
Appropriation Of Wearable Augmented Reality

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Abstract

Wearables, like augmented reality glasses, are more and more commercially available but uptake has been slow and concerns on social and ethical implications are raised. Current adoption theories can provide insights into the adoption or rejection process, but very few studies are conducted in this field to address the social and ethical implications of wearables. This paper provides results about the inclusion of different perspectives, namely diffusion and adoption theories, mutual shaping perspectives and philosophy of technology to study the social interactions and ethical implications of wearables as well. By following this path we would like to develop a model of appropriation in the future to get a better understanding of the acceptance and interactions of emerging technologies such as wearable augmented reality.

Author Keywords

Wearables; Augmented Reality; Head-Mounted Display; Adoption, Mediation, Appropriation.

ACM Classification Keywords

C.5.3: Computer System Implementation, Portable devices; H.1.2 User/Machine Systems: Human factors; J.3 Life and Medical Sciences: Health; Social and Behavioral Sciences: Psychology; K.4.1 Public Policy Issues: Ethics.

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Research approach

Head Mounted Displays (HMDs) are received with mixed reactions so far. Some research is done with HMDs with surgery [10] and children with autism [7]. Google Glass however, as being a specific type of HMD, caused a stir. People thought they were being recorded by a user [5], another user was attacked [9] and rules for not being a 'Glasshole' were published [4]. These reactions raise questions to the appropriation of HMDs. Researchers have developed models based on the Theory of Planned Behavior [1] to explain individuals adoption and usage up to 50% [2,3,12]. In contrast to the original Social Cognitive Theory, current adoption models lack reciprocity and interaction loops. Second, these models were not designed to explain adoption of HMDs and were developed for technologies which were already widespread such as computers in organizations in the 80s. Rejection of HMDs is an important topic as well because "misalignment between explicit or implicit product capabilities affect the overall acceptance" [8]. The mediation theory [6,13] can be complementary to the more often used adoption theories because technology is seen as a mediator between the user and the world and acknowledges interaction and reciprocity, implicit and explicit capabilities of the technology and ethical and social implications are included as well.

Research goals

The combination of adoption (if someone wants to use it) and mediation (how someone wants to use it) will result in a new model of appropriation of technology. The contribution of the present study is threefold: examine the perceptions of Dutch people towards HMDs, examine user interaction of HMDs and combine multidisciplinary perspectives to understand and predict adoption and use of HMDs. We argue that the

integration of these theories will provide a more holistic view on appropriation of HMDs which can also be of benefit for designers and developers of these technologies.

Research questions

This dissertation focuses on the key research question: What are the influences of technology adoption and mediation of technology on the appropriation of wearable augmented reality? The sub research questions are RQ1: What are the perceived expectations of the adoption and use of wearable augmented reality? RQ2: What are users interactions anticipating the adoption and use of wearable augmented reality? RQ3: How do users evaluate the interactions of wearable augmented reality?

Research studies

The first study consisted of a survey about anticipated adoption of consumer HMDs. This was based on TAM [11] and UTAUT [12], translated in Dutch and pretested. Respondents were graduate students (N=100, response rate 21%). First results on the anticipated adoption of students of HMDs indicate that the intention to use [12] is 54%. While further analyses will be conducted in the upcoming months, the results will be used as input for a pre-study for a longitudinal quantitative study of adoption. Currently, a content analysis of YouTube comments to HMDs is being conducted to get more insight into the qualitative aspects of the social meaning of people attached to HMDs. Future work will be further presented in the biography (appendix I).

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