Survey of Leisure Walking Behaviours and Activity Tracking Use: Emerging Themes and Design Considerations

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Abstract. In this paper we present a work in progress analysis of a leisure walking behaviour survey that focuses on walkers' habits and experiences. We are specifically interested in the use of mobile tracking applications in this context to help design and deploy future technologies that can better support engaging leisure walks through synthesising previous behaviours and experiences. This survey collected 329 responses relating to self-reported walking behaviour patterns and mobile activity tracker use. In the emerging analysis we identified design considerations for future walking-focused applications, emphasizing the subjective and personal nature of walking routes.

Keywords. Mobile activity tracking, Walking behaviour, Mobile geospatial computing

1. Introduction

Mobile activity trackers are an increasingly common feature of our everyday activities and routines. They populate our smart phones and adoption of activity tracking wearables is becoming ever more ubiquitous. Such technologies support users exercise (e.g., Diaz et al. 2015), health and well-being routines (e.g., Murphy et al. 2020). This data can be used in social exercising, which allows for the sharing of routines with a broader community (Couture 2020), and gamification where it is used to encourage physical activity (Shameli et al. 2017). Shin et al's (2019) review of activity tracking technology research highlights understanding human-information in-

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teraction as an under explored area. We are interested in how digital technologies can better support leisure walkers, their choice of routes, their engagement with places of interest and how they reflect and share their experiences. We will then look to investigate how this ambient and volunteered geographic information can be applied within a walking route recommendation framework. The survey charted here begins this journey by capturing leisure walkers' current practices through collecting data on three aspects of leisure walking: (1) the frequency and duration of the activity; (2) the use of technology in walking; and (3) an identification of themes in the experiential factors of walking.

This paper is structured in five sections; the following section explains the survey design and recruitment, while *section 3* presents the preliminary results. *Section 4* is a discussion of design considerations and *section 5* is the conclusion.

2. Survey Design and Recruitment

We designed an online self-reported survey of five sections and 19 questions, split into: walking behaviours, reasons to walk, two on mobile technologies and demographic data relating to the participant. The question format used was a combination of behavioural questions to collect data on activity patterns and qualitative open questions to help identify subjective opinions and themes. We recruited 329 participants through social media and snowballing; participants were thus allowed to self-select for involvement. Our participant group included a range of age and genders, interestingly 52% reported their age as being between 45-64 and 81% of respondents were reported as female.

3. Preliminary Results

Analysis of the survey are work in progress. A sample of emerging results are presented in the following sections.

3.1. Activity Tracking Usage

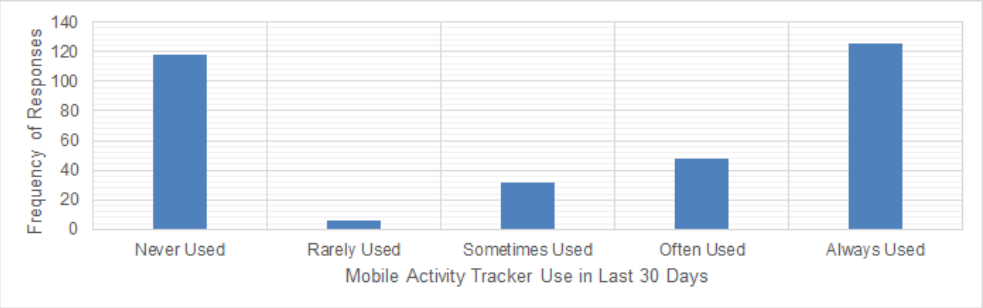

Figure 1. Frequency of mobile activity tracker use.

We gathered responses about the duration and frequency of leisure walking and the use of mobile activity trackers. Our preliminary analysis finds that 65% of participants used a mobile activity tracker; most of which used the application either 'often' or 'always' as in *Figure 1*. The current findings suggest that both walking frequency and duration influence a partial role in activity tracking use. For instance, filtering out participants who walked for less than one hour or once a week found that 70% of the remaining responses used an activity tracking application.

3.2. Applications Used

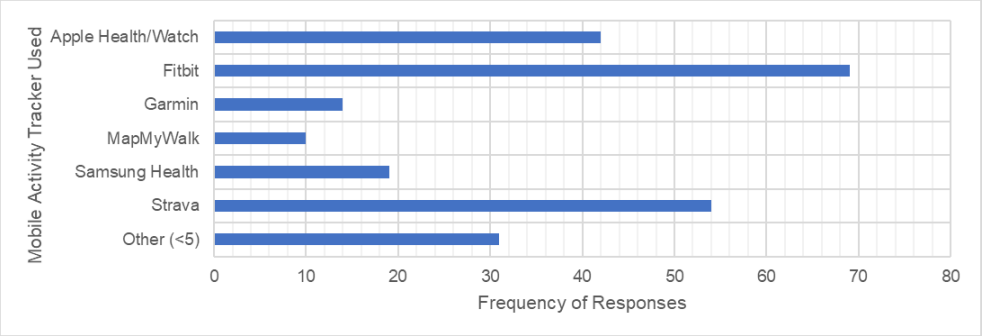

Figure 2. Highest frequency walking activity trackers used by respondents.

We asked participants what activity tracking applications they used and found the most popular were Fitbit, Strava and Apple Health as in *Figure 2*. Our emerging analysis also investigated those who did not use an activity tracking application. For this purpose, we identified several themes from an open-ended question, we found 70% of these responses were just not interested, 15% found the technology too difficult to use, and 10% wanted to be completely offline while walking.

3.3. Route Planning

Participants were asked whether they planned routes using technology or local knowledge. We found a significant association between these variables, with 51% of respondents saying that they never used technology to plan walks, contrasting with the 77% which said they sometimes or always use local knowledge in this process. In addition, we identified the effect that meeting other people had on the willingness to travel to start a walk. Respondents who usually met 1-3 other people were more likely to travel (54%) when compared to those who walked individually (30%).

3.4. Walking Rationale

The participants were presented with two open ended questions asking what they enjoyed about leisure walks and their rationale for taking them. These question responses have been coded to reveal some emerging themes, for example, 72% of respondents enjoy walking due to being able to get outside, 30% enjoyed walking for wellbeing, and 17% enjoyed exploration. Similar themes were identified in the rationale for walking, with 70% of participants walking for health and exercise purposes, 9% for social activities and 20% for dog walking. We found participants who walked for health or exercise to be the most likely to use an activity tracking application.

4. Discussion

This work in progress survey is to lay the groundwork for further study and development of a framework that can shape the design of future technologies that can support and curate engaging leisure walking experiences. Our emerging findings point towards the following design considerations:

Capturing and harnessing users' local knowledge to help support route planning appears to be an important consideration, of which sharing could also factor as an important facilitator. The ability to effectively capture and process high quality crowdsourced geographic information (See et al. 2016) could thereby contribute to the potential relevance of a design.

Escaping or avoiding technology while walking offers an interesting challenge, and one that could be addressed through careful design, but also whether the role of the technology is to support the route planning process, rather than the walk itself. The adoption of mobile activity tracking should also be considered in this context as previous research has found older demographics less likely to engage with such technology when difficult to use (Mercer et al. 2016).

People can walk for leisure for a variety of reasons, so the target rationale should be explicit in the design. The nature of each activity should be carefully considered, and relevant constraints should be identified, for example, a walk for exercise may need to be circular and of a certain distance or time. A challenge in this respect is linking these demands to other contextual factors to increase the enjoyment of a walk.

5. Conclusion

In this work we presented the emerging results of a self-reported leisure walking behaviour survey. The analysis captured statistics and identified themes for the rationale and enjoyment of walking, notably the importance of getting outside and exercise to our respondents. We discussed the potential design implications of the work which support the notion of capturing local knowledge, escaping technology and activity constraints. To further develop this knowledge, we will continue to study the contextual variables of walking to help in the design of a leisure route recommendation framework.

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