Thesis Evaluation

Designing Crowdsourcing Systems for Older Adults

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Review & Assessment

This thesis pushes forward the state of the art on *crowdsourcing systems for older adults (OAs)*, making significant and timely contributions to Informatics in the areas of information systems and human-computer interaction on this specific theme. The most salient contributions are in (i) the exploration of non-conventional and novel interaction mediums as platforms for engaging OAs in crowdsourcing experiences, (ii) a better understanding of challenges and opportunities in engaging OAs in crowdsourcing tasks, and (ii) the development of guidance for the design of crowdsourcing experience for OAs. These contributions are up to the standard of a successful PhD project, and provide **valuable contributions to the field of Informatics**, which can guide the development of tailored crowdsourcing platforms for OAs, enabling the exploitation of new interaction techniques, while informing the design of tasks that OAs can perform, enjoy, and benefit from.

The work addresses three **relevant research questions** that encompasses salient dimensions to the design of (crowdsourcing) systems for OAs. What follows is an **impressive body of work** comprising articles published in top conferences in our field, which together develop a cohesive narrative that addresses the main challenges outlined in the introductory sections. The overall **research methodology is sound** and relies to the possible extent on prototyping experiences with OAs as a conduct to explore opportunities for crowdsourcing and derive design insights. While more horizontal than in-depth, the resulting contributions cover areas currently unexplored in the literature, providing valuable starting points.

The research questions guiding the research are by nature interdisciplinary and require looking at the problem at the intersection of different fields, from Informatics and Human factors to Gerontology, and Cognitive and behavioral psychology. This work successfully applies an **interdisciplinary approach** to integrate knowledge (and methods) from these different disciplines to ultimately inform the design of crowdsourcing systems for OAs, while providing insights (e.g., understanding of challenges, motivations and barriers, and comparative behaviors) that contribute to these other disciplines.

Looking at the publication record of the student, we can see an **exceptional level of scientific production** – above baseline for her career stage – in term of number of publications, ranking of target conferences and venues, and impact measured in number of citations. It is clear that the student has gained the competences to carry out high-quality research, apply a broad set of methodologies, and successfully collaborate with other researchers beyond the core

topics of her research. The knowledge produced as part of her research has the potential to impact not only the scientific literature on the topic but can ultimately inform solutions that can lead to societal impact.

Therefore, I am pleased to inform that based on my expert assessment, the present PhD thesis, successfully complies with the requirements for acceptance set by the research institution, as well as the scientific community at large.

Questions & Comments

In the following I include questions and comments, mainly to invite further reflection on the work carried out during the PhD and the plans for future work.

1. Large part of the work is exploratory, deriving valuable insights from small pilots or literature. However, since no triangulation studies were performed (or reported), to what extent are the insights, directions and guidance derived from the research reliable (and validated) at this point in time?

2. There is a body of literature on the impact of engaging OAs in productive activities and volunteering, along with motivations, and mediating factors. Some of this literature is acknowledged in the thesis. However, there is no explicit mapping between these factors that we know influence offline settings (e.g., opportunity to engage in social interactions) and their corresponding substitutes in online settings. Are we able to reproduce an auspicious environment to engage OAs in productive activities, and ensure similar impact on their wellbeing, in online settings? What are the aspects of offline settings that are more difficult to reproduce, and what new opportunities are brought by online participation?

3. In relation to the previous, social engagement is known to be both a motivating factor and an objective in volunteering. i.e., it is an important reason behind older adults' participation in volunteering, as well as one of the responsible factors for many of the positive effects of volunteering. However, this aspect is not explicitly addressed in the present research, and there is no guidance in the AFFORCE framework for how to embed the social dimension. Is this unintentional, or are there reasons behind this choice?

4. Each of the articles enclosed in the thesis point to future work in terms of longer-term studies (DreamTV), pilots and participatory workshops (Gizmo) and longitudinal studies (Citizen science tasks). However, none of these seemingly important follow-up studies were carried out – as far as it is reported. Instead, more exploratory work in terms of additional mediums was prioritized, leaving many important questions such as feasibility in real settings, more specific guidance for the medium, and long-term sustainability, unanswered. Why was this not prioritized in the context of your research, and what do you think you missed by not following through with your plans? In addition, I am surprised not to see any of these important validation studies as part of the future work (Section 3.5).

5. One of the important contributions of the work is the AFFORCE framework. Unfortunately, the presentation of the work is limited by the page constraints of the original paper. I would have liked to see more in detail the methodological work that went into the definition of the framework, and a more articulated presentation of the different dimensions. While extremely useful as a general overview, it is not clear to what extent the current presentation is "actionable" and would be able to be used as a source for actually designing crowdsourcing experiences for OAs.

6. The related work is properly covered in the individual articles, but the introductory chapters could have taken a more balanced and focused presentation of the state of the art. Topics such as "Crowdsourcing systems" and "Designing for OAs" cannot possibly be covered in one-page reviews, and fairly acknowledge the advances in those lines of research.

7. The thesis would have benefited from a "Lessons learned" or "Discussion" section where the main findings of the body of work could have been distilled and compared to insights from the literature (e.g., what are the novel insights, to what extent insights support existing literature or deviate from it). Such discussion would have been valuable, since some of the included articles do not include a discussion section that aligns findings with prior literature. Section 3 provides a useful summary but not a discussion of findings.

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