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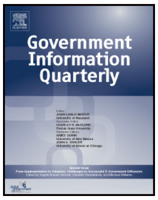

Impact of the digital divide on e-government: Expanding from channel choice to channel usage

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ABSTRACT

Many scholars have studied the digital divide, however, often apart from eGovernment research. Therefore, more interdisciplinary research is required as eGovernment can be both hindered by and contribute to the digital divide. First research steps have already been taken, for instance by using access and socioeconomic status as representations for the digital divide. However, the digital divide discipline has developed rapidly and contemporary research findings indicate that, at least in developed countries, not access and socioeconomic status, but digital skills are important representations of the digital divide. Therefore, in order to explore new explanations in channel choice, we incorporated further developed digital skills measurements into eGovernment research channel choice measurements. Accordingly, this research explores the citizen's perspective by studying actual channel use in the Netherlands.

Results show that, surprisingly, digital skills do neither predict nor relate to choosing the online channel. However, they do predict the degree of satisfaction; the more digitally skilled citizens are, the more satisfied they are with online services. Results also show that the nature of interaction significantly coheres with channel choice: registration correlates with choosing online channels, consultation correlates with choosing offline channels.

These findings bring us to the thesis that when it comes to the uptake of eGovernment, at least in developed countries, digital skills become less relevant. However, they come into play when it concerns the perceived quality, expressed in terms of satisfaction. This could mean that, in the long run, many citizens are going to use eGovernment anyway, no matter how (un)skilled they are, no matter how complex these services are. As such, we see the emergence of a new important research question in the multidisciplinary domain of eGovernment. Namely, what are the implications of channel use for policy implementation? Because if less digitally skilled citizens are using electronic government services anyway, what happens to policy goals that heavily rely on online services?

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1. Introduction

About two decades ago, governmental agencies had a far too positive outlook on the uptake and increasing usage of electronic service channels. Expectations were that the more cost-efficient electronic service channels would replace the more expensive traditional channels, such as the telephone and front desk (Pieterson & Van Dijk, 2007). However, studies from various countries, such as Switzerland (Berner Fachhochschule & Unisys, 2005), Canada (Erin Research, 2003), the Netherlands (Bongers, Holland, Vermaas, & Vandeberg, 2004), and Australia (Australian Government, 2005) indicate that about ten years ago governmental agencies were still confronted with high numbers of contacts via traditional service channels, i.e. front desk and phone. Further, more recently, we see that citizens in citizen-to-government or entrepreneurs in business-to-government interactions still prefer the telephone or front desk over the website (e.g., Kræmmergaard & Østergaard Madsen, 2015; Reddick & Anthopoulos, 2014; Reddick & Turner, 2012; Van den Boer, 2014). These differences between expectations and reality uncover a gap in preferences both parties have for service channel management (Ebbers, Pieterson, & Noordman, 2008). As a result, Ebbers et al. (2008) proposed an alternative multi-channel management strategy (MCM) including a channel-type-channel-mode model that takes both the citizen's and the government's perspective

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into account. They subsequently argue that the multi-channel strategies of governments are better based upon task-channel elaboration, as different channels support different tasks. Recently, a study on citizens' channel choice showed that when online applications were mandatory, voice phone-calls were preferred for problem solving related to those mandatory online applications (Kræmmergaard & Østergaard Madsen, 2015). Other scholars found that the Internet is primarily used for information collection and advice retrieval, while office visits are most often used for applications/registrations, and the phone is the main channel to solve individual problems (Reddick & Anthopoulos, 2014). As such, these studies indicate that the task based nature of the interaction is an important determinant in channel choice.

A relatively new perspective that might help explaining channel choice is that of the digital divide (Van Deursen, van Dijk, & Ebbers, 2006). Since research within this perspective is often conducted apart from eGovernment research (Helbig, Gil-García, & Ferro, 2009), catching up is required as eGovernment and digital divide research are intrinsically intertwined as eGovernment policies can be both impeded by and exacerbate the digital divide (Belanger & Carter, 2009). First research steps have already been taken, for instance by studying channel choice using access and socioeconomic status as representations for the digital divide (Reddick, 2005; Reddick, Abdelsalam, & Elkadi, 2012; Reddick & Anthopoulos, 2014). While early research on the digital divide focused mainly on a binary classification of physical access, more recent conceptualizations have revealed that one of the factors that appears to be most important is the differential possession of digital skills (Van Deursen & Van Dijk, 2011). The goal of this current paper is twofold. The first goal is to summarize the state-of-the-art in eGovernment research from two perspectives that we believe to be important to explain channel choice: the impact of nature of the interaction on channel choice on the one hand and of digital skills on channel choice on the other hand. The second goal is to empirically test a combination of both perspectives, by testing three guiding hypotheses based on both perspectives.

2. The role of nature of the interaction and digital skills in channel choice

Pieterson (2009) conducted a very comprehensive study on channel choice. His findings suggest that citizens choose channels that suit their task and its given characteristics best, a so-called task-channel elaboration. The elaboration process depends on (1) complexity and ambiguity of the task on and on (2) the richness characteristics of the channel. This is in line with the earlier proposed multichannel strategy of Ebbers et al. (2008), which was based on three contingency principles. First, front desk and phone are the preferred channels for removing problem ambiguity, whereas the Internet and front desk are the preferred channels for handling problem complexity. Second, complex problems are handled via the consultation mode and ambiguous problems are handled via the conversation mode. Third, the conversation mode is best facilitated by the front desk or phone and the consultation mode is best facilitated by website and front desk.

A recent literature study on channel choice (Østergaard Madsen & Kræmmergaard, 2015) indicates that much research on channel choice is rooted within the perspective of 'the nature of the interaction', trying to explain channel choice using channel characteristics and task characteristics as important variables. Therefore, we choose 'nature of the interaction' as our first perspective to explain channel choice, though we are aware of other perspectives, such as related to 'trust' (Reddick & Anthopoulos, 2014). Recently, Kræmmergaard and Østergaard Madsen (2015) studied how citizens in Denmark can be guided towards online services. Their findings show that when the online channel is mandatory, for performing transactions, the phone is the primary channel for solving problems that arise with these transactions. Findings indicate that the nature of the interaction and the nature of service related tasks are important factors in citizens' channel choice. Furthermore, Reddick and Anthopoulos (2014) conducted a channel choice study in Canada. Their results show that, notwithstanding the fact that the use of traditional channels is decreasing (traditional office visits decreased from 64% in 2005 to 47% in 2012), website usage increased to 47% in 2008, and then declined to 38% in 2012. Reddick and Anthopoulos (2014) associate this decline with the limited problem-solving capabilities of websites. Moreover, their data illustrate the differences in what different channels are used for: the front desk is most often visited for applications/registrations (62%), voice phone-calls are predominantly used for problem solving (68%), and government websites were mostly used for information or advice retrieval (53%) (Reddick & Anthopoulos, 2014). They found four factors to be key predictors of channel use: (1) user satisfaction with the channel, (2) nature of the transaction, (3) security/privacy and last but not least, (4) the digital divide. This latter factor will next be discussed.

The digital divide, or 'digital inequality', can be conceptualized in different ways (Van Dijk, 2005). In general, scholars (e.g., Belanger & Carter, 2009; Van Deursen & Van Dijk, 2011; Van Dijk & Hacker, 2003) distinguish between two groupings or levels in the digital divide: an access divide (or inequality between those who have access to technologies and those who have not, e.g. 'the haves' and 'have nots') and a skills and usage divide (or inequality in the ability to use the technologies). In developing countries particularly, the first level of the digital divide still represents a barrier for advancing eGovernment implications (Martin, 2005; Reddick et al., 2012). However, in developed countries, the effects of the access divide are diminishing, as a result of general growth in internet access. But, though many citizens have access to the Internet, this does not automatically mean a high uptake of eGovernment use, since there is a gap between actual and potential usage of eGovernment (Van Deursen et al., 2006). These findings indicate that instead of an access divide, a skills divide is much more relevant. Indeed, merely being able to materially or physically access the Internet to make use of eGovernment services is no longer a sufficient representation of the digital divide in developed countries: it is much more important to what extent differences are present across skills (Belanger & Carter, 2009; van Deursen et al., 2006; Van Deursen & Van Dijk, 2011; Van Dijk, 2005). According to Belanger and Carter (2009) skills are an important determinant in the take-up of eGovernment, as "one's ability to effectively use the Internet … has a significant impact on intentions to use eGovernment" (Belanger & Carter, 2009, p. 134).

3. Theoretical framework

The line of reasoning mentioned in former section produces two more or less diverting points of view. The first is that the nature of the interaction or tasks strongly coheres with what channels are chosen by citizens. More specifically, the electronic channel is preferred to perform registrations or transactions and offline channels, such as telephone and front desk, are preferred to consult. The second point of view is that the more digitally skilled citizens get, the more they intend to use eGovernment services. Following these mindsets, we are especially interested in further exploration of possible explanations in channel choice combined with studying the impact of a divide in digital skills. In this explorative stage of these diverting mindsets, we think it is still too early to develop and test a comprehensive research model. Therefore, our overall guiding explorative research question is:

What are the roles of 'nature of the interaction' and 'digital skills' in channel choice?

As mentioned earlier on, the first point of view implies that the nature of interaction strongly coheres with channel choice: the electronic channel is preferred to perform registrations or transactions and offline channels are preferred to consult. This brings us to the following hypotheses:

H1. The nature of the interaction correlates with citizens' channel choice.

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