

Finding a place and a space for online learning environments in an institutional setting: issues of objectification

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Abstract— *Online learning environments (OLE) are being increasingly used at all levels of the educational system. Although they are marketed as tools to enhance student learning and improve the efficiency of administrative and academic work, their implementation often meets a considerable amount of resistance. This paper examines the phenomenon of OLE implementation and use from a “domestication of technology” perspective. The original “domestication model” focuses on consumption of domestic technologies, and presents the adoption of technologies as a multi-faceted negotiated process. This paper suggests that it may also be used to shed light on issues of adoption of OLEs, which are used both in the domestic sphere and in an institutional setting. This article suggests that the way OLEs are given a place and a space within an institution of higher education, how compatible they are with other existing systems and how they are customized to fit the needs of their users, may influence their reception both at the individual and at the institutional level.*

Index Terms— *appropriation, domestication, e-learning, higher education, implementation.*

1. INTRODUCTION: DOMESTICATION IN NEW SETTINGS

THE term ‘domestication’ has gained some popularity over the last couple of decades in a number of areas in the social sciences, in particular in works concerned with how information and communication technologies affect the lives of individuals or groups of individuals.

The model of domestication of technology was originally developed in order to shed light onto the processes of consumption of home technologies. It is mainly concerned with the integration of new technologies into the domestic sphere and the ‘moral economy’ of the household [1]. The core idea is that objects and products go through a process of domestication that renders them fit to use in the eyes of their owners or

users, and that this process consists of a number of dimensions or moments, such as commodification, appropriation and conversion [2].

It is perhaps not surprising that domestication studies have mostly been concerned with the domestic sphere and, to some extent, with the personal sphere - with areas of focus ranging from the telephone [3] to the television [4,5], the mobile phone [6,7,8,9], the car [10,11] and the home computer [12,13]. All in all, the concept of domestication has been used rather little to describe technology use in an organizational setting. And yet, the ideas of ‘taming the wild’ and feeling comfortable, ‘at home’, with a new tool are very relevant to the study of technology in organizations and institutions. In particular, the relationship between organizations, their members and stakeholders and the technologies that they use to fulfill their individual and organizational goals may be conceptualized as a process of domestication.

2. OVERVIEW OF THE STUDY

This paper is based on a study of the use of online learning environments (OLE) at Oslo University College (OUC), a Norwegian institution of higher education. This exploratory phase consisted of examining how two OLEs - called Agape and Satori for confidentiality purposes - came to be used, thought of, understood and negotiated both at an individual and at an institutional level. Agape was adopted in 1999 and was replaced by Satori in 2004². Like other OLEs, Agape and Satori provide access to a personal archive for the storage and organization of files and to a password-protected environment common to a group of users (for example the students and teachers of a particular class). Within this environment, a number of online functions are available to support teaching and learning. Those include tools allowing for the online creation and publication of files and various levels of access to those files, communication tools such as chat, message

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² For a comprehensive study of the implementation of the Agape system, see [14]. For a detailed overview of the implementation of the Satori system, see [15].

boards and collaborative writing functions, as well as tools for registering marks and for tracking learner activity and progress.

An interpretive methodological approach and a range of qualitative methods were chosen for this study as they seemed most appropriate to an inquiry where the principal subjects of investigation are human action and human behavior, and where the emphasis is on the social context of a particular type of technology (as suggested in, e.g. [16,17,18,19]). It may also be noted that such interpretive approaches have been successfully used in earlier studies of e-learning systems in higher education such as [20,21]. The exploratory study on which this paper is based was carried out during the period January 2003 - February 2005 using a variety of qualitative methods. I conducted twenty in-depth interviews with users and potential users of OLEs, and gathered data from informal conversations with a large number of staff members. I also analyzed text-based information in the form of e.g. e-mails, exchanges on discussion boards, reports and meeting minutes.

One of the aims of the study is to start reflecting upon the possibility of extending the use of the concept of domestication to situations that go beyond the domestic and personal sphere. In particular, it uses the term 'domestication' as an encapsulation of the processes that come into play when a foreign element (such as an OLE) enters a human system such as an institution of higher education. The domestication of an OLE would then be a gradual process whereby a new computer system and all the changes that it entails slowly become naturalized and established within the organization.

This paper aims to build upon some of the key themes of the domestication approach to explore the use of OLEs in higher education. It does not attempt to study the process of domestication in its entirety, but to focus on one particular set of elements in this process, namely the various aspects of objectification. In the original model of domestication [1,2], the term 'objectification' refers to the process of an object acquiring a place and a space within the domestic landscape. Although OLEs cannot be seen as being 'objectified' in the same way as domestic technologies, they still need to be given a place and a space, both physically and symbolically, within the organization they enter. The implementation of an OLE into an organization involves necessarily its integration into the physical landscape of this organization. In addition, it may be more or less accepted by users depending on whether it is compatible with

other systems and with the world-view of the users, and on whether it can be modified to fit their needs. The rest of this paper explores those issues in more details and concludes with a discussion of the limitations of the study and of possible directions for future research.

3. A CLOSER LOOK AT THE DIMENSION OF OBJECTIFICATION

3.1. *Physical objectification: the embeddedness of OLEs into the physical world*

Although an OLE is not a tangible entity as such, its use relies on a number of physical objects and the way those objects are built and handled may affect the workings of the OLE. An example of such objects is the server that supports the installation. One of the main vulnerabilities of the Agape system was that the installation on the server often ceased to function due to upgrades to the operating system. Because only one member of the technical team had been assigned to working with that server and because he did not always have the time or the competence required for rectifying the problems, the Agape system ended up being unavailable to the users for relatively long periods of times (up to several consecutive weeks).

Such breakdowns and the crises that followed remained engraved into the collective memory at OUC and became a major argument for discarding the Agape system and replacing it with a system that would be run outside the College, presumably by a team of professionals. Server problems were definitely less severe with Satori but they did not completely disappear. In particular, the fact that several institutions were 'catered for' by the same server caused problems in terms of speed of access to online documents and functions. Such problems only came to an end after the installation had been moved to another server.

Another object that seems to have significant consequences on the workings of an OLE is the personal computer used to access the program. Personal computers around the College vary in terms of brand, age, capacity and, most of all, configuration. In particular, different versions and different updates of the Internet Explorer browser caused some confusion among Satori users, as explained by the Head Coordinator at OUC:

"[...] Satori as any web-based/server-based application relies upon the browser, the program to view and interact with the application that resides on the server. As different browsers on different systems with different upgrades, updates and bug-fixes are indeed different, how Satori appears (what you see) and how it acts (what it can/cannot do and how it is done) differs.

The user experience may vary from home to school to work. For some, this is useful. Personally, I use different browsers for different tasks. Many, however, find this frustrating. That, at least, is my assumption from interviews, small-talk, hear-say as well as support-related e-mails.” [Excerpt from an e-mail correspondence]

In addition, OLEs are typically used both in institutional environments and within the domestic sphere, where, as suggested in [13], computers are all but personal: they are shared objects that are used for a wide variety of purposes by family members who do not always keep each other informed about what their computer has been used for and what modifications have been done to it. As one of the respondents put it:

“I have teenage children, and you can’t really expect teenagers to tell you exactly what they’ve been doing with the machine when you’re away, can you? Like my son... he’s playing computer games and stuff and he’s always installing things on the machine. I end up having to deal with viruses and stuff that completely mess up my Agape settings, but what can you do?” [Excerpt from an interview]

This shared ownership of the physical platform that supports the OLE participates to making computer-supported work both perplexing and unpredictable to the user, and can thereby make the domestication of the OLE difficult.

3.2. *Compatibility*

The original model of domestication [1,2] emphasises the need for objects to ‘fit in’ the existing domestic landscape in order to become integrated into it. Domestic technologies, for example, become part of a domestic media ensemble [22,23,24] where the various objects match and complement each other. If their appearance or their function breaks the esthetical and functional harmony of the space they enter, chances are that their presence in that space will feel disruptive and that they will be relegated to a place that feels more adequate, hidden away or even disposed of.

Issues of compatibility also seem to play a role in the domestication of OLEs in educational institutions. Here, it is less a question of esthetical harmony than a matter of practical congruence. In particular, the introduction of an OLE into an educational institution can be more or less disruptive depending on how smoothly the new system can be incorporated into the technical, organizational and human fabric of the organization.

a. *Technical and organizational compatibility*

The case studies provide an illustration of the

need for an OLE to fit into the rest of the digital environment in order to be suitably integrated into an institution. In particular, data compatibility with other systems already in place within the institution appeared to be a major concern both with Agape and with Satori. At the College, all information regarding students and staff members (ranging from usernames and passwords to courses attended and marks given to each course) is registered and updated in a nation-wide system called Common System. This raises a number of issues regarding the registration of user information into the OLEs.

The situation was particularly problematic in the case of the Agape system due to both technical and organizational issues. Because Agape and Common System had been developed independently of each other, they had a different structure and operated with different data formats, which meant that the transfer of data from one system to another required some additional programming. Although experienced programmers at the College worked on designing a script for data transfer from Common System to Agape, some of the information remained untransferable. For example, Agape was built on a model where users could not have any other username than their email address, while Common System used simple individual identifiers based on the user’s name or student-number. In addition, there did not seem to be an easy way to automate the transfer for passwords from Common Systems to Agape, and administrators ended up typing passwords manually on the Agape user registration screen. Another set of problems arose because the registration of student information into Common System was the responsibility of the Study Administration Office whereas registration into Agape was done either at the Department of Learning Resources or by the teachers themselves. As a result, update in one system did not necessarily result in update in the other system, which generated a considerable amount of confusion as to who was registered for which course.

Those transfer problems were one of the reasons many users urged the College to change systems, and one of the arguments in favour of Satori was that it had apparently been successfully ‘integrated’ with Common System at another Norwegian institution. Indeed, the transfer of data between Common System and Satori turned out to be a lot smoother than it was with Agape, although it was not completely unproblematic, as observed by one of the respondents:

“[...] the lax - or plain scandalous - security of Satori has been a problem. Several entries had to

be removed from the data imported to Satori as the function for hiding the information did not ...function.” [Excerpt from e-mail correspondence with an anonymous respondent]

OUC uses a number of other systems such as web-publishing systems, library systems, accounting systems, etc., and those could hypothetically be linked with an OLE. However, this has not happened in practice due to incompatibilities in terms of security.

“Satori has features aimed at project management with cost-calculation - or even cost control - but it is unlikely this will be allowed to provide input data for [our accounting system] as security and control with this is far stricter than anything we can expect from Satori.” [Excerpt from an e-mail correspondence with the Head Coordinator at OUC].

b. Compatibility with the Weltanschauung³ of the users

Another issue that may be raised is that of the compatibility of the OLE with the users' Weltanschauung, i.e. their apprehension, comprehension and appreciation of reality, which is shaped by a multitude of past experiences. One example of such relevant experiences is the user's familiarity with similar systems, which appears to play a major role in the acceptance of an OLE at the individual and organizational level. Indeed, throughout the process of evaluation of the various possible systems that were to replace Agape at OUC, a number of staff members around the College viewed the Satori system as unsuitable because it was “too different” from Agape. One of the respondents noticed that:

“There is no such thing as ‘the best system’. Any system is the best system after a while once you've got used to it. No matter how badly designed or counterintuitive it is - it's the best system because it's the system you know.” [Excerpt from an informal conversation]

Similarly, the users' understanding of an OLE may also be shaped by their knowledge of other computer applications they use or have used, such as word-processors, spreadsheets, database packages, etc. As the Head Coordinator at OUC noted, the Satori system presents a number of idiosyncrasies that may

³ The concept of *Weltanschauung* is one of the pillars of Soft System Methodology, developed by Peter Checkland [25,26,27] refers to a particular view of the world held by an individual or by a group. This worldview involves not only an overview of the situation, but also an interpretation of the roles played by the various actors involved, and a perspective of what modes of action are appropriate to this situation. Checkland held on the German word, which does not have any literal translation in English as it is based on the combination of two concepts: “anschauen” refers to a way of perceiving, of experiencing and “Welt” designates the world, reality.

confuse some of the users.

“Satori resembles many other common applications. But it is also different. As a web-based application, it is less menu-based than most software but relies more on buttons. One consequence is the multi-view. One set of buttons relates to courses (rooms) and another set of buttons are personal - personal e-mail, calendar, archive etc. This multi-view - or switching between different views that are not related - seems to be alien to many users.” [Excerpt from e-mail correspondence]

In addition, users may relate more easily to a system if its structure and the metaphors it uses fit with their Weltanschauung, their own intuitive understanding of their work and organization. An outcry from one employee while she was taking the Satori introductory course to illustrates how systems may clash with the Weltanschauung of the users:

“You [the teacher] are asking us to use a system that's miles away from what we actually are doing [at the College]. This system here is hierarchical while we are [our organization is] matrix-based. We can't just take our reality and twist it in order to cram it into your structure here.”

The existence of a gap between the needs of the users and the solution offered by a system or software was early recognised in the information systems literature [28,29]. It is often suggested that such problems might be solved through a higher level of user involvement [30,31,32,33]. However this case study illustrates the challenges that arise when an organization chooses to implement a standard product. As one of the respondents commented:

“We've told Agape many times about functions that were obviously missing and bugs that were making existing functions practically unavailable. We always got the same answer: ‘your suggestion is registered, but it isn't on our priority list’. That's because they have so many different customers, you see. They can't satisfy them all.” [Excerpt from an informal conversation]

3.3. Customization

The problems raised by the use of standard products in a particular organizational setting bring up issues of adaptation and customization. The concept of customization is not formally identified as one of the ‘dimensions’ of domestication in the early models of domestication [1,2]. This may be due to the fact that those original models mostly dealt with the study of objects that were not easily modifiable, such as the television set, the radio or the traditional telephone. And yet, it is almost

inevitable that any object will be used, at least by some, for a purpose that was unintended by its designers, and this novel usage will in some cases require some degree of modification of the original product. Hence, it can be argued that the alteration of a product by users so as to make it fit more closely to their needs participates to the process of appropriation, and, more particularly to that of objectification.

Miller [34], in a study of the way tenants on a London Council Estate appropriate the kitchen facilities, provides an illustration of this phenomenon. Some occupants kept all the original features of the kitchen unchanged throughout the tenancy period, mostly in order to make it clear to themselves and others that this apartment was only a temporary solution and that they did not identify with the lifestyle of 'traditional' council estate residents. Other residents made various types of changes to the original kitchen ranging from minor alterations to total redesign of the space, thereby removing what they felt as alien and adding objects and features that made the environment feel more homely.

In the case of OLEs at OUC, a number of attempts have been made to customize the standard products at various levels of the organization. Such bespoke work was meant to best fit the specific needs of the College, but, at least in the case of the Agape system, it ended up creating more problems than it had solved in the long run. The main problem with the tailored features of Agape was that they had been developed by a consulting company independently of the Agape producer itself, and that they disappeared with the next upgrade of the system, which led to much confusion amongst users who had grown used to the customized functions.

Another interesting point with the Agape system is that one of the most usual customization jobs, the making of an OUC "skin" (or customized background layout), had never been done. This could be explained by the fact that the creation of such a skin would have incurred a cost that OUC was not prepared to pay, particularly after the word had started going round that Agape was soon to be replaced by a new system. It could also be argued that there was a certain amount of reluctance from OUC's side to become too closely associated with a system that was largely unpopular among several user groups. In that sense, OUC might have wanted to dissociate itself from the Agape system, in the same way as the council estate tenants were dissociating themselves from a council estate lifestyle in Miller's study [34].

The Satori system has also undergone a number of modifications in order to accommodate particular user needs. However, none of the modifications have required additional programming, which makes them less vulnerable to upgrades from the producer. It can be noted that the customization of Satori happens both at an institutional level, at a Faculty level, at a group level and at an individual level.

At the institutional level, the customization has mainly consisted of the physical installation of plug-ins (Java Runtime Environment and ActiveX) on OUC computers to enhance compatibility with some Satori features and of the writing of additional applications for the import of data from other software to Satori. In addition, a "skin" was created by the Head Coordinator with the standard OUC colours and logos and was made an integrate part of the Satori installation at OUC. Customization has also happened at the faculty level, leaving a certain margin of manoeuvre for groups and individuals, but with one significant limitation: individual changes are allowed, but they will be lost whenever the Faculty default setup will be renewed.

It is also interesting to see that many users have used much energy to give a 'personal touch' to the standard OLE products. For example, one of the popular features of Agape was the 'business card' function whereby users could make available online a picture of themselves as well as a few paragraphs about themselves. This was not unproblematic, as teachers felt they had to check for offensive content and intervene when they came across 'self-descriptions' they judged to be of objectionable character.

The Satori system does not have any feature allowing for users to publish a 'self-description'. It did, however, allow users to change their 'official' picture to a picture of their choice. This was an opportunity for Satori users - in particular among the student body - to put up a picture that they believed to be more aesthetically pleasing or that they felt would be more suitable for the purpose of online publishing. For example, a female student that might have been from a culture where women do not normally uncover their face in a 'public' space, chose to switch her official picture with a picture of herself wearing a head cover, and positioned in a way that made her literally unrecognizable. Others found an opportunity to show humour, switching for example to pictures of cartoon characters (sometimes as a coordinated effort - a group of students chose pictures of characters from the 'bar gang' from the television series *The Simpsons*). The picture-editing function, however,

was removed shortly after the implementation team discovered that a student had replaced his official picture by a picture of a 'smoking Jesus', as the Head OLE Coordinator at OUC explains:

"When you start mixing smoking and the Church, you are dangerously close to even more scary mixes like for example alcohol and the Church, and this, in a country like Norway, is really a no-no, at least for some people. That's why we removed the possibility for users to change their online pictures on Satori." [Excerpt from an informal conversation]

The examples above show that the customization of OLEs may facilitate their process of integration in an institutional environment. However, an excessive amount of flexibility may become a challenge for the organization, first because a lack of standardization may cause some information to be lost, and second because there may be a need to check the suitability of the content published by users.

4. CONCLUSIONS AND FUTURE RESEARCH

This article has concentrated on one particular set of issues, namely those aspects of domestication that relate to objectification - to the idea of an OLE finding a place and a space in an institution of higher education both at a physical level and at an organizational level. It has suggested that a number of elements might play a role in the integration of an OLE in an institutional setting: the embeddedness of the system in the physical landscape of an institution, its compatibility with existing systems and with the users' own understanding of their organization and work duties, and the extent to which it may be customized so as to provide the closest possible 'fit' to the needs of the users. In the case study, all those elements appeared as playing a significant part in the process of acceptance of OLE systems by their users.

It needs to be kept in mind that objectification constitutes only a small part of the process of domestication. More work is required to understand the relation between the processes described here and the other dimensions of domestication, such as for example the mental construction of OLEs by users, their incorporation into individual and organizational routines, and the 'conversion' of potential users by existing users.

Another limitation of this study is that it is based on a personal and, therefore, necessarily situated account of an organization-wide process. As a result, the descriptions provided in this paper can only reflect the interpretations of one individual, who cannot pretend to be the

spokesperson of the whole organization. The next phase of this project will involve a team of several researchers from different departments of the College, who will examine the use of a variety of features within the Satori system among various user groups. This will hopefully bring in more 'voices', and might help provide 'richer' descriptions of the phenomena under investigation.

A last limitation might be that the findings of this study are somewhat system-specific. It would be interesting to explore the relevance of the concepts of objectification and domestication to other areas of information systems. Applying those concepts to other case studies involving other types of systems, other types of organizations and other types of users might provide a more solid basis for the generalization of the findings from this study.

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