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# (Un)Acceptable!?! – Re-thinking the Social Acceptability of Emerging Technologies

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## Abstract

A central viewpoint to understanding the human aspects of interactive systems is the concept of technology acceptance. Actual, or imagined disapproval from other people can have a major impact on how information technological innovations are received, but HCI lacks comprehensive, up-to date, and actionable, articulations of “social acceptability”. The spread of information and communication technologies (ICT) into all aspects of our lives appears to have dramatically increased the range and scale of potential issues with social acceptance. This workshop brings together academics and practitioners to discuss what social acceptance and acceptability mean in the context of various emerging technologies and modern human-computer interaction. We aim to bring the concept of social acceptability in line with the current technology landscape, as well as to identify relevant research steps for making it more useful, actionable and researchable with well-operationalized metrics.

## Author Keywords

Social Computing; Technology Acceptance; Emerging Technologies; Social Acceptability

## ACM Classification Keywords

K.4.0 [Computers and Society]: General

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**Social acceptability issues**

may arise with emerging technologies in various contexts. Some examples are:



Virtual Reality (VR) has become available and mobile, but social concerns might make it difficult to use VR with others around.



Assistive devices need to balance the trade-off between being recognized as such to increase social acceptability and being unobtrusive to reduce stigmata.

**Background**

Emerging, “game-changing” technologies create new interaction paradigms, usage situations, contexts, and intentions, and allow us to tackle challenges that were previously considered unsolvable. On the other hand, novel technologies and applications such as head-mounted-displays for everyday assistance, deep neural networks for classification of all kinds of data, or self-driving vehicles for increased comfort and safety, might create new threats, raise new concerns and increase social tension between users and non-users. While some of these technologies and interactions have become more perceptible to others (e.g., head-worn devices, gesture and speech interfaces), other technologies might be very discreet (e.g., intelligent contact lenses) but cause discomfort and affect the social climate due to their (potential) presence or availability.

A user’s experience of interacting with an interface not only comprises her actual personal (user) experience, but also compounded by other people’s perceptions: whether a device is considered “cool” or “weird” might influence impression management (c.f., Goffman [9]), and thus affect her willingness to use it – even when unwatched. Despite being highly useful and usable, some devices might also reveal information the user does not want to reveal, which might result in privacy breaches or stigmata (e.g., when using assistive technologies, c.f. [20]) or displaying interactions to bystanders [8]. In public spaces, interactions with an interface may affect or even intrude the social sphere of others, cause discomfort and social tension. In light of these, we believe that social aspects of technology usage need to be re-thought as one of HCI’s quality characteristics, as the spread of information and communication technologies into all aspects of our lives has opened up many new trap doors to social acceptance – or non-acceptance, respectively.

This workshop is intended to foster critical re-thinking of social aspects in the adoption of novel, interactive technologies, which is often embraced by “social acceptance” and “social acceptability”. While these terms have been frequently used in the field of HCI, they have only been sparsely defined (e.g. by Montero et al. [16]), and there are no agreed-upon metrics to measure their effects (yet). However, we believe that in the context of emerging technologies and their dissemination into all facets of public and personal life there is a need to discuss how social acceptability issues shall be dealt with in HCI research: does an interaction or a technology have to be specifically designed for social acceptance, or will acceptance come naturally over time if the interface is accepted by ‘everyone else’? Should tech companies hire “Social Acceptance Advocates”? What about engaging in technology-driven research resulting in products that might not become socially acceptable in a lifetime? We speculate that social acceptability might not be a simple, binary decision between “acceptable” and “unacceptable”, but that decisions are also contextual, may be temporary, and influenced through media coverage or greater societal changes. For this reason, we believe it is high time to re-think and reconsider the notion of social acceptability in CHI in an interdisciplinary workshop with researchers and practitioners from academia and industry.

The main goals of this workshop are three-fold. First, we explore how “social acceptance” and “social acceptability” are understood, encountered, and used in the CHI community and beyond. Second, we will gather method suggestions for how the social acceptability of an interactive system can be measured and evaluated in a comprehensive way. Third, we discuss what types of social acceptability research (if any) would be the most useful for those trying to design/develop for social acceptability.

### *Existing Work*

In 1994 Nielsen named social acceptability as essential part of system acceptability [18]. Despite this, HCI research in the past decades mainly focused on creating and improving what Nielsen embraced as practical acceptability, including e.g., usability, and utility. Also, early observations, e.g., Hosokawa’s Walkman Effect [10] were purely descriptive and did not aim to design for social acceptability. Technology acceptance research (e.g., Davis’ Technology Acceptance Model, TAM [3]) has been extended to incorporate social factors (e.g., by Malhotra et al., in 1999, [15]), but research and resulting models were influenced through the technology positivism of that time; Potential non-acceptance of (interactive) technologies was not considered, however, has been taken up more recently in various areas of HCI:

- Social acceptability of “performing” interactions in front of others has been investigated for mobile, gestural and on-body interfaces [1, 16, 21, 23, 24], speech interfaces [7], and public displays [19].
- Social acceptability of technology usage has been investigated for various contexts and situations [13] or by particular user groups, e.g., for accessibility [20, 25] or in medical use cases [4, 27].
- Ethical and social implications of particular classes of technologies, were looked at e.g., for wearables [11], smart glasses [5], drones [26, 14], lifelogging cameras [12] and CCTV [17], as well as discussed for ubiquitous computing in general [2].
- A further string of research e.g., by the University of Twente<sup>1</sup> (Netherlands), covers intelligent personal assistants and human-robot-interaction.

<sup>1</sup>Human Media Interaction and Socially Intelligent Computing, <http://hmi.ewi.utwente.nl/Research>, accessed 10.10.2017

### *Workshop Goals*

We aim for a highly interdisciplinary workshop, bringing together designers, researchers, and practitioners from different domains of CHI to generate a shared understanding of “social acceptance” and “social acceptability” to discuss the implications of this for the CHI community. We aim to discuss which problems and challenges regarding social acceptance are being faced during research and design activities, along with solution strategies for mitigating risks of social non-acceptance of new HCI technologies and artifacts. We furthermore aim to initiate a discourse about which methods and metrics are suitable to comprehensively measure the social acceptability of an interactive system. We believe CHI2018 to be the ideal venue for this workshop as CHI invites an interdisciplinary dialogue between designers, researchers, and practitioners, and has had a long tradition in looking at social aspects of technology usage e.g., at what is “cool” [22] or “embarrassing” [6].

### *Workshop Questions*

Questions to be discussed during the workshop include, for example:

- Which emerging technologies and their characteristics are particularly challenging with regard to social acceptability?
- How can we develop/design for social acceptability?
- What role does social acceptability play in the overall perception of system quality or user experience?
- Which factors affect the social acceptability? What role do new interaction techniques play?
- How would disappearing computers (c.f. Ubiquitous Computing visions) affect acceptance?
- What are the needs to design for social acceptability; or is it something that is naturally achieved over time once a market gets used to the technology?

- Where has research in the CHI community succeeded or failed in designing for social acceptability?
- How can aspects of social acceptance be measured in valid and useful ways?

#### *Expected Outcome*

The main objective of this workshop is to provide a definition and common ground of what “social acceptability” is for the CHI community. A related practical outcome is the collection of existing methods to evaluate “social acceptability”, as well as the ideation of new methods, measures or perspectives that are missing in existing theories. We further expect the workshop to set the scene for discussing the relevance of “social acceptability” of emerging technologies for the CHI community (if any) and chart a future research agenda for its systematic study.

#### *Participants and Expected Interest*

Social acceptance is an element that becomes often apparent in user studies, whether it was purposefully studied or not. For this reason the workshop aims to include both, those that are studying, tackling and working on social acceptability, and those that stumble across social acceptability issues when testing prototypes or deploying their products in the wild. Hence, to better incorporate diverse participation in the workshop we have decided to offer two submission formats: 1. position papers - to be presented as a poster and, 2. full papers - to be included as an oral presentation. The call for participation will be distributed via mailing lists, social media and our institutes’ websites.

We believe that the social acceptability of emerging technologies is of direct interest to all designers, researchers and practitioners who design, study or use (novel) interactive systems. The workshop has ties to various areas in HCI, including mobile, wearable and ubiquitous computing; interaction in public spaces; on-body interfaces; intelligent

personal assistants and HRI; interactive and provocative design; and social software. It would also invite attendees having more general interests, such as information ethics; social computing or any psycho-social dynamics of HCI.

#### **Organizers**

The workshop will be organised by an interdisciplinary team of researchers from 5 different countries/universities.

**Marion Koelle [main contact]** is a research associate at the University of Oldenburg. Her background is in Augmented Reality, wearable computing and Computer Vision. She published research on factors influencing the social acceptance of smart glasses at MobileHCI and CHI. Recently, she has been with the BMBF project “ChaRiSma”, that covered chances and risks of smart cameras in public spaces. She will soon submit her dissertation on designing body-worn cameras that intelligently adapt to social contexts.

**Halley Profita** recently completed her PhD in CS and Human-Centered Computing (HCC) at the University of Colorado Boulder (CU). Her research primarily focuses on e-textile and wearable technology development, accessibility, and the social acceptability of on-body device use. Prior to CU, Halley received her master’s degree in Industrial Design from Georgia Tech where she spent much of her time infiltrating various CS labs to explore interactive technology projects of all shapes and sizes.

**Thomas Olsson** is an associate professor at University of Tampere, focusing on the experiential and social implications of information technology and research through design. His research interests include designing socially aware and acceptable information technology, enhancing social interaction with the help of emerging ICT, Big Social Data analytics, extended reality technologies, and steering digitalization towards desirable futures. He has organized several interdisciplinary workshops in the field of HCI.

**Julie Williamson** is a Lecturer of Human Computer Interaction at the University of Glasgow. Her research explores how tangible performative interactions can be embedded into public places, focusing on ways of attracting users, encouraging playful behaviour, and evaluating user experience without intervening during users' interactions.

**Robb Mitchell** is assistant professor, social interaction design at University of Southern Denmark. He is a graduate of Environmental Art at Glasgow School of Art and holder of a PhD entitled "Facilitating Shared Understandings of Risk". He has led hands-on workshops at TEI, DRS, Participatory Innovation, and Service Design conferences. In addition, he organised many creative gatherings for New Media Scotland, and had founding roles in several making oriented interdisciplinary collectives including The Electron Club, and The Chateau, Glasgow.

**Shaun Kane** is an assistant professor in the Department of Computer Science at the University of Colorado Boulder, where he directs the Superhuman Computing Lab. His research explores the design of mobile and wearable assistive technology, including how to empower end users to create and customise their own assistive devices.

**Susanne Boll** is full professor for Media Informatics and Multimedia Systems at the University of Oldenburg (UOL). In 2012, she joined the board of OFFIS – Institute for Information Technology. Susanne Boll is a lead researcher in a number of international and national research projects in the field of intelligent user interfaces, and leads the Human-Machine Cooperation Competence Cluster, which drives the activities of the OFFIS research institute in this field. She has co-organized several international events, is member of several editorial boards, and has been a member of more than 100 Technical Program Committees.

## Pre-Workshop Plans

Starting from December 2017 we will recruit a program committee to review and decide on successful submissions. Prior to CHI, participants will be asked to complete an (on-line) survey on their (personal) understanding of "social acceptance" and "social acceptability" as well as relevant measures and metrics, and their experience with (un)acceptable systems. Following a "snowballing" principle, the participants will be encouraged to recruit at least 8 additional participants each (no maximum). Results of the survey will be presented in the workshop's opening talk.

## Workshop Structure

The workshop is planned as a 1-day workshop with a structure as follows (with coffee breaks 10:30 – 10:45 and 15:00 – 15:15, and lunch 12:15-13:30):

**Introduction and Ice Breaker** (9:00 – 9:45): Introductory presentation to outline the workshop motivation and goals, summing up the results of the pre-workshop survey, followed by an ice breaking activity.

**Speed Dating** (9:45 – 10:30): Following the "speed dating" procedure, participants will discuss their perspective on social acceptance in HCI, and related issues they might have encountered during their research activities.

**Session 1** (10:45 – 11:30): Participants present results of their research in 7 minutes each.

**Session 2** (11:30 – 12:15): Participant's presentations; identical format to session 1. Activities for the workshop's remainder will be discussed and agreed.

**Posters** (13:30 – 14:15): Poster presentations, sharing experiences with socially (un)acceptable interfaces.

**Group Session 1** (14:15 – 15:00): Participants will divide in groups based on interest and experience. Each group will target at one particular interaction paradigm or interface

and redesign it in an either more acceptable, or totally unacceptable way. This way discussing factors that influence the social acceptability of a system will be facilitated.

**Group Session 2** (15:15 – 16:00): Participants will come together in different groups and discuss how social acceptability is or could be measured and evaluated. A list of existing methods and examples suggested by the participants will be prepared based on the pre-workshop on-line survey.

**Discussions** (16:00 – 16:45): Participants will be invited to present and discuss their findings. Key research questions, implications for the CHI community and future directions will be discussed and summed up in a poster.

**Wrap-up and Closing Remarks** (16:45 – 17:30): Workshop results and remaining open questions will be wrapped up, options for follow-up activities will be discussed.

### Post-Workshop Plans

We will invite the participants to submit an extended version of their workshop papers to be included in a special edition journal. Outcomes of the method collection will be provided as overview on the workshop's website and in a joint survey publication. Where possible, questionnaires, metrics and tools will be made available open-source via github.

### Call for Participation

What does social acceptance mean  
with respect to modern HCI?

How to design for social acceptability and  
how to evaluate it?

Where has research in the CHI community succeeded or  
failed in designing for social acceptability?

The concepts of technology acceptance and social acceptability are central in the long development of human-centric

understanding of interactive technology. However, considering the variety of modern ICT, the early definitions and theories related to the social and societal aspects of technology acceptance seem outdated and narrow. We invite academics and practitioners to discuss how social acceptance and acceptability are understood nowadays. In this workshop at CHI 2018, we will discuss how to re-conceptualize the relevant concepts and outline new research agendas for this unsung topic.

\*\*\* Important dates \*\*\*

Submission deadline: Jan 27th, 2018

Notifications: Feb 22nd, 2018

Workshop date: 21st or 22nd of April, 2018

We invite submissions of (1) position papers: 2 pages in SIGCHI Extended Abstracts format to be presented as posters, or (2) full papers: 4 pages in SIGCHI Extended Abstracts format to be presented as oral presentation.

Possible contributions include, but are not limited to:

**Experiences, case studies, and lessons learned** from designing (not) socially acceptable interactive systems.

**Methodological contributions:** conceptualizations, evaluation measures, design considerations, etc.

**Design/system contributions:** interactive systems that provide socially (more) acceptable qualities, provocative designs or breaching experiments.

**User Studies** about social aspects of technology acceptance.

The workshop participants will be selected based on the submissions' relevance to the workshop topic and their potential to engender insightful discussion at the workshop. For more information and submitting your contributions, please visit: <https://www.socialacceptabilityworkshop.uol.de/>

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