

Association for Information Systems

AIS Electronic Library (AISeL)

SIGHCI 2020 Proceedings

Special Interest Group on Human-Computer
Interaction

12-12-2020

From User Acceptance to Social Acceptance

Guillaume Tabourdeau

Camille Grange

Follow this and additional works at: <https://aisel.aisnet.org/sighci2020>

This material is brought to you by the Special Interest Group on Human-Computer Interaction at AIS Electronic Library (AISeL). It has been accepted for inclusion in SIGHCI 2020 Proceedings by an authorized administrator of AIS Electronic Library (AISeL). For more information, please contact elibrary@aisnet.org.

From User Acceptance to Social Acceptance

Guillaume Tabourdeau

HEC Montreal

Guillaume.tabourdeau@hec.ca

Camille Grange

HEC Montreal

Camille.grange@hec.ca

ABSTRACT

Four decades of research on technology acceptance have produced a solid knowledge base on the topic. This literature has predominantly focused on a micro-level perspective (i.e., user acceptance) while sparsely accounting for the social context surrounding technology use. This focus does not serve well the study of contemporary technologies, which involve a larger set of socio-ethical risks and concerns related to their increased deployment in society and increased involvement in socially sensitive processes. To document and start addressing this gap, we have conducted review of the literature on the concept of social acceptance in four fields: two that are closely related (MIS and HCI) and two others, more distant, that have a record of studying social acceptance (energy and healthcare). The paper presents the results of this review work with the hope to trigger a productive discussion on the topic of social acceptance in the context of modern human-computer interaction.

Keywords

IT Acceptance, Social Acceptance, Social acceptability, Societal acceptance, Literature Review.

INTRODUCTION

As a direct consequence of the fast pace of information technology (IT) innovation and diffusion, a growing number of activities conducted by individuals and organizations are being augmented by or relinquished to computerized systems. An important corollary of IT's growing ubiquity is that the success of many IT innovations depends on their acceptance by a broad set of actors—not just by the final users or the organization deploying them. The mixed success of COVID-19 contact tracing apps to date can attest to the saliency and relevance of accounting for the degree to which the members of a society (dis)approve of the large-scale deployment and use of an IT innovation. Countries have discussed in length the ethical justifiability of such contact tracing technology for the public (Morley *et al.*, 2020). Yet, the potential benefits of such technology can only be attained if a large proportion of people use it. Beyond contact tracing apps, the concerns and controversies generated by IT innovations have been witnessed in several other contexts, such as biometric identification (Breward *et al.*, 2017) and algorithmic decision-making (Newell and Marabelli, 2015). This reinforces the idea that social acceptance has become a key consideration in the design, deployment, and operation of many IT innovations, and that IS researchers

should account for this factor in their work on the acceptance, success, and societal value of ITs.

Unfortunately, the notion of social acceptance appears to be absent from existing IT acceptance frameworks, which focus on the beliefs that users form about the costs they will incur and the benefits they will gain from engaging with (i.e., using) a particular IT. These theories embrace a user-focused, instrumental view of IT acceptance, and provide a rather minimalist account or social norms and context (Terrade *et al.*, 2009).

In summary, although it is important that governments, organisations, and researchers are equipped with theoretical models enabling the understanding and assessment of what makes an IT innovation socially acceptable to its relevant stakeholders, the IT adoption literature seems to be lacking models enabling such a perspective. This observation motivated our quest to explore in greater depth the existence and nature of this gap by conducting a literature review on the social acceptance concept. Our goal is to provide a carefully researched conceptual background for subsequent work on this topic.

To meet this objective, we started with a review of the MIS literature in the AIS basket of eight and proceeded with an additional review of conference proceedings in the field of HCI. We concluded our investigation with a complementary analysis of highly cited papers in environmental studies and healthcare research, two fields that have long been interested in the acceptance of contentious artifacts and practices.

METHODOLOGY

To find out what is known about the social acceptance of IT, we began with a scoping review in the IS literature (Paré *et al.*, 2015). To be as comprehensive as possible, we conducted our search in the AIS senior basket of eight journals since each journal's inception year. In these journals, we searched for papers whose abstract referenced at least one word with the root “accept” in it (e.g., acceptance, acceptability, accepting, accepted, acceptable).

These criteria used in our initial search yielded 314 articles. To screen this list further, we used three exclusion criteria, as summarized in Table 1.

	Excluded papers and reasons for exclusion			Included papers
	1*	2*	3*	
MISQ	27	8	25	0

JSIS	3	0	8	0
JMIS	15	1	12	0
JIT	22	1	13	0
JAIS	12	7	14	1
ISR	31	1	18	0
ISJ	24	3	10	0
EJIS	20	11	27	0
Total	154	32	127	1

* **Reasons for exclusion:** 1 - Keywords mentioned only in passing; 2 - Methodological paper, 3 - Focus on individual acceptance

Table 1. Literature Review in the MIS Literature

For the HCI literature, we searched for relevant studies using in the ACM Digital Library. We circumscribed our search to the presence of the terms “social acceptance” or “social acceptability” in the abstract of papers published in the last five years of ACM-sponsored conferences—this included the *ACM CHI Conference on Human Factors in Computing Systems* (or CHI, as it is typically called), which is considered to be a flagship outlet and the most prestigious conference in the field of HCI. This search yielded 44 papers. A backwards search led to 12 other relevant references, including one more dated (Montero *et al.*, 2010), one in a journal (Koelle *et al.*, 2019), and 10 from a special workshop at CHI 2018 entitled “(Un)Acceptable?! – Re-thinking the Social Acceptability of Emerging Technologies.” (Koelle *et al.*, 2018).

We finalized our review of the literature with an exploration of the fields of energy and healthcare. and obtained further evidence of the relevance of these two fields in our research by doing a first exploratory search of articles that used the terms “social acceptance” or “social acceptability” in their title. We filtered the 627 results obtained in the Web of Science database by the criterion “highly cited in the field”, that is, papers that are at the top 1% of their academic fields based on a highly cited threshold for the field and publication year. This filtering approach yielded eight papers, six of which were in the field of environmental studies and two others in healthcare.

To scope our review of social acceptance in energy, we ran a search with the same keywords but in the specific category “environmental studies” in the Web of Science database. We ordered the set of results by citation counts and reviewed the first 20 papers. We followed a similar search procedure in healthcare-related categories in the Web of Science database (i.e., categories included

“medicine general internal”, “public occupational health”, “health care science services”, “medicine experimental research”, “health policy research”.) Additional backward searches on the papers sets in both domains were conducted to broaden the search.

SOCIAL ACCEPTANCE IN MANAGEMENT INFORMATION SYSTEMS

This initial scoping review of the MIS literature reveals a phenomenal gap in our top journals when it comes to the study of the social acceptance of information technology. Indeed, only one study passed our screening process (Schwarz and Chin, 2007), and it was included not because it focuses on social acceptance per se, but because it puts forward the need for a perspective change when studying IT acceptance.

Schwarz and Chin (2007) explain that the current focus on individual usage and usage-based factors should be broadened “*toward a wider constellation of behavioral usage and its psychological counterparts.*” (Schwarz & Chin, 2007, p. 232). In that regard, their etymological analysis reveal that acceptance is a rich concept with five different psychological dimensions: to receive (the extent to which one is willing to receive or not what the technology can bring), to grasp the idea (intellectually grasping the idea of the technology), to assess the worth (value of the object), to be given (willingness to adapt and change), and to submit (accepts the object as part of the identity) (Schwarz & Chin, 2007). In summary, although Schwarz and Chin (2007) do not conceptualize social acceptance per se, they suggest that the concept of acceptance is much richer and more nuanced than its current treatment in the IS literature.

Given the very limited treatment of social acceptance in the IS literature, we expanded our search to human-computer interaction.

SOCIAL ACCEPTANCE IN HUMAN-COMPUTER INTERACTION

The results of our review indicate that the HCI literature has engaged much more with the concept of social acceptance than the IS literature. But we also found a lack of consistency in the definition (we found eight different definitions of the terms in the selected papers) and operationalization of the concept. Overall, as a recent review also observed, there is no strong agreement and consistency on measurement (Koelle *et al.*, 2020). Most studies used self-reports (questionnaires) to capture a vast range of attributes describing a socially acceptable interaction (Table 2).

Source	Measurement Approach
(Alallah <i>et al.</i> , 2018)	The researchers asked how a performer (user) feel about using a focal interface in front of a particular audience (same question was asked from an observer’s perspective). They use 5-pt Likert scales – <i>from very socially uncomfortable</i> (1) to being <i>very socially comfortable</i> (5)
(Williamson <i>et al.</i> , 2019)	The researchers asked how acceptable respondents found different activities performed by a user in a scenario (e.g., using a VR set). They used 5-pt Likert scales – <i>from Very acceptable</i> (1) to <i>very unacceptable</i> (5)

(Taniberg et al., 2018)	The researchers measured social acceptability via 18 questions about comfort, ease of use, enjoyment, naturalness, and benefit and fit in the current social context. They used 5-pt Likert scales.
(Montero et al., 2010)	The researchers asked participants watching a video of someone interacting with an interface how they would feel about performing this gesture in public place and at home. They used six-point Likert scale from <i>Embarrassed</i> (1) to <i>comfortable</i> (6)

Table 2. The Measurement of Social Acceptance in the HCI Literature

We subsequently identified three papers that provide particularly interesting insights on the conceptualization of social acceptance in the context of human-computer interaction. First, Montero et al. (2010) suggest a bidimensional conceptualization of social acceptance that distinguishes between the *user's* social acceptance and the *spectator's* social acceptance. The user's social acceptance is about "the overall positive or negative impression of the task or technology" for every task a user performs. Its counterpart, the spectator's social acceptance, refers to the "his or her overall positive or negative impression of the user's actions".

Second, Koelle et al. (2019) highlight the distinction between social acceptance and social acceptability. The former refers to the broader cultural phenomenon and the latter to a quality or an attribute of a system that makes it socially acceptable. In their words, "social acceptance is subjective, dynamic, temporal, and contextual. It's not a simple, binary decision but rather a continuum: Instead of being a one-time decision for either acceptable or unacceptable, it is a continuous decision process that evolves over time". This process can be influenced by media coverage and can evolve based on societal changes and the particular values deemed important in a particular context. In contrast, social acceptability is seen as a system quality attribute, which can be manipulated and influenced through design. The paper also emphasizes Olshannikova et al.'s (2018) contribution, which identifies a number of dimensions associated with social acceptability: an *internal* perspective (how users feel about a technology), an *interpersonal* perspective (how users feels about their use of a technology affecting their interactions with and perceptions of other), a perspective of *social structure* (how users feel about their use of a technology affecting their professional and social image), a *normative* perspective (how the use of a technology is perceived in the users' culture), and an *ethics and regulations* perspective (how the use of a technology respect the laws, regulations and moral standards of the society).

Third, Koelle et al. (2020) stress the idea that social acceptability is often "emotionally charged and shaped by societal needs and values". They observe that social acceptability is often defined through its absence (i.e., the absence of negative reactions or disapproval from others), and they proceed to propose a more specific working definition focused on the user's perceived effect of her interaction with an interface. In sum, "social acceptability is largely determined by the user's personal experience and how they subjectively perceive feedback from a present or imagined audience" (p. 5).

SOCIAL ACCEPTANCE IN OTHER FIELDS

Social Acceptance in Environmental Studies

In the field of environmental studies, we found 81 articles that included the terms "social acceptance" or "social acceptability" in their titles. The most highly cited article is an introduction to a special issue on the subject of social acceptance of renewable energy innovation (Wüstenhagen et al., 2007) and note that "Social acceptance is an often-used term in the practical policy literature, but clear definitions are rarely given" (p. 2684). They introduce a conceptualisation of social acceptance that includes three dimensions: 1) *socio-political* acceptance (i.e., the acceptance of key stakeholders, policy makers, and the public), 2) *community* acceptance (i.e., how residents, local stakeholders and authorities accept a project), and 3) *market* acceptance (i.e., the diffusion and adoption of an innovation in the market, not only on the consumer side of the market but also for investors).

Sauter and Watson (2007) have emphasized the idea that an understanding of social acceptance requires paying close attention to both its "social" and its "acceptance" components. The former implies that the whole society may be considered as well as its subgroups of people in their varied roles (e.g., consumers, producers). The latter can refer to active acceptance (e.g., using or investing in a new technology) or passive acceptance (e.g., passively approving of a new technology). Sauter and Watson (2007) highlight the contradiction between active and passive acceptance. A concrete example of this contradiction resides in the investments on renewable energies. While the public seems highly favorable to these investments, when it comes to personally investing in it, the acceptance is vastly different. This gap stresses the importance of conceptualizing social acceptance broadly by including its different forms and dimensions.

Dermont et al. (2017) propose a framework to conceptualize acceptance from a policy perspective. One of the interesting findings incorporated in this framework is the existence of a dual view of social acceptance in the renewable energies field, (1) the view of Wüstenhagen et al. (2007), which sees social acceptance as the social side of the implementation of a technology/energy policy (a top-down approach that focuses on governance and the public's response to a new initiative), and (2) the views of authors like Batel et al. (2013), who consider social acceptance as a reaction towards a new technology (at the same level as support or resistance). With those views in mind, the researchers proposed a three-step framework to help better study social acceptance. The first step consists

in defining the object of interest, and more precisely the context dimension and the stage of the process being analysed (e.g., drafting, introduction, or implementation). The second step involves specifying the different actors involved in social acceptance. The third and last step requires researchers to choose the focal role(s) of the actors (e.g., support, acceptance, preference) and operationalize their research design using all the information collected on the focal context. Overall, while there are some similarities between this framework and the other ones mentioned above, the incorporation of the different type of reaction (acceptance but also support or preference) bring new insights in how acceptance can be apprehended.

We conclude our overview of the environmental studies literature by highlighting some key insights from Gaede and Rowlands (2018), who conducted a bibliometric and content analysis of the different studies of social acceptance. Their report reveals an important growth in the number of studies examining social acceptance. The authors make two other particularly interesting observations. First, they highlight the enduring importance of the community/ market/ social-political acceptance framework in conceptualizing the structure of the field. Second, there has been a progressive change in the conceptualization of social acceptance from a focus on political and governance issues to a focus on more psychological issues implicating the values, beliefs and perceptions of the technological risk and a more interdisciplinary approach.

Social Acceptance in Healthcare

Social acceptance is essential in the domain of healthcare interventions. Indeed, the acceptability of an intervention impacts patients in the form of a stronger willingness to adhere to treatments recommendations and better clinical outcomes, and it also impacts practitioners in terms of the quality of the service provided (an intervention with low acceptability will have lower effectiveness than intended)(Sekhon *et al.*, 2017).

Similar to the other fields, there seems to exist some conceptual heterogeneity in the healthcare field, with terms going from “treatment acceptability” to “social acceptability” (Sekhon *et al.*, 2017). To address this problem, the authors realised a literature review of the terms leading to propose a conceptual definition of acceptability as “*a multi-faceted construct that reflects the extent to which people delivering or receiving a healthcare intervention consider it to be appropriate, based on anticipated or experienced cognitive and emotional responses to the intervention.*” (Sekhon *et al.*, 2017, p. 4). Next, they proposed a framework permitting the judgment of the acceptability of an intervention through seven constructs: affective attitude, burden, ethicality, intervention coherence, opportunity costs, perceived effectiveness and self-efficacy. Furthermore, they included a temporality in the development of the acceptability with three different kind of acceptability: prospective

acceptability, concurrent acceptability, and retrospective acceptability.

More closely related to IS, acceptability and social acceptability is also addressed in the domain of medical mobile application. In their study, Torbjørnsen *et al.* (2019) examined users’ acceptability of a mobile application permitting the management of diabetes, and distinguish between two type of acceptability, *practical* acceptability and *social* acceptability; the former covers the usefulness, cost, computability and reliability side of the application, while the latter reflects the attitude of the user towards the technology. Although the context of the study did not lead to an in-depth analysis of the concept of social acceptability, one element raised in the paper’s discussion section is the importance of the interactions involved in the process between the patient and the health-care personnel; this reveals that the social acceptability of the application depend on a shared understanding of the two parties.

For Dillip *et al.* (2012), social acceptability “*emphasizes that individual perceptions are influenced by social representation and modified in social interactions*” (Dillip *et al.*, 2012, p. 2), also indicating a dynamic process that can evolve in function of the influence of the society. Furthermore, they also manifest the need for a fit between providers and patients and found that a better social acceptability in the local community can help in the diffusion of modern medical practices.

DISCUSSION

In this section, we reflect on the key findings from our literature reviews

First of all, our review has demonstrated that the MIS literature has overlooked the study of social acceptance whereas its influence on the development and diffusion of new practices and technology into society has been recognized for some time in other fields. Thus, these literatures could serve as a useful basis by IS researchers in their future work on social acceptance. .

Second, our review has highlighted recurring themes across literatures. One of them is about the nature of social acceptability. Researchers seemed to agree that social acceptance is not a one-time decision but a process that can be affected by a number of factors like evolving values and norms. Another recurring theme of the research works we reviewed is the multi dimensionality of social acceptance.

A last important observation from this study concerns the actors involved in the process. Contrary to the IS field where the idea of social influence is generally described as “*the degree to which an individual perceives that important others believe he or she should use the new system*” (Venkatesh *et al.*, 2003, p. 451), the field of environmental studies refer to a much larger variety of actors (Dermont *et al.*, 2017; Sauter & Watson, 2007).

Like all research, this review has limitations. We are aware that we only scratched the surface in our analysis of social acceptance in the different fields studied. Even in the IS

field, we only thoroughly searched across the most distinguished journals as we did not have the resources to expand our quest to other outlets. Concerning the non-IT related fields, we used the number of citations on the articles to guide our search, but we were lacking in knowledge in these domains to better judge the study qualities. All these limitations have probably influenced our findings, and it will be interesting to conduct a more thorough review of the different fields.

CONCLUSION

This research was motivated by the sense that the IS literature had too strongly focused on a micro-level perspective on technology acceptance (i.e., user acceptance) while sparsely accounting for the social context surrounding acceptance. This focus is problematic as it does not serve well the study of contemporary technologies, which are increasingly contentious and embedded in society. Our review has contributed to document this gap and to provide some insights into how HCI researchers as well as researchers in energy and healthcare conceptualize social acceptance. Such insights shall prove as useful set of anchors to further develop our understanding of the social acceptance of IT innovations.

REFERENCES

1. Batel, S., Devine-Wright, P. and Tangeland, T. (2013). Social acceptance of low carbon energy and associated infrastructures: A critical discussion, *Energy Policy* 58: 1–5.
2. Breward, M., Hassanein, K. and Head, M. (2017). Understanding Consumers' Attitudes Toward Controversial Information Technologies: A Contextualization Approach, *Information Systems Research* 28(4): 760–774.
3. Dermont, C., Ingold, K., Kammermann, L. and Stadelmann-Steffen, I. (2017). Bringing the policy making perspective in: A political science approach to social acceptance, *Energy policy* 108: 359–368.
4. Dillip, A., Alba, S., Mshana, C., Hetzel, M. W., Lengeler, C., Mayumana, I., Schulze, A., Mshinda, H., Weiss, M. G. and Obrist, B. (2012). Acceptability—a neglected dimension of access to health care: findings from a study on childhood convulsions in rural Tanzania, *BMC health services research* 12(1): 113.
5. Gaede, J. and Rowlands, I. H. (2018). Visualizing social acceptance research: A bibliometric review of the social acceptance literature for energy technology and fuels, *Energy Research & Social Science* 40: 142–158.
6. Koelle, M., Ananthanarayan, S. and Boll, S. (2020). Social Acceptability in HCI: A Survey of Methods, Measures, and Design Strategies, In *Proceedings of the 2020 CHI Conference on Human Factors in Computing Systems*, pp. 1–19.
7. Koelle, M., Boll, S., Olsson, T., Williamson, J., Profita, H., Kane, S. and Mitchell, R. (2018). (Un) Acceptable!?! Re-thinking the Social Acceptability of Emerging Technologies, In *Extended Abstracts of the 2018 CHI Conference on Human Factors in Computing Systems*, pp. 1–8.
8. Koelle, M., Olsson, T., Mitchell, R., Williamson, J. and Boll, S. (2019). What is (un) acceptable? thoughts on social acceptability in HCI research, *Interactions* 26(3): 36–40.
9. Montero, C. S., Alexander, J., Marshall, M. T. and Subramanian, S. (2010). Would you do that? Understanding social acceptance of gestural interfaces, In *Proceedings of the 12th International Conference on Human Computer Interaction with Mobile Devices and Services*, pp. 275–278.
10. Morley, J., Cows, J., Taddeo, M. and Floridi, L. (2020). Ethical guidelines for COVID-19 tracing apps, *Nature* 582(7810): 29–31.
11. Newell, S. and Marabelli, M. (2015). Strategic opportunities (and challenges) of algorithmic decision-making: A call for action on the long-term societal effects of 'datification', *The Journal of Strategic Information Systems* 24(1): 3–14.
12. Olshannikova, E., Olsson, T. and Huhtamäki, J. (2018). Perspectives to Social Acceptability Issues in Professional Social Matching Systems, In *Extended Abstracts of the 2018 CHI Conference on Human Factors in Computing Systems*, Presented at the CHI, Montreal, Canada.
13. Paré, G., Trudel, M.-C., Jaana, M. and Kitsiou, S. (2015). Synthesizing information systems knowledge: A typology of literature reviews, *Information & Management* 52(2): 183–199.
14. Sauter, R. and Watson, J. (2007). Strategies for the deployment of micro-generation: Implications for social acceptance, *Energy Policy* 35(5): 2770–2779.
15. Schwarz, A. and Chin, W. (2007). Looking Forward: Toward an Understanding of the Nature and Definition of IT Acceptance, *Journal of the Association for Information Systems* 8(4).
16. Sekhon, M., Cartwright, M. and Francis, J. J. (2017). Acceptability of healthcare interventions: an overview of reviews and development of a theoretical framework, *BMC health services research* 17(1): 88.
17. Terrade, F., Pasquier, H., Reerinck-Boulanger, J., Guingouain, G. and Somat, A. (2009). L'acceptabilité sociale : la prise en compte des déterminants sociaux dans l'analyse de l'acceptabilité des systèmes technologiques, *Le travail humain* Vol. 72(4): 383–395.
18. Torbjørnsen, A., Ribu, L., Rønnevig, M., Grøttland, A. and Helseth, S. (2019). Users' acceptability of a mobile application for persons with type 2 diabetes: a qualitative study, *BMC health services research* 19(1): 641.
19. Wüstenhagen, R., Wolsink, M. and Bürer, M. J. (2007). Social acceptance of renewable energy innovation: An introduction to the concept, *Energy policy* 35(5): 2683–2691.