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TOWARDS UNDERSTANDING THE FORMATION OF CONTINUOUS IT USE

Research-in-Progress

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Abstract

The benefit of IT comes from the continuing use, not its initial adoption. Compared to the amount of research done on IT adoption, insights on why users continue to use IT systems are sparse. Nevertheless, there are publications with promising ideas and findings aiming to explain continuous use. This paper reviews and synthesizes the current research to examine whether a combination of previous results will lead to a better understanding on the formation of continuous IT use. Further, the current theoretical and methodological shortcomings are exposed and addressed by the derived research design. As study context, we use the implementation of a web based application for students. We focus on a longitudinal study that includes three measurements over an eleven week period. To measure the actual usage of participants, we combine self-reported and computer-recorded data. The study is currently running, with over 300 participants registered.

Keywords: Adoption, continuous use, longitudinal study, multiple data sources, log files

Introduction

Understanding why people continue or discontinue to use IT systems is one key research area of the IS discipline. Over the last decades, IS researchers have published a variety of studies aiming to explain the formation of IT use and to predict it. This research can broadly be divided into two areas: initial IT adoption and continuous IT use. For the long-term economic success of an IT system, its continuous use is essential. Bhattacherjee (2001) points out: "Initial adoption of IS is an important first step toward realizing IS success, long-term viability of an IS and its eventual success depend on its continued use rather than first-time use" (p. 351). Furthermore, the current market situation in the IT sector - rapid growth, high rate of innovation and short product lifecycles - reinforces this need for research.

Because of this increasing need for research, we have considered prior research on continuous IT use. From the 2000s onwards the topic has become more and more important because an increasing number of publications can be registered. Screening the existing literature, we have found both many promising ideas and findings to explain continuous IT use as well as some shortcomings regarding the theoretical and methodological approaches. Therefore, the idea of the present paper is to develop a research design that combines the ideas and findings of the current research in order to verify or to replicate this and simultaneously fix the identified shortcomings. The objective is to determine which factors are the most appropriate to explain continuous IT use.

For this purpose, in a first step the current research state is screened and analyzed. The results are described in section two and provide the basis for the development of the research design in section three. In the fourth section the instrument development, data collection and proposed data analysis are described. The paper concludes with the expected contributions and a short outlook for future work.

In summary, we provide an overview of the current state of research on continuous IT use, and attempt to combine, review and replicate the findings of the previous research by means of a complex and quantitative research design. The end purpose of this research is to derive a suitable and comprehensive model to understand the formation of continuous IT use.

Theoretical Background

Prior Research on Continuous IT Use

In the last years the number of studies investigating continuous IT use has increased considerably; compared to the research on IT adoption, however, considerably fewer publications are available (Ortiz de Guinea and Markus 2009). To screen the literature on continuous use, we used a search string, including several synonymous terms (e.g., continuance, post-adoptive usage and continuing use), and searched in several scientific databases (e.g., EBSCO, AIS electronic Library, ScienceDirect).

The publications were examined to determine whether a model to explain continuous use had been developed and empirically tested. Following this, we analyzed which dependent and independent variables were investigated, how these variables were measured and whether a significant effect was reported by the authors. Regarding the measurement of the variables, a distinction is made between objective and subjective measurement (Straub et al. 1995). Subjective measurements refer to collecting of self-reported data through questionnaires, and objective measurements to collecting of computer-recorded data through computer programs (e.g., log data). We outline the results of the literature review in alphabetical order in Table 1.

Based on the literature analysis, it can be concluded that most studies investigating continuous IT use only consider the "intention to continuous IT use" as dependent variable - not the actual continuous use behavior. The variable "intention of continuous IT use" is mostly measured self-reported through scales with Likert response format (e.g., Agarwal and Karahanna 2000; Lankton and McKnight 2012). Only a few studies consider "actual use behavior" as dependent variable (e.g., Compeau et al. 1999; Limayem et al. 2007), and most of these studies measure this variable also as self-reported through questionnaires. Only Wang et al. (2013) measures the dependent and independent variables computer-recorded.

Table 1. Publications on Continuous Use and the Measured Dependent and Independent Variables

Source	Name of dependent variables	Name of independent variables
Agarwal and Karahanna (2000)	Behavior intention (SR)	Perceived usefulness (SR; sig.) Perceived ease of use (SR; sig.) Cognitive Absorption (SR; sig.)
Barnes (2011)	Continuance intention (SR)	Perceived usefulness (SR; sig.) Habit (SR; sig.) Enjoyment (SR; sig.) System Experience (SR; sig.)
Bhattacherjee (2001)	IS continuance intention (SR)	Perceived usefulness (SR; sig.) Satisfaction (SR; sig.)
Compeau et al. (1999)	Usage (SR)	Affect (SR; sig.) Computer self-efficacy (SR; sig.) Outcome expectations (SR; sig.)
Deng et al. (2010)	Continuance intention (SR)	Satisfaction (SR; sig.)
Hoehle et al. (2012)	Intention to continue using internet banking (SR)	Perceived usefulness (SR; sig.) Satisfaction (SR; sig.)
Karahanna et al. (1999)	Behavioral intention to continuous use (SR)	Attitude towards continuing to use (SR; sig.) Subjective norm towards continuing to use (SR; n.s.) Perceived voluntariness (SR; sig.)
Kim (2012)	Continuance intention (SR)	Perceived usefulness (SR, sig.) User satisfaction (SR; sig.) Perceived enjoyment (SR; sig.) Perceived monetary value (SR; sig.)
	Actual usage (SR)	Continuance intention (SR; sig.) Habit (SR; sig.)
Lankton and McKnight (2012)	Continuance Intention (SR)	Satisfaction (SR; sig.)
Limayem et al (2003a)	Continuance intention (SR)	Perceived usefulness (SR; sig.) Satisfaction (SR; sig.)
	IS Continuance (SR)	Continuance intention (SR; sig.) Habit (SR; sig.) Initial Usage (SR; sig.)
Limayem and Hirt (2003)	Intentions (SR)	Perceived consequences (SR; sig.) Social factors (SR; sig.) Facilitating conditions (SR; sig.)
	Actual usage behavior (SR)	Intentions (SR; sig.) Habit (SR; sig.)
Limayem et al. (2007)	IS continuance intention (SR)	Perceived usefulness (SR; sig.) Satisfaction (SR; sig.)
	IS continuance usage (SR)	IS continuance intention (SR; sig.) Habit (SR; sig.)
Limayem and Cheung (2008)	IS continuance intention (SR)	Perceived usefulness (SR; sig.) Satisfaction (SR; sig.)
	IS continued use (SR)	IS continuance intention (SR; sig.) Habit (SR; sig.) Satisfaction (SR; sig.) Prior behavior (SR; sig.)
Polites and Karahanna (2012)	Intention to use new system (SR)	Perceived ease of use (SR; sig.) Relative advantage (SR; sig.) Subjective norm (SR; sig.) Inertia (SR, sig.)

Sánchez-Franco (2006)	Intention (SR)	Usefulness (SR; sig.) Flow (SR; sig.) Attitude (SR; sig.)
	Usage (SR)	Intention (SR; sig.)
Sun (forthcoming)	Intention to use (SR)	Adjusted beliefs (SR; sig.) Imitating others (SR; sig.)
	Intention to discontinue (SR)	Intention to use (SR; sig.) Satisfaction (SR; sig.)
Tulu et al. (2006)	Behavioral intent for continued use of medical IT (SR)	Perceived usefulness (SR; sig.) Perceived ease of use (SR; sig.) Work practice compatibility (SR; sig.)
Wang et al. (2008)	Facebook continuance intention (SR)	Perceived usefulness (SR, sig.) Perceived ease of use (SR, sig.) Pleasure (SR, n.s.) Arousal (SR, sig.)
Wang et al. (2013)	Current KMS (Knowledge Management System) use (CR)	Prior KMS use by superiors (CR; n.s.) Prior KMS use by peers (CR; partly sig./ partly n.s.) Prior KMS use by subordinates (CR; sig.) Prior KMS use by extended professional population (CR; n.s.) Prior KMS use (CR; sig.)
Zhou (2013)	Continuance intention (SR)	Trust (SR; sig.) Flow (SR; sig.) Satisfaction (SR; sig.)
Zhou et al. (2012)	Continuance intention (SR)	Satisfaction (SR; sig.) Affective commitment (SR; sig.) Calculative commitment (SR; sig.)
Note: The abbreviations "sig." means "significant effect on the dependent variable", "n.s." means "not significant effect on the dependent variable", "SR" means "self-reported measurement" and "CR" means "computer-recorded measurement".		

Theoretical Shortcomings of Prior Research on Continuous IT Use

Despite the growing research activities to explain continuous IT use, for various reasons, it is appropriate to critically examine the current state of research. One of the main points of criticism concerns the theories used to explain continuous IT use. Considerable research considers continuous IT use (e.g., Bhattacherjee 2001; Karahanna et al. 1999; Tulu et al. 2006) grounded in the same theoretical approaches used to explain initial IT adoption, such as the Technology Acceptance Model (TAM, Davis et al. 1989), the Unified Theory of Acceptance and Use of Technology (UTAUT, Venkatesh et al. 2003), the Theory of Reasoned Action (TRA, Fishbein and Ajzen 1975) and the Theory of Planned Behavior (TPB, Ajzen 1991).

Since special characteristics of continuous IT use, such as automatic and habitual character, are not considered (Ortiz de Guinea and Markus 2009), other respectively broader approaches are required to explain continuous IT use (e.g., Limayem et al. 2003a; Ortiz de Guinea and Markus 2009). Research has shown that continuous IT use is significantly influenced by automatic, well learned and sometimes unconscious behaviors called habit (e.g., Barnes 2011; Kim 2012; Limayem and Cheung 2008; Limayem et al. 2007; Wu and Du 2012). However, current research indicates that the correlation between behavioral intention and continuous IT use decreases with increasing habit (Kim 2012; Limayem et al. 2007). In general, the intention-based models to explain usage behavior are being increasingly questioned because the link between the behavioral intention and the actual usage behavior is rather complex and not as strong as expected (Limayem et al. 2007).

Methodological Shortcomings of Prior Research on Continuous IT Use

Research has demonstrated that it is questionable whether the behavioral intention is really the most suitable predictor of the behavior actually shown (e.g., Kim 2012; Limayem et al. 2007). Wu and Du (2012) indicate that behavioral intention is not the most suitable predictor for actual behavior because the correlation between behavioral intention and self-reported usage is much stronger than is the correlation between behavioral intention and the actual shown usage (which was measured computer-recorded). This leads to the problem that the integrated explanatory variables are much more highly correlated with behavioral intention than with the actual shown usage (Wu and Du 2012).

Research concerning the common-method-bias (Podsakoff et al. 2003) supports the assumption that the validity of self-reporting variables should be viewed with caution, especially if the participants have simultaneously assessed the dependent and the independent variables. For example, Sharma et al. (2009) demonstrate the common-method-bias in regard to the Technology Acceptance Model (TAM, Davis et al. 1989).

The literature analysis (Table 1) confirms that most of the studies consider the "intention to continuous use" (not the actual shown usage) as dependent self-reported variable. Further, the few studies that do focus on actual shown usage behavior as dependent variable use only self-reported and not computer-recorded methods for measurement. In both cases, the participants studied simultaneously evaluate the dependent and independent variables, and the generated data are exclusively self-reported. Therefore, the results of these studies can only be interpreted with reservation, considering the above-mentioned methodological shortcomings.

To address the most promising findings of the current research and also the identified shortcomings, we develop a complex quantitative research design (see Figure 1) introduced in detail in the following section.

Research Design to Examine the Formation of Continuous IT Use

In order to thoroughly study the process from adoption to the formation of continuous IT use, a longitudinal concept is required (Karahanna et al. 1999). Longitudinal studies make it possible to discover changes over time (Bhattacherjee and Premkumar 2004). We thus focus on a longitudinal study over an eleven week period (cf. Limayem et al. 2003a) with three measurement time points (after two weeks, six weeks and eleven weeks). As study context, the implementation of a web based student application is selected, allowing investigation of the use of the IT system from the adoption to the formation of continuous use behavior. Because of the described study setting, it is possible to investigate which factors drive IT adoption and which factors drive the formation of continuous IT use. In addition, we can examine possible changes regarding the impact of the independent variables on the dependent variables over time.

Because of the described methodological shortcomings of the recent research, we measure the dependent variable "actual usage behavior" with self-reported as well as computer-recorded methods. We use these multiple data sources in order to examine whether there is a difference between self-reported measurements by questionnaires and computer-recorded measurements by log files (cf. Wu and Du 2012). The computer-recorded usage behavior is measured for the whole duration of the study. The self-reported usage behavior will only be measured for the second and third measurement time points by means of the questionnaire. To emphasize this distinction, we name the computer-recorded dependent variable "actual usage behavior" and the self-reported variable "perceived usage behavior" (see Figure 1). Therefore, it is possible to verify whether differences exist between these two measurement methods regarding the explanatory power of the independent variables.

Because of the fact that most of the reviewed studies did not measure actual usage behavior but rather the intention to use, we also include this variable for each measurement time point. In addition, we measure some of the recently investigated independent variables that had a significant impact on the intention to use. It is thus possible to show whether these independent variables also have a significant impact on usage behavior. For the first measurement time point, we will measure the variable "behavioral intention" (cf. Limayem et al. 2003a) as indicator for continuous IT use, since Taylor and Todd (1995) define behavioral intention as the "attitude toward usage, which reflects feelings of favorableness or unfavorableness toward using the technology" (p. 561). For the second and third measurement time point,

we will measure “IS continuance intention” to address the intentions to continuous IT use (Limayem et al. 2003b). According to Limayem et al. (2003b), it is assumed that the intentions are positively related to continuous usage behavior.

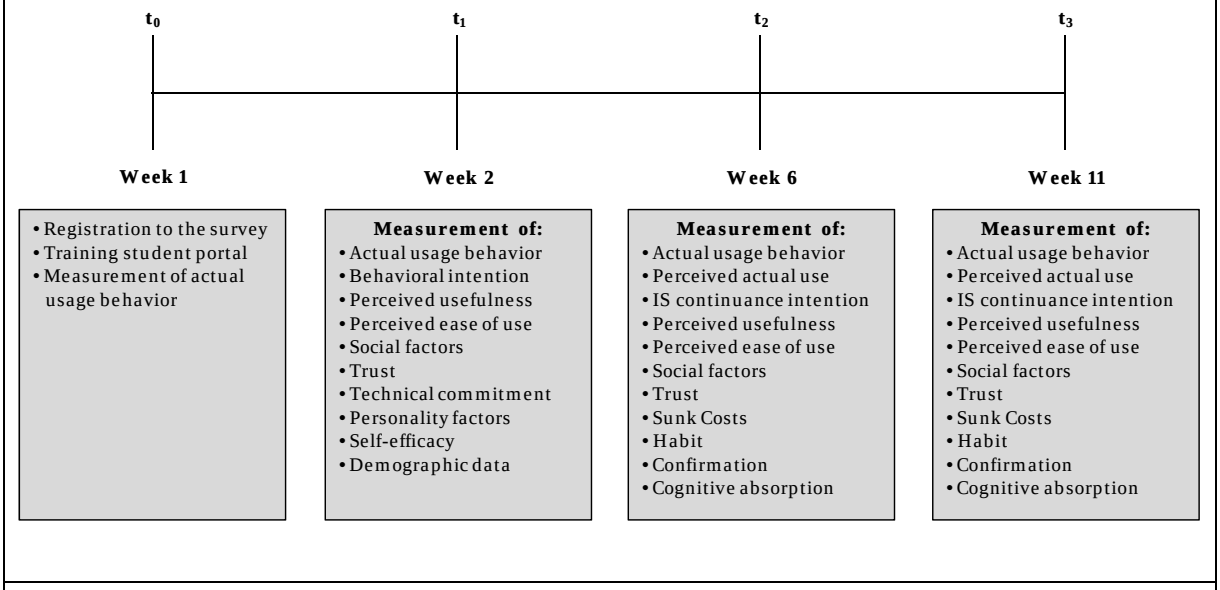

Figure 1. Research Design and the Measured Research Variables

After the first week the first survey is started in order to gather variables assumed to affect the usage over the entire time: “perceived usefulness”, “perceived ease of use”, “social factors” and “trust”. Therefore, the variables are measured for all three measurement time points because the assumption is that these variables influence not only initial IT adoption but also continuous IT use. Recent studies show that both TAM constructs “perceived usefulness” and “perceived ease of use” have an impact on the intention to use (e.g., Agarwal and Karahanna 2000) and to the intention to continuous use (e.g., Tulu et al. 2006; Wang et al. 2008). Perceived usefulness is defined as the degree to which a person perceives a particular system as enhancing their performance (Davis 1989). In contrast, perceived ease of use is “the degree to which a person believes that using a particular system would be free of effort“ (Davis 1989, p. 320).

The variable “social factors” is integrated into the study because research has shown that this perceived social pressure has an significant influence on the behavioral intention to use the IT system (e.g., Limayem and Hirt 2003; Sun forthcoming). The variable “social factors” can be defined as “perceived social pressure to perform/ not to perform behavior” (Limayem and Hirt 2003, p. 69).

The last variable assumed to have an impact on IT use over the whole time is “trust”. In regard to Mayer et al. (1995) trust can be defined as a willingness to be vulnerable to another party based on a separate set of trustworthiness beliefs in ability, benevolence and integrity. Several researchers explain the formation of initial IT adoption integrate trust as a relevant and significant factor (e.g., Gefen et al. 2003). Zhou (2013) has shown that trust is also a significant determinant on intention to continuous use.

Further, personal data as control variables, such as “personality factors,” “technological commitment,” “self-efficacy” and demographic data (e.g., age, gender, education, and family status), were collected. These data have only been gathered for the first measurement time point because it is assumed that these variables are stable over the entire survey period of eleven weeks. The personality factors are gathered because, as Rammstedt (2007) shows, the different expression of certain personality factors improve the predictive power of certain sociological variables. For example, people with a high level on the dimension "openness to experience" tend to a higher technology affinity, enhanced technical knowledge and enhanced computing experience.

The variable “technological commitment” can be defined as “individual differences in the willingness of

technology use in terms of three facets: technology acceptance, technology competence, technology control" (Neyer et al. 2012, p. 87). It is assumed that technology commitment influences the willingness to use technology. However, to use an IT system, it is not only important to convince people of the technological advantages, "it must also be about coaching, teaching, and encouraging individuals to ensure that they have the requisite skills and confidence in their skills to be successful in their use" (Compeau et al. 1999, p. 146). Therefore, we assume that not only perceived technological commitment influences the willingness to use technology, but also perceived self-efficacy. Self-efficacy can be defined as "beliefs about one's ability to perform a specific behavior" (Compeau et al. 1999, p. 146).

For the second and third measurement time points, only variables will be collected that are expected to affect continuous IT use, namely, "IS continuance intention" (cf. Limayem et al. 2007), "perceived usefulness," "perceived ease of use," "social factors," "trust," "sunk costs," "habit," "confirmation" and "cognitive absorption." We suspect that the influence of the variables on continuous IT use changes over time (Bhattacherjee and Premkumar 2004; Karahanna et al. 1999). The presumption is that the influence of rational respectively conscious evaluated variables (e.g., "sunk costs" or "trust") decreases over the time of using an IT system. In contrast, it is assumed that the influence of affective (e.g., "social factors" or parts of the construct "cognitive absorption") or behavioral (e.g., "habit" or parts of the construct "cognitive absorption") variables increases over the time of using an IT system.

Åstebro (2004) has found that "sunk costs of learning significantly decrease the depth and probability of adoption" (p. 395). In addition, Polites and Karahanna (2012) demonstrate that sunk costs have an indirect impact on the intention to use new systems. The authors summarize the variable sunk cost together with other variables to create a construct named "inertia" that has a significant impact on the intention to use a new IT system. Based on these findings, we have decided to integrate "sunk costs" as a variable which predicts continuous use because we assume that "sunk costs" will also affect the decision to invest even more time.

The next included variable is "habit." According to Verplanken et al. (1998), habit can be summarized as a concept to describe "learned acts that become automatic responses to situations, which can be functional in obtaining certain goals or end-states" (p. 112). In the IS research, habit is defined as "the extent to which using a particular IT has become automatic in response to certain situations" (Limayem et al. 2003b, p. 3). Various research studies have proven that a habit has a significant impact on intention to continuous use (e.g., Barnes 2011) and on actual usage behavior (e.g., Kim 2012; Limayem et al. 2007). Additionally, the study of Polites and Karahanna (2013) examines IS usage behaviors in a work environment, and the authors conclude that "habit may prevent users from adopting and using new information systems, or it may prevent them from exploring unused system features that might" (p. 243). Therefore, we have integrated "habit" as a suitable predictor to explain continuous IT use.

The variable "confirmation" determines the extent to which expectation of the IT system users is confirmed (Bhattacherjee 2001). This variable ties up on the expectation-disconfirmation theory (EDT, Oliver 1977) introduced into the IS adoption research "to explain how and why user reactions change over time" (Venkatesh and Goyal 2010, p. 281). The theory has been examined in relation with TAM (Bhattacherjee 2001; Bhattacherjee and Premkumar 2004) and for continuous IT use (Venkatesh and Goyal 2010). Furthermore, the innovation diffusion theory defined by Rogers (1995) suggests that "adopters reevaluate their earlier acceptance decision during a final "confirmation" stage and decide whether to continue or discontinue using an innovation" (Bhattacherjee 2001, p. 352). Therefore, we expect that the degree of confirmation influences the willingness to use technology continuously.

The last included variable to explain continuous IT use is "cognitive absorption." Cognitive absorption is a multidimensional construct defined by Agarwal and Karahanna (2000) as a state of deep involvement with the interaction that is exhibited through five dimensions: (1) temporal dissociation during the interaction, (2) focused immersion, (3) heightened enjoyment, (4) subjective control perception about the action and (5) the feeling of interest in the interaction itself. Recent research has shown that cognitive absorption has a significant impact on the behavioral intention to use or the intention to reuse (Agarwal and Karahanna 2000; Goel et al. 2011).

Instrument Construction and Data Analysis

Instrument Development to Measure the Research Variables

Questionnaires have been constructed for the several measurement time points of the survey. Therefore, to operationalize the variables, only existing validated scales are integrated, except the scale to measure the independent variable "sunk costs" and the dependent variable "perceived actual use." For both variables, the scales are self-constructed. The scale development for "sunk costs" is based on the publication of Åstebro (2004). The scale to measure "perceived usage behavior" is constructed following several recent publications that measure usage behavior self-reported by means of questionnaire (e.g., Compeau et al. 1999; Limayem et al. 2007). Table 2 indicates which scale is used to measure the variables involved and the source from which the scale is taken.

Table 2. Scales to Measure the Research Variables

Name of variable	Number of Items	Source of scale
Behavioral intention	4	Limayem et al. (2003a)
Perceived usefulness	4	Kamis, Koufaris and Stern (2008)
Perceived ease of use	4	Kamis, Koufaris and Stern (2008)
Social factors	3	Limayem and Hirt (2003)
Trust	4	Gefen (2002)
Technical commitment	12	Neyer et al. (2012)
Personality factors	10	Rammstedt and John (2007)
Self-efficacy	10	Schwarzer and Jerusalem (1999)
Perceived actual use	10	Based on: Compeau et al.(1999) Limayem et al. (2007)
IS continuance intention	6	Limayem et al. (2003b)
Sunk costs	5	Based on: Åstebro (2004)
Habit	12	Verplanken and Orbell (2003)
Confirmation	3	Bhattacherjee (2001)
Cognitive absorption	20	Agarwal and Karahanna (2000)

All items are measured on a bipolar five-point Likert response format, ranging from "completely agree" to "absolutely disagree." The items are randomized per participant to avoid the possibility of order effects. All English scales have been translated into German by a native speaker to avoid measurement errors through translation mistakes.

To check the questionnaires and the general functioning, pretests have been conducted or are being planned. Because the study is already running, the pretest for the first measurement point has been carried out. During the pretest the time was measured that participants required in order editing the first questionnaire. Also, some difficult formulated items were identified and adjusted again. In this way, the spelling and grammar of the whole questionnaire were duly checked and corrected. The participants reported that during the processing of the questionnaire they felt neither over- nor unchallenged and perceived the editing to be very pleasant and short. Due to the fact that participants of the first pretest reported that the editing time of the first survey was pleasantly short, we have decided to incorporate no exercises against respondents' fatigue. The same pretests to check the questionnaires and the general functioning are also planned for second and third measurement points.

Data Collection and Preliminary Sample Description

The complete study takes a total of eleven weeks. In the first week we promote the study in the student courses. The registration phase lasts for one week. During this time the participants register to participate

in the survey, and receive the opportunity through a tutorial, become familiar with the new web based application and its features. The first survey starts one week after the registration, the second survey starts four weeks after registration, and the third and last survey starts nine weeks after registration.

The questionnaires are designed as an online version in order to reach a possible large population. For each measurement time point the respondents receive a personal invitation by e-mail. Overall, the respondents have one week to answer the questionnaire from the date of the invitation. To fill out each questionnaire takes about 10 to 20 minutes. Through the use of personal pseudonymous codes, it is possible to assign the longitudinal data gathered by the questionnaires and the corresponding log data to one identity.

The sample consists mainly of students; hence, it can be assumed that the age of our participants will range largely between 18 and 40 years. At the moment (ending of the registration phase), over 300 students have registered for participation in the survey. The use of the web based application is voluntary and not rewarded. Only the participation in all three surveys will be rewarded with bonus points for the exam of the course. Nevertheless, a loss of 20 to 30 percent of the participants is to be expected over time.

Data Analysis

To analyze the data, we will use structural equation modeling (SEM) because it is suitable "to analyzing the cause-effect relations between latent constructs" (Hair et al. 2011, p. 139). Furthermore, we have decided to apply partial least square SEM (PLS-SEM) because it is adequate to identify the most predictive key drivers for continuous IT use. PLS-SEM allows examining of both reflective and formative constructs, and works also with smaller sample sizes (Hair et al. 2011). As tool of analysis, we will use SmartPLS (Ringle et al. 2005). To compare the self-reported and the computer-recorded data for dependent variable, we intend to use a redundancy analysis, as for e.g., Söllner et al. (2012) did for comparing two trust constructs.

Expected Contribution and Outlook

This paper is an attempt to combine previous research results and to improve preliminary theoretical and methodological shortcomings by a longitudinal research design. It is expected that the current research findings will be reviewed and that a suitable model to explain the continuous IT use will be constructed from the study results. It is also of interest to gain more insights into the formation of continuous IT use and how the influence of variables changes over time. For example, it would be interesting to investigate whether the relationship between intention and actual behavior changes over time, and to discuss possible explanations if such a change can be observed.

Further, we aim at generating a model of explanation (Gregor 2006) for what drives continuous IT use. When this goal is achieved, we aim to gain reliable insights that allow predicting continuous IT use. This would upgrade our theory to a theory of explanation and prediction (Gregor 2006). These insights will then serve as basis for designing IT systems, culminating in recommendations on how to design IT systems that foster continuous use and thereby economic success.

The study is already in progress and the last measurement point of the survey will be in summer of 2013. Currently, the web based application for students is in the pilot phase. For this reason, only selected students can be invited to the survey. In the second half of the year the application shall be made available to all students. This allows a reworking of the study design based on the results obtained and then testing the revised study design with a larger sample.

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