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How the domestication process of a VLE came to closure

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Abstract

This text will present empirical experience from the implementation process of a virtual learning environment and suggest some analytical tools for further research. The implementation is analysed within the domestication theoretical framework. While domestication theory traditionally describe technology as double articulated, this study show how a virtual learning environment may be analysed as having three articulations. Finally, this paper will highlight how the process reached closure.

The analysis is based on observation, and both formal colloquies and informal conversations with faculty at Oslo and Akershus University College. Data was collected from 2004 until 2007 and again from 2011 to 2012.

Introduction

Information and communication technology enters education in the form of various software and systems. Among these are Virtual Learning Environments (VLE). The implementation of VLEs have been almost universal in European higher education. This study will analyse the domestication of a VLE, and how the domestication came to a closure.

Domestication theory (Silverstone & Haddon, 1996; Silverstone & Hirsch, 1992) will form the framework for this study, adapted to a higher education setting by Habib (2003). The principle is that "technologies are simultaneously social and physical artefacts" (Orlikowski & Barley, 2001, p. 149). In this respect, we shall develop the framework further, and propose that the VLE may, for analytical reasons, be represented as having three aspects, each with distinct qualities: item, collaborative praxis, and procedure. These three aspects will together cover the relevant social and physical characteristics of the VLE.

This study was conducted in two distinct stages. The initial work (in 2004–2007) was done to get an overview of the implementation of the VLE, as the author was the project manager responsible for the process. A second phase was initiated in 2011 when a course for lecturers in the educational use of technology was prepared. It then became apparent that the domestication process had not progressed in any significant manner since academic year 2005/2006. The process described herein had seemingly come to closure.

A domestication process is not usually described with a final end. Indeed, it has been stated that any closure of the process may be only temporary (Lie & Sørensen, 1996, p. 11). This study will show how the VLE was domesticated to become a stable 'commodity' at least for a period of five years, from late 2006 and through 2011.

In conclusion, it shall be highlighted how the process, the closure, and the expected re-domestication of the VLE is best described by dividing it into the three aforementioned aspects.

Methods

Observational data forms the basis of this study. Both the physical manifestation of the VLE, and educational practice among lecturers were readily available for observation in the initial implementation of the VLE in 2004–2006. In addition, the author has had both formal and informal conversations with a large number of lecturers about their use of the VLE from 2004 until the present.

Data was collected systematically through 2004–2006 and analysed within the appropriation/domestication-framework. These data were revisited and informed by recent interviews in connection to the development of courses for pedagogical use of ICT, spring 2012.

The VLE as an item, as will be explained below, has a physical, observable manifestation. Likewise, procedures were (and are) publicly available.

In addition, the introduction and use of the VLE at OUC has been analysed from other perspectives already, and these studies offered valuable information for this paper (Bjarnø & Sandtrø, 2005; Habib, 2003; Habib & Sønneland, 2010).

The VLE will be called 'Satori' throughout, to preserve anonymity.

A disclosure: As project manager for the implementation of the new VLE, this author had first-hand knowledge about the process, but also has an incentive to portray the process as a success, and ignore any mistake. The position was eliminated in 2007 when implementation was deemed complete.

An introduction to the appropriation/domestication framework

The domestication theoretical framework was initially developed to "describe the processes involved in 'domesticating ICTs' when bringing them into the home" (Haddon 2007, p. 26). It has later been expanded to cover ICT in the workplace, in colleges, and non-information technologies – like the car (Ibid.). Technology is within this framework analysed as a social object, relevant to the context, given meaning by the users/agents involved, and includes symbolic meanings of technologies, technical objects, and mastery of these (Dirksen, 2007).

Commodification

"Commodification refers to the industrial and commercial processes that create both material and symbolic artefacts and turn them into commodities for sale in the formal market economy" as well as "the ideological processes at work within these material and symbolic artefacts" (Silverstone & Haddon, 1996, p. 63). That includes "the 'construction' of the product by [...] consumers." (Habib 2003: 7) Commodification is a process where providers, decision makers, and different users make claims, negotiate and discuss what this new technology is, how it may be used, and roles and responsibilities.

Appropriation

VLEs may become part of our time and space, what is referred to as "private cultural spaces" (Silverstone & Haddon, 1996, p. 45). The technology is incorporated into our everyday lives, it is appropriated. Two aspects of this, are objectification and incorporation (Ibid., p. 64).

In the process of objectification, the "technology finds a place and a 'space' in the daily life of the user" (Habib, 2003, p. 7). This includes "space" on computers, in publications and in the organisation (Ibid., p. 11).

When technology is "given a function and being fitted into a pattern of use of domestic time" (Ibid., p. 7), it may be said to have been incorporated. For example, when a lecturer every morning logs on to check the calendar and for messages. Satori is thereby incorporated into the daily routine.

Included in the concept of appropriation is customisation/tailoring. Customisation includes how the system allows "course developers to preserve their individual teaching styles" (Ibid., p. 12) and how users may tailor the VLE to suit their needs. Further, how the system as well as "the format and the content of a course at the level of the individual teacher or student" (Ibid., p. 8) may be tailored. Customisation is not part of the original domestication framework. It may be less relevant for traditional media technologies. TV-sets have limited possibilities for customisation by the user compared to software systems like Satori. Customisation served well as a concept to observe and analyse the level of appropriation by the faculty at any given time during the first years after introduction.

Conversion

Conversion "involves the various things consumers do to signal to others their participation in consumption and innovation" (Silverstone & Haddon, 1996, p. 46). While one may argue that conspicuous consumption and symbolic display of new 'gadgets' is more relevant in the home, lecturers at OUC appeared to have an interest in displaying at least a general mastery of new educational technology.

Satori is introduced

Satori was chosen May 2004 to be used in full scale by August the same year. OUC had approximately 11,000 full time students and 1,100 staff at the time. The VLE used before then had had a limited reach and even more limited success. The institutional support for the previous VLE had been found lacking. An organisational structure was created to support the implementation and day-to-day use of Satori, with one project manager, and coordinators at each department (Bjarnø & Sandtrø, 2005).

Most of the responsibility for structuring and turning Satori into a 'domestic' system was with the project manager. Still, much of the work depended upon coordinators at each faculty. While only the project manager had full administrative rights (comparable to 'root-access') to the system, the coordinators had (and still have) extensive administrative rights within substructures of the VLE, and full rights to organise the virtual structure of 'rooms' for their courses. Regular lecturers usually have limited rights, or rights within their own virtual room(s) only.

Training sessions for the coordinators and for some users started shortly before most of the faculty left for summer vacation, June 2004. The records for students and staff were imported from existing databases into the

new system, allowing everyone to use Satori with their existing username and password. Only some students were given training – this was and is the responsibility of each department. Members of staff were given assistance upon request, to become familiar with the system.

VLE as item, collaborative praxis and procedure

As stated above, "[t]echnologies are simultaneously social and physical artefacts." (Orlikowski & Barley, 2001, p. 149) This connection between artefacts and society has been explored by Pinch and Bijker (1984) in the analytical framework of SCOT, and by Latour (1996), among others. They conclude that while technology may appear to be 'given', technological artefacts and how people perceive them are social constructs.

Silverstone and Haddon emphasise this duality of technology as both neutral artefact and socialised object; the "double articulation" (Silverstone & Haddon, 1996, p. 50) with reference to Giddens (1984) and Orlikowski (1992). Regarding media technology they note that "[t]he consumption of both technology and content defines the significance of these machines and services as objects of consumption. It is in this sense that we choose to think of them as doubly articulated." (Silverstone & Haddon, 1996, p. 62) The same double articulation may be used to analyse VLEs as well. Either as technology/social system following Orlikowski and Barley (2001), or structure (the VLE)/agency (students' and staff's response to and use of the VLE) following Giddens (1984). However, for this analysis, with the empirical data available here, a different division may be better suited. Satori may be analysed as having three 'articulations', three aspects: Item, Collaborative praxis and Procedure. These three categories allows us to comprehensively explore the material qualities, structural demands and changes as well as human agency involved in implementing a new VLE.

VLE as an item

Software is not a tangible object. Nonetheless, it is not invisible. It is represented by an icon on your computer desktop, you will observe the launch, and log-in in through your browser. The faculty may choose to use it or not, but not influence its existence. In these respects, it is 'technology' in the manner used by Silverstone and Haddon, and a physical artefact in Orlikowski's vocabulary.

The system is code, features, and structure. The codebase of the software is updated every so often, with security fixes, et cetera. The features or tools in the system may be switched on or off in any given installation (i.e. for any given customer), and the features available may therefore change at any time. Though it will of course be less complicated to switch on a new feature than to switch of a feature that is currently in use. The structure is, among other things, the layout, the hierarchy of administrative access, and organisation of virtual areas for collaboration or classes. This structure may in principle be altered on-the-fly without interrupting the activities or access to the virtual areas in the VLE. In real life, this was rarely attempted.

Users do change how, and how much, the VLE is used, as well as the appearance and features of the system – within limits predefined by the software provider. However, to alter the code of the software, or add or remove functionality, takes time as well as the co-operation of others at OUC and the developers (Bjarnø & Sandtrø, 2005). It is therefore only the structure of this particular installation that is truly customisable for the user, and then for the administrator only. As an item, the VLE can only be customised to a limited degree, and even then any alterations may be complicated and take time to implement.

VLE as a collaborative praxis

Users may publish documents in Satori and leave it at that, never establishing any collaboration. It is then used as an on-line publishing system only. Some faculty have from the introduction onwards used it mainly to distribute documents to students and to manage hand-ins from students.

If teachers use a VLE to fully interact with students, this soon becomes a form of collaboration. For example, teachers uploads notes from lectures, students asks questions, the teacher gives indications as to where and how they may find answers, and so on. Such interaction is one example of what we may call collaborative praxis. This praxis will be hard to reproduce without such software, unless circumstances allow for considerable face-to-face interaction between students and lecturers.

In short, the collaborative praxis is the educational use by teachers and students together, as opposed to teachers using the VLE as a publishing system, or the students using it as a system for handing in tasks only.

VLE as procedure

National, institutional and department rules, regulations, policies, and procedures structuring the use of the VLE may be grouped together as 'procedures'. Several procedures in existence from before the introduction of Satori became part of the greater VLE context. For example, information to students previously displayed on the website of OUC, on an electronic notice board solution, was for several departments moved to the VLE at the time of the introduction. Publishing information on Satori became an accepted way to inform students, who were – depending on department policy – obliged to seek information there regularly.

In some cases, collaborative praxis became formalised as part of the course planning, its design. Teacher/student action (agency) became part of departmental procedures. These activities then structure the future actions possible to users, and to a certain extent limits agency. This relation between agency and structure is comprehensively analysed by Giddens (1984). I will therefore conclude; processes (including praxes) may become procedures, or change existing ones, just like new procedures may interfere with existing processes, or discourage other processes from appearing. That does not imply that procedures dictate the actions of faculty and students. They may choose to act without regard for procedures, though this would not be without consequences. Normally, only a few members of staff can change a procedure; exams office, coordinators, and deans, to name a few.

In relation to agency mentioned above; at the time of introduction, coordinators had little direct influence on the VLE as an item. However, they shaped procedures and collaborative praxes. At least in those of the OUC departments where there was an explicit policy concerning the use of Satori. As will be expanded upon later, procedures concerning the VLE has become entrenched to the extent where no-one seems to have much influence upon them.

Domestication of Satori at OUC

Commodification of Satori

The company that provides the VLE Satori did their best to explain what Satori could do and its ease of use. Some faculty at OUC argued these 'sales representatives' downplayed all the things it could not do, leading to high expectations and later disappointments. While this might be true, experience led those of us who were directly involved with the company to believe the representatives had simply not foreseen the everyday educational thinking and practise in higher education, which in some respects was rather advanced. It seemed the imagined customer (Silverstone & Haddon, 1996, p. 51) – or what may be called the prescribed user (Latour, 1992) – was primary and secondary schools, not higher education with a different approach to education and learning. The project manager made an effort to 'sell' Satori to the faculty, to raise expectations and help lecturers conceptualise possibilities in educational use.

Academic and administrative staff imagined this new system based upon what they heard from Satori sales representatives, from the project manager and from approving or disapproving colleagues. Many also expected Satori to have possibilities they knew from ICT in general or from other Virtual Learning Environments, or had heard or read about. Many had previous experience with Satori from local secondary schools, either through professional contact or as parents of pupils who used it.

As August came and students arrived at OUC for another term, some expected the worst (pessimists), others imagined problems solved (optimists) and quite a few did not know what to expect (undecided).

Table 1: Faculty — what did they imagine?

	Pessimist	Undecided	Optimist
Technical concerns	Difficulties, like previous system	Would it be difficult to learn?	Less technical obstacles than previous system
Organisational concerns	Too little support and training	Would use of the system be forced upon them?	Good for giving information to students
Professional concerns	Another tool for 'efficiency'	Would there be new demands from colleagues or students?	System would enable new pedagogy, like peer-review

Appropriation of Satori

As explained above, objectification refers to the process of establishing a space in the daily life of the users. VLEs are meant to be integrated into the daily routine of both lecturers and students. The VLE as an information system for students has been mentioned as an institutional policy. For a large part, Satori became the place where lecturers published anything and everything for students to read.

Calendars, an e-mail client that access the college e-mail, as well as other services has allowed Satori to be an integral part of anyone's routine. This is enhanced through the first web-page to greet anyone who logs on, a 'Welcome'-page. At this web-page, a number of objects from virtual rooms may be presented. News, recent documents and discussions are the most popular items shown here. Staff and students early on started to customise their 'Welcome'-page. This was one of a few features that was – and is – possible to customise at an individual level. Though the default template was created at each department. At OUC, Satori was 'branded' with colours and logo.

Conversion of Satori

Faculty, administrative staff, and students may all use VLEs. With the previous VLE, administrative staff were ignored or they chose to ignore the system (Bjarnø & Sandtrø, 2005). It was primarily a system for lecturer–student interaction. Therefore, one may have expected teachers to use the new system from day one. It ought to be a welcome tool. Despite this, feedback from lecturers were mixed. Some reported intentions to put notes from lectures online rather than hand it out as paper-copies, and even make these notes available before lectures as well as leave them to be retrieved later by those who missed class. (This became an official procedure in 2011, when paper copies were to be reduced to an absolute minimum.) Distributing notes in this manner would save lecturers some time, and allow students to prepare before, or review after a lecture. Yet, ICT is not necessarily timesaving. It may be quicker to put an electronic document online than to print between thirty and a hundred copies. However, if we add up time spent learning to use a system, solving technical difficulties, help students who are computer illiterate and so on, little time may have been saved (Brown & Duguid, 2000). Use of the VLE appeared to rely on more than just efficiency.

Lecturers reported that students would expect their lecturers to frequently log in to the VLE and check for any new documents or questions in the forums (Jamissen, 2004). In this way, students pushed lecturers to use the VLE. Students have high expectations of technology use in their studies, at their institution (Conole, de Laat, Dillon, & Darby, 2006). In informal communication, faculty several times mentioned student expectations as a motivator or a 'push-factor'.

Discussion: Model as applied to OUC

Below is an adaptation of Figure 3 in Habib 2003 (p. 17).

Table 2: Appropriation, as it relates to three aspects of VLE as a technology.

	Appropriation		
	Objectification	Incorporation	Customisation/ Tailoring
Institutional	Responsibilities in organisation decided [Pd] Space dedicated VLE on OUC's web-site [It] PCs and systems adapted or configured to suit VLE [It]	Internal training [Pd] New procedures written, existing ones adapted [Pd] Competing software removed [It]	OUC requested changes and adaptations in VLE [It] Together with Oslo University, OUC appealed for better universal access [It]
Department	VLE embedded in organisation with coordinators [Pd] Decided to use/not use/leave use optional [Pd]	Faculties held additional training [CP] Decided upon centralisation or decentralisation of responsibility at department [Pd]	Some: Department altered standard layout of 'Welcome'-page after log-in [Pd] Recommendations for use of 'Room' and 'Tools' in some departments [Pd]
Group	Teachers attending or avoiding training. Arguments for or against us in subjects. [CP]	As teachers are expected to share virtual spaces, collaboration as well as boundaries are negotiated and created [Pd/CP]	Groups of teachers use VLE as Intranet. Others employ it for project collaboration [CP]
Individual	Users bookmark log-in page [It] Some personalise the 'Welcome'-page after log-in [It]	Some start using VLE in teaching as well as extracurricular activity [CP] Students get used to finding information here [Pd]	Several teachers customise 'rooms' to look more like the teachers' subject-related webpage [It]

The following abbreviations are used: [CP] for Collaborative Praxis; [It] for Item; and [Pd] for Procedure.

In 2004–2006, when the VLE was introduced, it went through a domestication process at different levels, as seen above. At some point, however, the appropriation process was completed, or came to a halt. When the author returned to OUC in 2011 (which had by then merged with another university college) and held courses in educational use of technology for faculty, the procedures and the collaborative praxes were mostly the same as they had been in 2006.

That Satori as an item was unchanged, could only partly explain this. The VLE allowed far more advanced use than was employed in the majority of courses, and there were sound educational arguments for increased use.

Policies/procedures were unchanged as well. The aforementioned hierarchy of administrative access, and organisation of virtual areas for collaboration or classes, was the same. Even though the project manager – i.e. this author – admitted that this structure was originally introduced based on inadequate information. A policy concerning the use of the VLE for examination purposes originally written in 2005, and resisted from the first day, appeared to still be upheld. As responsible of this provisional policy document, the author of this paper was nonplused. It became apparent that the policy had not been formally challenged, new administrative staff had accepted the policy without further concern, and those who wanted a digital exam found their own solutions. The VLE, then, had been rated as unsuited for a specific use in the initial introduction, and this had become part of the domestication of the VLE in this organisation: The VLE was not to be used for online exams.

More examples of the same tendencies became apparent. The use of Satori had hardly evolved. A recent study of the use and perception of the VLE at OUC highlights how Satori is still in many ways experienced as an alien or intimidating technology (Habib & Sønneland, 2010). Though it should be noted that different uses had spread and the VLE was taken for granted to a larger extent, compared to 2006. The use of technology to enhance existing practices rather than employ it in a broader strategy of change, with the lack of innovative use of technology as a consequence, is well documented elsewhere (Bates & Sangra, 2011).

Item, collaborative praxis and procedure, relations at OUC

With reference to table 2, the domestication process of the VLE can be analysed, seven years after it started. The VLE as an item was not changed by the college, or according to wishes from the college. The domestication process therefore to a certain degree had to accept the VLE as it was.

The procedures were created by different stakeholders, like the examination office, who wanted to domesticate the VLE to become part of the existing institutional procedures and policies. Some procedures, for example the departmental tailoring of the 'Welcome'-page to display relevant information to students after they logged on, were made based on little experience in the use of VLEs. Rather, it was based on experience with similar technologies.

As experience increased, one may have assumed that procedures were altered. In effect, a few procedures became irrelevant or neglected but there were no evidence of real change. The customisation/tailoring process could have gone further, as the procedures were not dictated by any external agency.

The collaborative praxis, the use in every day teaching did increase significantly. At least in degree if not in novel uses. Nevertheless, Satori has failed to become the favoured medium for new forms of collaboration. Rather, other technologies seem to be in the process of domestication. These may fulfil the roles the VLE have addressed badly, or for which the competence in the use of the VLE has not been adequate. As an example of the latter, as we began the course in educational use of technology for lecturers, as mentioned above, a 're-domestication' began. Features of the VLE were explored anew, different uses were discussed between participants. Some experienced that the VLE could be more useful than expected. We do however not expect this small group to lead to a larger re-domestication process.

As of spring 2012, after a merger of two university colleges, two installations of the VLE is to be merged into one. In essence, both the two old installations will be discontinued and a new (in every respect) installation will take their place. This will be a new 'item'. Despite this, there is no discussion how this event may be an opportunity to alter, even re-domesticate (Lie & Sørensen, 1996, p. 11), the use of the VLE as collaborate processes in learning and assessment. The procedures concerning the VLE are still treated as given once and for all. If the three aspects of the VLE had been more closely linked, we would have expected alterations in one aspect to lead to alterations in all aspects. Instead the different aspects appeared to be dissociated in the minds of staff and decoupled in management.

Conclusion

This paper has shown how a VLE was domesticated at a college during the years 2004–2011 and how this process came to closure within the first years. If not completed – at least not in a permanent sense – the VLE has become embedded, incorporated, appropriated, or avoided, resisted, ignored. This state has lasted for five years.

Adapting Silverstone and Haddon's notion the duality of media technology for analysing a VLE, this study presented three aspects of VLEs: item, collaborate praxis, and procedure. The practical use of these three aspects within the employment of the domestication theory framework has been shown in a short analysis of experiences at OUC. Those agents who have power concerning one aspect, normally have little direct agency concerning other aspects. These aspects must therefore be analysed separately, even though they are not three different real-world phenomena.

When this study began, the author assumed that collaborative praxis would have changed substantially since the introduction. One reason for the course in pedagogical use of technology was such a presumption. As it turned out, more than five years of 'the social web' or 'the read/write web' had not lead to a change in VLE use.

Rather, there are anecdotal data and casual observations to indicate that other non-institutionalised solutions like Google Docs, Dropbox, Facebook, Skype and similar commercial or 'free' software has entered an appropriation process.

References

- Bates, A. W. & Sangra, A. (2011). *Managing technology in higher education. Strategies for Transforming Teaching and Learning*. San Francisco: Jossey-Bass.
- Bjarnø, V., & Sandtrø, T. A. (2005). Implementering av et nytt læringsmiljøsystem (LMS) ved Høgskolen i Oslo. erfaringer etter et år med Classfronter. HiO-rapport 17/2005 Oslo: Høgskolen i Oslo
- Brown, J. S., & Duguid, P. (2000). *The Social Life of Information*. Boston: Harvard University Press.
- Conole, G., de Laat, M., Dillon, T., & Darby, J. (2006). *Student experiences of technologies. Final report*. JISC.
- Dirksen, V. M. (2007). *Social Imaginaries of Technology and Work*. Universiteit van Amsterdam. Amsterdam
- Giddens, A. (1984). *The Constitution of Society*. Cambridge: Polity Press.
- Haddon, L. (2007). Roger Silverstone's legacies: domestication. *New Media and Society*, 9, 25–31
- Habib, L. (2003). Domestication of e-learning technologies: A preliminary conceptual framework. *Proceedings of NOKOBIT conference*. Oslo
- Habib, L., & Sønneland, A. M. (2010). From alien to domestic?: virtual learning environment use from a domestication perspective. *Journal of Online Learning and Teaching*, 6, 712–722.
- Jamissen, G. (2004). Godt begynt er halvt fullendt? HiO-rapport 9/2004. Oslo: Høgskolen i Oslo
- Latour, B. (1992). Where are the Missing Masses? The Sociology of a Few Mundane Artifacts. In *Shaping technology/building society: studies in sociotechnical change*. Boston: The MIT Press.
- Latour, B. (1996). *Aramis, or, The love of technology*. Cambridge: Harvard University Press.
- Lie, M., & Sørensen, K. H. (Eds.). (1996). *Making technology our own? Domesticating Technology Into Everyday Life*. Oslo: Scandinavian University Press.
- Orlikowski, W. J. (1992). The Duality of Technology: Rethinking the Concept of Technology in Organizations. *Organization Science*, 3, 398–427
- Orlikowski, W. J., & Barley, S. R. (2001). Technology and Institutions: What Can Research on Information Technology and Research on Organizations Learn from Each Other? *MIS Quarterly*, 25, 145–165. Society for Information Management and The Management Information Systems Research Center
- Pinch, T. J., & Bijker, W. E. (1984). The Social Construction of Facts and Artefacts: Or How the Sociology of Science and the Sociology of Technology Might Benefit Each Other. *Social Studies of Science*, 14, 399–441.
- Silverstone, R., & Haddon, L. (1996). Design and the Domestication of Information and Communication Technologies: Technical Change in Everyday Life. In R. Mansell & R. Silverstone (Eds.), *Communication by Design: The Politics of Information and Communication Technologies* (pp. 44–74). Oxford: Oxford University Press.
- Silverstone, R., & Hirsch, E. (Eds.). (1992). *Consuming Technologies. Media and Information in Domestic Spaces*. London/New York: Routledge.