

Jogging the Distance

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ABSTRACT

People enjoy jogging with others for social and motivational reasons. However, as reported by forum participants, finding a compatible, local jogging partner who shares the ability to jog at the same pace for the same duration is not always easy. One possible way to overcome this challenge is to expand the range of potential jogging partners by allowing for interaction with remote joggers. We investigated whether a jogging experience supporting conversation between remote partners could be desirable and motivating. We conducted an experiment with 18 volunteers using conventional mobile phones with headsets to support conversations as participants jogged in disjoint, outdoor areas. Results show that a simple audio connection supports participants' need to socialize and allows partners to encourage each other.

Author Keywords

Jogging, social support, community forums, mobile phones

ACM Classification Keywords

H5.2. Information Interfaces and presentation (e.g., HCI): User Interfaces.

INTRODUCTION

Research shows that in order to help motivate users to be active, technology should allow for social communication [4]. Taking into consideration this need to provide social communication, we investigated how technology can support social jogging: jogging with one or more people in a non-competitive environment. Existing technologies for joggers focus on performance and comparison, with limited communication support, especially during the activity. From our investigations, social joggers said the number one reason they jog with others is to talk, not necessarily to compete and outperform each other. We also discovered the main challenge social joggers face is finding the 'right' jogging partner: someone who can jog at the same pace for

the same duration and who can meet at the same location. One possible solution for this challenge is to increase the number of available and compatible jogging partners by enabling *Jogging the Distance*: jogging with non-located partners (Figure 1). *Jogging the Distance* has the potential to enable people to jog with their friends who run at differing paces or live far away.



Figure 1. Can a mobile create a shared, jogging experience?

RELATED WORK

Commercial products and research prototypes have been designed to use audio to motivate individual users when walking, jogging, and running, including the *Nike/iPod Sport Kit* [2], *MPTrain* [7], and *Melodious Walkabout* [6]. The *Nike/iPod Sport Kit* is an MP3 player that tracks individual exercise performance and stops the music to verbally report on progress. Users are able to monitor their speed and distance on the go, without looking at the display. *MPTrain* is a mobile device that monitors heart rate and speed. Depending on progress, the device selects music with a particular tempo to encourage the user to slow down, speed up, or keep pace. *Melodious Walkabout* is a headphone based system that assists joggers finding their way by using directional audio. It plays music files to guide the wearer in the right direction using GPS data. A device which incorporates the user's activity to affect their audio is the *Are We There Yet?* system [1], which modifies the playback speed of audio books according to how much travel time remains for the user. If the user increases their speed, resulting in the estimated time to destination to be

sooner than anticipated, the playback of the audio book increases so that the story ends just when the user arrives.

Prototypes using social interaction to encourage walking and jogging include *Houston* [4] and *Chick Clique* [8]. *Houston* is a mobile phone application that monitors step count and displays it alongside the step count of friends. *Chick Clique* is a similar mobile phone application for sharing step count. The social peer pressure approach focuses on teenage girls and uses instant messaging to keep the social group connected and aware of each other's progress. A project combining social interaction with an audio interface to motivate physical activity is *Actively Mobile* [3]. This work focused on designing a mobile phone that a user can operate while exercising, with supporting conversations between joggers as a resulting benefit. An in-depth study with users to investigate the interactions during jogging was not conducted.

OPPORTUNITY

To obtain data on if and why people jog with others, we emailed questionnaires to joggers, recruited through personal contacts and local running clubs. We received 32 responses. The questionnaire consisted of 15 questions, focusing on how often the participants jog, why they jog, and if and why they jog with others. To obtain qualitative data on social joggers and feedback from an even broader range of joggers, we posted the question "Who do you run with and why?" on an online public discussion forum specifically for joggers [5]. During the period of one month, we received 45 responses through this approach.

Results

Overall, 59% of those who filled out the questionnaire replied that they run with one or more jogging partners. Although this data can be seen as exclusive, it shows that social joggers do exist nevertheless. Based on questionnaire results, the top four reasons for running with others are socializing (83%), motivation to run faster (78%), to have more fun (53%) and to be encouraged to show up (53%) (Figure 2).

Responses from the online forum gave details of how social jogging motivates both participation and performance. One jogger explained, "I prefer to run with other people because it is more rewarding. The competitive atmosphere and camaraderie is great. That is pretty much the main reason I run." Another jogger explained that during a recent social jog her partner pushed her to go faster in the beginning and she pushed her partner to go faster in the end, resulting in a longer run, which, she noted, was "mutually beneficial."

While social jogging can motivate people to run faster and farther than solo jogging, partners should have roughly the same physical capabilities in regard to both speed and distance, the forum responses emphasized. For example, one jogger stated, "I enjoy running with others because for one reason or another it motivates me. But the only

downfall is they may run slower or faster than me which becomes frustrating or discouraging." Another jogger commented, "I run alone - mostly because my friends don't run at the same pace [...] But I run alone and sometimes it is hard." In addition to the challenge of finding a jogging partner with a desirable pace, some people commented that they jog alone because they have yet to meet a potential jogging partner. A recently re-located jogger stated, "I run alone, [...] I wish I could find a couple of people to run with but haven't had much luck in finding a running partner since I moved two years ago."

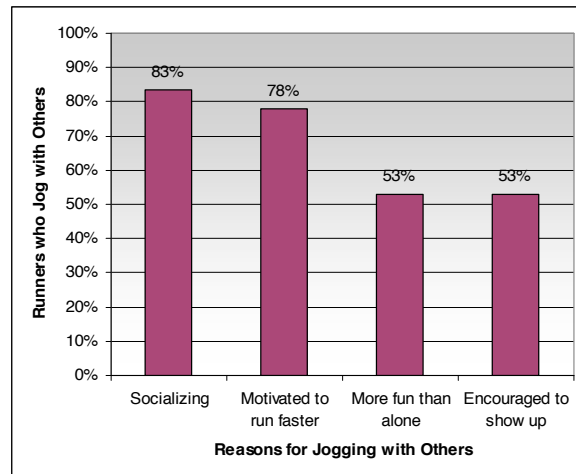


Figure 2. Why people jog with others.

Based on feedback from the questionnaire and online forum, an important yet challenging aspect of social jogging is finding jogging partners who run the same pace and who live nearby. By overcoming this challenge, we see an opportunity to enhance social jogging.

CONNECTING REMOTE JOGGERS

One possible solution that facilitates finding social jogging partners is to expand the number of possible jogging connections by enabling people to jog with remote friends and other joggers. With remote jogging, jogging partners could live in opposite parts of the world or jog at extremely different paces, yet share the experience of jogging together. By meeting at the same time in separate locations to connect in some way, long distance friends could become, or continue to be, social jogging partners. While remote jogging is not a replacement for jogging side by side, perhaps it could serve as the "next best thing" when local, compatible jogging partners are not available.

We designed an experiment to evaluate remote jogging. As shown in the survey results, three of the top four reasons people jog with others center on socializing rather than comparing performance. We focused on providing a remote jogging experience based on communication. We opted for a solution featuring an audio connection between two joggers. An audio interface suits a mobile, outdoor

environment: it is lightweight and allows users to visually focus on their environment.

AUDIO EXPERIENCE

To evaluate the strengths and weaknesses of an audio system in supporting socialization and motivation, we conducted a study with social joggers using a simple prototype. The prototype consisted of a mobile phone and a headset. By using a commercial mobile phone, we could ensure that the prototype would not influence the users when choosing a running route since reception was not a problem. A mobile phone can also withstand rough outdoor, mobile use, in contrast to a fragile prototype.

We recruited 9 pairs of participants via email through personal contacts and local running clubs, 10 females and 8 males. The prerequisite for the study was that participants had to sign up with a friend whom they had previously jogged with, since we were interested in comparing the experience of the study with their experience of running side by side. Each of the participants owned a mobile phone, but had never used it when jogging. The 18 participants ranged in age from 23 to 52, with the average age of 35. All participants were social joggers. Each month, on average, the participants jogged 4 times on their own and 9 times with others. One of the pairs was made up of friends who lived in different cities, while the rest lived in the same city and met regularly to jog. Supporting the findings from the previous survey, the participants' main reasons for jogging with others was to socialize (88%), to be motivated to participate (88%), and to have more fun (83%).

Equipped with the prototype to communicate, each participant jogged at the same time as their partner but in different locations which they chose themselves. The average duration of each jog was 34 minutes. Afterwards, the participants filled out a questionnaire and were interviewed. The questionnaire contained the same questions as those in the previous survey, in addition to specific questions about the experience. The questionnaire asked participants to compare the experience of running side by side with the experience of running with the prototype. Based on the frequency of their previous runs together, we believe the participants were able to give an accurate comparison without running in a separate 'side by side' session.

Results

Considering our system was simply applying existing technology to a new context, we were surprised at how much the participants enjoyed the experience. On a scale of 0-100 (with 100 being best) participants ranked, on average, their enjoyment level of running alone as 55, their enjoyment of jogging side by side as 79, and their enjoyment with the mobile phones as 75. Using the Wilcoxon two-sample test, we found a significant difference between the rankings (from questionnaire) for

solo jogging and jogging with the mobile phones, with $p < 0.01$. One participant explained, "*There were times when I was just jogging along like I always jogged and chatting away like I always chat away and it was more or less exactly the same as running with someone.*" Another participant stated, "*It had the advantage of running with the other person and I could run where and how I wanted to run [...] you had almost the same experience because you were constantly communicating with them.*" We had one group in which the two participants lived in different cities, truly testing the *Jogging the Distance* experience. These two reported they enjoyed the experience since it allowed them to multi-task: getting in shape while catching up with each other's lives. Two months after the study, this group has reported still continuing to keep in touch by jogging together with their mobile phones.

In addition to supporting conversations, the audio link was shown to be important for wayfinding. One participant got lost during the run, and her partner, who was familiar with the area, was able to navigate her back to the trail. Four participants (all female) commented that running with an audio connection made them feel safer than running alone, especially in "*dodgy suburban areas*" and areas with wildlife.

Twelve participants reported having a sense of knowing how fast their partner was jogging based on the difference in their partner's breathing as well as the amount of wind interference. For one participant, this kept her running. She explained, "*There's some pride that you don't want to stop. I thought about stopping a bit today, and that would have been easier, because [my partner] wasn't there, but I didn't know if she could tell over the phone, so I didn't try.*" The audio connection, however, was unable to communicate exact pace. One participant suggested each partner could carry a pedometer and then verbally tell each other their speeds, which he felt would greatly improve his experience. One participant brought her own technology to communicate pace. During the jog, this participant carried a heart rate monitor that beeped when her heart rate went faster than her doctor recommended. Her partner would hear the beep over the phone and remind her to slow down. For 15 of the 18 participants, however, jogging a particular pace was not as important to them; rather, their top aim was to simply squeeze in a run when they could and go for distance rather than speed. While 55% of participants replied that they would like to compare their speed with their partner's speed, only 16% said this was a priority.

The audio was found to be inadequate for determining when a participant was going uphill and thus unable to carry on a conversation. One participant explained that if she had known her partner was still coming up a hill, she would have tried to distract her by chatting. The participants worked around this insufficiency by telling their partner when they reached a tough spot.

The microphones on the headsets were reported to provide poor quality audio on windy days. Another hindrance was that, compared to running side by side, all participants noted they felt more obliged to talk during the experiment since they viewed silence when on a mobile phone as undesirable. One participant explained, “*If you were just running side by side it would be easier to be silent, whereas when we were on the phone, we were talking because we were on the phone.*”

Audio does not show when each jogging partner is ready to start jogging. This was not a problem for our participants who met in the same place to start the experiment. However, for the pair of participants who jogged in different cities, it was difficult to gauge when each was ready. One partner explained, “*The only difficulty was starting because you can’t see when the other person is ready. So I called him, and then he called me, and then I called him [...] Rather than being a relaxed easy, ‘Hey, let’s go for a run,’ and you can just see if someone is ready, you have to ask, ‘Are you ready to go?’*”.

PARTICIPANTS’ SUGGESTIONS FOR FUTURE SOCIAL JOGGING SUPPORT

Based on the mobile-audio experience, our participants suggested the following during the interviews on how to improve the experience between distant jogging partners:

1. *Communicate partner’s condition.* Participants seemed less interested in comparing pace than knowing how their partner was doing in order to help them endure the distance of the jog, by either cheering them on to go faster or telling them to slow down.

2. *Communicate incline.* It was important for our participants to know when their partner was going uphill, in other words, when was a good time to talk and expect a reply.

3. *Support Silence.* The mobile phones created an obligatory feeling to keep communicating. Possible solutions would be to incorporate background sounds into the communication channel so that joggers can know their partner is still there without having to talk.

4. *Allow for asynchronous start times.* While a device for supporting real time dialog needs to be used synchronously, the users do not necessarily want to or can start jogging at the same time. A possible solution is to enable joggers to ‘drop in’ and start the communication when they are ready.

CONCLUSION

Social jogging can be motivational and rewarding. However, finding the right jogging partner, as indicated by our participants, can be difficult. Fellow joggers may jog at different speeds, go for longer jogs, or live far away. One possible solution is to allow for jogging with remote

partners through the use of an audio connection. Our study with 18 participants jogging in pairs with mobile phones proved successful in providing a social and motivating connection between partners that was described as “*far better than running alone*”. While a similar pace is necessary when jogging side by side, in a remote, social jogging context, only 16% reported a strong desire to compare their pace with their partner’s. Being able to communicate was regarded far more important than comparing performance. Our results show that performance indicators need not be present to encourage participation. The fact that two participants took up our idea and now jog regularly together through a mobile phone connection confirms that remote jogging with an audio interface can result in a desirable experience. By enabling geographically distant people to talk to one another while jogging, technology can provide users with similar benefits of social collocated jogging.

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