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A Structurational Perspective on Belief Formation

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Abstract. Research on IT adoption has shown that object-based beliefs about IT systems have a profound impact on subsequent IT usage. However, we still need to identify antecedents of object-based beliefs in order to understand how the belief formation process can be influenced. This research builds upon and extends Adaptive Structuration Theory to examine how IT-related factors influence the formation of object-based beliefs. To test our research model, we surveyed 183 users of a student information system. The proposed model was supported, providing evidence that values, meaning and functionalities provided by an IT system positively affect information and system quality.

Keywords: Structuration Theory, IS Adoption, Object-based Beliefs

1 Introduction

Information Technology (IT) pervades important aspects of human life at different levels, such as individuals, teams or organizations. The interplay between IT and individuals has been investigated, especially within two major research streams – the technology adoption and the user satisfaction literature – and both research streams have converged on a shared understanding of the salient predictors of individuals' acceptance and intentions to use IT [1-2]. An important and long-standing research question in the field of Information Systems (IS) research deals with individual beliefs about IT systems that have shown to have a large effect on subsequent IT behaviors [3-4]. While research on IT adoption and IS success has made important steps to understand which kind of beliefs contribute to a successful adoption process [5] there is still a lack of knowledge about the formation and antecedents of object-based beliefs [6]. This knowledge is crucial in order to inform researchers as well as practitioners how IT design influences users and how IT systems can be improved to foster the IT adoption process [7]. Practice can only benefit from adoption theories if researchers understand how to influence any kind of beliefs through IT design. This study builds upon and extends Adaptive Structuration Theory (AST) in order to examine IT-related factors that influence individual object-based beliefs about IT systems [8]. AST proposes that users are related to IT systems through two communication channels, namely functional affordance and symbolic expression [9]. Both communication channels can be regarded as sources for structure that determine to some degree how people use and interact with IT. Thus, AST offers a good starting point to

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investigate how these IT-related sources for structure affect the formation of object-based beliefs and how these beliefs affect the usage of IT systems. This study seeks to apply AST in order to identify and empirically test antecedents of object-based beliefs which leads to the following research question: To what extent do the structures provided by IT systems affect the formation of object-based beliefs?

2 Theoretical Grounding

2.1 Structuration Theory and IT Adoption

AST serves as a foundation to develop a theoretical framework for the structurational features of an IT system [8]. It is one of the most influential structurational theories in IS research [10] that describes "the production and reproduction of social systems through members' use of rules and resources in interaction" [11]. Structuration can be described as the process of social structures that shape peoples' actions and beliefs and that are shaped by peoples' actions. Thus, at its core AST is a holistic attempt to examine the interplay of advanced technologies, social structures, and human action [8], [12]. According to a recent reconceptualization of AST, technical objects are related to human agents through two concepts: "functional affordance" and "symbolic expression" [9]. These structures are not directly attributed to the technical object itself but to the relation between technical objects and users, thus this conceptualization emphasizes the importance of technology-human interactions. In other words, every user or user group perceives, understands, and grasps the structures that are provided by technical objects (functional affordance, symbolic expression) differently, thus the technology in use and the user (the relation between them) are inextricably connected and cannot be studied separately. The structure provided by an IT system determines to some degree the outcomes of human-technology interactions [8]. However, we have to differentiate between behaviors that are determined by IT systems and how IT systems are perceived by users before any action takes place. This differentiation is important because structures provided by IT systems are indirectly influencing IT behavior through the formation of object-based beliefs [5]. According to Fishbein and Ajzen [13], beliefs can be influenced by observations, by information that are received from any other source, or by different inference processes. One among many other sources that affect the formation of beliefs are the structures that are provided by an IT system [8]. Thus, IT structures can be regarded as antecedents of object-based beliefs. Object-based beliefs, such as information or satisfaction quality, in turn affect the use of IT systems. The assumed relationships that guide this study are summarized in Figure 1.

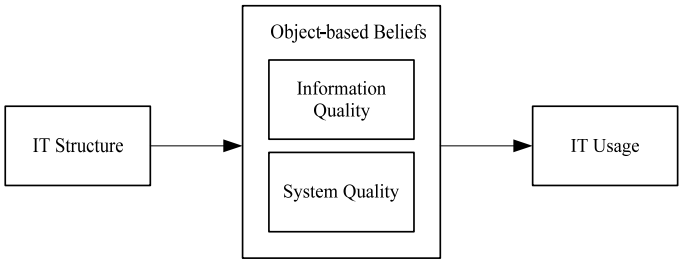

Fig. 1. Conceptual Research Framework

2.2 Object-Based Beliefs and IT Usage

IS literature is largely influenced by the Theory of Reasoned Action (TRA) [13]. According to TRA object-based beliefs can be understood as the perception a user has about an IT artifact. A user links information about an IT artifact to an attribute and is forming his/her attitude towards this special object in focus. The user satisfaction literature in general dealt to a large degree with the role of object-based beliefs as key constructs that determine the success of IT systems. One of the most important object-based beliefs is IS quality, that can be separated into information quality and system quality, both of which determine the user satisfaction and the use of an IT system [14-15]. In accordance with the IS Success Model information quality as well as system quality both will positively affect the usage of IT systems [14], [16].

H1: Information Quality will positively affect IT use.

H2: System Quality will positively affect IT use.

2.3 IT Structure and Object-Based Beliefs

The term "affordance" [17] refers to actionable properties between any real-world object and an actor. Affordances are relations between objects and actors in special situations and can be described as cues and instructions that are offered by an object to an individual in order to provide opportunities for particular types of individual behavior [18]. Functional affordances comprise "the possibility for goal-oriented action afforded by technical objects from designers to a specified user group (potential use of an IT object)" [9]. They are purposefully designed to assist and help users to accomplish tasks [19]. Therefore, the functional affordance of an IT system refers to the potential uses one can make of a technical object in order to achieve a certain goal. The concept of functional affordance provides a perspective that recognizes how features of certain technical objects favor, shape, invite, or at the same time constrain a set of specific uses [9]. A central assumption of AST is that IT systems are an important part of the structuration process and that the structurational potential of IT systems elicits cognitive and behavioral reactions. The possibilities that technical objects afford for action may or may not be perceived by individuals in differing ways and therefore elicit different kinds of beliefs. This means that human-technology interactions are perceived and processed by users the same way as interpersonal interac-

tions and therefore lead to the formation of different beliefs based on users' direct experiences with IT systems. The interaction with IT systems will therefore positively influence the formation of object-based beliefs. Users who understand, grasp and ultimately know the functionalities provided by IT systems and know how the underlying functionalities can be used will therefore perceive a higher system quality and information quality [7].

H3: Functional Affordance will have a positive effect on Information Quality.

H4: Functional Affordance will have a positive effect on System Quality.

Similar to the concept of functional affordance, a symbolic expression is not a property of a technical object but a relational concept that connects technical objects and users. Symbolic expressions can be understood as "the communicative possibilities of technical objects for a specified user group" [9] that enable the interpretation of technical objects. For example, symbolic expressions include "messages" that help users interact with technical objects or functionalities, or messages pertaining to designers' or users' goals and values. Symbolic expressions are not to be confused with designer's intentions or user's perceptions. It is true that IT systems express "messages" and provide information that are intended by designers. However, they may also provide information that is not intended by designers and users may or may not perceive certain signs, symbols, or messages differently due to the fact that every user has a different background, expertise, or knowledge base. The conceptualization of symbolic expression is closely related to the conveyance of values [9], [20-21], even though the concept is not inherently limited to the domain of values. An expression can be understood as the manner or form in which a thing is expressed in words, or in the special case of a symbolic expression, in which a thing is expressed in any kind of symbol. The understanding of a symbol from the user perspective is as important as values that are conveyed by an IT system. While meaning or understanding of a symbol does also promote some kind of values, because the concept is inherently connected to values of a symbol, meaning is mostly considered as the user interpretation of an underlying real-world phenomenon (or abstract concept) that a symbol refers to [22]. Symbols serve as a means of communication and successful communication requires the know-how to produce the relevant signs/symbols with the intended meaning [23]. In general, IT systems can promote values such as control or reliability on an aggregate level; however, the understanding of perceptual cues needs to be considered in more detail as well. If a symbol is to convey meaning it must be identified by a user group and the symbol must communicate a similar meaning to all users within a group. For instance, concerning the example of Wikipedia, do the users understand what the meaning of the "edit button" is and how it has to be used? What this discussion amounts to is that we propose to subdivide the concept of symbolic expression into two distinct sub-dimensions: communication of values and communication of meaning. Communication of values deal with values that should be conveyed by an IT system to support certain functionalities or tasks. Communication of meaning comprises the understanding of functionalities that are provided by an IT system. Defining the concept this way has the advantage of supporting potential analyses of the relationships between functional affordances, symbolic expressions and object-

based beliefs in more detail. Thus, the understanding of an IT system (its functionalities) and the values conveyed by an IT system are in focus of the investigation. This conception also allows directly answering the question whether users understand the functionalities of IT systems. If users understand the meaning of symbols that are conveyed by the IT system they will perceive and understand the functionalities afforded by the IT system. The less effort is required for users to understand the meaning of an underlying functional affordance, the easier it will be to know what this functionality will do and ultimately how this functionality can be used. Thus:

H5: Communication of Meaning will positively affect Functional Affordance.

The same reasoning is applied to the relation between communication of values and functional affordance. If the values conveyed by an IT system support the general intent of the same IT system, users will be more prone to perceive and ultimately use the functionalities as intended.

H6: Communication of Values will positively affect Functional Affordance.

As has already been outlined, the structure provided by an IT system partially influences the formation of object-based beliefs. Users will attribute a higher quality to the information provided by an IT system if information are easily understandable. Thus, we assume a positive relationship between communication of meaning and information quality. As for the link between communication of meaning and system quality, we expect that users will perceive a higher system quality, if they generally understand the IT system and its functionalities.

H7: Communication of Meaning will positively affect Information Quality.

H8: Communication of Meaning will positively affect System Quality.

E-commerce literature has already investigated the effects of web assurance seals on trust and information disclosure [24-25]. These examples show how values are communicated by certain seals that are presented on websites and how these values influence personal beliefs or behaviors. If there is a perceived congruence between the values of the IT system and the values and goals of users [26], users will have a positive image of the underlying IT system and attribute positive values to the IT system. Therefore, we expect the following:

H9: Communication of Values will positively affect Information Quality.

H10: Communication of Values will positively affect System Quality.

The research model and underlying hypotheses are summarized in Figure 2.

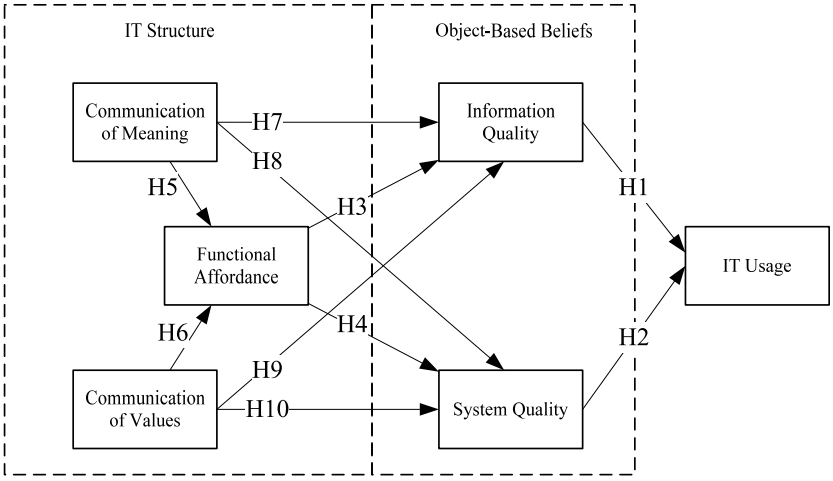

Fig. 2. Research Model

3 Methodology

3.1 Research Site and Data Collection

Data for this study was collected by surveying users of a computerized student information system (SIS) in place at a Western university. The IT system provides students with information about lectures, seminars, and courses. Moreover, it offers the possibility to plan and manage the entire semester. The use of the IT system is mandatory. Above this, the SIS is ideally suited to test the research model, since its functionalities as well as its scope are limited and the purpose of the system is precisely determined. The students attended a basic Information Systems course during the winter term 2011. Out of approximately 380 students a total of 200 students participated in the online questionnaire. After removing all questionnaires that were incomplete or not reliable a total of 183 usable questionnaires were received. Respondents ranged from 18 to 42 years of age, with a mean age of 21.8 (sd = 2.8). On average, students (106 male and 77 female students) were in their second semester (mean 2.2, sd = 0.88).

3.2 Measurement Model

We had to develop new items for the structurational concepts. To ensure content validity, we followed the two-staged approach proposed by Burton-Jones and Straub [27]. First, four students were interviewed in order to find out about the most common functionalities and in order to understand the IT system from the point of view of a student. This procedure helped to make sure that all important functionalities and values were considered in the survey.

Table 1. Measurement Model (***p < 0.001, **p < 0.01, *p < 0.05)

Construct	Items	Description	Loadings
Communication of Meaning	COM1	I know how to download the offered course materials.	0.73***
	COM2	I know how to use the forums.	0.77***
	COM3	I know how to apply for a course.	0.7***
	COM4	Generally, I understand the basic functionality of the system.	0.86***
	COM5	In general, I understand how the system works.	0.88***
	COM6	I know how to use the system and its functionalities.	0.84***
Functional Affordance	FA1	The system offers the possibility to learn about the offered courses.	0.57***
	FA2	The system offers the possibility to download course materials.	0.61***
	FA3	The system offers the possibility to exchange opinions with other students.	0.77***
	FA4	The system provides information about seminars and lectures.	0.61***
	FA5	The system offers the possibility to use a forum.	0.76***
Communication of Values	COV1	Reliability	0.7***
	COV2	Effectiveness	0.87***
	COV3	Efficiency	0.92***
	COV4	Productivity	0.86***
	COV5	Control	0.75***
Information Quality [5], [28]	IQ1	In general, the system provides me with high-quality information.	0.8***
	IQ2	I am satisfied with the quality of the information.	0.84***
	IQ3	Overall, I would give the information from the system a high rating in terms of quality.	0.82***
System Quality [5], [28]	SQ1	Overall, I would give the quality of the system a high rating.	0.88***
	SQ2	Overall, the system is of high quality.	0.92***
	SQ3	In terms of system quality, I would rate the system highly.	0.93***
IT Use	USE1	I use the system on a regular basis.	0.84***
	USE2	I use the system to access my course materials.	0.81***
	USE3	I use the system regularly.	0.87***

Based on a previous study, the theoretical deliberations, and the interviews, measures were created that tie together the constructs in the research model and that seemed suitable to reflect the underlying causal relationships. All constructs, except functional affordance, were operationalized with reflective indicators [29]. All variables were measured using multiple items on 7-point Likert-type scales, ranging from "strongly agree" to "strongly disagree" (Table 1). Communication of meaning (COM) was measured using six reflective items. Students were asked if they knew and understood how different functionalities provided by the SIS work. Communication of values (COV) was operationalized using five reflective items. The set of relevant values was determined with the help of the interviews. Since the SIS serves as a tool to support students during their studies, the focus was on values that are associated with productivity. Students were asked to rate to what degree the SIS conveyed the proposed values. IT use (USE), information quality (IQ) and system quality (SQ) were also modeled as a reflective construct using 3 items per construct [5], [28]. The construct of functional affordance (FA) was operationalized as a formative construct [30]. The decision to model a formative construct was based on different criteria [29-30]. We were especially interested to find out what kind of different functionalities were offered by the SIS and to what extent these functions were important for the users. While one could easily define general items that ask to what extent the IT system as a whole is used, we wanted to focus on the most important features that build and therefore define the construct functional affordance. Therefore, changes in the variables influence the meaning of the formative construct. In other words, if different functionalities were added to the system the functional affordance of the SIS (thus what the IT system offers to do) would change significantly. In addition, the formative measures may not be interchangeable since every measure accounts for a unique dimension of the formative construct. We added control variables as IT use may vary across users with different demographic characteristics such as age, gender, degree and semester.

4 Data Analysis and Results

4.1 Factorial Analysis of Symbolic Expression

Before the research model was tested we conducted an exploratory factor analysis to check the two-dimensionality of symbolic expression. A principal components analysis was conducted on the 6 items for COM and the 5 items for COV with orthogonal rotation (varimax). The results of the analysis verified the sampling adequacy for the analysis (Kaiser-Meyer-Olkin measure (KMO) = 0.87). All KMO values for the individual items were higher than 0.79, which is above the acceptable limit of 0.5. Bartlett's test of sphericity was significant (χ^2 (91) = 1711.9, $p < 0.001$). The analysis resulted in two components with eigenvalues over Kaiser's criterion of 1 that explained altogether 70.62% of the variance. Given the large sample size, the analysis of the scree plot and the Kaiser's criterion two components were retained in the analysis. The analysis of the rotated component matrix showed that all items that were assumed to be correlated loaded higher on one single component than on any other component

with factor loadings above 0.66. The items that cluster on the same components suggest that component 1 represents COM (Cronbach's $\alpha = 0.88$) and component 2 represents COV (Cronbach's $\alpha = 0.88$).

4.2 Scale Validation

The measures and the research model were tested by using SmartPLS 2.0 [31-32]. Internal consistency and convergent validity were examined by assessing item loadings, composite reliability, and average variance extracted (AVE). All factor loadings are significant (Table 1) and lie above the recommended threshold of 0.7 [31]. Composite reliabilities (CR) are above 0.8 and each AVE is above 0.50 (Table 2), indicating that the measurements are reliable and the latent construct can account for at least 50 percent of the variance in the items [33]. Discriminant validity was also achieved since the correlations between each pair of latent variables are less than the square root of AVE [34]. The traditional evaluation criteria such as factor loadings and AVE are not applicable for the evaluation of formative measurement models. Because these measures assume high internal consistency (high intercorrelating indicators) they are inappropriate for formative indicators, where no theoretical assumption is made about inter-item correlation [30], [35].

Table 2. Reliabilities and Correlation Matrix

Construct	**Composite Reliabilities**	**AVE**	**COM**	**COV**	**FA**	**IQ**	**SQ**	**USE**
COM	0.913	0.64	0,8					
COV	0.913	0.68	0.476	0,82				
FA	n/a	n/a	0.5221	0.408	n/a			
IQ	0.863	0.68	0.4738	0.483	0.446	0.82		
SQ	0.936	0.83	0.551	0.559	0.416	0.673	0.91	
USE	0.88	0.71	0.466	0.371	0.54	0.42	0.268	0.84
Diagonal elements represent the square root of the AVE. Off diagonal elements are the correlations.								

For functional affordance, construct validity was assessed by using principal components analysis to examine the item weights for the measurement model [30]. The results show that three weights are significant while two weights (FA2 and FA4) are insignificant (Table 3). However, small absolute and insignificant weights should not inevitably be misinterpreted as a poor measurement model [31]. Instead one should further examine each indicator's weight (relative importance) and loading (absolute importance) [36]. For FA2 and FA4 the loadings are positive and significant, thus these items can be considered to be an important aspect of FA (Table 1).

Table 3. Factor Weights and Variance Inflation Factor (***p < 0.001, **p < 0.01, *p < 0.05)

Construct	Items	Outer Weights	VIF
Functional Affordance	FA1	0.32**	1.224
	FA2	0.258	1.325
	FA3	0.449**	1.354
	FA4	0.069	1.712
	FA5	0.363**	1.811

The insignificant weight of FA2 and FA4 should therefore be interpreted as their relative contribution to FA after controlling for the other functions. In sum, these results are consistent with the expectation that these five different functions might not be equally important to the functional affordance construct. To ensure that multicollinearity does not pose a problem, the variance inflation factor (VIF) statistic was computed. Table 3 shows that VIF values for all items are below the threshold of 3.3 [37].

4.3 Common Method Bias

As with all self-reported data, there is a potential for common method bias (CMB) resulting from multiple sources such as consistency motif [38]. To check for CMB a common method factor was included in the PLS model whose indicators included all the principal constructs' indicators. Each indicator's variances that was substantively explained by the principal construct and by the method was calculated (see [39]). The CMB analysis only included the reflective constructs, because to the best of our knowledge there still is no agreed upon method for testing CMB for formative constructs. The results demonstrate that the average substantively explained variance of the indicators is 0.7, while the average method-based variance is 0.007. The ratio of substantive variance to method variance is about 100:1. In addition, none of the method factor loadings are significant. Given the small magnitude and insignificance of method variance, it is unlikely that CMB poses a serious concern for this study. Since all items were randomly shuffled within the survey it can be assumed that CMB does also not pose a problem for the formative FA items.

4.4 Structural Model

Figure 3 provides the R2 and path coefficients along with their respective significance levels from PLS analysis. The link between IQ and IT use is significant thus offering evidence for H1. The path between SQ and IT use is not significant. Thus, there is no support for H2. As for H3 and H4, Figure 3 shows a significant link from FA to IQ but a non-significant link to SQ. We found support for H3, but H4 had to be refused. We could find a significant correlation between COM and FA and between COV and FA which supports H5 and H6. The effect of COM on IQ as well as on SQ is positive

thus supporting H7 and H8. H9 and H10 propose that COV impacts IQ and SQ. Figure 3 shows significant paths from COV to IQ and SQ. We thus found support for H9 and H10. With regard to the four control variables included in the model, none of them were significantly related to IT use. Thus, we conclude that the variance in IT use does not depend on the control variables. The results indicate that the model explained 20% of the variance in IT use. COM, COV and FA account for 34% of the variance in IQ. COM and COV explained 42% of SQ. 30% of the variance of FA is explained by COM and COV. The model's capability to predict was tested by computing the cross-validated redundancy measures for each construct (Stone-Geisser's Q2). The blindfolding procedure is only applied to endogenous latent variables that have a reflective measurement model operationalization. All measures were larger than zero indicating that the latent construct exhibit predictive relevance [31].

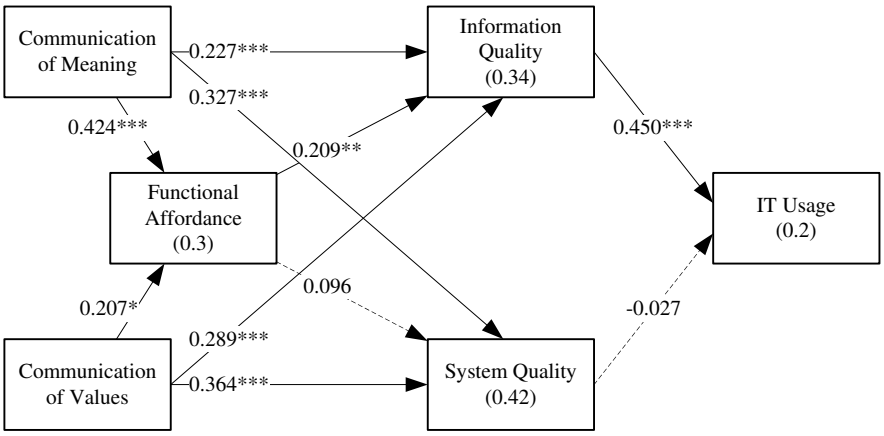

Fig. 3. Summary of Model Results (R^2 are reported in parentheses, Path Significance: ***p < 0.001, **p < 0.01, *p < 0.05)

5 Discussion and Conclusion

In order to understand IT-related factors that contribute to the formation of object-based beliefs, this study explored the effects of structurational concepts (as proposed by AST) on information and system quality. The findings of this study offer statistical support for the relation between structurational concepts and object-based beliefs. First, we divided the construct of symbolic expression into communication of values and communication of meaning and provided empirical evidence for the two-dimensional structure of symbolic expression. Symbolic expression consists of different types of values and meanings that are conveyed by an IT system. The factorial analysis of communication of values and communication of meaning indicates that both sub-constructs are distinct dimensions of symbolic expression. Communication of values have a positive impact on functional affordance which shows that values conveyed by an IT system positively affect how functionalities are perceived. In the

case of the present study, the SIS supports values such as efficiency, productivity and control which ultimately impact the awareness of the functionalities offered by the SIS. Communication of meaning positively affects functional affordance and provides some evidence that the understanding of the underlying functionalities contributes to the awareness of the functionalities afforded by the SIS. Users perceive a high system quality if they basically understand the meaning of the functionalities that and if the values conveyed by the system support its general intent. The same reasoning applies to the link between communication of values/communication of meaning and information quality. The better users understand the underlying functionalities and the better the IT system communicates values that support its general intent, the higher is the information quality of the IT system regarded by the users. Interestingly, our study provides some evidence that functional affordance directly influences the perceived information quality but not the overall system quality of the SIS. It seems that functionalities provided by the SIS are primarily important when it comes to the assessment of information that an IT system offers. In our case students used the possibility to exchange opinions with other students and used the forum to discuss relevant problems and questions. This interaction leads to new information that are perceived to be of high quality. Overall system quality depends only on a clear understanding of the system and positive values that are provided by the system. There is no significant relationship between system quality and IT use, as concluded in previous research [15]. From a theoretical perspective, this link was expected to be a strong one, that is, a high perceived service quality should lead to a higher level of IT use. In order to further investigate this surprising result we tested if the effect of system quality on IT use is mediated by information quality. To test the mediation, information quality was removed from the model and an additional confirmatory analysis was computed. The link between system quality and IT use became significant ($\beta = 0.276$, $p < 0.01$) which indicates that the effect of system quality on IT use is fully mediated by information quality. The reason for the inconsistency of the direct link between system quality and IT use could be the target IT system in this study. Because the system is mandatory and students do not have any alternative but to use the SIS the overall quality might not be important as long as the IT system provides adequate information. The proposed research model explained 34% of the variance in information quality and 42% of the variance in system quality which can be regarded as a moderate or weak R2 [31]. However, it depends on the specific research discipline and topic if values are considered to be high or low. Given the fact that object-based beliefs are only partially affected by IT-related structurational concepts, the R2 values appear to be quite acceptable. Other sources for structure that were not part of this study, such as social norms, organizational resources, tasks or user characteristics, also play an important part in the process of belief formation and could explain additional variance in system quality and information quality [7-8].

The research model offers several advantages to researchers and practitioners interested in the social dynamics of human-IT interaction. The conceptualization based on AST encourages researchers as well as practitioners to investigate the relation between human agents and the IT system in more detail since the functional affordance construct has to be adapted to every new IT system and the user groups in

focus. Researchers have to realize which kinds of functionalities are provided to a certain user group to support a specific task in order to develop items that grasp the functional affordance of an IT system. The same applies to communication of values and meaning. Researchers have to be aware of what kind of values an IT system is supposed to provide; e.g. an ERP system should convey different values than collaborative tools. Thus, this study comes together nicely with Jones and Karsten's [10] call for more attention on the interaction between technology and human action although this quantitative research approach only provides a static snapshot of the human-IT interaction. Practitioners can benefit as well from our research. We demonstrated that not all functionalities of the SIS are equally important. The model therefore helps practitioners to evaluate what functionalities are essential and contribute the most to object-based beliefs. In addition, our research model underlined the importance of values and meaning that are communicated by an IT system. Thus, the design and operation of an IT system should directly target and support its general goals; e.g. an online shop should provide values such as control, convenience or trust in order to attract and retain customers [21], [24]. An obvious limitation of this study pertains to the sample and the IT system that was investigated. Focusing only on the students as the target users of the SIS allowed to control for extraneous factors such as different use intentions and objectives, different user types and so forth. Future research should examine the model across different populations and different IT systems, especially where IT use is completely voluntary. The proposed model explains some variance in information and system quality and therefore seems to be applicable to situations where users are more or less forced to use a certain system. In a mandatory setting, the provision of "right" structures (functionalities, values and meaning) to support a task might even be more important than in a voluntary setting since users do not have a choice to switch to another IT system. Despite the aforementioned limitations, our research adds to the existing knowledge on technology adoption. The structurational potential of IT systems cannot fully determine the formation of object-based beliefs since IT systems are embedded in an organizational environment that provides different structures such as norms and values. However, Giddens acknowledges the value of decomposing structuration by taking institutions as a backdrop and by focusing on the structural potential of technical objects that shape and generate social structures [40]. This bracketing artificially segments structuration, but it is still admissible and justified for methodological purposes [12].

Acknowledgments

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