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Position paper Persuasive Technologies in Challenging Contexts

Construction sites are relatively dangerous workplaces.. Within the European Union the fatal accident rate is nearly 13 workers per 100.000 as against 5 per 100.000 on average [1]. The constantly changing work environment makes it hard and challenging to change behavior. Because they evolve overtime, every day there is a new work environment. This makes it a necessity that construction site workers are regardful of the dangers during their work.

In literature a wide variety of reasons is propagated that influence the safety of a construction site [2]. Many of these reasons include safe human behavior. A big issue is the clutter on construction sites [3], and the lack of discipline among workers to make less of it. Clutter can linger around the construction site, and prevent normal access to workplaces. Another factor are the many quick, instant tasks workers are asked to perform. When such tasks are performed, often there is a lack of attention to safety because of high pressure on completing the tasks. So how can construction site workers be persuaded to behave more safe, be aware of safety, and work in a more disciplinary way? The constantly changing environments make location-based interventions less suitable. Using technologies that workers already have available makes more sense [4].

Therefore an experiment was set-up to trigger participants on safety awareness, cleaning behavior, and quick & instant tasks. During the experiment 33 participants daily received a SMS message at the end of their working day (3:45 pm). Participants were asked to respond to these messages by sending back a multiple-choice answer, a name, or a short statement. The questions in the SMS game were based on foundations of our earlier research into persuasive communication [5], and interviews held with construction site workers a few months before. Questions were either phrased as 'your supervisor is asking you', or as 'a direct colleague is asking you'. A clear distinction could be made between authoritative figures, and social proof. Questions were divided in several topics (cleaning behavior, safety awareness, quick & instant tasks). In addition some factual knowledge questions and quotes were used. Every morning, participants could see the average response on a public display at the entrance of the construction site.

Introducing new technologies onto construction sites is always a challenge. Especially taking into account the lack of motivation to do things differently, the ever-changing environmental conditions, and high employee turnover. Conducting research in industrial working environments brings along limitations of which some can be restrained by using modern technologies. However, there is still the need to be very pragmatic, as the construction of new buildings and road will never take place in a lab.

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