

Strategies and Tactics in Education: - Influence on the Design of eLogg

Av Jon Hoem

Abstract:

In search for a more diverse understanding of miscellaneous "learning strategies" this paper discusses what Michel de Certeau call strategies and tactics. To make the educators' strategies and the learner's tactics come closer I argue that the principles of personal publishing, known from weblogs, provide useful approaches to the design of virtual learning environments.

Keywords: learning strategies · virtual learning environmet · personal publishing

Introduction

The complexity of society is likely to favour those able to ask the right questions, process information from various sources and construct knowledge by critically evaluating a number of potential answers given by this information. From this follows an assumption that society will need individuals who are able to develop varied, multiple and original skills, making social competences, where the development of individual learning strategies becomes an important part of education in addition to the teaching of basic skills (NOU 2003: Chapter 15).

The development of "learning strategies" and self-regulatory skills by learners is considered one of the central ambitions of contemporary policies on education (DeSeCo, 2005). These competencies support lifelong learning by making people independent learners, more able to transfer knowledge and methods to different learning situations (Zimmerman, 2002). The extensive use of computer networks makes information increasingly difficult to control, encouraging new ways of information retrieval, questioning accepted knowledge and challenging the educational institutions' traditional authority (Säljö, 2001). When the power of formal authorities diminishes, learners become able to act upon parts of the educational system in new ways, adding new meanings to our understanding of the different aspects of "learning and studying strategies".¹

Strategies and Tactics - two different approaches

The traditional way of speaking about the relationship between strategies and tactics in education seems to be an understanding of "learning strategies" as general plans formulated by learners to accomplish an academic goal. A strategy then consists of several components, including metacognition, analysis, planning, implementation of plans, monitoring progress, and modification of the strategy (Snowman and Biehler, 1997). From the chosen strategies follow learning tactics, that is, specific techniques that may help learners move towards the goals defined by strategies (ibid. 354).

Self-regulation is where strategies and tactics are used for practical purposes in education, in the sense that learners are aware of and knowledgeable about their own thinking about how they learn, with continual self-observation, self-judgement and self-reaction in their own problem-solving processes (Zimmerman, 2002).

Zimmerman (ibid.) proposed a three-part, cyclical model of self-regulation,

Forethought: Task analysis, selection of strategies and methods, and self motivation

Performance control: Focusing attention, self-control and

self-observation of progress

Self-reflection: Self-evaluation, self-reactions and adaptation

Following this perspective on strategies and tactics, some studies indicate that Norwegian students perform poorly on "self-regulation" and the desired "learning strategies". They seem to lack good methods of controlling the information they receive, and relating this information to previous knowledge in a critical way (Knain, 2002:45).

However, there are other ways of understanding strategies and tactics in a cultural system like education. Michel de Certeau states that the mediation, presence and circulation of any cultural representation (e.g. as taught by educators) do not tell all about the significance of these cultural objects to their users (e.g. the learners). If we are going to understand the use of cultural artefacts we have to analyse the manipulation of these objects by users who are not the object's initial producer (de Certeau, n.d.). To help us understand and investigate such objects de Certeau introduces strategies and tactics² as concepts in analysing the nature and politics of cultural production within "the practice of everyday life" (de Certeau, 1984: xix).

Strategies are manifested by institutional means of control that become possible through the constitution of social and technological systems, made possible by the control of "space". Strategies serve as a basis for external relations with competitors, the public in general, students, voters, objects for research, etc. An example of strategies, used by de Certeau, is the appropriation of language through the system of linguistics, where writing becomes the representation of the formal powers of documents (de Certeau, n.d.).

On the other hand, the operation of any economic, political or technological system needs to give some space for movement. Such constraints on the application of strategies allow the development of tactics by individuals, described by de Certeau as individual techniques of knowing how to operate within processes of the dominating system. -Common examples of such techniques are informal communication, improvisations, un-authorized simplification of procedures, "forgetting" orders etc. de Certeau describes tactics as a constant search for situations which become possible to manipulate, and thereby changed into individual opportunities (ibid.)

Following de Certeau's perspective on strategies and tactics offers a partial explanation of many Norwegian learners' poor performance. From the learners' perspective, "strategies" may be constructed on the basis of a different rationale (i.e. effort versus assessment), sometimes in opposition to "strategies" seen from the educators' perspective (i.e. effort versus learning outcome).

The traditional construction of strategies, and the following application of tactics, works perfectly as long as the learners are skilled, motivated, and interested in pursuing the goals that correspond to the educators' objectives. However, if the learners have experienced that parts of the educational system tend to reward those able to repeat or replicate information, they are likely to conclude that the pay-off from critical investigation will not always be worth the effort. If these learners' strongest motivation is how they perform in relation to others they may conclude that it does not make sense to over-perform, and they adapt in response to an essentially tactical question: "What's in this for me?" (see Olaussen and Bråten [2004] for a detailed discussion of motivation and self-regulation)

Strategies and Tactics Revised

One could argue that when talking about the learners' ability to develop individual "learning-strategies" educational authorities often refer to practices that correspond to the results society wants in return for investing in the education system. In other words, they want learners to develop learning techniques in correspondence with the educating system's strategies. However, when seeking opportunities within the system, the

learners behave tactically and develop techniques in correspondence to their self-interests.

Control Adaptation

Educators Educational strategies Educational tactics

Learners Learning strategies Learning tactics

Following de Certeau's terminology I would like to distinguish between strategies and tactics in education and learning.

Educational strategies are manifested through a system of national plans for education, the curriculum, routines for evaluation, financial means etc. On the other hand, learning tactics are learners' individual adaptations to this system, and these adaptations may differ significantly from the behaviour society and educators try to encourage through their strategies.

This does not imply that educators always act strategically, or that learners always behave in ways that can be explained as tactics. It is more like controlling systems versus individuals, and consequently educators also will have to behave tactically when they try to operate within restrictions imposed on them by a system. How educators relate to plans made by education authorities is one example (Bachmann, 2004). We may therefore extend our vocabulary even further by introducing educational tactics, and finally learning strategies. The first being tactics developed by educators having to do their job adapting to regulations enforced by the government and educational institutions. The latter will be learners in situations where they do not have to think about how their performances are evaluated. A typical example would be the freedom of learning as an aspect of a hobby, where individuals make decisions about what and how to learn out of sheer interest, without having to think about someone evaluating their achievements.

When introducing new technologies in education and learning both educators and learners may benefit substantially if those designing these systems try to find out how to make strategies and tactics come closer together. Trying to incorporate strategies and tactics when designing eLogg Every artefact is a carrier of prescribed meaning and intentions, and these prescriptions have to be considered when introducing technical artefacts (Akrich, 1992). Following the idea that a communication system may be designed to facilitate changes in behaviour the research project Dramaturgy in Distributed Learning⁴ introduced the design and development of a publishing system called eLogg. It was developed in close co-operation with a reference group of teachers who contributed to the development of the system.

eLogg has been used by selected classes in primary schools, corresponding to where the teachers in the reference group work. The teachers contributed through workshops, individual feedback given directly to the designers, written reports and through interviews in groups and individually. The material analysed includes texts produced by the learners, consisting of postings in individual logs - including comments and hyperlinks, and media files stored in individual, but shared archives, accessible to all the members of the group. The researchers have had access to these texts by logging into the system in the same manner as the learners. As a supplement to this qualitative approach, I have used some statistical data culled from the system's access logs.

To facilitate various forms of self-regulation the designers wanted to give learners the opportunity to alternate between accessing information, reflecting on it, and making revisions and re-contextualizations. These are activities with tactical potential, involving questions about authority, the ability to make individual decisions, and a constant

awareness of the influence of people's changing roles and their actions. The individual ability to produce information, and (re-)use this information as a resource for communication are considered central to digital fluency (Resnick, 2002), emphasizing computer mediated communication as a bridge between individual praxes and socio-cultural learning theory.

When developing eLogg one of the initial ideas was to try to implement a virtual learning environment where educators and learners were able to take control of the communication environment. To facilitate such individual control the designers looked at existing genres known as personal publishing. Personal publishing, as opposed to traditional publishing, does not involve any editorial unit, the content is structured, elaborated and adapted to be consistent with individual communicative needs, although normally based on dialogues which may include a number of participants.

As I have argued elsewhere (Hoem, 2005a), there are some substantial differences between personal publishing systems and most Learning Management Systems when it comes to communication patterns (ibid: 45). Learning Management Systems are normally designed to provide necessary functions from an administrative point of view, features that are useful, but nevertheless designed on the basis of educational strategies. The result is communication where production and distribution of information is controlled centrally. In contrast, most personal publishing systems, like tools for weblogging, give learners more diverse opportunities when it comes to controlling how information is produced, distributed, and re-used.

Weblogs is perhaps the best-known form of personal publishing where the users rapidly become active producers of information and able to participate on their own terms, in terms of form, content, pace and frequency (Hoem and Schwebs, 2005). Weblogs exist as a result of the users' active production of media content, including frequent re-mediation of content produced by others. Productive tasks can be carried out in multiple ways, from postings in the users' own weblogs, comments by hyperlinking, and comments in weblogs controlled by others. It allows users able to take advantage of different communicative features according to how they want to get involved in the communication. Combined with the use of hyperlinks, weblogs offer a flexibility well adapted to a variety of web-based information resources.

In discussions concerning the design and use of eLogg we wanted to take advantage of the productive potential of personal publishing in ways that supported self-regulation in education. Personal publishing environments seem to be able to assist processes like forethought, performance control, and self-reflection, and writing in an open environment, giving learners opportunities to experience the mechanisms of networked, collaborative media (Walker, 2005), competences that are becoming increasingly important from a media-literacy-point of view.

The learners' use of personal publishing also focuses on knowledge as a collective construction, made by learners as they build their individual cognitive structures in an open system. Learning takes place through the development of shared understanding and collaborative activities that allow individuals to exercise, verify, and improve their mental models by sharing thoughts, ideas, and information with others (Du and Wagner, 2005).

Implications on the design of eLogg

It is difficult to distinguish clearly between strategic and tactical elements when it comes to the practice of designing a virtual learning environment like eLogg. For practical purposes, it is about who should be able to control which parts of the system, and how this control should be carried out in a screen-based interface. The following introduces some of the design issues in the design used at the first four levels in primary school.

Posting

A central principle is that no post, not even if it is an answer to a specific assignment, should be considered a final mediation of the learner's knowledge. On the contrary, the meaning of individual posts may change over time, either as the learners edit the original post or through a re-contextualisation with comments provided by others or the user who wrote the initial post.

Every post in eLogg can be categorised, a functionality that is intended to make it easier to find older posts and automatically generate a context for related posts. The learner can choose among some predefined categories that correspond to the subjects, or define his/her own categories which can be used in their own logs in addition to those defined by the system administrator.

Older learners (from fifth grade) are introduced to an extended version of eLogg where the post may be re-used in projects where the context is posts provided by the other project members, or posts made within the project by the project team. The projects are shared writing-spaces, but the learners are not able to edit posts imported from the other members' logs. However, all members of a project will be able to decide where the posts should appear in the project-text. All members can delete the reference to the post in the project without affecting the original posts in individual logs. This gives learners an opportunity for some tactical behaviour, within strategic limitations set by the system design.

Respons

eLogg is designed to let users respond directly to any post they are able to read. However, the owner of the original post always has exclusive control over the comments, meaning he is able to block the commenting feature on specific posts and may delete comments s/he does not approve of. All users have to be logged on to the system. It is impossible to respond anonymously because every comment has a link to the log of the one making the response. This serves as an example of strategic design implemented in eLogg, at the cost of some of the learners' tactical possibilities.

Comments are important in online dialogues. They can re-contextualise the meaning of a post, and comments offer an alternative to posting, making the learners become visible as contributors, without having to put a lot of effort into writing autonomous posts. These possibilities to produce information on different levels was considered important, especially because the learners are to be socialised into a personal publishing culture. Perhaps even more important, comments are an efficient way of giving the users a concrete manifestation of their posts' visibility to others. The latter function makes learners aware of their audience, and may be highly motivating both in educational and social settings.

The designers put quite a lot of energy into building easy trackback functionality (SixApart, 2003) into eLogg. Trackbacks automatically create hyperlinks between a post and other posts written in relation to this post. It is used when teachers give assignments, and provides features promoting learners ability to keep control over their comments (Hoem, 2005a:38).

Notification

Another feature is the blogroll6, well known from weblogs. The users of weblogs often write their posts in response to others, and the blogroll's way of displaying activity cuts the interval between the writing and reading of a post, increasing the likelihood of comments and related posts.

The reference group was afraid that displaying learners' names would stigmatize those who did not publish often. The result was a compromise, resembling the functionality known from "latest news" listings, where users' names are displayed in an order corresponding to when the latest

post was written. Those displayed on the blogroll will be the learners in a group, but the blog-owners may add other learners whose weblogs they would like to monitor. However, the blogroll only shows a limited number of names, solving a potential problem caused by publishing names of learners who seldom post at the bottom of the blogroll.

Strategies and Tactics when using eLogg

Does the design of eLogg affect learners' tactics and their self-regulatory skills? To answer this question I looked at material posted by fourth graders during March 2006. This particular case was chosen because of the quality of the material posted by learners, and because their teacher is not particularly computer savvy. She relies on the simplicity of eLogg to adapt the system to her way of educating. I was particularly interested in how learners initiated their writing processes, and the different ways texts were developed. Looking at the stored material it was evident that learners initiated postings in four different ways.

Direct posting in the user's own logs

Comments in other's logs

Comments in the user's own logs

Answering assignments by using trackbacks from the teachers' logs

More sophisticated ways of posting in the system are possible, but were not observed in the material produced by these learners.

1. Posting the user's own logs

When the learners enter eLogg they come immediately to their own log where a "button" for making new posts is displayed at the top of the page. This makes direct postings in the learner's own log the most accessible way of initiating writing, and such postings are the most common within the system. It is possible to limit access to the posts by using "draft" or "show to teacher only", but the figures from the system show that almost all learners keep their posts open for others to read.

There are frequent examples of individual postings on the same topic in several logs within a limited time-frame, obviously as a result of the learners' ability to consult each other's logs. These multi-blog conversations are discussed below.

2. Comments in other's logs

Fourth-graders do not comment each other's posts very much. System statistics suggest an average of five posts for every comment. When comments are made, learners almost always give constructive criticism, and short, positive feedback.

Their brevity and informal status mean that commenting can be used actively by educators as an introduction to the system. This seems particularly useful as some learners seem unwilling to write in public, and benefit from a more measured introduction to feel more secure.

3. Comments in the user's own logs

Comments are normally posted in response to comments from other users, but there are also examples where the learners use comments to reflect over their own postings rather than editing their original post. Such comments provide additional information, clarify misunderstandings, or answer questions from the educators and other learners.

4. Doing assignments

Trackbacks offer an easy way of doing educators' assignments. Learners "answer in their own logs", automatically connecting the original post (the assignment) to the learners' responses via a two-way (transclusive7) link. It is possible to use the same functionality as a response to any

post in eLogg, but fourth grade learners do not use this opportunity. The educator may initiate learners' postings by giving assignments with specific questions and tasks to be solved. To motivate the learners the educators often share materials (texts, pictures, videos) which the learners re-use and contextualise in their logs.

Peer conversations

Baggetun and Mjelstad (2006) describe two forms of peer conversation in eLogg: "Single blog contained conversations" and "across blog conversations". The first is a conversation in the threads adjoined to the original posting(i.e., learners and educators replying to a specific post). Fourth grade learners perform this type of conversation mostly in connection with stories about school activities or in response to questions, often of a social nature, from other learners concerning the blog-owner's opinion about something (e.g., football teams, favourite pop-stars etc). The second type of conversation - "Across blog conversations" - seems to occur as a result of eLogg's openness, making it easy to see what the other learners have posted, and respond to them by writing posts on the same topic.

This is an indirect type of conversation where learners express their opinions about a matter of common interest in their own logs, but without hypertextual references to the other postings.

The two types of conversation emphasize differences in learners' tactical behaviour, control over and ownership of their text. When the conversation is a thread, learners who post comments forfeit their control of their texts. Comments can not be revised, and they may be deleted by the owner of the thread. Finally, they are liable to be re-contextualised by further comments from other bloggers. When learners add to their own logs, they retain control by using the system in a more strategic manner. Being familiar with the different levels of control is an important part of the development of the learners' digital literacy, especially when they begin to express themselves through open services on the Internet. Fourth graders seem to have an adequate understanding of this distinction, posting brief comments in other logs, and writing in a more elaborative manner in their own logs.

Conclutions

In USA more than half of all teens who use the Internet are also content creators. These youngsters have either created or worked on a weblog or webpage, shared original creative content, or remixed content they found online into a new creation (PEW, 2005a:1). One in five online teens has created their own weblog, and 38 per cent of all online teens say they read weblogs (ibid.). With the high penetration of personal computers in Norway, we should expect the same development as youngsters increasingly produce and edit web content. It is something the education system needs to think about urgently, not least because primary schools often have a disproportionately low number of networked computers in comparison with learners' homes (ITU Monitor, chap. 7). The introduction of personal publishing in primary education may be one answer to some of these challenges.

While monitoring the use of eLogg, we saw numerous examples of young learners with high degrees of independence and control in their production and publication of information in a shared environment. However, it is hardly surprising that the most successful use of eLogg happens in classes where the educators understand something about how and why the learners should use the system.

Findings described in this article came from one of the success stories. There are other, less successful stories. But lack of success when it comes to frequency of postings and quality of content may largely be

explained by differences in educators' approach. The successful educators seem to focus on eLogg as the primary writing -tool; they give well-defined assignments; and they provide media material (most often pictures) the learners can use in their own postings. School-related activities, initiated by the educators, seem to trigger the production of additional, socially angled texts.

Given this limited experience, it seems there is a substantial potential in personal publishing able to facilitate learning in a socio-cultural environment, and foster learners' self-regulatory skills. Comparing the texts produced in eLogg with texts in LMS systems, we see some significant differences in the way texts are produced and used (Schwebs, 2006).

However, there are variations in learners' engagement, resembling many of the differences experienced in the classroom. The most skilled learners take advantage of the opportunities provided by eLogg, almost without any help at all. These learners also use eLogg from computers at home, and experiment with off-topic texts when the purpose is to express themselves socially. Less than half the class use eLogg to communicate in this way, and the less skilled tend to say they "have nothing to write about". Nevertheless, the educator mentions examples where less skilled learners, who are normally not fond of writing, learn to express themselves by writing texts to pictures and being helped at home to polish their work before publishing it in eLogg for others to see. Similar processes are initiated by the educator, who sits beside the learners as they edit their texts on the school computers. The educator measures learners' motivation by the ability to show these products to their class mates.

An interesting observation is that eLogg seems to encourage both educators and learners to develop tactical ways of using the system. Educators enjoy only a very few extra features - posting assignments is one of them - but most of the time educators and learners use the system in the same manner. There are no backdoors which let educators see things that are hidden from the learners. The principle of openness makes eLogg stand out from most other systems, which tend to build numerous control functions into the educators' interface. In eLogg, control is evenly distributed, giving both educators and learners control of their communication socially, rather than a more demanding technical approach. I believe there is no better way to merge educational strategies and learning tactics, making the principles and initial ideas behind the design and development of eLogg worth following in future projects, and hopefully in the forthcoming re-design of existing systems.

References

Akrich, Madeleine (1992): "The De-Description of Technical Objects", in Bijker, Wiebe E. and John Law (1992) *Shaping Technology / Building Society*. Studies in Sociotechnical Change. Cambridge, MA.: The MIT Press.

Bachmann m fl (2004): *Hvordan formidles læreplanen: En komparativ evaluering av læreplanbaserte virkemidler - deres utforming, konsistens og betydning for læreres praksis* Available online at: <http://program.forskningsradet.no/reform97/uploaded/nedlasting/Hopmann.pdf> (Accessed on 1 May 2006)

Baggetun, Rune and Mjelstad, Stig (2006): "E-LOGG: Facilitating ownership and openness in virtual learning environments", paper presented at *Imagining the future for ICT and Education*, 26-30 June 2006, in Ålesund, Norway

Bordewijk, Jan L., and Ben van Kaam (1986): "Towards a new classification of Tele-Information Services", in: *Inter Media*, vol. 14, no. 1. Available online at: <http://www.pisa.oecd.org/dataoecd/47/61/35070367.pdf>

(Accessed on 1 May 2006)

Du, Helen S. and Wagner, Christian (2005): "Learning with Weblogs: An Empirical Investigation", Proceedings of the 38th Hawaii International Conference on System Sciences - 2005 Available online at: <http://csdl2.computer.org/comp/proceedings/hicss/2005/2268/01/22680007b.pdf> (Accessed on 1 May 2006)

Hoem, Jon (2005a): "Digitale lærings-omgivelsers kommunikasjonsmønstre". Report from Dramaturgy in Distributed Learning. Available online at: http://infodesign.no/artikler/LMS_vs_PP_v10.pdf (Accessed on 1 May 2006)

Hoem, Jon (2005b): "Facilitating Online Learning in Personal Publishing Environments" Available online at: http://infodesign.no/artikler/EDEN_2005_Hoem.pdf (Accessed on 1 May 2006)

Hoem, Jon and Schwebs, Ture (2004): "-Personal Publishing and Media Literacy", IFIP World. Conference on Computers in Education (WCCE 2005) Available online at: http://infodesign.no/artikler/personal_%20publishing_media_literacy.pdf (Accessed on 1 May 2006)

ITU Monitor (2005): På vei mot digital kompetanse i grunnopplæringen, Universitetsforlaget

Knain, Erik (2002): Elevenes læringsvaner - Selvregulert læring som en viktig kompetanse på tvers av fag: Perspektiver og resultater. Available online at: http://www.pisa.no/pdf/ccr_rapport_erikknain.pdf (Accessed on 1 May 2006)

NOU (2003): I første rekke, NOU 2003: 16 Available online at: http://odin.dep.no/ufd/norsk/dok/andre_dok/nou/045001-020003/ind-bn.html (Accessed on 1 May 2006)

Olaussen, Bodil S. og Bråten, Ivar (2004): "Motivasjonelle oppfatninger og selvregulert læring", Uniped, 1/2004

Pettersen, Roar C. (2004): "Studenters lærings og studiestrategier: Kvalitets-indikatorer i høgere utdanning?", -Uniped, 2/2004, side 44-65

PEW (2005): "Teen Content Creators and Consumers" Available online at: http://www.pewinternet.org/pdfs/PIP_Teens_Content_Creation.pdf (Accessed on 1 May 2006)

Resnick, Mitchel (2002): "Rethinking Learning in the Digital Age" Available online at: http://www.cid.harvard.edu/cr/pdf/gitrr2002_ch03.pdf

de Certeau, Michel (1984): The Practice of Everyday Life, Berkley, Univ. of California Press.

de Certeau, Michel (No date): "The Practice of Everyday Life" Available online at: http://www.ubu.com/papers/de_certeau.html (Accessed on 1 May 2006)

DeSeCo (2005): "The Definition and Selection of Key Competencies" (Accessed on 1 May 2006)

SixApart (2003): "Trackback" Available online at: http://www.sixapart.com/movabletype/docs/3.2/08_trackback/ (Accessed on 1 May 2006)

Schwebs, Ture (2006): "Elevtekster i digitale læringsomgivelser", Digital kompetanse vol.1, Universitetsforlaget

Snowman, Jack and Biehler, Robert (1997): Psychology Applied to Teaching, 8/e, Houghton Mifflin Co.

Säljö, Roger (2001): Læring i praksis, Cappelen akademisk

von Clausewitz, Carl (1873/2003) Vom Kriege / On War Available online at: http://www.clausewitz.com/CWZHOME/On_War/ONWARTOC.html (Accessed on 1 May 2006)

Walker, Jill (2005 "Weblogs: Learning in Public", On the Horizon, Vol 13, Issue 2, 2005. Pages 112-118. Available online at: <http://jilltxt.net/txt/Weblogs-learninginpublic.pdf> (Accessed on 1 May 2006)

Zimmerman, Barry J. (2002): "Becoming a self-regulated learner: an overview", Theory Into Practice, Ohio State Univeristy Available online at: http://www.findarticles.com/p/articles/mi_m0NQM/is_2_41/ai_90190493 (Accessed on 1 May 2006)

1See "Studenters lærings og studiestrategier: Kvalitetsindikatorer i højere uddanning?" (Pettersen, 2004) for a discussion of these terms.

2de Certeau do not refer to the use of this terminology by the military, where tactics are the manners of conducting each separate combat; and strategy serves the general objective of a war (von Clausewitz, 1873/2003). Carl von Clausewitz book Vom Kriege is probably not an appropriate reference when it comes to the education of young people, but -nevertheless a source widely used out-side the armed forces, like in higher -business education etc.

3When people engage with technology (like computer software) they do so -following a tradition, a culture-of-use. The result is every artefact contains presuppositions about how it will be used. These mechanisms may be understood as scripts, as described by Madeleine Akrich: "Designers thus define actors with specific tastes, competencies, motives, aspirations, political prejudices and the rest, and they assume that morality, technology, science and economy will evolve in particular ways. A large part of the work of innovators is that of inscribing the vision of (or prediction about) the world in the technical content of the new object. I will call the end product of this work a 'script' or a 'scenario'." (Akrich, 1992:62)

4Dramaturgy in Distributed Learning (DDL) is a research and development project funded by ITU. eLogg has been used by hundreds of pupils in primary schools in Bergen during 2005-2006 (Schwebs, 2006). For a description of the different functions in eLogg, see (Hoem and Schwebs, 2005).

5An extensive introduction to weblogs is found in Wikipedia (<http://en.wikipedia.org/wiki/Blog>)

6A blogroll normally display a list of names, where the names corresponding to the weblogs that are recently updated are displayed on top of the list. Posts posted within the latest 12 or 24 hours are often given a "flag", an useful function because there always are differences between the different users frequency of posting.

Who is listed on the blogroll is normally controlled by the owner of the page where the blogroll is displayed.

7Transclusive links were introduced by Ted Nelson, the founder of the term -hypertext (<http://en.wikipedia.org/wiki/Transclusion>)

© Universitetsforlaget