

# THE ANATOMY OF A PERSONAL SERVICE: THE EIGHT DIMENSIONS OF 'PERSONAL'

JEROEN VAN GRONDELLE<sup>1</sup>, MARLIES VAN STEENBERGEN<sup>2</sup>,  
ALETTA SMITS<sup>3</sup>, TIJS TIMMERMAN<sup>4</sup>, KOEN VAN  
TURNHOUT<sup>5</sup> & HARALD POL<sup>6</sup>

<sup>1</sup>Jeroen van Grondelle, HU University of Applied Sciences Utrecht, Digital Ethics, The Netherlands; e-mail: [jeroen.vangrondelle@hu.nl](mailto:jeroen.vangrondelle@hu.nl)

<sup>2</sup>Marlies Van Steenbergen, HU University of Applied Sciences Utrecht, Digital Ethics, The Netherlands; e-mail: [marlies.vansteenbergen@hu.nl](mailto:marlies.vansteenbergen@hu.nl)

<sup>3</sup>Aletta Smits, HU University of Applied Sciences Utrecht, Human Experience & Media Design, The Netherlands; e-mail: [aletta.smits@hu.nl](mailto:aletta.smits@hu.nl)

<sup>4</sup>Tijs Timmerman, HU University of Applied Sciences Utrecht, Marketing & Customer Experience, The Netherlands; e-mail: [tjts.timmerman@hu.nl](mailto:tjts.timmerman@hu.nl)

<sup>5</sup>Koen van Turnhout, HU University of Applied Sciences Utrecht, Human Experience & Media Design, The Netherlands; e-mail: [koen.vanturnhout@hu.nl](mailto:koen.vanturnhout@hu.nl)

<sup>6</sup>Harald Pol, HU University of Applied Sciences Utrecht, Marketing & Customer Experience, The Netherlands; e-mail: [harald.pol@hu.nl](mailto:harald.pol@hu.nl)

**Abstract** Digitalization enables public organizations to personalize their services, tuning them to the specific situation, abilities, and preferences of the citizens. At the same time, digital services can be experienced as being less personal than face-to-face contact by citizens. The large existing volume of academic literature on personalization mainly represents the service provider perspective. In contrast, in this paper we investigate what makes citizens experience a service as personal. The result are eight dimensions that capture the full range of individual experiences and expectations that citizens expressed in focus groups. These dimensions can serve as a framework for public sector organizations to explore the expectations of citizens of their own services and identify the areas in which they can improve the personal experiences they offer.

## Keywords:

Personalisation,  
Personal service,  
Public services,  
Digitalisation  
Customer  
Experience.

# 1 Introduction

One of the promises of digitalization of data-intensive services is the ability to deliver personalized services that lead to personal customer experiences, catering to the unique needs, preferences, and situations of individual consumers. The expectation is that such personalized services will result in enhanced customer experiences and yield better outcomes for service providers (Chandra et al., 2021). However, since the advent of digital services, private and public sector organizations have been struggling to offer their customers an authentic personal experience in the digital age. It has been shown that personalization does not always lead to personal service (Pol et al., 2020). Ironically, excessive personalization in digital services often misses the mark by failing to make customers feel valued and, instead, causing alienation (White et al., 2008; Teeny et al., 2021; Riegger et al., 2021; Kim et al., 2022). Apparently, organizations have yet to grasp what constitutes a genuinely personal service to customers. Designing personalized digital services that are truly personal is a complex challenge, with at its heart the question of what customers or citizens perceive as ‘personal’ in a service interaction.

Although there is a proliferation of literature on personalization, by far most studies are concerned with the technical aspects or, to a lesser extent, with the impact of personalization on the effects aimed for by the organization (Zanker et al., 2010; Sunikka & Bragge, 2008). The voice of the citizen in terms of what makes a service personal to them is hardly heard, let alone taken as starting point. This lacking perspective represents a significant gap in existing literature.

This paper aims to address this gap within the context of public organizations. To explore experiences with and expectations of public services being personal, we analysed 12 interviews with managers of digital services provided by public organizations (i.e. tax services, utility companies, municipalities) and 16 focus group sessions with citizens who had interacted with those public organizations. The resulting analysis led to eight dimensions that describe the anatomy of a truly personal service from a citizen’s perspective rather than an organizational perspective. We consider these eight dimensions a starting point for a framework that organizations can employ to assess the personal quality of their services, and to drive potential redesign of their personalized services.

In this paper, section 2 delves into the history and current usage of the concepts of personalized versus personal service, while section 3 outlines the context and research methodology of our study. The results are presented in section 4, followed by a discussion of the findings and limitations in section 5. Section 6 presents the conclusions.

## **2 Personalized and personal**

The concept of personalization was originally introduced by Surprenant & Solomon (1987) as a means of describing the transformation of formal customer-organization interactions into more intimate and personal ones, which recognize the customer as a unique individual. In their seminal work, Surprenant & Solomon differentiated between outcome personalization, which is focused on the end result for the customer, and process personalization, which is concerned with the customer journey. Process personalization, in turn, can be classified into two types: programmed personalization, which is intended to convey the appearance of personalized service (e.g., a “Dear {First name}-email”), and customised personalization, which involves making genuine efforts to find ways to best help each individual customer.

Today, "personalization" typically denotes interactions in digital contexts that use data to tailor the services to the characteristics of the consumption experience (e.g., the consumer, context, and history) (Chandra et al., 2022). The majority of the literature on personalization of services focuses on the technical interventions that make a service more personalized (Fan & Poole, 2006; Morana et al., 2017).

Tuning a service to the needs of the service consumer requires knowledge. Various types of knowledge can be used to improve the experience. Examples are knowledge of the situational circumstances in which interaction takes place, knowledge of the service consumer's goals and state of mind, and knowledge of their personal characteristics (Fischer, 2012; Barwitz & Maas, 2018). Systems possessing this kind of information, however, also entails potential risks. Firstly, in research carried out in commercial contexts, when automatic processes present a consumer with a supposedly relevant selection of all content based on available data, this selection inherently reflects some degree of subjectivity as well as nudging, which impairs consumer autonomy (Mittelstadt et al., 2016). Secondly, the consumer can develop personal reactance, a situation where excessive personalization can lead to psychological resistance to subjectively inappropriate

personalization (White et al., 2008). In such cases, consumers experience too much familiarity with their preferences and behaviours. Utilizing consumer data alone is, therefore, insufficient to create true personal services.

A different approach to assessing the personal quality of a service is to consider it in terms of relational models. Fiske (1991) proposes the Relational Models Theory, which identifies four fundamental relational models that people use unconsciously in their interactions with each other, and with organizations (McGraw & Tetlock, 2005): communal sharing, market pricing, authority ranking, and equality matching. Communal sharing represents a common interest and a desire to connect, and it is the most intimate of the four models, thus closest to the concept of personal service. Pol et al. (2020) demonstrated that the presence of communal sharing has a positive effect on customer experience and satisfaction. As communal sharing increases, positive emotions are amplified, and negative emotions are mitigated.

In our paper, we adopt the term "personal" to refer to how individuals perceive a service, recognizing that this perception is subjective and unique to each person. This has important implications. Firstly, it underscores that there is no universal solution for personalization. Secondly, it implies that conventional metrics for personalization success, such as engagement, conversion, and convenience, may not capture the essence of a personal experience, as they fail to account for the citizen's true experience (Sunikka & Bragge, 2008; Zanker et al., 2010). Thirdly, it suggests that the only reliable way to determine whether a service is personal is to ask the consumer of the service. Accordingly, this study does exactly that.

### **3 Research Method**

This study was performed within the context of a research project conducted in the Netherlands on the effects of digital transformation on public services. For an earlier study within this project both public service providers and citizens, as the users of their services, were involved in interviews and focus group sessions about digital service experiences and expectations (see table 1 for specifics on the participants). For the current study we returned to the data collection of this study, using the transcripts of the recordings as a secondary data source. We identified passages in the transcripts of both interviews and focus groups in which participants speak about personal services and what aspects makes these services personal to them. The research design included two stages. In the first

stage, 12 transcripts of organizational interviews were subjected to open coding, focusing on those parts where the organizational representatives discussed the expectations of their citizens with regard to the personal quality of their services. We focused our coding on fragments where the organizational representatives discussed actual feedback from and experiences with their customers, for instance through customer panels. The saturation point was reached after analysing 12 organizational interviews: no more new themes or dimensions were identified.

**Table 1: Participants on organizational and individual level**

	<b>Number of organizational interviews (number of participants)</b>	<b>Number of citizen focus groups (number of participants)</b>
National government services (e.g. DMV, tax, foreign affairs, student loans)	5 (6)	4 (11)
Municipalities (large and smaller counties)	3 (3)	4 (11)
Public transport companies	1 (2)	4 (11)
Insurances and pension funds	3 (5)	
Utility companies	1 (2)	4 (11)

The second stage focused on validating these dimensions with relevant passages in the focus groups, using template coding. As the original study was exploratory in nature, the interviews were semi-structured according to a topical interview guide. Participants were invited to bring up experiences and observations they deemed relevant and react to each other's contributions. To ensure the quality and consistency of our data set, we devised the following protocol on identifying relevant passages. The first step consisted of identifying parts of the interviews that explicitly talked about or asked for qualifications and assessments of personal. Those parts were then divided into passages to be coded. The first four transcripts were processed by two researchers independently, to validate identification and partitioning processes, and the criteria used for both were calibrated. The other transcripts were then divided between two researchers and processed individually.

As the interviews were wide ranging, strict criteria were used for establishing whether an individual passage was to be coded: 1) all passages that were direct responses to questions that pertained explicitly to the personal qualities of services were considered for coding; 2) other passages in the interview were only considered if direct references were made to a service being personal; 3) only direct responses to questions of the interviewer and/or passages concerning a participant's own experience or expectations were considered. Passages where participants reflected on each other's experiences or in which they hypothesized on what people in general might prefer were excluded. All transcripts were first coded by two researchers independently and then compared. Coding differences were discussed and resolved. 12 of the available 16 focus group transcripts were analysed, after which saturation occurred. No new dimensions were found.

#### 4 Results

The analysis of the interviews with organizations and citizen focus groups led to eight dimensions that capture the full range of citizen's experiences and expectations of personal services. These dimensions are *time*, *location*, *language*, *complexity*, *individual relevance*, *confidence to act*, *empathy* and *autonomy* (see Table 2; the examples in this table are translated from Dutch for the benefit of this paper).

Under *time* we classified all statements that pertained to aspects such as opening hours, flexibility in when to get in touch, and the amount of time needed for a service. *Location* pertains to statements concerning the locations where the service can be received and for instance the amount of travel time needed to get to a physical location of the service provider. *Language* refers to inclusiveness of the verbal statements (use of jargon, available languages), but also mode (spoken, written, visual, etc.) and tone of voice as well as form of address. *Complexity of the task* was mentioned, for instance, in relation to situations where the process was more complex than the underlying task or issue (an official document that could only be sent via physical mail and not digitally, felt cumbersome to one of the respondents). *Individual relevance* refers to all situations where processes, answers or suggestions (generated for instance on the citizen's known history) were felt to be truly geared to the situation.

**Table 2: Eight dimensions of personal services**

Dimension	Definition	Examples of aspects	Quotes
Time	The extent to which the moments when and the duration in which the service (can) take place are experienced as being appropriate.	<ul style="list-style-type: none"> <li>• The times of the day the service is available and whether it is offered at a time that suits citizens</li> <li>• The freedom of choice that citizens are given (“fixed call time, schedule an appointment yourself or just walk in”)</li> <li>• Sufficient time is taken for the service</li> <li>• The service is fast/on time (relative to expectations)</li> </ul>	“And make just a little more time for that. And don't rush.”
Location	The extent to which the location where the service (can) be delivered is experienced as being appropriate.	<ul style="list-style-type: none"> <li>• The location from which the service can be used</li> <li>• The distance one must travel to purchase the service</li> </ul>	“So the first time you had to go to the town hall after birth, now it could all be done digitally.”
Language	The extent to which the form in which the communication about the service (can) take place is experienced as being appropriate.	<ul style="list-style-type: none"> <li>• The language spoken</li> <li>• The tone of voice and manner of address</li> <li>• Visual, spoken, written</li> <li>• Use of jargon</li> </ul>	“I think being polite, is very important to me.”
Complexity	The extent to which the mental effort required to do or understand something is experienced as being appropriate.	<ul style="list-style-type: none"> <li>• Whether the complexity of the process is in proportion to the complexity of the underlying task or issue</li> <li>• Whether the time it takes to acquire a service is in proportion to the complexity of the task.</li> <li>•</li> </ul>	“If it is complicated then it is fine, they should take their time”
Individual Relevance	The extent to which the service is experienced as being in line with the current context.	<ul style="list-style-type: none"> <li>• Solutions, alternatives, help, tips, that match the situation</li> <li>• Known history (contact moments, usage and consumption behaviour)</li> <li>• Proactive suggestions that meet the needs of citizens</li> </ul>	“I don't want a general answer, but an answer specific to my situation.”

Confidence to act	The extent to which someone experiences that the service provides an action perspective.	<ul style="list-style-type: none"> <li>• Feeling confident that past actions or actions to be taken led or will lead to a solution or to next steps towards a solution.</li> <li>• The felt need for confirmation</li> <li>• Interim feedback</li> </ul>	“ So, then you can say again: ‘oh that means that I that and that..’, and you don't have that option if you look at something on the website.”
Empathy	The extent to which someone experiences that they are being seen and heard and that their concerns are taken seriously.	<ul style="list-style-type: none"> <li>• Providing space to tell the story</li> <li>• Showing interest</li> <li>• Summarizing and checking</li> <li>• Thinking along and providing solutions and alternatives</li> <li>• Expressing understanding</li> </ul>	“Think along with someone. Try to empathize a little bit and that has to do with caring.”
Autonomy	The extent to which someone experiences that they can shape or influence the service in terms of process and outcome.	<ul style="list-style-type: none"> <li>• Outcome is not predetermined</li> <li>• Not being forced into an ill-fitting pattern</li> <li>• Being able to act in accordance with yourself</li> </ul>	“In different ways, eh, there are different options. You can also make an appointment without a DigiD”



*Confidence to act* is about how much someone feels that the service gives them enough information to proceed (clear feedback, transparent information, well-written answers). *Empathy* captures all statements where citizens felt the organization truly cared, and *autonomy*, finally, is about whether someone feels that the outcome of an interaction is predetermined or that they are being forced into an inflexible process.

All eight dimensions were strongly represented in both data sets (organizational and citizen focus groups), with language, individual relevance and empathy being coded relatively most frequently, and location and confidence to act less frequently. Passages that led to discussions fall into three clusters. The first cluster contains statements by respondents who, as a matter of definition, seem to equate personal services with services offered by a human. Or conversely, some respondents seem to classify services offered digitally as not personal by definition. Their statements do not fit any of the eight dimensions well, but also do not contribute new dimensions on what makes a service personal. In a similar fashion, the second cluster contains statement by respondents who equate personal services with services that deal with sensitive aspects of a citizen's life, equivalent to the classification of medical or financial information as personal information. This, however, does not attribute any properties to the way a service is offered, but more to the area or domain the service is in. These statements, too, were not coded. Finally, the last cluster contains statements that begged reflection on the completeness of the eight dimensions. The first type were statements that refer to the importance of two-way communication, including physical and non-verbal aspects of communication. An example is the respondent who stated: "when I am in a face-to-face conversation, I can see by the way they react that something is wrong". Careful consideration of these type of statements led to them begin mapped to the *language* dimension (i.e. being able to interpret the sincerity of a response). The second type included statements on the types of feedback that are needed to feel 'noticed', which is part of the definition of the *empathy* dimension. The final set of statements in this cluster concerned experiencing relatedness to the service provider. This is in line with the conclusion by Pol et al. (2020) that communal sharing has a positive effect on customer experience. As it addresses another level than individual services, we did not translate these into an additional dimension.

## 5 Discussion

The eight dimensions that emerged from the interviews and focus groups seem to have an interesting relation to existing areas of academic work.

From the beginnings of digital service provisions, attention has been given to *accessibility* aspects. Being able to interact with a service provider at one's own time and from any location has been one of the selling points of digitalized services. Interface design and tone of voice of digital conversations has also received plenty of attention from the start. We recognize this in the dimensions of time, location and language.

With the increasing availability of data, attention turned to the *cognitive* aspects of digital services, creating personal relevance based on situational data. Large amounts of data enable context-awareness in service provision, providing the 'right' information, at the 'right' time, in the 'right' place, in the 'right' way, to the 'right' person (Fischer, 2012). Morana et al. (2017) discusses the influence of task complexity. Complexity has a bi-directional relation with the way service interactions are designed: interaction design may be aimed at reducing complexity, but the effect of design or execution choices is also influenced by the complexity of the task (Morana et al., 2017). Users benefit more from suggestive guidance if the task is simple while the benefits of informative guidance increase as the complexity of the task increases. In the focus groups, various citizens expressed varying expectations that were specific for either high or low complexity tasks. We recognize these cognitive aspects in the dimensions of complexity and individual relevance.

Research in artificial intelligence is fostering a large volume of literature on the ethical impact of digitalization, with attention for *personal values and beliefs*. The emerging literature on social AI deals with social relations including showing empathy (Kim et al., 2021). Confidence to act is much discussed in relation to the use of algorithms (Lee & See, 2004; Gaertig & Simmons, 2018; Longoni et al., 2019; Dietvorst & Bartels, 2020). Users may have the impression that algorithms are less able to respond to their unique, individual situation than a human advisor. Longoni et al. (2019) introduce the construct Uniqueness neglect for this. Users may also have the impression that algorithms always "just" maximize a one-dimensional utility function and therefore trust algorithms less in ethically difficult domains (Dietvorst & Bartels, 2020). In the algorithmic

decision making, autonomy plays an important role, and as a result the concept of algorithmic affordances (options for the user to actively influence the outcome of the algorithm, by for instance tweaking the weight of parameters) receives more and more attention (Hekman et al., 2022, Smits et al., 2019, Dietvorst et al., 2018). Having some control over what to do with the outcomes of AI can increase adoption rates (Dietvorst et al., 2018), and can make the recommendations feel more personal (Hekman et al., 2022). The importance of maintaining control is also found in broader research into human-machine interaction. Personal values and beliefs we recognize in the dimensions of confidence to act, empathy and autonomy.

This same progress from attention for accessibility to cognitive aspects to values and beliefs in literature is partly mirrored in service provider strategies and development plans found in the professional field. Time, place and language are mentioned in any omnichannel strategy. Content personalization and advice robots are becoming increasingly common. However, providers are currently discovering that other, softer, dimensions remain that determine whether citizens experience their service as being personal.

A final observation that results from this study is that, interestingly enough, none of the dimensions are, by their definition, inherently bound to either digital or human services. For each dimension, both personal and non-personal experiences were mentioned, and those experiences have taken place in the context of human-to-human services and digital services. That leads to the conclusion that the eight dimensions may also have descriptive value for organizations that offer mixed portfolios of human and digital services and are striving for a more personal service experience.

## **6 Conclusions**

The main contribution of this paper is capturing and organizing the language that citizens use when they assess the personal quality of a service. Although literature on personalization of services abound, this explicit perspective was still missing. The eight dimensions (time, location, language, complexity, individual relevance, confidence to act, empathy and autonomy) that citizens use to describe their experiences with and expectations of personal services is a first step towards a framework of personal service.

A limitation of the study presented here is that it is grounded in the context of public services in The Netherlands. Similar studies will have to be conducted in other domains and other cultural situations to assess the extent to which these dimensions and, in its wake, the preliminary clustering into three categories, can be generalized. For now, both the professional practice and the academic research community seem to recognize the dimensions. They are all regularly encountered in both domains, al be it in a fragmentary manner, distributed over various disciplines, and rarely discussed from the perspective of the citizen who uses the service.

Further validation is needed to determine the completeness of our list of dimensions, and the extent to which a potential resulting framework of dimensions can, in fact, be used to evaluate and improve services. Currently, this preliminary framework does provide a structure to reflect on the personal quality of services (digital and human-to-human). The main contribution of this paper, therefore, is its insights on what makes a public service personal from the perspective of the service consumer, and its operationalization of the personal quality of services in terms of eight dimensions.

### **Acknowledgements**

We would like to thank all participants and interviewers of the interviews and focus groups. This research is co-financed by the Taskforce for Applied Research SIA, part of the Netherlands Organization for Scientific Research (NWO).

### **References**

- Barwitz, N., Maas, P. (2018). Understanding the omnichannel customer journey: determinants of interaction choice. *Journal of interactive marketing*, 43(1), 116-133.
- Chandra, S., Verma, S., Lim, W. M., Kumar, S., Donthu, N. (2022). Personalization in personalized marketing: Trends and ways forward. *Psychology & Marketing*, 39(8), 1529-1562.
- Dietvorst, B. J., Simmons, J. P., Massey, C. (2018). Overcoming algorithm aversion: People will use imperfect algorithms if they can (even slightly) modify them. *Management Science*, 64(3), 1155-1170.
- Dietvorst, B. J., Bartels, D. M. (2020). Consumers object to algorithms making morally relevant tradeoffs because of algorithms' consequentialist decision strategies. *Journal of Consumer Psychology*.
- Fan, H., Poole, M. S. (2006). What is personalization? Perspectives on the design and implementation of personalization in information systems. *Journal of Organizational Computing and Electronic Commerce*, 16(3-4), 179-202.

- Fischer, G. (2012, May). Context-aware systems: the 'right' information, at the 'right' time, in the 'right' place, in the 'right' way, to the 'right' person. In Proceedings of the international working conference on advanced visual interfaces (pp. 287-294).
- Fiske, A. P. (1991). Structures of social life: The four elementary forms of human relations: Communal sharing, authority ranking, equality matching, market pricing. Free Press.
- Gaertig, C., Simmons, J. P. (2018). Do people inherently dislike uncertain advice? *Psychological Science*, 29(4), 504-520.
- Hekman, E., Nguyen, D., Stalenhoef, M., Van Turnhout, K. (2022). Towards a Pattern Library for Algorithmic Affordances. *Joint Proceedings of the IUI 2022 Workshops*, vol. 3124, 24-33.
- Kim, J., Merrill Jr, K., Collins, C. (2021). AI as a friend or assistant: The mediating role of perceived usefulness in social AI vs. functional AI. *Telematics and Informatics*, 64, 101694.
- Kim, J. J., Kim, T., Wojdowski, B. W., Jun, H. (2022). Getting a little too personal? Positive and negative effects of personalized advertising on online multitaskers. *Telematics and Informatics*, 101831.
- Lee, J. D., See, K. A. (2004). Trust in automation: Designing for appropriate reliance. *Human factors*, 46(1), 50-80.
- Longoni, C., Bonezzi, A., Morewedge, C. K. (2019). Resistance to medical artificial intelligence. *Journal of Consumer Research*, 46(4), 629-650.
- McGraw, A. P., Tetlock, P. E. (2005). Taboo trade-offs, relational framing, and the acceptability of exchanges. *Journal of Consumer psychology*, 15(1), 2-15.
- Mittelstadt, B. D., Allo, P., Taddeo, M., Wachter, S., Floridi, L. (2016). The ethics of algorithms: Mapping the debate. *Big Data & Society*, 3(2), 2053951716679679.
- Morana, S., Schacht, S., Scherp, A., Maedche, A. (2017). A review of the nature and effects of guidance design features. *Decision Support Systems*, 97, 31-42.
- Pol, H., Galetzka, M., & Pruyn, A. (2020). New perspectives on customer relationships: how relational models influence customer experience and how they are activated. *Journal of relationship marketing*, 19(1), 29-51.
- Riegger, A. S., Klein, J. F., Merfeld, K., Henkel, S. (2021). Technology-enabled personalization in retail stores: Understanding drivers and barriers. *Journal of Business Research*, 123, 140-155.
- Smits, A., Van Turnhout, K., Hekman, E., Nguyen, D.: Data-driven design. *Proceedings of the 22nd International Conference on Engineering and Product Design Education*. (2020). <https://doi.org/10.35199/EPDE.2020.10>
- Sunikka, A., & Bragge, J. (2008, January). What, who and where: insights into personalization. In *Proceedings of the 41st annual Hawaii international conference on system sciences (HICSS 2008)* (pp. 283-283). IEEE.
- Surprenant, C. F., Solomon, M. R. (1987). Predictability and personalization in the service encounter. *Journal of marketing*, 51(2), 86-96.
- Teeny, J. D., Siev, J. J., Briñol, P., Petty, R. E. (2021). A review and conceptual framework for understanding personalized matching effects in persuasion. *Journal of Consumer Psychology*, 31(2), 382-414.
- White, T. B., Zahay, D. L., Thorbjørnsen, H., Shavitt, S. (2008). Getting too personal: Reactance to highly personalized email solicitations. *Marketing Letters*, 19, 39-50.
- Zanker, M., Ricci, F., Jannach, D., Terveen, L. (2010). Measuring the impact of personalization and recommendation on user behaviour. *International Journal of Human-Computer Studies*, 68(8), 469-471.