Brainwolk – A Mobile Technology Mediated Walking Meeting Concept for Wellbeing and Creativity at Work

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ABSTRACT
We present Brainwolk, a walking meeting concept that is mediated with the means of mobile technology. Brainwolk was developed to encourage physical activity in mostly sedentary knowledge work. It is meant for different work tasks, especially for creative work such as ideation and getting inspiration, reflecting on one's thoughts and discussing about work-related topics in relaxed atmosphere. Brainwolk enables knowledge workers to work while walking, thus bringing in several benefits for health and wellbeing, as well as creativity and social interaction. Here we present the Brainwolk concept and a summary of a series of the user experience studies where we have evaluated it during the years 2015-2016. The concept and findings contribute on HCI by bringing in design relevant knowledge and insights on the growing field of technology mediated, physically active ways of work, which belong to the blossoming area of persuasive wellness technologies.

Author Keywords
Walking meeting; mobile technology; well-being; creativity, knowledge work; physical activity; user experience; user-centered design.

ACM Classification Keywords
H.1.2 User/Machine Systems: Human factors. H.5.2 User Interfaces: User-centered design.

INTRODUCTION
Contemporary life is characterized by knowledge work and excessive sitting. A typical office worker sits half of the workday or even more [3]. The sedentary lifestyle is connected with serious health concerns, such as overweight, cardiovascular diseases and diabetes 2 [2]. Physical activity possesses several health benefits. Even light-intensity activity, such as slow walking and standing, has many benefits for health [2]. In addition to health benefits, being physically active can improve happiness [7], performance and creativity [4], which are important qualities of knowledge workers. Moreover, the employee who feels well and satisfied at work is usually more productive [5]. *Walking meetings,* i.e. determined work-related "walk and talk" sessions with colleagues, are one of the easiest way to increase movement during the workday [6]. Walking meetings have gained popularity among certain workers and even famous leaders have promoted those, but they have not become as a mainstream work habit. In our research project about physically active ways of work, we have studied and developed a mobile walking meeting concept and application to guide and motivate workers to the conduction of walking meetings [1]. Next, we summarize the concept as well as main findings from the user experience studies.

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THE BRAINWOLK CONCEPT AND APP
Brainwolk is a work-related and focused discussion session that takes place by walking. It is conducted preferably in the places that provide some nature experiences. The topics and targets of the Brainwolk session are pre-defined by the users in advance. Brainwolk is not a formal meeting with normal meeting habits such as PowerPoint presentations and note taking, but it is merely meant for the creative part of the work, such as ideation, brainstorming and planning.

In practice, Brainwolk is best conducted within a small group of participants, but it can be used alone as well for own reflection or structuring thoughts. Prior to taking a walk, the participants define the targets of Brainwolk, e.g. 2-3 concrete topics/problems for which they wish to find a solution or answer during the walk. They are encouraged to write the topics down to a small notebook and take a look at them during the walk in order to keep the focus on the defined topics. Keywords of the discussion can be written down to the notebook by having short breaks along the walk as needed. The length of Brainwolk depends on the participants, the topics and available time. After Brainwolk, a short wrap-up of the topics is recommended and the proper notes about the meeting can be written down then.

The mobile Brainwolk application was designed to mediate and support walking meetings by utilizing the design implications for persuasive walking meeting applications, such as discreet persuasion, i.e. persuasion that happens on the background [1]. Even though Brainwolk can be conducted without any technological mediation by utilizing human mediation and the instructions described above, the mobile app can take various roles as a mediator of the

walking meeting practice. Mobile applications can have a potential role in introducing and motivating the walking meetings and encourage large masses of workers to move. A tool that introduces the walking meeting practice "officially" and in an inspiring way can help in turning the walking meeting as an acceptable and desirable work habit.

The features of the current Brainwolk application prototype include the following:

- Introduction screen to introduce the Brainwolk walking meeting concept, practicalities and hints
- A map of the university campus (our study location) and nearby areas, which the user can zoom in and out to see details of the walk path and location
- Suggestions of walking routes on the map
- 19 checkpoints, clustered into four different zones based on distance (5 checkpoints initially)
- Contents on the checkpoints, e.g. short visual break exercises and motivational thoughts about walking
- Points earned by reaching the checkpoints and activating the content

USER EXPERIENCE STUDIES

Three rounds of user experience studies have been conducted in different phases of the user-centered design research process to evaluate the user expectations, needs, experiences and effects of mobile walking meetings (see Table 1). During the iterative design research process including several user evaluations, we developed an initial concept called Walking Metro [1], which was later improved and renamed as Brainwolk.

Study	Method and participants	Main results
1. Exploring the expectations and user needs of potential users towards the walking meeting	Walkshops [8] N=15 (F=11, M=4), age range 25-65, avg. 41 y.	Knowledge on the user expectations and needs to feed initial concept design
2. Evaluating the user experiences concerning the walking meeting concept called Walking Metro	Field tests and pair interviews N=14 (F=10, M=4), age range 26-57, avg. 35 y.	Short-term user experiences and design implications for mobile walking meetings
3. Studying the longer term user experiences and effects of the Brainwolk concept	One-month pilot with the prototype; interviews, questionnaires N=11 (F=8, M=3), age range 26-55, avg. 38 y.	Design relevant knowledge on the usage, experiences and effects of the walking meeting concept

Table 1. The three rounds of user experience studies conducted during the iterative design research process of the mobile technology mediated walking meeting concept.

The first study was conducted by applying the walkshop approach, i.e. group discussions done by walking [8]. The study was conducted in the university premises with 15 participants walking and talking in small groups. The main findings from the first study to feed the initial concept design were that 1) walking meeting *suits for several work tasks*, especially for those that can be conducted in free-form manner without strict practices (e.g. ideation, planning, discussions), 2) users expected to gain different kinds of *benefits from the walking meetings* (e.g. being outdoors, getting activated and new stimulus, improved well-being and refreshment, benefits for social interaction), 3) perceived *challenges* related to the required work culture change, and how to make notes and show material while walking, and 4) user needs related to *practicalities* as well as related to *motivation and engagement* were revealed (e.g. need for instructions, different routes, challenges, positive feedback, engaging content). Study 2, which included field tests of the Walking metro concept with 14 users, mostly confirmed the findings from study 1 and after that we formulated the design implications for persuasive, mobile walking meetings, divided into three categories: 1) *Re-design the concept for acceptability*; 2) *Use non-interrupting guidance and instructions*; and 3) *Utilize discreet motivating and stimulating elements* [1].

In study 3 we arranged a one-month pilot for the iterated Brainwolk concept and application (N=11), and found out that the participants were very pleased with Brainwolk – they liked the idea and experience of walking and going outdoors during their suitable work tasks. However, the application design still had some challenges that needed further iteration, e.g. to reduce the amount of interruption from the app during the meeting and better motivational factors to be included on the app. The most striking experiential findings from the study related to Brainwolk's roles as providing *restorative nature experiences during ordinary workdays* and the *enriched social interaction* with the colleagues when having discussions while walking. Brainwolk was also considered to provide more *concentration* to the topics while leaving the ordinary work space, concentration on the present moment and devotion to the participating colleagues. It was also considered to bring in *energy* and improve *innovativeness* due to the changing work environment and fresh air, and a *relaxed atmosphere* to chat the work related topics.

CONCLUSION

Based on our studies, technology mediated walking meetings provide good potentials to introduce the concept of 'walking and working' to the large masses of people and thus increase physical activity in work contexts. Mobile technology can be used for introducing the walking meeting practicalities and habits, to remind and challenge the workers, to measure and show the activity data and benefits for the wellbeing, and to guide and motivate the walking meetings. More research is needed to study the effects of walking meetings, but based on our user experience studies, the users perceived positive effects on their wellness, creativity and energy, and enriched social interaction. One of the most interesting finding, which also needs more investigation, related to the perceived restorative effects of the near-distant nature places during ordinary workdays.

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