential information and knowledge of sports. There has also been a rapid increase in the number of online communities devoted to exercise, sport and sharing training information.

The main motivation for this study was to evaluate social implications, user experiences and the role of the community in three sports services. The study sets out to answer the following two main research questions:

1. What are the needs and desired functionalities for users in the online sports communities?
2. What are the personal, social and motivational factors for sharing the personal data? What motivates a user to create an exercise content inventory and to share it to the online community?

2 Related work

Earlier published research has reported on the motivational factors in using exercising software and related services. The literature also contains studies of online sports communities by identifying goal-setting (Consolvo et al., 2009a), how the multiplatform composition affects the experience (Wäljas et al., 2010; Segerståhl and Oinas-Kukkonen, 2011) and how these factors act as motivators for maintaining health and how they can motivate in creating personal goals for physical exercise. Technology-mediated physical exercise has also been widely studied (Ahtinen et al., 2008; Consolvo et al., 2006; Segerståhl and Oinas-Kukkonen, 2011).

In contrast, there has been relatively little research reported in the literature on the social aspects and the need to create personal inventories and share them in online sports communities. This paper presents design ideas for building an online sports community that enables users to create a personal training diary and motivates them to share it to others. Previous research has described how technology can motivate users to exercise more. Exercise services and devices can help athletes in their goal-setting (Consolvo et al., 2006, 2009b; De Souza and Preece, 2004) and guide them by monitoring their progress.

2.1 Social activity through exercise

In many cases, exercising involves social interaction. Athletes who exercise regularly typically have training buddies, team-mates or coaches, which introduces a social
dimension to exercising. This can promote enjoyment and sociability, and even improve performance when mediated through communication devices (Mueller et al., 2003; Wu et al., 2009). Social interaction can also motivate and support people to exercise more (Ahtinen et al., 2008, 2009).

The results of previous research suggest that social connections and the presence of other exercisers through a technical platform provide motivation for physical activity (Ahtinen et al., 2008, 2009; Wu et al., 2009). For more competitive athletes, it can even produce improved training results (Ahtinen et al., 2009; Wu et al., 2009). Wu et al. (2009) show that in the presence of exercising partners through a technical system, the social connection encouraged people to exercise harder and increased the overall enjoyment of exercise. Different social roles and relationships with other users can also be highly motivating: the service can allow a user to be, for example, a coach, exercise buddy, or sparring partner (Harjumaa et al., 2009; Wu et al., 2009).

2.2 Online sports communities

An online community is built on the basis of both weak and strong links between its members and, above all, shared interest (Girgensohn and Lee, 2002). On the net, active participation and strong emotional bonds between members allow the community to evolve and create content that is interesting and helpful (Haythornthwaite, 2005; Leitner et al., 2008; Preece, 1998). An online community can be seen as a platform that creates latent ties (Leitner et al., 2008), which are interpersonal connections that are technically possible but not yet activated socially. A previous study by Leitner et al. (2008) showed that people in an online community wanted to gather information and communicate about interesting topics, learn from other people, and maintain and strengthen relationships. In Leitner's research, motivation has been classed as either extrinsic or intrinsic (Bénabou and Tirole, 2003). Intrinsic motivation is the individual’s personal desire to perform a task for its own sake, for the pleasure of completing it. Extrinsic motivation comes from external rewards or even sanctions that prompt an individual to perform tasks (Bénabou and Tirole, 2003; Mueller et al., 2003, 2007). The beneficial effects of exercising, such as improved fitness, can be motivational, but active participation within the community can also motivate the individual both intrinsically and extrinsically (Bénabou and Tirole, 2003).

Blanchard has described factors that create a ‘sense of community’ as follows: identification, support, relationship, emotional attachment, and obligation (Blanchard and Markus, 2004; Girgensohn and Lee, 2002; Haythornthwaite, 2005). The study finds that a good reputation, social status, and commitment and loyalty to the group motivate people to participate (Blanchard and Markus, 2004). A sports community can motivate its users to participate by giving social rewards that increase the user’s credibility, status, or recognition within the community. These rewards can be in the form of goals or sub-goals or achievements (Malinen and Ojala, 2011) that are set for the user by the system or by the community. Users are able to attain these goals by completing certain tasks or doing a certain amount of exercise. Public commitment to specific long-range or short-range tasks can also be highly motivational (Consolvo et al., 2006, 2009a, 2009b; De Souza and Preece, 2004; Mueller et al., 2003; Maloney-Krichmar and Preece, 2002). The sense of the presence of others, even through online services, is shown to encourage exercise (Malinen and Ojala, 2011; Preece, 1998).
A community is based on the ongoing active involvement of its members. In online communities, peer support and empathy can be major factors in causing people use the service and contribute to it (Preece, 1998). Active and good-quality contributions create collective content (Olsson, 2009) and knowledge for the community, which is important to the users.

This study combines the area of social needs and how technological help and exercise data recording devices can motivate users to exercise more and share their training content via a community platform.

2.3 **Personal inventories and the motivation to share personal content with others**

As previous studies show, creating a personal inventory consisting of personal content can be one of the major reasons for capturing the data. However, creating personal inventories of the training data is an area that has received less attention in the literature. As the results of this study suggest, a personal inventory of the exercise history enables users not only to recall training events, but also to self-monitor their own exercise progress.

Previous studies have investigated the reasons for capturing personal content and creating personal digital inventories of it. Lehikoinen et al. (2007) have described the motivations for creating personal content: capturing and storing experiences, expressing self-identity and enjoying and sharing the digital content. Personal inventory that includes detailed data of one’s exercises can also be sensitive in sharing sense, because it can give away private information that users may not be willing to share. Lehikoinen et al. (2007) have introduced the GEMS model that describes the phases of the personal content experience: get, enjoy, maintain and share. In the GEMS model, users get the information by capturing it with their HRM or other devices; they enjoy the content after the exercises on their PC; they maintain it by storing and organising it to the online services; and the exercise content can also be shared with others.

Training data recording can also be seen as creating a memento of one’s training (Olsson, 2009; Olsson et al., 2008a, 2008b). The personal inventories that users create include digital representations of the actual event, to which they can add extra information (Olsson et al., 2007). This additional information may include subjective descriptions of the exercises or automatically created metadata (Vainio et al., 2009). This metadata may help in organising the content and also in retrieving it later on. Subjective descriptions also add emotional associations to the content and make it more empathetic, interesting and relevant to others (Olsson, 2009). Kärkkäinen et al. (2010) have studied the sharing of life-logs that include automatically recorded data of users’ actions. In the study, users were willing to share the data but they also wanted to be in control of the sharing and recording of the data.

Social interaction and sharing with others introduces a new dimension to personal training content. According to Väänänen-Vainio-Mattila et al. (2010), self-expression, reciprocity, learning and curiosity were considered to be the main drivers for social user experience Olsson (2009) has created a framework in which the emotionally meaningful and collectively maintained content is seen as the central motivator for social interaction in close-knit communities.
3 Methodology

The field study included 20 Finnish participants who made use of three different sporting web services: Suunto Movescount, Sports Tracker, and Polar Personal Trainer. All three services contain various social elements and also community features that offer different ways to interact and share information with other users. During the research, Suunto Movescount was still in the development stage and not available to the public until its launch a few months after this study in May 2010. Sports tracker and polar personal trainer, on the other hand, had both been on the market for several years.

Trial use of the Movescount service, which lasted three weeks, took place in November 2009. It was completed by ten participants. The other participants were already users of the other two services at the start of the research.

The objective of this study was to identify both the personal and the social needs and motivational factors that are involved in sharing their personal training content. A comparative study between the services was not considered useful because the services were at different stages of development.

3.1 Services studied

The services studied were Suunto Movescount, sports tracker, and polar personal trainer. The main focus of these services is keeping track of one’s own training, and adding training content to the service. Additionally, the services provide the means to share training content and include communal and social features, such as communication with other users. The services were selected because they all supported exercise recording devices and offered online community membership to the users.

3.1.1 Suunto Movescount

Suunto is a large Finnish manufacturer of precision sports instruments and also designs online services for athletes. Suunto has implemented the Movescount sports community service for athletes. This was launched on the market in 2010, after the study. The main idea of the Movescount community is to offer a means to keep a training diary and to share it with other users of the service. Movescount offers support for automatically adding data from Suunto HRMs. As its main content, Movescount offers Moves, which is a compilation of the user’s own training experiences. Users can upload the data recordings from Suunto devices and also input additional metadata and content about the weather, their feelings, as well as optional subjective descriptions of the exercise they take.

While Moves is the main content of the service, it offers a variety of social and communal features that enable its users to form groups and became fans or followers of certain users. During the research, the participants used the beta version of Movescount, which lacked certain social and community features of the final version. The idea of connecting with other users and following their training is to provide motivation for the user’s own training. Users can share their Moves with others and also comment on them. Individuals can also form groups to share common interest in topics such as a particular sport.
3.1.2 Sports tracker

Sports tracker tracks exercises and training routes by using GPS data. It also offers a platform to share exercise details and interact with other users of the service. The user’s mobile phone and the sports tracker application record the data during the exercise sessions. Training data are recorded using a compatible mobile device or can, optionally, be added to the service manually. Users can also add informal content such as comments and pictures of workouts, which introduces the opportunity for self-expression (Mueller et al., 2003). Sports tracker also offers tools for finding new friends and training partners on the basis of one’s location and for members to form groups.

3.1.3 Polar personal trainer

The main purpose of the site is to store the user’s training and strength training results and fitness data. Data can be uploaded using a compatible polar training computer or input manually. In addition, to basic information such as duration and calorie consumption, users can input additional notes about their training. The site provides statistics about users’ training that help in monitoring their progress. Personal trainer also includes training programmes and strength training exercise instructions that users can integrate into their own training regimes.

3.2 Participants

A total of 20 users of three different sporting communities were interviewed in the study. The most popular sport was running, which 16 interviewees reported as being part of their exercise regime. Gym training and cycling were also popular sports amongst the interviewees; both sports were mentioned by nine people. Other sports mentioned by at least three interviewees were cross-country skiing, swimming, badminton, and combat sports.

Of the 20 interviewees, 13 were male and seven female. All the interviewees were very interested in exercising, but exercised with greatly varying frequency and for different purposes. The competitiveness of the interviewees varied from training professionally for the Olympic Games to jogging for pleasure.

The interviewees were also asked about their use of other online community sites. Most of the interviewees used Facebook or YouTube and half of them reported having visited discussion forums. Several interviewees also used Twitter.

In terms of their use of social web services, there was considerable variation among the participants. Most used Facebook (http://www.facebook.com) (12 participants), YouTube (http://www.youtube.com) (11 participants) or different discussion forums (ten participants). Twitter (http://www.twitter.com) (five participants) was also mentioned. Some used Facebook and similar social websites with great enthusiasm while others reported no interest in interaction through these services.

Ten people were recruited to test use the beta version of Suunto Movescount (five female, five male). Movescount users were all previous users of Suunto devices and were selected from Suunto’s consumer database. Users of polar and sports tracker services were recruited through e-mail lists and were mostly students.
Table 1 Interviewee data

<table>
<thead>
<tr>
<th></th>
<th>Movescount</th>
<th>Sports tracker</th>
<th>Polar personal trainer</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participants</td>
<td>10</td>
<td>7</td>
<td>3</td>
<td>20</td>
</tr>
<tr>
<td>Male participants</td>
<td>5 (50%)</td>
<td>6 (86%)</td>
<td>2 (67%)</td>
<td>13 (65%)</td>
</tr>
<tr>
<td>Age range</td>
<td>23–45</td>
<td>24–31</td>
<td>25–36</td>
<td>23–45</td>
</tr>
<tr>
<td>Students</td>
<td>3 (33%)</td>
<td>1 (14%)</td>
<td>2 (67%)</td>
<td>6 (30%)</td>
</tr>
<tr>
<td>Technically-oriented profession/industry</td>
<td>4 (40%)</td>
<td>7 (100%)</td>
<td>2 (67%)</td>
<td>13 (65%)</td>
</tr>
</tbody>
</table>

All of the Movescout participants lived in the Tampere region and their ages ranged from 23 to 45 years, the average being 35.7 years. Some of the participants knew each other or were relatives. Seven participants were users of sports tracker and three were users of polar personal trainer. The interviewees’ ages ranged from 24 to 45 years, the average being 32.2 years.

Three of the participants were students while the remainder were in managerial positions or worked as specialists. Eight of the participants reported using a HRM almost every time they exercised, and two reported never using an HRM. Maintaining good physical condition was mentioned as the main motivation for exercising, but four of the participants also trained for sporting events and contests. These four participants also trained more seriously and thus wanted to monitor their performance more precisely.

These ten interviewees had used either sports tracker or polar personal trainer for at least six months. The most popular sports among these users were running (8/10), gym/weightlifting (5/10), and cycling (5/10). Six users stated that they usually exercise alone, two exercised with friends, and two said that they do both equally.

The participants were asked about how they recorded their exercise details. Half of them had used or continued to use a paper exercise diary, and seven used technical devices to record their exercise history (Excel, Suunto or other software, training-manager, Train Lite, etc.). Four of the users transferred the data automatically to a PC and half of them used internet services for documenting their exercise details. Eight of the interviewees reported using HRMs in most of their training. Nearly all (9/10) had searched the internet for information relating to training. Most reported sharing experiences about, for example, nutrition, feelings, accessories, and results.

3.3 Data gathering

The research data were gathered using diaries, interviews, and a survey. Interesting topics and the research questions were developed into interview questions, a trial diary, and surveys that participants would later fill in. The trial period of Movescout consisted of a three-week period in November 2009. The participants used the system and also kept a diary. The ‘diary weeks’ were followed by the user interviews. The trial use of the service was completed by ten participants. The data on the usage of the service during the trial were collected using structured diaries that contained positive and negative comments on the use session. All the interviews were recorded and the diary findings were discussed during the interviews.

Before the trial period, the users took part in an induction session where they were given passwords and usernames for the beta version of Movescout. The first survey was
also filled in during this session. In the first survey, users were asked which sporting and social media services they had used, and to provide background information on their sporting activities. During the three weeks of the free-form trial period, Movescount users filled in structured diaries to record their usage and user experience of the service.

The users of the sports tracker and polar personal trainer did not undergo a similar field trial because they had all been recruited for the study as experienced users of the services. However, they were also asked to keep a similar diary on their usage and experiences of the services. All the users filled in similar survey forms in the interviews.

4 Results

A large amount of data was gathered during the trial and the interviews. The data were divided into findings, one finding being a comment or opinion including a single thought concerning the social aspects of the services. The material provided a total of 447 findings that related to community or social aspects. The Movescount diaries amounted to 61 pages containing a total of 29 categorised findings. From the interviews 418 findings were listed. These categories include only findings that are related to the social or community aspects of the service. In order to conduct a content analysis, all of the interviews were transcribed and transferred to MS Excel. The transcriptions were divided into findings that contained one single comment or observation by the user. The findings were organised into categories that are discussed below.

The qualitative data analysis was made using methodology of grounded theory (Strauss and Corbin, 1994). All the comments and quotations were categorised into groups and a category name was later given to describe them. Since the services were at different stages of development, a comparative study between them was not considered useful. Still, all the findings are divided by the different services, because the social features and means to create personal inventories were different.

4.1 Overview of the results

After the content analysis of the material, several themes emerged concerning the motivational factors and desired features of the services. The categorisation of these findings can be used as a checklist for evaluating or implementing online sports services that attempt to add a social dimension to the data storing features.

Most of the users stated that their primary use of the service was to keep a personal sports diary. Sharing training information and social aspects was secondary, but most of the users considered that these were also very essential features.

Factors that create the motivation to use the services were also identified in the study material. The findings of motivations were two-fold: users wanted to add data for personal and private purposes in order to collect the data of their exercises and to monitor their development. They were also willing to share this data with others to add social dimension to the training. By sharing personal data, users wanted to contribute to the sport community and also to seek help and support from others. Many saw major advantages in sharing the training content with others and especially in seeing the content of others. The findings were grouped into two main classes: community and social needs; and motivation for adding and sharing personal training content.
Table 2  Categories of the findings

<table>
<thead>
<tr>
<th>Categories</th>
<th>Personal</th>
<th>Social</th>
</tr>
</thead>
<tbody>
<tr>
<td>Needs and desired functionalities</td>
<td>Personal statistics</td>
<td>Social interaction features</td>
</tr>
<tr>
<td></td>
<td>Personal training data inventory (content storage)</td>
<td>Group features</td>
</tr>
<tr>
<td>Motivational factors related to</td>
<td>Ease of adding and automatic</td>
<td>Communication features</td>
</tr>
<tr>
<td>using the services</td>
<td>transfer, automatically generated data</td>
<td>Privacy settings, control</td>
</tr>
<tr>
<td></td>
<td>Additional training data,</td>
<td></td>
</tr>
<tr>
<td></td>
<td>aggregated/computed statistics</td>
<td></td>
</tr>
</tbody>
</table>

4.2 Needs and desired functionalities

During the interviews participants showed a great interest in finding an easy way for monitoring their exercises. Capturing personal exercise data was highly motivated by the fact that users are able to create their personal exercise inventory to the services. Similar findings are made in a study by Consolvo et al. (2006). The participants wanted to track their earlier routines and compare them with their current performance. Personal inventory was seen as an essential way to self-monitor personal exercises and fitness.

Table 3  Identified needs and desired functionalities

<table>
<thead>
<tr>
<th>Category</th>
<th>Movescout  (N = 10)</th>
<th>Sports tracker (N = 7)</th>
<th>Polar  (N = 3)</th>
<th>Total  (N = 20)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Personal statistics</td>
<td>42</td>
<td>21</td>
<td>1</td>
<td>64</td>
</tr>
<tr>
<td>Personal data inventory/content storage online</td>
<td>3</td>
<td>22</td>
<td>3</td>
<td>28</td>
</tr>
<tr>
<td>Total</td>
<td>45</td>
<td>43</td>
<td>4</td>
<td>93</td>
</tr>
<tr>
<td>Social</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social interaction</td>
<td>53</td>
<td>6</td>
<td>5</td>
<td>64</td>
</tr>
<tr>
<td>Privacy settings</td>
<td>29</td>
<td>7</td>
<td>3</td>
<td>39</td>
</tr>
<tr>
<td>Group features</td>
<td>30</td>
<td>6</td>
<td>1</td>
<td>37</td>
</tr>
<tr>
<td>Communication</td>
<td>7</td>
<td>10</td>
<td>2</td>
<td>19</td>
</tr>
<tr>
<td>Total</td>
<td>119</td>
<td>29</td>
<td>11</td>
<td>159</td>
</tr>
</tbody>
</table>
4.2.1  Personal needs and desired functionalities

4.2.1.1  Personal statistics and monitoring

Keeping a sports diary electronically in the services was seen as being highly motivating. In addition, the users wanted to have various features for monitoring their training and keeping track of their development.

U6  “The exercises and adding feature were great. I would like it if the service guided me to exercise on the right intensity level and to recover.”

U13  “I follow all my outdoor activities. I love keeping a diary that shows what I have done and where.”

The users also wanted the service to monitor their development and provide advice if they are aiming at a particular goal.

U1  “This should show if the exercising makes sense or is over the top.”

U20  “The main thing is the development monitoring. If I have decided to go faster, I can track where I got tired and could not keep up the pace.”

Overall, automatically generated statistics and aggregations of the exercises were much appreciated.

4.2.1.2  Creating personal inventory/training content storage online

The users stated that they need a secure place to store their training content. Two of the participants said that they were more comfortable knowing that their content is stored in a database in the service because they could lose the data in their HRM or PC. The inventory was seen as offering online storage that could be accessed anywhere.

4.2.2  Social needs and desired functionalities

4.2.2.1  Social interaction

The users wanted various features for social interaction in the service. They wanted a means to communicate with other users through the service. Most of the participants wanted the opportunity to seek help or guidance or features to keep in touch with their friends via the service.

U10  “I want to contact my training buddies with it and to communicate with them!”

For maintaining active social interaction, the users appreciated the possibility of adding friends or contacts. The participants also wanted features that facilitate easy participation and comment. They mentioned many features that would add ways to interact with others in fast and entertaining ways, such as online chat, ratings (‘like’ or ‘thumbs up’), polls, the direct sharing of content with certain users, linking, and live feeds of friends’ activities. These fast and easy means of interaction would make it possible for busy users to show and maintain interest with minimal effort.

Keeping in touch with friends was seen as being highly motivating. The users wanted live tracking of their friends’ exercise sessions to see when they are training. Sharing content with certain friends after exercising was also motivating.
4.2.2.2 Privacy settings

When asked about privacy issues, most of the participants wanted to have at least some privacy adjustment levels. Most wanted to be able to restrict their visibility to their friends. One of the users observed that she would like to have private exercise sessions, for example, prior to important competitions. The users felt that privacy settings that are easy to use but can still be freely modified can also promote trust in the service and increase motivation to share content.

Some of the participants also felt that information concerning personal health is confidential and should remain private by default. The category ‘only my groups can see this’ was the most popular option for sharing content. Most of the participants were more willing to share content with friends and acquaintances than strangers.

The personal training data inventory in the online service also raised some concerns over the privacy of personal data. Even though many users were active on social networking services, they felt that exercise content was private and vulnerable to abuse. In the groups they wanted to share and discuss exercise sessions that took place in an offline context, for example, places, dates, and results. They did not want outsiders to see this information.

4.2.2.3 Group features

The users reported that the intimate groups that they create in the service are more interesting than the whole service as a community. Such groups can evolve around users’ location or training surroundings or a particular sport.

Some of the users wanted to say more about themselves and also to know more about other users. However, they also wanted privacy settings so that information can only be seen by their group members or friends. Users would make their feelings and experiences about the exercise sessions visible in their profile to selected groups and also give a more precise description of their activity and sporting history. Some interviewees also stated that their favourite routes should only be visible to selected groups.

4.2.2.4 Communication through the service

The users also needed more advanced features to inform their groups and friends about competitions or training events. Their communication needs were greater than merely adding a comment on another user’s exercise or adding a ‘thumbs up’; they wanted, for example, features allow the sharing of essential information on events and competitions with other users and groups. Users wanted to identify other users or contact them.

4.3 Motivational factors related to training, significance of the online sports community

From the interview material, factors were identified that relate to the usage and user experience of the online sport services. Users considered these aspects essential for supporting and guiding them in their training. Although the majority valued social aspects and the sharing of information, not all the trial participants felt this was important. Those who did not use Facebook or other social networking or social media services tended not to see this as particularly important.
“It is just a training diary for myself, I’m not used to communicating through the net.”

<table>
<thead>
<tr>
<th>Category</th>
<th>Movescout</th>
<th>Sports tracker</th>
<th>Polar</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ease of adding the data/automatic</td>
<td>23</td>
<td>6</td>
<td>0</td>
<td>29</td>
</tr>
<tr>
<td>transfer</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Additional training information and</td>
<td>12</td>
<td>6</td>
<td>2</td>
<td>18</td>
</tr>
<tr>
<td>related data</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gaining reputation and status</td>
<td>8</td>
<td>1</td>
<td>0</td>
<td>9</td>
</tr>
<tr>
<td>Total</td>
<td>43</td>
<td>13</td>
<td>2</td>
<td>58</td>
</tr>
<tr>
<td>Social</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>Obtaining feedback and guidance</td>
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<td>1</td>
<td>12</td>
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4.3.1 Personal motivational factors

4.3.1.1 Ease of adding the data/automatic data transfer

In the interviews, the users stated that they add almost every exercise to the service because it can be done automatically. Ease of adding information is more than a motivator; its absence can impair the experience: the automatic or easy data transfer from the recording device to the service was seen by some of the users as the most important factor in the sports service. Adding exercise information to the service and analysing it must be easy to do. The users wanted the service as a personal training diary and a place to store and share exercise data and experiences. U8: “There are many sporting services nowadays. I really want this to combine all the good features from all of the services in one single service!” Adding data manually was seen as time-consuming and tedious. Most of the participants wanted the services to support automatic data transfer from their HRMs or other recording device. U7: “I had automatic data transfer in the Suunto service I used before. Adding exercises manually is a huge step backwards”. As noted earlier, many users were accustomed to the automatic transfer of their training data from their HRM and expected to be able to upload data on their heart rate, time, calorie consumption, etc., with the test service. The users observed that they would not like to add their exercise data manually. Even the automatic exercise uploads may be forgotten if exercising has no specific goal or frequency.

U8: “I would not bother to add the exercise data manually any more. I really need the data transfer to use this actively.”
4.3.1.2 Additional training information and metadata

During the interviews, the users stated that additional information on the training sessions motivates them to see the exercise data and also to add their own exercise data. In the trial, the users were able to manually add additional information about the weather, their feelings, a description of the intensity of the exercise and route, etc. Users were motivated to modify the exercise content with their subjective descriptions.

4.3.1.3 Gaining reputation and status

The users considered that it is very important to see their own training history and also the history of others. According to them, training history affects the credibility of particular users in the system. The more seriously they have trained, the more likely it is that they are knowledgeable about what they are doing. Before exercising became competitive or the user had no specific goals, the recording and sharing of exercise details were not seen as important. Because reputation is established as a result of interaction among users, it can also be regarded as a social motivational factor.

4.3.2 Social motivational factors

4.3.2.1 Content and information of other users

Other users’ content serves participants in two ways: meeting their information needs and providing entertainment and motivation. The users were mostly interested in the content of their friends and acquaintances. Some stated that initially they also wanted to see recommended content of strangers to get started since they had no contacts in the service. The content of others was seen as being inspirational and it was said to provide new ideas for one’s own exercising.

The users wanted flexible features to put their information online. They wanted the option to publish details about themselves, though only the minimum of information should be mandatory in the profile. They wished to have basic information about other users so they could easily judge if the training content was comparable to their own. The users would also like to make their age, location, activity level, and training content publicly visible in their profile and they would also like to see such information on other users too.

Some of participants said that they would like to have a public profile with a limited amount of personal detail and also a more detailed profile that would be restricted to friends or group members.

The users liked the fact that they could see the training data of others and they wanted to get more information through the system about other people and the exercise regimes. The users also wanted flexible features for browsing, filtering, and searching for users and their content. The users also wished to have a forum in which to share thoughts and ideas and access information about training. They were especially interested in new routes and training programmes and ways to arrange exercising in groups.

The users were interested in the training data of others, though most of them noted that not everyone’s content might have value. They stated that they want to see their friends’ exercise details and comments, professionals’ exercise information, and the content of people that is in some way relevant. This could include people in the same
locality or of the same age or at the same activity level. The users were also interested in the content of professional athletes.

4.3.2.2 Peer and community support/social awareness

According to the participants, following the activities and development of others is also served to motivate oneself. Knowing that others have been exercising actively can act as a form of social pressure. Most of the interviewees stated that ‘positive pressure’ is highly motivating. When they see others’ inspirational workouts or successful programmes, it encourages them to exercise more. Users wanted help and support from professionals and also peer support from others that do similar exercises.

U13 “Service motivates you to move. You can see the exercises of others and encourage others and create co-spirit.” U12: “Even though your friends have not added exercises, service offers exercises of strangers. You feel that others are using the service. In many services the problem is that you feel like using it alone.”

4.3.2.3 Online coaching

The more serious trainers among the participants also saw the need for online coaching. The system could motivate users by sending them training programmes and notifications automatically if the programme is not being followed properly or if the training has been especially hard. However, online coaching with their real coach through the service was also considered a very important feature. Through the system their personal coach could see their training data and give more specific training advice, regardless of location.

4.3.2.4 Getting feedback and guidance

The users were motivated to share their personal exercising content in order to gain feedback from other users, and also to get advice and guidance from more experienced athletes.

4.3.2.5 Comparing results with others and contesting

Some of the users expressed a keen interest in competing through the service. They mentioned that comparing their own performance and amount of exercise with that of others could be highly motivating.

4.3.2.6 Community and collective content

A major need in the sporting community is the creation and sharing of knowledge. When the community contains a vast number of sports enthusiasts from beginners to professionals, a great amount of information could be collected and shared in the service. The users also wanted the community to have access to a data repository containing a pool of collective knowledge and information. Information that the users wanted from the community included the following: common knowledge about sports and accessories, shoes, clothes, nutrition, information on sports injuries and recovery, the exercise diaries of both professional and amateur users, the guided training programmes of professionals
and their coaches, gym and weightlifting programmes and advice, guidance and help with training and resting as well as real accounts of progress through exercise.

Users also wanted information on their locality and the kinds of activities available if they want to take exercise in unfamiliar surroundings.

U8 “I just moved to Tampere, and I’d like to know about jogging routes here.”

The participants also mentioned that they would be motivated to share more when they had access to other services, such as another exercise data recording system or Facebook, YouTube, or Flickr. The users wished to have automatic options to add their exercise details or an application that shows a summary of their training regime as part of their profile.

5 Conclusions and discussion

In this study, patterns of self-monitoring and social interaction related to exercising content were identified. In general, sociability and the support of others in the same community were seen as important in an online sports service. Many of the participants reported that recording and analysing the exercise data is the primary function and motivation for using these services. However, they also noted that social interaction online adds a new and welcome dimension to their training regimes. Most of the users showed a keen interest in including a social dimension in their training data recording.

Even though the three services studied varied considerably in terms of the social functionalities they provided, the interviewees were in close agreement on what they wished to have in their ideal community. The most important social needs identified in this study relate to communication and interaction as well as sharing knowledge with other users, whether friends or strangers. Through communication and sharing the users were seeking social support, new ideas to develop their training and the pleasure of sharing experiences and performance data.

As the results indicate, the implementation of social and community features, for instance, showed considerable variance. During the interviews, those who had not used community-related functionality made no mention of this as a motivator.

Most of the interviewees said that their primary use of the online sports service is to keep a personal training diary. Sharing training information and social interaction was secondary, though most users also acknowledged these to be essential features. They also felt that they needed flexible features for interaction through the system, for example, chatting or opportunities for more serious conversation. An online sports community can also offer essential information and guidance for training and add additional value by providing a platform for social interaction through the internet.

As previous studies show, most users were willing to share their exercise content with other members of the community in order to gain feedback and guidance from other users (Ahtinen et al., 2009). Having access to the exercise information other users also motivates people to create and record their own exercise information and make it public. That motivates users to become more competitive but also more supportive of each other.

The major differences between the users’ responses concerned the questions about sharing behaviours. Some participants would make all their information and exercise details public, while others would prefer to keep most of their content private. Privacy was seen as a very important issue when exercise content is published. Modified and
adjustable privacy options can be a motivational factor when sharing exercising content. The users wanted flexible privacy settings in order to modify what they share and with whom.

This research was conducted to gain an insight into how an online community can motivate athletes in their training and to identify the most favoured social features. This study suggests important factors of social features that athletes want to have in a sports community. This study also finds that users are motivated in different ways when adding personal exercise content to the service and sharing their content with other users. Although the primary need of most users was a personal training diary, they also saw the clear advantages in sharing their content with other members of the community. The results of this paper can be used as a checklist when designing a sporting website that attempts to facilitate social interaction.

Acknowledgements

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Notes
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3 http://www.polarpersonaltrainer.com