Beyond IT Acceptance

Full Paper

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Abstract

Organizations invest in information technology expecting positive outcomes, but to produce the intended results employees must use the technology. This study applies Adaptive Structuration Theory and Social Construction of Technology frameworks to expand research on the relationship among organizational users and mandatory IT artifacts beyond the initial process of acceptance, which currently constitutes the main paradigm in the IS field. A case study analyzes the mandatory use of an academic portal by lecturers and all the changes that users promote to the artifact and the tasks they perform while using it. Our findings show that if the environment provides flexibility for it, participants refute, adapt replace and complement the artifact that was adopted by the organization, while they appropriate it, in order to improve their efficiency in achieving organizational goals or their own.

Keywords

IT adoption, IT acceptance, IT appropriation.

Introduction

The acceptance and use of information technology (IT) by individuals in organizations is a recurrent research theme in the information systems (IS) field. The reason for this interest is that if the available technology is not used by employees, then no advantage can be obtained from its intended adoption by an organization (Davis, 1989; Venkatesh, Morris, Davis, & Davis, 2003). Organizations adopt IS "to help managers make better decisions, better understand the nature of customers, discover new market opportunities, improve the productivity of the employees, and so forth" (Hirschheim, 2007, p. 204).

Prediction models have been built and rebuilt over the years with the aim of addressing the IT acceptance problem and, to some extent, of predicting future use. One theory that is often applied to explain the acceptance phenomenon is the Technology Acceptance Model (TAM) (Davis, 1985). The first published paper presenting TAM (Davis, 1989) has already received almost 23 thousand citations (Feb., 2015), according to Google Scholar's search engine. The model is usually noted for its simplicity, parsimony, and prediction power (Wu, 2011) and is identified by Straub (2012)—just to give an indication of its importance—as the only native theory of the IS field.

Although many studies have presented replications of TAM and provided many suggestions for expanding the model, the outcomes generated by the use of adopted and accepted systems are still not clearly understood. Other issues related to this phenomenon also deserve to be addressed: (1) Is acceptance a concept that assumes a "simple" yes or no answer? (2) Do perceptions about the artifact change over time? (3) Do the users change over time? (4) Does the way the artifact is used change over time? (5) Is the artifact perceived and used the same way by different users? (6) Why do "accepted" and "extensively used"

artifacts fail to generate the outcomes that are intended by organizations? Although this paper may not be able to thoroughly address all these issues, we expect that we can at least provide some food for thought with respect to most of these matters, by analyzing the implementation of a large compulsory information system in an environment in which users are inclined to question and, eventually, challenge it purpose and/or features. By instigating further discussion of the adoption/acceptance process, changing the analytical lenses from those that are more often used for the task, we believe that we contribute to improve the understanding of the phenomenon. The existence of a lean, widely accepted, model to explain acceptance may have led our academic community to the impression that things are settled and that there is not much that still needs to be said about it. However, as soon as we get away from the situations of volitional use of relatively straightforward systems (that do not allow for "creative" new approaches to subvert the developers' original intentions), we figure out that there is still a lot about the adoption/acceptance phenomenon that needs to be explained.

We believe that we can better understand this phenomenon if we deeply analyze the relationship between users and technology and explore how technology is interpreted, assessed, changed, avoided, rejected, accepted, and/or (eventually) used. In other words, an important issue that has not been covered by the prevailing acceptance models involves determining how technology is appropriated and transformed by organizational users.

In an attempt to do that, we will use concepts of the Social Construction of Technology (SCOT) and the Adaptive Structuration Theory (AST) frameworks to provide us with a foundational perspective for researching the use of an IT artifact in an organizational context in which several acting parties have different perceptions of its usefulness, ease of use, and purpose. These theories were chosen as the main theoretical lenses to be used in developing the reasoning of this paper because they share the conviction that social interaction of users with technologies can transform both – users and technologies - and make other structures to emerge.

In this study, we expanded research on the relationship among organizational users and IT artifacts beyond the initial processes of adoption and acceptance, which currently constitute the main paradigm in the IS field to explain the dynamic process stablished between users and IT artifacts right after, but as a continuation, of what the literature usually considers to be adoption/acceptance.

Theoretical Background

The approach known as SCOT was derived from studies by the sociologists Wiebe Bijker (1997) and Trevor Pinch (Pinch & Bijker, 1984) as well as the historian Thomas Hughes (1994). This model considers that large technological systems often involve many distinct agents who attribute different meanings to technological artifacts while an interpretive flexibility is negotiated and meanings are still not closed (Benakouche, 1999).

The SCOT approach strongly denies the idea that technology is deterministic. In fact, SCOT advocates "that social groups direct nearly every aspect of technology" (Pinch & Bijker, 1984, p. 17). Those negotiations and decisions are not limited to a technology's designers, innovators, industrialists, developers, programmers, and engineers; in fact, even after an organization adopts a technological artifact, users can attribute new meanings, discover new uses, and generate outcomes that were not planned before the adoption and acceptance process began (Pinch & Bijker, 1984).

Analyzing the publications on SCOT, we find that this approach has been widely applied by sociologists to study innovation processes but has not been used with the same intensity to analyze IT adoption in organizations, which not only provides us with an interesting opportunity, but also justifies the effort.

The SCOT framework is formed by four related components (Pinch & Bijker, 1984).

According to this theory, *interpretive flexibility*, the first component, means that "technological artifacts are culturally constructed and interpreted" (Pinch & Bijker, 1984, p. 421). Technological artifacts are the products of negotiations among the groups involved with a specific technology.

The second component of the SCOT framework is the concept of *relevant social groups*. In the process of technology development, multiple groups—each possessing a particular interpretation of an artifact—negotiate the design and meanings that each group attaches to the artifact (Pinch & Bijker, 1984).

The social construction of an artifact is the result of two combined processes, *closure and stabilization* (Bijker, 1997), which form the third component of SCOT. This component arises when a final decision (or at least a cessation of further decisions) occurs. Pinch and Bijker (1984) viewed this component as arising through two closure mechanisms: *rhetorical closure*, which occurs when a declaration is made that no further problems exist and that no additional design is necessary, and *closure by redefinition*, which occurs when unsolved problems are redefined and no longer represent problems to social groups.

The fourth component is *the wider context*, or the wider sociocultural and political environment in which the development of the artifact occurs. The context involves the background conditions for group interactions that shape the norms and values, which in turn influence the meaning attached to an artifact (Pinch & Bijker, 1984).

Another interesting concept presented by Bijker (1997) is the "technological frame" that shapes meanings and behaviors in relation to particular artifacts. Each relevant social group has its own technological frame that is built in the interaction of relevant social groups surrounding a technological artifact. This frame provides the goals, ideas, and tools that are needed for action.

The outcome is constrained by social groups but not in a predetermined manner. Technological frames exist among actors but are not a feature of systems or institutions. "They are likely to draw on cultural elements with historical resonances in the society at large or at least resonance among similarly socially located actors" (Klein & Kleinman, 2002, p. 40). As actors may be members of more than one relevant social group, they may also be influenced by more than one technological frame, which is defined as their "degree of inclusion" (Bijker, 1997).

Considering that IT provides structures for organizational change and given that the interaction of users with technologies causes other structures to emerge, DeSanctis and Poole (1994) proposed AST. This theory is a particularization of Giddens' Structuration Theory. The intention in developing AST was to adjust Giddens' original model to better discuss the institutional effects of technology in order to be able to apply the model to IT studies.

According to Giddens (1984), structuration is the process by which social structures are produced and reproduced in social life. Structuration theory is especially interesting for the analysis of the relationship between humans and technology because "the effects of advanced technologies are less a function of the technologies themselves than of how they are used by people" (Desanctis & Poole, 1994, p. 122). AST theory emphasizes the role of human actions and interactions in shaping a technology and in choosing the ways in which it is used and argues that "people generate social constructions of technology" (p. 124) while they are interacting with the technology and with other individuals.

The social structures of an advanced information technology (AIT), or its *structural potential*, can be described in terms of its *structural features*, "the specific types of rules and resources, or capabilities, offered by the system" (Desanctis & Poole, 1994, p. 126), and the *spirit* of this feature set, "the general intent with regard to values and goals underlying a given set of structural features" (p. 126). This conceptualization of *spirit* and the subsequent clarifications provided by DeSanctis and Poole (1994) show that assessing and measuring this spirit is truly difficult, as the *spirit* is not solely defined by the designer's intentions or by users' perceptions or interpretations of the technology.

Appropriation of the technology is defined as "the immediate, visible actions that evidence deeper structuration processes" (Desanctis & Poole, 1994, p. 128). "The appropriation concept includes the intended purposes, or meaning, that groups assign to technology as they use it" (p. 130). However, when defining appropriation, Chin, Gopal, and Salisbury (1997) warned us that sometimes the actions are less visible and that there are, in fact, two dimensions that define the *spirit*: a subjective dimension and an objective dimension. The objective dimension is related to explicit signs that represent the "correct" approach to how a technology should be used. The objective spirit is presented to users in manuals and training materials. This concept represents an "externally imposed conception of the spirit" (Chin, Gopal, & Salisbury, 1997, p. 345). The subjective dimension represents the construction of the *spirit* in the mind of an individual. Based on explicitly and implicitly available information regarding the technological artifact, the individual forms an internal and subjective interpretation of the *spirit* of the artifact.

Chin, Gopal, and Salisbury (1997) operationalized the measurement of the *faithfulness of appropriation* through a comparison of the internal *spirit,* as interpreted by the user, and the user's perceptions of

his/her own behavior. These authors identified this measurement as a *subjective* appropriation. They also identified the *objective* appropriation, which can be assessed by comparing the *spirit*, as presented to users by the designers and the organization, with an objective assessment of users' behavior in relation to the use of the technology.

The concept of *faithfulness* is somewhat related to the notion of *stabilization and closure*, as defined in the SCOT framework. If no differing interpretations exist among the group of developers and the group of users, then the groups have reached a consensus, and a stabilization process is in place. A consensus "paves the way" to faithful appropriation because users view the technology the same way that developers do. However, if these groups disagree on their interpretation of the *spirit* of the structure (and disagree on how the technology is interpreted), violating it and generating an ironic appropriation, then closure was not achieved, and the groups are still negotiating the meaning and role of the technology in their activities. AST defines the *level of consensus* as the extent to which individuals agree or disagree on how the AIT should be appropriated. Again, this notion is similar to the *closure* concept proposed by SCOT.

Individuals and groups, when exposed to a technology, will begin making judgments about it and deciding "whether to use or not use certain structures" (Desanctis & Poole, 1994, p. 129). In this negotiation process, participants may make a set of appropriation moves: "(a) directly use the structures; (b) relate the structures to other structures (such as structures in the task or environment); (c) constraint or interpret the structures as they are used; or (d) make judgments about the structures (such as to affirm or negate their usefulness)" (Desanctis & Poole, 1994, p. 129).

The result of this negotiation process determines the type of appropriation that is obtained. A *faithful appropriation* is "consistent with the spirit and structural feature design, whereas unfaithful appropriations are not. Unfaithful appropriations are not 'bad' or 'improper' but simply out of line with the spirit of the technology" (Desanctis & Poole, 1994, p. 130).

Another issue is that the developer's (or the organization's decision makers') intentions—the *spirit*—are often assumed to be the "right" intentions. Why are developers assumed to have better solutions than users for the appropriation of the artifact? The appropriation by users (the structuration process) may lead to a different artifact than what was initially planned by developers or by the organization's decision makers. In other words, the resulting appropriation may be not merely a parcel of the intended purpose for the technology's use but a combination of this use with any other unplanned use that occurs during appropriation. Our understanding here is close to that of Griffith (1999), who considered the possibility of some features being created by users without the interference of designers.

Research Design and Method

We applied the above presented concepts from SCOT and AST as the basis to investigate how users really deal with IT artifacts in an organizational context. This session describes how such concepts where operationalized in the field research.

Given the selected social constructivist theories and the interpretive perspective adopted to understand the relationship of users and the IT artifact in great detail, the case study methodology was selected for this study. This method specifies a systematic strategy to collect data, to analyze information, and to report results.

Unfortunately, the methodological design employed to execute a study using SCOT concepts has not been clearly detailed in previous works. The procedures originally presented by Bijker and used to perform the illustrative cases that he included in his book provide only two suggestions: (i) to identify actors by "rolling a snow ball" and (ii) to follow these actors to understand their interpretations of the studied phenomenon. Moreover, the interesting examples provided by Pinch and Bijker (1984) are exclusively related to historical data analysis. To our knowledge, application of their concepts to investigations in an organization's environment has never been attempted.

To analyze the effects of AIT, DeSanctis and Poole (1994) proposed a comparison among groups that are using and groups that are not using a specific artifact or at least among individuals and groups experiencing different levels of artifact use or appropriation. Of course, in a mandatory situation, such as that of the case that was chosen for the current study, the analysis is restricted to a comparison among groups with different levels of use. We believe that this strategy of comparing the behaviour of different groups is similar to SCOT's proposal of investigating the different interpretations of an artifact.

The unit of analysis here is the relationship between users and the IT artifact. The findings will be applied to this unit of analysis, and other studies can than reproduce the analysis in different settings in which this type of relationship occurs.

The case study was conducted in a Brazilian university (the organization) that is using an *academic web portal* (the IT artifact) to help lecturers (the system users) with their teaching activities. Systems such as that are often called *Course Management Systems* (CMS) or *Learning Management Systems* (LMS). The research was conducted with lecturers in the business school.

This specific case was chosen because the academic web portal has been used in this organization for several years, now, as a mandatory system, and because the relationships between users and the artifact have undergone several different stages over time. We understand that the academic setting represents an organization as good as any other, if not better, for the intended research. The flexibility and freedom inherent to an educator's role and the activities s/he performs in the university actually provide for a richer environment for an investigation of the use of a complex mandatory IT artifact than other more rigid settings.

The participants were selected using the "snow ball" technique, when interviewees suggest other participants to be interviewed. This selection method could drive to a bias related to similar profiles indicated by respondents, but the researcher avoided this situation by asking for the indication of new respondents who agreed and also who disagreed with the interviewee's opinions and perspectives. And it was clear to the researchers that respondents followed the suggestion, as many indicated colleages to take part in the research that they thought to use the portal in very distinctive ways to themselves. The interviewees were 14 lecturers who were interviewed independently. There were 12 males and 2 females. While women represent 35% in the department, the indications resulted in a lower level of participation in this sample. Participants have 13.2 years of average experience in teaching, and their average time at this particular institution was 8.4 years (ranging from 4 to 25 years). The interviews lasted 27 minutes on average (the shortest lasted 14 minutes and the longest, 58 minutes). The process stopped when data saturation was achieved and no new relevant data was obtained from new interviewees.

The interviews, which were conducted in the respondents' native language (Portuguese), followed a script including the main concepts of the theoretical perspective that were addressed in open general questions. They were recorded, and full transcriptions were prepared. The transcription of the interviews, the manuals detailing how to use the portal, and the promotional materials used by the developer were coded using NVivo 10 software for qualitative analysis.

The transcriptions were read several times to gain more familiarity with the text and to interpret different possible meanings of the interviewees' speech. Subsequently, the selected excerpts that were directly used in the analysis and that illustrated the authors' arguments were translated to English for presentation in this paper.

For the identification of structural features (rules, resources, capabilities, relative restrictiveness, level of sophistication, and degree of comprehensiveness) and the resulting "technology spirit", data were originally coded by using the categories suggested by DeSanctis and Poole (1994). This preconfigured coding, based on NVivo's capabilities of creating nodes and conducting searches for elements related to predefined categories, was complemented by emergent codes that resulted from the careful reading and analysis of the transcriptions and other documents, following the advice of Cresswell (2007).

Analysis and Results

After being presented with the artifact and having received formal training, a user begins to explore the artifact's capabilities and possibilities. This exploration considers individual characteristics as well as social influences from colleagues and the organization. Some users would like to have additional time to explore more features. In our research case, a lecturer complained: "if I had the chance to deeply explore all the portal's features, maybe I could use it better" (P4).

The meaning that users attribute to the artifact is an important influencing factor defining use. Although use is mandatory in the studied case, users vary in their levels of artifact use. The participants' instrumental use of the artifact is connected to their particular interpretations (Desanctis & Poole, 1994).

Some users regard the academic portal as a storage platform to maintain all their work registered. P1 stated: "It is a way to have all my work saved".

Another common meaning assigned to the portal is that of a communication platform, a space in which to share content with students: "I use it [the portal] to perform its main task: to share content with students" (P4); "basically, it is a communication tool" (P11).

Another view is that of the artifact as a support tool in teaching and learning processes, as a complement or expansion of lectures and virtual classrooms: "I use these tools to improve my lectures. This makes the process and activity more effective" (P2).

Signs of confusion, as defined by the AST framework, can be found during the use of the artifact in the implementation phase because of users' different interpretations of the organization's intentions. Because the organization did not clearly communicate its intentions in this case and because interest in the process of systematization was perceived, the lecturers developed some concerns regarding content distribution rights. The lecturers were afraid of having their content sold with the portal to other universities, without receiving any credit or payment for it. These individuals were also afraid of publishing the content of their lectures and losing the rights to such content.

The lack of communication by the developer (university) generated doubts regarding the real objective of the portal. A perception of the intent to control the lecturers' activities was inflated by the lack of straightforward communication with respect to the issue. According to DeSanctis and Poole (1994), confusion is a characteristic of the instrumental use of an AIT.

Power issues are clearly involved in the transformations that followed the first use of the artifact and its application to educational processes. The portal provided lecturers with a greater level of information and control over students' activities than traditional tools had done. Every visit and interaction of students with the portal is registered, and statistics can be obtained. The portal provides more power to lecturers, who can use this information to evaluate students' performance. The system also provides a way for lecturers to demonstrate their work and to show how much they care about the process, as an interviewee explained: "This shows how much I care for my work, how organized I am in preparing the material for my students" (P1). Moreover, the portal offers students a way to check the content that the lecturer should be discussing with them in the classroom, as published in the syllabus: "The portal is a good way of auditing the content that is being discussed in class. This [auditing] task was outsourced to students" (P12).

Changes to the artifact

The organizational workflow forces lecturers to at least use the portal features to record grades and absences. Use of these features alone can be considered the minimum level of use because such tasks are not possible without use of the tool. These features are well accepted and used by all lecturers without much complaint. Even the most critical interviewee confirmed that these features represent an evolution from the old types of controls in paper forms. However, lecturers complained a great deal about the system stability and the difficulty in registering attendance during lectures. When the system is not available because of network problems, they must use other strategies to register attendance.

Considering the number of features available, the other extreme of the scale of use, representing the full use of all features, is difficult to achieve by a regular user. Most users are in the range from minimum acceptable use (to please the administration) to regular use of the main features related to teaching and learning processes (syllabus, lecture planning, assignment publishing, assignment submission, questionnaires, bulletin board, and forum).

Some users apply the artifact features as they were expected by designers ("as is"). DeSanctis and Poole (1994) identified such use as "direct use" in their classification of appropriation moves. Such users may use some of the features (partial use) or may attempt to use all features available to them (full use). As the organization has invested time and money to implement the artifact, extensive use of these features is desired by the organization. The results obtained concerning full use adequately justify the original decisions regarding the implementation of the system. DeSanctis and Poole (1994) included the behavior of "direct use" as part of the appropriation moves related to faithful appropriation. We can attribute "direct use" to designers who successfully understood users' needs and implemented them in the artifact.

However, we can also consider this use to be part of users' attitudes to conform to what is expected from them. In the university's mandatory situation, we heard statements from users confirming that they use the tool as part of their job assignments. An interviewee who was already at the institution when the implementation began remarked the following:

> Since the organization adopted the portal and has recommended its use, I try to use it. I chose to concentrate everything in the portal. My communication with students is made through the portal. Content is available through the portal. All activities are available in the portal. I am trying to increase my use of the portal to match the institution's expectations (P12).

Although we are discussing a compulsory artifact, it should be emphasized that users do not feel completely obliged to engage in full use. As stated by P12 above, he "chose" to concentrate his materials in the portal—he did not feel that he "needed" to engage in this use. This perception of a compulsory system that the user may use according to his/her own interpretation was present in most of the interviews.

Inspired by Griffith (1999), we decided to graphically represent the types of adaptations that we found in our field work in a diagram (see Figure 1). The situations represented in the diagram compare the artifact adopted by the university, including all the available features presented to the users, and the technology being effectively used by the lecturers in their daily activities. We attempt to show how appropriation moves change in the way technology is used.

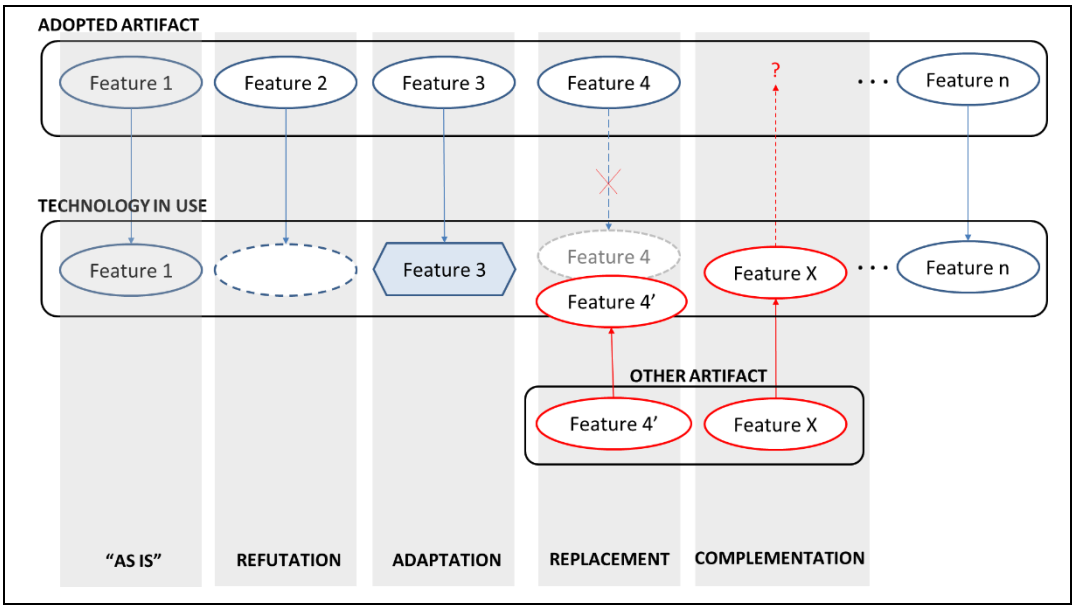

Figure 1. A typology of adaptations found in this research

In the first situation, a user is using all the available features in his/her activities. This full use of such a complex artifact would represent a completely faithful appropriation of the adopted artifact because the user is not challenging any of the features that were included by the developers.

In addition to the use of features as they were conceived and implemented by the designers, we found some movements in the adaptation, replacement, and complementation of features. Pinch and Bijker (1984) identified possible directions for technology development and innovation; however, when users in the current study applied different solutions to those identified problems, some users identified their own directions for the IT artifact's use. Individuals and groups evaluate the adopted artifact and apply strategies to transform it into a technology that better fits their needs and/or interests.

We found clear examples of structures being blended with or related to other structures by means of the appropriation moves performed by many users, as foreseen in AST models (Desanctis & Poole, 1994). Some of the lecturers participating in the research discussed the artifact and expressed the structures that

they formed while using it. These lecturers explained how they *replaced* ("I do not use the university's e-mail service; I prefer to use my own" (P5)), *combined* ("the communication tool is weak, but I connect it with Facebook" (P1)), *expanded* ("today, I go to the classroom carrying nothing or just a flash drive as a backup" (P10)), and *contrasted* ("I compare the portal to the physical bulletin board that we have in every classroom" (P3)) the artifact's features.

Analyzing the explanations regarding the use of the artifact's features, we classified the transformations applied to the artifact by the users of the university portal into four main categories: (1) refusal to use an available feature, (2) the adaptation of an available feature, (3) the replacement of an available feature, and (4) complementation with unavailable features.

Changes in tasks

The appropriation moves and these possible information system adaptations occur over time as the structure is interpreted and reinterpreted by the users (see the concept of "constraint" in AST). This evolving process of transformation was evident in the interviews, but in expanding what DeSanctis and Poole were seeking in the artifact's transformation during appropriation, we also found changes in the users' behavior and in the tasks that were performed with the support of the artifact.

For a new user (a new lecturer), the portal represents a great change in his/her work process. S/he has to spend substantial time preparing and submitting his/her semester plan to meet the tool's requirements. The lecturer must proceed through many windows, fill in many compulsory fields, and upload files for each lecture. These additional tasks negatively affect any lecturer using the tool for the first time. Eventually, the portal facilitates the standardization of courses taught for a second time, although some lecturers also identify this standardization as being responsible for a loss in the quality of the teaching process.

When users adapt, complement, or replace the given artifact's features, they can also change the planned task. The organization's intentions in implementing the artifact were linked to tasks supported by the adopted artifact and intended to produce the desired outcomes. However, users change the tasks based on the "new" artifact's available features and produce expected or even unexpected outcomes.

For example, it was interesting to notice the strategies that different lecturers apply when the artifact is not accessible to perform attendance registration. Some lecturers simply do not register attendance when they are confronted with portal problems and consider all students to be present. Others ask students to sign a list indicating their presence. Other lecturers use a spreadsheet with a list of students and perform an offline attendance check. When the portal becomes available again, these lecturers transfer the attendance records to the system. These complements to the portal cannot be exactly compared with the complements theorized by AST concerning appropriation moves (Desanctis & Poole, 1994), but they help us to understand how the portal could be replaced in the case of rejection or unfaithful appropriation.

Conclusion

The purpose of this study was to investigate how users engage with IT artifacts that are adopted to accomplish organizational goals while being aware that "the organizational goals" may not necessarily be the users' own goals. Firms select or develop IT artifacts that are designed to improve business processes. Managers and employees distributed among the various business processes must engage with IT artifacts by adjusting them to their tasks, goals, abilities, and interests.

In the past, an organization would provide a simple and closed tool (or machine) to help employees in their daily activities. The only way to analyze the effects of such actions was to measure use and productivity. Today, users are more accustomed to technology (in terms of the knowledge required to engage with it), but the technology is more complex and occupies a greater share of all organizational business processes.

One initial question that we intended to answer with our study was, "do users actually use the IT artifact as intended by their organization?" Based on our analysis of this case, we can affirm that users do not always use IT artifacts as expected by designers. In fact, users aim to maximize their own personal results

while attempting to minimize their effort to comply with organizational requirements. Thus, even in a mandatory situation, users tend to make as little effort as possible to comply with monitored and controlled expectations and to simultaneously seek the maximum advantage of using what "fits them" better in accomplishing their duties.

Far from simply using the artifact as it was adopted by the organization ("as is"), users often adapt the available features of the artifact to better fit their own interests. Users also replace features by using other artifacts available to them, and they adopt complementary artifacts to accomplish their (organizational or individual) objectives. Users implement such adaptations not only to the technology itself (the artifact) but also to the various tasks, processes and behaviors so that they better adjust to their interests. Future studies could try to identify antecedents to these observed behaviors while dealing with mandatory artifacts.

The traditional acceptance analysis would have provided us with different results for each phase in the story of technology use in the organization that was studied in this work. In their narratives, users described many changes that they performed during the implementation process and expressed different perceptions and behaviors regarding the use of the artifact.

We began with the purpose of identifying what actually occurs in the relationship between users and artifacts. What occurs beyond—or after—acceptance? However, the case that we analyzed allowed us to investigate what actually occurs when users are using the artifact. We found that the phenomenon is more complex than one could explain by using a single word such as "acceptance" or "appropriation".

If interactions and interpretations continue to occur, discussions of "acceptance" and "appropriation" seem somewhat provisional. To understand how users actually use artifacts, we need to understand the personal systems that they build around them. Our study shows that analyzing the evolution of the use of an artifact is more important than studying its original acceptance. We believe that this finding has the potential to revolutionize the study of acceptance and appropriation.

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