



The impact of initial learning experience on digital services usage diffusion: A field study of e-services in Lebanon



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ABSTRACT

The initial learning experience is crucial for understanding digital services adoption and usage diffusion. Using a UTAUTv2 model, we explore the effect of process- and content-oriented knowledge on behavioral intentions to use e-government services. The adoption of e-government systems is lower than desired in general and faces considerable resistance in many developing countries. Scholars suggest that more knowledge and better training are critical to increasing adoption and usage rates. We conducted a survey of 262 citizens in Lebanon to investigate how consumers cope with high and moderate levels of complexity during their initial learning experience with a technology-based product. The results show that a moderate degree of content- and process-oriented knowledge about e-government services during an initial learning experience improves usage habits, performance expectancy, effort expectancy, and facilitating conditions. The challenge for service providers is to understand consumers' learning experience and coping strategies and to provide mechanisms that make the transition to e-services easier and more intuitive. This can be achieved by developing new infrastructure for e-services to facilitate easier access to e-government websites and to improve site performance. Marketers can also develop more effective communications that offer easy and flexible specific steps for using the portal.

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1. Introduction

In the context of e-government projects, “awareness” implies a certain degree of knowledge about a given project and the availability of relevant electronic services (Chan, Brown, Hu, Tam, & Venkatesh, 2010; Ibrahim & Mohammed, 2008). As such, increasing awareness through greater knowledge is an important condition to ensure both the adoption and the continued use of e-services (Ahmad, Markkula, & Oivo, 2013; Alawadhi & Morris, 2009; Al-Sobhi & Weerakkody, 2011; Jaeger, 2003; Van Dijk, Peters, & Ebbens, 2008; Weerakkody & Choudrie, 2005). Scholars have long argued that improved learning is a critical tool for increasing e-service usage (Akman, Yazici, Mishra, & Arifoglu, 2005; Al Athmay, 2013; Al-Shafi & Weerakkody, 2009; Al-Sobhi & Weerakkody, 2011; Beynon-Davies, 2005; Sio, Lai, & Pires, 2010; Suki & Ramayah, 2010; Venkatesh & Bala, 2008; Weerakkody & Choudrie, 2005). Consumers have a limited amount of time to learn about services, so it is important to understand how to optimize any learning opportuni-

ties. Focusing on the early stage of the learning process, for example, helps reduce learning costs, which are usually viewed as high during the first interaction with a technological innovation (Murray & Häubl, 2002). Mittal and Sawhney (2001, p. 4) define the initial learning experience as “the initial post purchase learning experience” when the consumer is first “learning about the consumption of the brand purchased.”

This study focuses on consumers' initial interactions with technology-based e-government services and investigates how process-oriented and content-oriented knowledge influence e-service adoption and usage. We rely on the Unified Theory of Acceptance and Use of Technology version 2 (UTAUTv2) model and constructs to explore the context of an initial learning experience in Lebanon using different experimental groups.

We organize the paper as follows: In the next section, we review prior research on e-government, initial learning experiences, and technology acceptance relevant to the purpose of this study. Then, we set up the research model and explain the methodology. We conclude with a discussion of our key findings, summarize the new contributions to the field, and offer directions for further research.

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2. Literature review and background

2.1. E-government

E-government is a relatively established concept, though it has received increased attention in the past decade. Heeks (2011) claims that the concept of e-government originated in an article published in 1954 called “The Automatic Handling of Office Paper Work” (Gammon, Diebold, & Davis, 1954). In the United States, the deployment of computer and telecommunications technologies began in the 1950s in local public governments (Attour, 2013; p. 2). As of 2016, the E-Government Reference Library at the University of Washington contained 8181 references to work related to the issue of electronic government and electronic governance.¹

Scholars and practitioners have proposed different definitions for e-government that cover several criteria (e.g., objectives, benefits, stakeholders, main applications, maturity stage) and are dependent on the current information and communications technology (ICT) sector and the government in a given country. Here, we use the following comprehensive definition of e-government: “A broad-based transformation initiative, enabled by leveraging the capabilities of information and communication technology, (1) to develop and deliver high quality, seamless, and integrated public services; (2) to enable effective constituent relationship management and (3) to support the economic and social development goals of citizens, businesses, and civil society at a local state, national and international levels” (Worrall 2012; p. i).

While e-government may have begun in the 1950s, most significant developments did not occur until the 1990s. Now, governments around the world are rolling out various e-government projects. In 2016, Gartner (2016) projected that governments in the Middle East and North Africa would invest \$11.5 billion on information technology. In Lebanon, investment in information systems on 31 December 2015 was approximately \$26 million (OMSA, 2015).

However, despite these efforts and the significant expense, the adoption of e-government systems by end users remains below expectations. In 2016, e-government adoption in the European Union was reported to be 48%.² However, significant variation in the individuals using the Internet to interact with public authorities exists. For example, more than 80% of the citizens in Nordic countries (Iceland, Denmark, Norway, Sweden, and Finland) are using e-government services, whereas Italy has 24%.³ In the United Kingdom, which ranked first in the 2016 United Nations E-Government Survey (United Nations, 2016), 53% of citizens were using the Internet to interact with public authorities. In developing countries, e-service usage varies dramatically. While in Turkey, for example, approximately 41% of citizens interact with public authorities through the Internet, in Egypt only 2% of the citizens use e-services (United Nations, 2014).

Low rates of end user adoption and usage of government-to-citizen e-services present a major barrier to successful e-government implementation. Consequently, it is often difficult to justify these investments (Bhatnagar, 2010; Norris & Reddick, 2012). To increase e-service usage and maximize the relationship between government services and citizens, the use of consumer education via learning programs is a recommended strategy (Almahamid, Mcadams, Al Kalaldehy, & Al-Sa'eed, 2010; Patel et al., 2008; Weerakkody & Choudrie, 2005). We examine this strategy herein and, in particular, the initial learning experience.

2.2. Initial learning experience

Academic research is scarce in the area of initial learning experience, with a few exceptions. Mittal and Sawhney (2001), Billeter, Kalra, and Loewenstein (2011), and Lakshmanan and Krishnan (2011) each examine different products and services and confirm that initial learning experience is an important and critical phase for usage adoption. We summarize these studies and their findings in Table 1.

Mittal and Sawhney (2001, p. 4) show the crucial role of the initial postpurchase learning experience and its impact on the consumption of the purchased brand. This learning phase is different from that which occurs during the prepurchase stage (helping consumers in brand evaluation and choice) and from that which occurs during the longer-term, ongoing postpurchase period (learning that occurs as a result of consumption). In the postpurchase stage, consumers have limited amount of time to learn about products or services. Therefore, it is critical to use this time to maximize the benefits for both the organization and the consumer. New methods are frequently implemented during this period to enhance consumers' knowledge, and any stakeholder must strategize carefully around this period because the experience will affect future decision making (i.e., consumers will continue their usage or abandon the product/service altogether).

In a field experiment with MBA students, Mittal and Sawhney (2001) examine how the amount of process- and content-oriented knowledge about a product or service affects usage. Process-oriented knowledge results from learning about how to use products and services, while content-oriented learning refers to learning and understanding information about the product (i.e., what the product or service does). Mittal and Sawhney measure and validate these constructs in the context of electronic information products and services (EIPS), arguing that “initial learning experience is a critical antecedent of usage” (p. 2) and that a “moderate amount of both content and process oriented knowledge at the initial learning experience results in higher usage” (p. 10). They show that usage varies over time and that usage of EIPS is higher in the later period than in the earlier period. They conclude that firms should therefore carefully structure the initial learning experience (regardless of whether the EIPS are complex or not) to increase usage by helping and motivating the consumer.

Billeter et al. (2011) validate that initial skill acquisition is a critical phase during which consumers tend to either adopt the product or completely abandon it contingent on their own perceptions of its usability. Skills-based products are those that require a particular set of skills to use, such as computers, cell phones, or any other technology. Billeter et al.'s study is relevant to the current research because an e-government portal is a web-based technology and thus requires certain skills to learn how to use it. Billeter et al. specifically test and validate the importance of the initial learning phase in determining how to use skills-based products. Across six field experiments, they show that consumers tend to be overconfident at first in their own ability to learn skills required to use a new product and that they often perceive it as easy to use; however, they quickly become frustrated when using the product afterward.

This initial skill-acquisition phase of product use is similar to Mittal and Sawhney's (2001) notion of the initial learning experience. However, the important insight in Billeter et al. (2011), at least for our purposes here, is that “initial learning often serves as a barrier to new product adoption,” (p. 724) thus demonstrating that this phase of consumer decision making is critical in determining whether the consumer will use the product, abandon it, or revert to another product.

Lakshmanan and Krishnan (2011) test and validate that the notion that “insight-based learning” during the initial learning experience will lead to behavioral change in consumers.

¹ <http://faculty.washington.edu/jscholl/egrl/>

² <http://ec.europa.eu/eurostat/en/web/products-datasets/-/TIN00012>

³ <http://ec.europa.eu/eurostat/en/web/products-datasets/-/TIN00012>

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