

Older adults and hackathons: a qualitative study

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ABSTRACT

Globally observed trends in aging indicate that older adults constitute a growing share of the population and an increasing demographic in the modern technologies marketplace. Therefore, it has become important to address the issue of participation of older adults in the process of developing solutions suitable for their group. In this study, we approached this topic by organizing a hackathon involving teams of young programmers and older adult participants. In our paper we describe a case study of that hackathon, in which our objective was to motivate older adults to participate in software engineering processes. Based on our results from an array of qualitative methods, we propose a set of good practices that may lead to improved older adult participation in similar events and an improved process of developing apps that target older adults.

In our case study we wanted to analyze how the inclusion of older adults in development teams would affect team performance. Based on our previous studies [1, 3] we were interested in the social effects of such cooperation, as well as how it would affect software development. In order to measure these effects, we have used an array of both qualitative and quantitative research tools. Within the hackathon setting, we created favorable conditions for cooperation of developers and older adults. However, we allowed for an organic emergence of the nature of cooperation between the developers and older adults.

The most important findings from our study concern the use of three kinds of typical interaction scenarios that differ in their involvement of older adults. These are: 1. Isolation of Older Adults (no involvement of older adults, use of stereotypes by developers); 2. Older Adults as Consultants (ad-hoc involvement of older adults in various projects); 3. Full Cooperation (comprehensive involvement of older adults in idea generation, as well as evaluation stage of a project). Our findings demonstrate that even in favorable conditions

for cooperation of software developers and older adults, the “Full Cooperation” scenario - most valuable from the point of view of participatory design theory - is not always chosen. Either of the two sides can decide to not cooperate fully with the other, resulting in the “Isolation” or “Consultant” scenarios. We also observed the role of stereotypes and attitude changes of hackathon participants. Stereotypes are responsible for some developers’ decisions not to involve older adults fully in the development process. But, our findings clearly demonstrate that direct interaction reduces negative stereotypes and improves positive intergenerational attitudes.

Another very important finding from our research confirms the positive effect of direct involvement on the quality of applications developed in the hackathon. However, we have observed several factors that affect the involvement of older adults. Generally speaking, it is not enough to just invite older adults to participate and be physically present during the software design process. The most important discovered factors that affect the nature of participation of older adults in the development process are: 1. Establishing initial rapport between the participants; 2. Older adults’ self-esteem is a critical aspect; 3. Collaborative motivation. (Unlike younger participants, the older adults were less competitively driven and more fair and kind in their interactions).

Based on the observations we made during this case study, we identified some good practices that will enhance the quality of hackathons in which older adults are involved e.g.: 1. Mind the space (a location familiar to the participating older adults); 2. Keep them in touch (both junior and older adults participants must not be left to their own devices without any guidance); 3. Take into account different collaboration strategies; 4. Encourage user involvement (provide supervision and mentoring with respect to the participatory design process and optimizing user experience); 5. Change typical hackathon schedule and scope (shorten to one-day event and focus on selected part of design cycle, namely the design stage in order to obtain better prototypes even without any code, encouraging the use of live mockups). Full description of the study was published in *Empirical Software Engineering*.¹ [2]

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CCS CONCEPTS

• **Human-centered computing** → **Empirical studies in HCI**; **Participatory design**; *User studies*; *User interface programming*;
 • **Software and its engineering** → **Programming teams**; *Software design techniques*; *Rapid application development*; *Software prototyping*;
 • **Social and professional topics** → *Seniors*;

KEYWORDS

older adults, elderly, participatory design, co-design, user-centered design, user experience, hackathons, qualitative methods, intergenerational interaction, intergenerational cooperation

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REFERENCES

- [1] Wiesław Kopeć, Katarzyna Abramczuk, Bartłomiej Balcerzak, Marta Jużwin, Katarzyna Gniadzik, Grzegorz Kowalik, and Radosław Nielek. 2017. A Location-Based Game for Two Generations: Teaching Mobile Technology to the Elderly with the Support of Young Volunteers. In *eHealth 360°*. Springer, 84–91. https://doi.org/10.1007/978-3-319-49655-9_12
- [2] Wiesław Kopeć, Bartłomiej Balcerzak, Radosław Nielek, Grzegorz Kowalik, Adam Wierzbicki, and Fabio Casati. 2017. Older adults and hackathons: a qualitative study. *Empirical Software Engineering* (2017), 1–36. <https://doi.org/10.1007/s10664-017-9565-6>
- [3] Wiesław Kopeć, Kinga Skorupska, Anna Jaskulska, Katarzyna Abramczuk, Radosław Nielek, and Adam Wierzbicki. 2017. LivingLab PJAiT: Towards Better Urban Participation of Seniors. In *Proceedings of the International Conference on Web Intelligence (WI '17)*. ACM, New York, NY, USA, 1085–1092. <https://doi.org/10.1145/3106426.3109040>