

Is the technology acceptance model sufficient to explain differences in day-to-day smartphone use of older adults?

F. Wolf, J. Naumann, F. Oswald

Wolf et al. (2020). *Gerontechnology* 19(suppl); <https://doi.org/10.4017/gt.2020.19.s.69880.4>

Purpose The smartphone is the technology that over the last 10 years has had the greatest impact on people's lives. It changed the way people communicate, consume news and interact with their environment. Older cohorts still use modern digital everyday technologies less often and different than younger cohorts do (Sackmann & Winkler, 2013). By 2019, however, in the western countries, more and more people over 65 own a smartphone (Taylor & Silver, 2019). The rapid spread of smartphones in the older population is raising the question of everyday integration of smartphones in later life. To answer this question, the SAM project (Smartphones and older adults: Measuring day-to-day use regarding daily activities and social context) follows the premise that everyday smartphone use must be observed while it happens. To achieve this goal, the present study uses a mixture of monitoring actual smartphone use (usage log) and an ambulatory assessment to measure the social, spatial and emotional context of use. One hypothesis is that the user experience can influence both positively and negatively the attitudes towards the device and the concrete use. In the context of this study the focus lies on the two key dimensions of the technology acceptance models: ease of use and usefulness as central predictors of the actual use (Davis et al., 1989). Therefore, the paper will examine in a two-part question whether the basic assumptions of the original technology acceptance model can also be applied to the analysis of everyday smartphone use. In many studies, the TAM proved to be a good basis for explaining the use of technology (King & He, 2006). **Method** At the moment, however, there are no studies available that investigate the fit of the model regarding day-to-day smartphone use. **Results & Discussion** Analyses conducted based on the data of the SAM project (N = 41; K = 559) indicate that the technology acceptance model may actually be suitable for describing situational smartphone use. 1. The relationship between situational perceived ease of use and perceived usefulness. Conducting a random slope model, the regressive relationship between perceived ease of use and perceived usefulness from the original TAM could be reproduced. Both, group mean centred ease of use ($b=0.265$ [0.116; 0.412]) and grand mean centred ease of use ($b=1.155$ [0.778; 1.533]) were significant predictors for perceived usefulness. The model could explain 41% of variance of perceived usefulness, whereby the fixed effects alone were able to explain 20% of variance of perceived usefulness. 2. In general the smartphone is perceived as a slightly complicated technology, with a notably variety in the sample. But looking at everyday smartphone use shows that most situations were perceived as easy. Correlation between these two measures showed a moderate effect ($r=0.44$ [0.15; 0.66]). It seems that the evaluation of the smartphone isn't only based on the everyday experiences with this device.

References

- Davis, F., Bagozzi, P. and Warshaw, P. (1989), 'User acceptance of computer technology - a comparison of two theoretical models', *Management Science* 35(8), 982–1003.
- King, W. R., & He, J. (2006). A meta-analysis of the technology acceptance model. *Information & Management*, 43(6), 740–755. <https://doi.org/10.1016/j.im.2006.05.003>
- R. Sackmann, O. Winkler (2013). Technology generations revisited: The internet generation. *Gerontechnology*, 11(4), 493-503. <https://doi.org/10.4017/gt.2013.11.4.002.00>
- Taylor, K. & Silver, L. (2019). Smartphone Ownership Is Growing Rapidly Around the World, but Not Always Equally, Pew Research Center.

Keywords: technology acceptance model, smartphone use, experience sampling

Address: Goethe University, Theodor-W.-Adorno Platz 6, 60629 Frankfurt, Germany

Email: fr.wolf@em.uni-frankfurt.de