

# An Exploration of Social Requirements for Exercise Group Formation

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## ABSTRACT

Exercising is often a social activity performed with other people, yet finding compatible exercise partners is difficult in practice. To gain a better understanding of the social requirements involved with forming exercise groups, we conducted a two-phased exploratory study involving an online web questionnaire with 96 respondents and two focus groups. Our results highlight various aspects of collaborating with exercise partners, but also indicate the limited utility of currently available systems to support such collaborations. We discuss implications for collaborative technologies supporting exercise group formation.

## Author Keywords

Exercise, exercise partners, collaboration, social interaction.

## ACM Classification Keywords

H5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous.

## INTRODUCTION

The benefits of exercise are well documented [1, 3, 4]. It is widely known that exercise increases physical fitness and helps to develop healthy bones, muscles, and joints. It improves circulation, lowers blood pressure, and reduces the risk of cardiovascular disease that can be life-threatening. It helps to control weight and decreases the chances of obesity-related illnesses. It even helps treat moderate forms of clinical depression [4].

Exercising is often a social activity, for example team sports, health club activities, and even jogging [6]. Many individuals need some level of encouragement to keep exercising and oftentimes get it from a friend, spouse, or acquaintance who might be considered their “exercise partner”. Exercising with another person has many advantages, such as adding variety, conversation, diversion, and a bit of unpredictability to an exercise routine to keep it interesting from one day to the next. Exercising with others

often leads people to participate in physical activities more regularly [7].

Technology enhances the collaborative efforts surrounding exercise by helping people to find, schedule, and collaborate with exercise partners. A plethora of digital forums, websites, and online resources attempt to assist individuals seeking to exercise with others [8, 1]. As well, researchers and designers have begun to explore the use of computer systems to introduce and support collaboration in the context of doing physical activities [2, 5]. Despite this increasing interest in designing systems to support collaboration in exercise, most previous studies have explored the issues involved in such collaborations in the context of a particular technology (e.g., pedometer [2, 6], fitness games [5]). Formative studies to understand how people find exercise partners and what issues are involved in this process in general have been largely missing.

In this paper, we report on an exploratory study aimed to understand the social requirements and effort involved in finding exercise partners. We explore how people find exercise partners, what difficulties they face in the process, and how and why their collaborations succeed or fail. In particular, we designed our study to examine the following research questions:

- Q1. Do people who exercise have partners? If so, how did they find them?
- Q2. If people do not have exercise partners, what are the reasons?
- Q3. What happens when people do not have an exercise partner?
- Q4. What do people look for in their ideal exercise partner?
- Q5. What information would people be willing to share to find compatible exercise partners?

We present our results and discuss practical implications for the design of systems that support collaboration surrounding exercise.

## RESEARCH METHOD

### Study design

Our study consisted of two phases. First, to gather input from a breadth of viewpoints, we employed an online questionnaire with the intent of gathering data from

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approximately 100 respondents. To understand participant responses more in-depth, we then conducted two follow-up focus groups with a smaller set of the respondents.

#### Questionnaire

The online questionnaire consisted of questions asking readers about what exercise activities they do, if they need and have exercise partners, how they found them, what criteria they look for when searching for them, *etc.* Participants were not allowed to skip questions. We piloted our questionnaire with lab members and refined questions and response formats twice before deploying it online. The questionnaire consisted of 10 multiple choice, 3 Likert scale, 1 form-based question, and 9 optional open-ended fields.

#### Focus group protocol

Each focus group was roughly 90 minutes in duration. At the start of the meeting, we presented preliminary questionnaire results as a way to initiate discussion amongst the participants and for them to establish an initial rapport with one another. We then used the rest of the meeting as a mediated discussion focused on the above research questions. The goal was to gather additional detail about exercise behavior that was not fully explored in the questionnaire.

#### Participants

We recruited study participants through email and postings on bulletin boards at two recreation centres as well as a university residence. We will henceforth refer to study participants simply as “respondents”.

Our sampling resulted in 96 respondents (53% female, 47% male) who completed the questionnaire (44% in age range 25-29, 26% in 20-24, 20% in 30-34). 92% of respondents reported doing exercise over the past month and listed a wide variety of activities such as salsa dancing, aerobics, yoga, cycling, and kick boxing. Respondents were entered into a drawing for an Apple iPod Nano.

We then recruited focus group participants via email from the list of questionnaire respondents who had expressed interest in participating in a follow-up session. A total of 12 participants (5 female, 7 male) were involved. We selected these participants because they performed a wide variety of activities and were active. Focus group members each received CDN\$20 for their participation. Both focus groups were video recorded with our participants’ consent.

#### Analysis

The focus group videos were transcribed for analysis. The first and second author analyzed the data together and applied an open-coding scheme to both transcripts. As we went through the data, we coded the new themes as they emerged. We iterated through the data several times and collapsed similar themes based on constant comparison of the data and codes.

## RESULTS AND IMPLICATIONS

In this section, we present our results framed by our research questions. We use descriptive statistics from the questionnaire data to explore patterns in respondents’ exercise behavior and qualitative data gathered from our focus groups to further explain the patterns. We caution that the descriptive statistics are not intended to provide statistical evidence of the frequency of these phenomena in the general population.

Respondents were enquired about the type of activities for which they needed exercise partners. However, we observed that their partnership need for different activities was highly individualized. For example, some respondents who ran wanted a partner to set their pace but some preferred running alone to unwind at the end of the day. Due to the many individual differences, we shifted the focus from an activity-centric view to better understanding the criteria for a good exercise partner.

### 1. How people who exercise find partners

59% of respondents reported that they currently have one or more exercise partners. Respondents met their exercise partners primarily in two different ways: *personal relations* (70% responses) and *activity/location* (30% responses). People either already knew their current exercise partners (*e.g.*, spouse, relative, friend, roommate, co-worker) or met them through an activity or place (*e.g.*, community centre, social sports club, ballet class).

The focus group revealed the importance of compatibility between personalities and that time was needed to find additional exercises of common interest. A participant mentioned, “*I think for me it took probably a lot longer time just to start to getting to know people, like through teams to know people, and then getting to know what they like other than that sport that they are playing.*”

Interestingly, respondents scarcely used technology to find exercise partners. Only two respondents met their current exercise partner through a website and an online forum. A majority of respondents (69%) deemed word-of-mouth as an effective way to find exercise partners.

#### Implications

These results indicate that the collaboration among exercise partners is a two-phase process for our participants. The first phase involves ‘discovering’ common activities, and the second phase is the actual collaboration surrounding the activity (*e.g.* finding a good time to exercise, carpooling). Accordingly, systems should support both finding of exercise partners by enabling users to discover common activities among prior acquaintances and providing proper tools to continue the collaboration once common activities have been found.

In this regard, technologies could leverage pre-existing social networks of people for finding exercise partners. This is in contrast to exercise partner-finding technologies based

on the complete stranger model or the model of unmet friends of friends.

## 2. Why people do not have exercise partners

41% of respondents did not have current exercise partners. We grouped their explanatory comments into two general categories: 17% respondents did not need exercise partners and 24% respondents had difficulties in finding or meeting up with exercise partners.

Certain activities, such as those done primarily to relieve stress, were often performed alone and did not require exercise partners. There were also some unexpected responses, such as “*I find exercising with other people to be embarrassing!*” In addition, the focus groups revealed that having an exercise partner meant that exercise could take more time due to increased social interaction.

Despite these reasons, 24% of respondents indicated that they still wanted exercise partners, but faced difficulties finding others with similar goals or scheduling with them. The focus groups revealed that this was especially true in activities that they wanted to learn but did not know friends who did them. Moreover, the spontaneous and irregular nature of exercise further complicates its scheduling.

### Implications

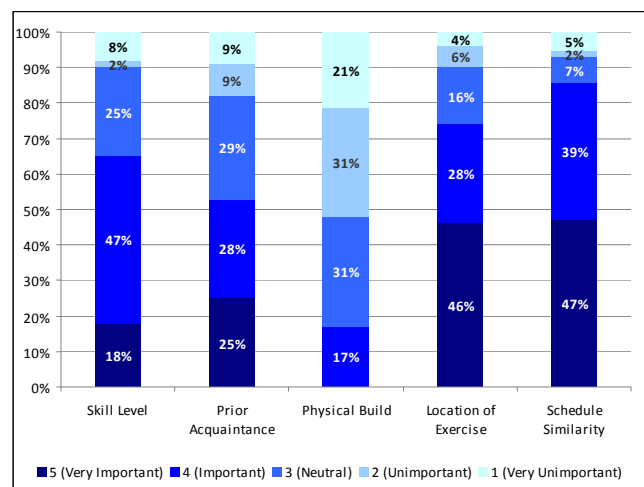
The results indicate that, on the one hand, sometimes respondents want to ‘hide’ from their exercise partners (depending on the type of activity or personal preferences). On the other hand, there are times when respondents want to broadcast their availability and willingness if they do not have any exercise partners. Such temporal variations in privacy levels are unique to this opportunistic type of collaboration and should be facilitated by the tools supporting it. It should be noted that most current tools support ‘person-based’ privacy levels and not ‘time-based’.

## 3. What happens in the absence of exercise partners

A large majority of respondents (80%) reported that they had experienced a situation when they wanted to do an exercise that required a partner but they could not find one. Of this group, 10% reported that this has happened *once before*, 74% said that it happened *a few times* before, and 16% reported that this happened *often*.

For respondents who have experienced this before, they could be divided into three groups: 24% of respondents reported that they strictly did not exercise at all, 68% of respondents strictly exercised but without a partner anyway, and 8% of respondents did one or the other at various times.

Focus group members provided a deeper understanding of what happens when a person wants to exercise but cannot find a partner. The discussed effects include impact on their motivation, as one member put, “*Sometimes the lack of a partner results in a lack of motivation, and then I do not exercise.*” As well, the lack of an exercise partner also affected activity selection. “*Well, you might have to change*



**Figure 1. Perceived importance levels for various criteria in ideal exercise partners. The scale ranges from 1 to 5, where higher values mean greater importance.**

*exercises, so if you wanted to have another person to go play squash then you'd have to do something else”.*

### Implications

Approximately one-fourth of respondents reported that they simply do not exercise despite having the willingness to do so, clearly highlighting the need for effective tools for finding exercise partners. Furthermore, reported lack of motivation as well as modification in the type of exercise chosen in the absence of partners could have serious implications on long term exercise behavior. Future research is required to clearly understand such impacts.

## 4. What people look for in ideal exercise partners

Based on pilot studies, we identified five criteria to consider in an ideal exercise partner. In our questionnaire, we asked participants to rate the importance of these five criteria: prior acquaintance, skill level, physical build, proximity, and schedule similarity. Figure 1 shows the distribution of questionnaire respondents across different importance levels. We discuss some notable aspects of *skill level* and *location* that emerged during focus groups below.

Although focus group participants argued that skill was important as it defined the kinds of roles that exercise partners would play, they articulated that rather than a ‘skill level’, a ‘skill range’ would better identify who would be acceptable exercise partners. This was articulated as a requirement involving an upper and lower limit of skill that an exercise partner needed to fall within. One of the participants commented, “*I think there is a range of skill for which you would want to work in. For people who are not as good as you, you can help out. People who are more skilled can help you.*”

When we discussed *location* in the focus groups, different granularities of location emerged (such as city and building). Discussion during the focus groups also brought

out aspects of location related to access and restriction, explained through the concept of gym membership.

### Implications

For our respondents, skill, location of exercise, and schedule similarity, clearly emerge as key criteria for finding a suitable exercise partner. Although this result is not surprising, it does provide some empirical evidence in support of what has often been intuitively assumed. Incidentally, these results also address technological feasibility and privacy issues surrounding location and skill level. The discovery of skill *range* as a suitable criterion makes it a potential cue in future systems supporting collaboration on exercise. Moreover, results related to the granularity of location (postal code, location of exercise) could be used to address privacy issues. Further exploration of these issues is discussed below.

### 5. Which info people are willing to share to find partners

Based on the information required by existing systems (e.g., online forums, notice boards), we identified 11 pieces of information that could be useful in designing systems to find exercise partners (see Figure 2). In order to determine the perceived privacy level (public, semi-private, private) of each of these pieces of information, we asked respondents if they would be willing to share this information with (a) anyone (public), (b) only current or potential exercise partners (semi-private), or (c) no one (private). In Figure 2, we show the distribution of responses.

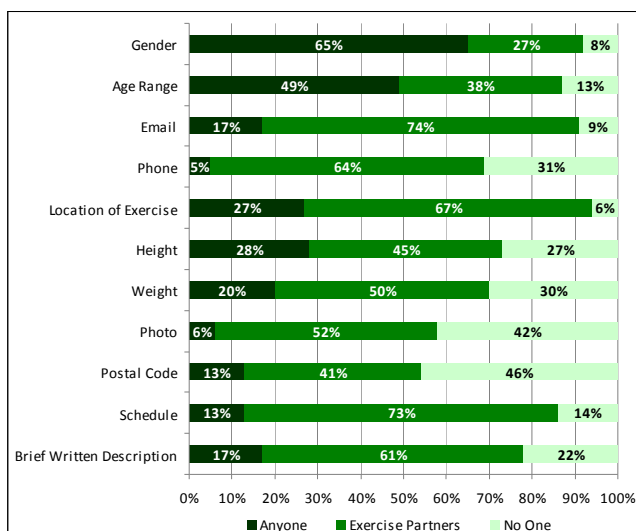


Figure 2. Willingness to share various personal information.

### Implications

The willingness of 73% respondents to share their schedule information semi-privately indicates the utility of a shared calendar. However, despite the existence of a variety of calendar applications, all focus group members reported that they still experienced problems scheduling exercise with partners. They expressed a need for tools to support spontaneous exercise with exercise partners; most existing

rigid calendaring solutions are not conducive to this behavior. Future systems could allow users to maintain a list of unscheduled exercises which can be performed opportunistically and collaboratively depending on the constraints and availability of others.

Although approximately half of the respondents were not willing to share their postal code with anyone, 94% of respondents were willing to share location of exercise. This suggests that computing systems can help users find exercise partners by appropriately controlling and matching the granularity of location.

### CONCLUSIONS AND FUTURE WORK

In our paper, we presented an exploratory study into understanding collaboration in exercise. Through a web-based questionnaire and two focus groups we investigated social requirements involved in finding exercise partners and coordinating exercise activities. We found that for our participants, (1) collaboration among exercise partners is a two-phase process: discovery of common activities and subsequent collaboration, (2) there are temporal variations in privacy levels in opportunistic types of exercise collaboration, (3) lack of a partner can affect the perceived quality of the exercise experience, (4) skill range, location, and schedule similarity are key criteria for compatible partners, and (5) there is a willingness to share some personal information to enable spontaneous exercise.

In future work, we will use our design implications to guide the development of mobile and ubiquitous technology to support collaborative exercise. We intend to run a study to measure its effectiveness in helping people find and coordinate with exercise partners.

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