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## Strategies and Tactics in Education: Influence on the Design of eLogg – a Virtual Learning Environment

In search for a more diverse understanding of miscellaneous “learning strategies” this paper discusses the design of digital learning environments on the basis of communication patterns, and what Michel de Certeau call strategies and tactics. Distinguishing between educational strategies and learning tactics I argue for the augmentation of digital fluency by the use of tools for personal publishing.

### **Introduction**

Even though information is more easily accessible than ever before, the making of meaning has by no means become any easier. This is likely to favour those individuals who become able to ask the right questions, and critically evaluate a number of potential answers to these questions. From this follows an assumption that society will need individuals who are able to develop varied, multiple, and original skills. These are some of the reasons why the Norwegian Kvalitetsutvalget conclude that the education in primary and secondary school will have to put more effort into the development of social competences, and the development of individual learning strategies in addition to the learners basic skills (NOU 2003: kap 15).

When the use of ICT in education is discussed there is a tendency towards focusing on user competences, like the learners skills in operating specific tools, and the use of premade learning material, designed for specific learning objectives. These skills are only some of the multiple skills that learners need to take advantage of the unique possibilities of digital media. For the learners to become “digitally fluent” their use of computers have to include the creation of objects of meaning (Resnick 2002:2), and one may argue that a virtual learning environment should focus on tools that facilitate this kind of diverse production.

The development of "learning strategies" and the learners' self-regulatory skills is considered one of the central ambitions of today's education. These competencies support lifelong learning by making people independent learners, and thereby making the learners more able to transfer knowledge and methods to different learning situations (DeSeCo 2005). However, some studies tell that Norwegian students perform poorly when it comes to developing "strategies" for controlling the information they receive, and relating this information to previous knowledge in a critical way (Knain 2002:45). However, any rationality is based on presuppositions about the relationship between a given behaviour and expected effects, and questions like why quite a few learners do not perform critical analysis of the information they receive may therefore be answered by how the system reward different behaviour. If the learners have experienced that the educational system tend to reward those able to repeat, or replicate information, then they are likely to conclude that the payoff from critical investigation will not be worth the effort. From an individual point of view this makes sense, even though a more objective rationality may conclude otherwise.

Self-regulation and reflection will always be difficult processes involving questions about authority, the ability to make decisions, and a constant awareness of the influence of peoples changing roles and their actions. These competences have to be learned through individual experiences where the learners actively perform productive tasks on the basis of material from a variety of sources. Reflection also determine a recognition that there always will be different ways of understanding a specific problem, and these alternatives are much more likely to become evident when a number of people collaborate. In other words, reflection includes both individual and collective efforts, where a number of people provide information through production, re-contextualisation, and re-mediation. I would look more into how these tasks may be performed within a communication environment based on the principles known from personal publishing.

Living in an information society does not only imply increased possibilities to receive information, the ability to produce and re-contextualize information may be even more important from an educational perspective. When education face problems with replication of information this does not only tell a story about the learners hang of cheating. This mismatch becomes obvious when computers are used within educational settings where learners are given assignments that may be solved by duplicating information. It is almost like pretending that the networked computer does not exist in educational settings, and continue to act as if information still was distributed in chained books [1]. The emergent ways of accessing

information through computer networks become difficult to control, and calls for another, more complex, understanding of the different aspects of "learning and studying strategies" [2].

## **Strategies and Tactics**

The mediation, presence and circulation of cultural representations (e. g. as taught by educators) do not tell all about the significance of these artefacts to their users (e. g. the learners). If we are going to understand the use of artefacts we have to analyze the manipulation of an object by users who are not the object's initial producer. (de Certeau) To help us understand and investigate cultural objects Michel de Certeau introduce strategies and tactics [3] as concepts in analyzing the nature and politics of cultural production within "the practice of everyday life" (de Certeau, 1984: xix).

*Strategies* are manifested through institutional means of control which become possible through the constitution of social and technological systems, making it possible to control "space" [4]. Strategies serve as a base for external relations towards competitors, potential attackers, objects for research, target groups, etc. An example of strategies is the appropriation of language through the fixed, strategic system of linguistics, where writing becomes the representation of the formal powers of documents (de Certeau).

However, strategies are not merely instruments used exclusively by the elites, as long as the operation of any economic, political, or technological system needs to give some space for movement. It is not possible to reserve these spaces exclusively for the dominating part without enforcing a totalitarian regime. These limitations to the application of strategies make individuals able to develop *tactics*, which de Certeau describe as individual techniques of knowing how to operate within processes of the dominating system. Common examples of such techniques are informal communication, improvisations, unauthorized simplification of procedures, "forgetting" orders etc. de Certeau describes tactics as the user consumer's constant search for situation that are possible to manipulate, and thereby changed into opportunities.

## **Strategies and tactics in education**

When talking about the learners' ability to develop individual "learning-strategies" we often refer to practices that correspond to the results society wants in return for spending resources on the educational system. In other words, we want the learners to behave according to the educating system's strategies, following de Certeau's understanding of strategies. However, from the learners' point of view, "learning-strategies" are applied as tactics that become possible because the central strategies do not penetrate all parts of the educational system.

Inspired by de Certeau's terminology I would like to use a distinction between educational strategies and learning tactics.

	Control	Adaption
Educators	Educational strategies	Educational tactics
Learners	Learning strategies	Learning tactics

*Educational strategies* are

manifested through a system of national plans for education, the curriculum, routines for evaluation, by economical means etc. On the other hand *learning tactics* are the 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 according to strategic thinking, 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 according to tactics when they try to operate within the restrictions put upon them. An example is the complicated interplay between the financing of the institutions in Norwegian higher education and the educators assessing of the learners' performance. Another example is how educators relate to the plans made by education authorities (Bachmann 2004). We may therefore extend this vocabulary by introducing *educational tactics*, and finally *learning strategies*. The first being tactics developed by educators having to do their job adapting to strategies enforced by the government and the educational institutions. The latter will be learners in positions where they do not have to think about how their performances are evaluated. A typical example would be the freedom of learning as part of a hobby, where individuals learn out of sheer interest without having to think about someone evaluating their performance.

de Certeaus's perspective is also useful when looking at the different ways of using and combining software with *static properties* in innovative ways without making changes to the software itself, an approach common among writers of weblogs, and an important source to the understanding of the success of personal publishing in general. These innovative practices, which individuals use in order to tweak system preferences prescribed [5] in software products, corresponds to what de Certeau describes as the use of tactics.

## **Potential in personal publishing**

Before discussing the design of a virtual learning environment inspired by personal publishing I would like to look at the potential. *Personal publishing*, opposed to traditional mass media publishing, do not involve any editorial unit, the content is structured, elaborated and adapted to be consistent with individual communicative needs, although normally based on "dialogs" that include a number of participants. Personal publishing thereby differs from other individual forms of production by the media specific relations between individuals and several "communities of interest" (Hoem & Schwebs 2005).

Weblogs is a form of personal publishing where the users rapidly become active producers of information, and where individuals are given opportunities to participate on their own premises, in terms of form, content, pace and frequency. This makes weblogs particularly interesting from an educational and learning perspective because they form an individual basis that exploits some of the most essential assets of networked digital media: communication by hyper-linking. (ibid.).

A weblog is typically written by an individual or by a small number of persons, and resemble many of the features known from personal webpages. However, weblogs have some technical characteristics and genre features: The weblog is frequently updated, from several times a day to a few times per week, the postings normally consist of short texts with extensive use of hyper-links, and they are presented with the latest postings on top. The main page contains a limited number of posts, as older posts are moved to an archive.

Weblogs, as a genre, exist as a result of the users' active production of media content. This production may be carried out in multiple ways, ranging from postings in the users' own weblogs, comments by hyperlinking, and comments in weblogs controlled by others. This makes the users able to take advantage of different genre-features according to how they want

to get involved in the communication. Combined with an extensive use of hyperlinks this makes weblogs offer flexibility well adapted to a variety of net based learning resources.

In USA, where personal web-publishing still is more common than in Europe, 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. For many these weblogs function as a personal, but often publicly displayed, journal that can be used as a forum for exchanges with friends, posting ideas, sharing personal experiences etc. 38% of all online teens say they read weblogs (ibid.).

Looking at the figures from Livejournal (Livejournal 2005), one of the largest sites for personal publishing, we clearly see that most of the users are teenagers, or in their early twenties, still at an age where education is a major part of their everyday life. Some may argue that most of the content published, using LiveJournal and similar solutions, is mostly of a social character, and consequently that the published information will be of limited value in educational settings. I will not confront this line of argument in this paper, but point to the productive skills, and the continuous augmentation of digital fluency among these teenagers.

A significant task become to take advantage of the potential in personal publishing and use this in ways that benefit the results we want in education. That is, how to combine education strategies with the learning tactics, using personal publishing tools.

### **Trying to merge educational strategies and learning tactics**

It would be naive to believe that the introduction of technical solutions based on a specific publishing concept would lead to immediate, and profound changes in the educators' and the learners' behaviour. Nevertheless, every artefact is a carrier of prescribed meaning and intentions and these prescriptions have to be considered when introducing technical artefacts in education.

Cultural behaviour may be changed by the use of technical artefacts, but how these changes are manifested, when and where they occur, is almost impossible to predict. There is also a mismatch between artefacts and culture, considering that the characteristics of artefacts may change quickly while the implications of these changed artefacts may take several decades in

order to produce considerable changes in culture. Nevertheless it is one of the educational system's main purposes to contribute to these processes, making it essential to design any learning environment in ways able to facilitate changes in society.

I have argued elsewhere (Hoem 2005a) that there are several 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 often that the communication patterns with bias towards *transmission*, where production and distribution of information is controlled by central units. In most personal publishing systems, like tools for weblogging, individuals are given more diverse opportunities when it comes to controlling how information is produced, distributed, and re-used.

To support our thinking about the design and implementation of a virtual learning environment we have chosen a perspective focusing on nine *communication patterns*: [6] (see Hoem 2005a for a more thorough explanation)

	Information produced by a central unit	Information produced by individual users	Information produced by users as a collective
Distribution controlled by a central unit	Transmission	Registration	Commenting
Distribution controlled by individual users	Consultation	Dialog	Collaboration
Distribution controlled by users as a collective	Syndication	Sharing	Emergence

Constantly changing between accessing information, reflect upon it, and make revisions and

re-contextualization are the basis of the critical skills that we want learners to develop on all levels in education. The individual ability to produce information, and use this information as a resource for communication becomes the core of digital fluency, emphasizing communication as the bridge between different praxes and socio-cultural learning theory. I will argue that self-regulated educational- and learning-culture that we endeavour is characterized by the communication patterns found towards the lower right of the table shown above. This occurs in communication environments where all users are given the ability to control production and distribution of media content used in education. These environments, with less centralized control, giving space to individual learning styles, will be where tactics are most likely to be developed.

### **Strategic and tactical communication patterns in eLogg**

Among the communication patterns presented above "transmission", "registration", and "consultation" may be characterized as *strategic communication patterns* where the control is centralized. On the other hand will "sharing", "collaboration", and "emergence", where the users are in control, be patterns of much more tactical nature. The *tactical communication patterns* imply that more control is given to the learners, and are likely to be those supporting self-regularly skills the most.

A central part of the research project Dramaturgy in Distributed Learning has been the designing of a publishing system, eLogg [7]. The system was developed in co-operation with a reference group of teachers, and we soon realized that the teachers were not eager to use, nor promote a system facilitating tactical communication patterns. For example, when the reference group were introduced to wikis their immediate reaction was that this kind of software would be unsuitable for their didactic purposes where identifying each learner is considered important. The idea that every user should be able to edit any page, a central principle in wikis, also seemed to make the teachers feel unconfident. This made us conclude that to make a system focusing on tactical communication patterns would be a waste of time, as long as these patterns do not correspond to didactics familiar to most teachers.

"Syndication", "dialog", and "commenting" then become the communication patterns where strategies and tactics are most likely to merge, and our assumption is that learning environments facilitating these *adaptive communication patterns* [8] are most likely to be successful among both educators and learners.

The following will briefly describe how we have tried to implement functions [9] that facilitate adaptive communication patterns in eLogg [10].

### **Commenting in eLogg**

”Commenting” occurs when a central service controls the information, but the users are able to contribute with additional comments [11]. An initial assumption, based on the use of comments in ordinary weblogs, was that the combination of several different, but user friendly, commenting functions could be used to facilitate collaboration where the individual contributions would be easy to identify. In eLogg we decided that the general rule should be that the users are able to comment any post they are able to read. However, the owner of the post being commented always has exclusive control over the comments, meaning he is able to block the commenting feature on specific posts, and he may delete comments that he do not approve. Users have to be logged on to the system making it impossible to comment anonymously, every comment has a link to the log of the one making the comment.

We want the young learners to be introduced to a communication environment that resemble most of the basic functionality known from publishing on the open internet, but make it possible to explore this within a safe environment. Therefore it is possible to comment on postings made by others by writing a text in another log, and make an ordinary hyperlink to the posts that are commented.

### **Dialog in eLogg**

Dialog occurs when individual users are able to produce and distribute information. Ideally the flow of information runs in several directions, giving all users equal opportunities to exchange information [12]. Giving every user their own virtual space where they are able to control how the content is published, influence on parts of the design, and the posts context is essential if dialogic patters shall occur.

We put quite a lot of energy into building easy trackback functionality into eLogg. Trackbacks makes it possible to automatically make hyperlinks between a post and other post written in relation to this post. We use this functionality when the teachers give assignments, and to make it possible to let the learners keep control over their texts (Hoem 2005a:38). The use of trackbacks makes it possible to design a virtual learning environment where

commenting and dialog may occur with some of the characteristics known from the communication pattern registration.

User-control is essential in eLogg in order to make the users able to adapt the system to their needs, and to make them feel confident. An important aspect is the control and access to the learners own material. To help this every post in eLogg may 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 subjects, and are shared among all the learners in a given group. The subject-categories may not be changed by individual users, but each user may define additional categories that may be used in their own logs, in addition or instead of those defined by the system administrator. We have chosen a practical approach to categories, following a general design rule that all the tools presented to the learners should be adaptable to individual styles of producing and publishing information.

Comments are also important in dialogic patterns, where they may re-contextualise the meaning of a post through other user's response, they function as an alternative to posting [13], and, perhaps most important, comments are an effective way of giving the users a concrete manifestation of the posts visibility to others. The latter function makes the learners aware of their audience, and may be highly motivating. The idea is that no post, even if it is an answer to a specific assignment, can be considered a final documentation of the learner's ability to mediate his knowledge. On the contrary, the meaning of individual posts may change over time either by the owner editing the original or through a re-contextualisation, by comments provided by others, or even by comments by the user who wrote the initial post. The post may also be put in another context if the owner decides to include it in a project where the context becomes posts provided by the other project members or made collectively by the project team.

### **Syndication in eLogg**

Syndication occurs when information is produced by an information centre, but when it comes to controlling distribution the information centre lets the users take control over the information and re-use it for different purposes. The re-use of post from individual logs in projects, as mentioned above, is also an example of syndication in eLogg [14]. The other members of the projects will not be able to edit these posts, but they will be able to decide

where the posts should appear in the text, and they may delete the reference to the post from the project.

Another feature is the implementation of blogrolls, a function well known from weblogs [15]. Due to our own use of weblogs we were quite sure about the importance of blogrolls when it comes to developing, and maintaining a collaborative learning environment. The users of weblogs often write their posts in response to others, and the blogrolls way of displaying activity significantly reduce the time from a post is written to it is read by others, potentially generating comments and related posts.

During the development of eLogg the blogroll was implemented in several different ways. The teachers in the reference group were sceptical to the first implementation, mostly because they were afraid that this feature could stigmatize those who did not publish often. The result became a negotiated solution, more like the functionality known from “latest news”-listings in online newspapers. The users names are displayed in an order corresponding to when the latest post are written, but the “flagging” of posts posted within a given timeframe was not implemented. Those who may be displayed on the blogroll will always be all learners in a group (normally 20-30 persons), and in addition the blog-owner may add others who’s weblogs he would like to monitor. However, the blogroll does only show a limited number of names, solving a potential problem caused by the displaying of the ones who seldom post at the bottom of the blogroll.

## **Conclusion**

When discussing the design of virtual learning environments with the ambition of facilitate the learners’ self-regulatory skills one needs a more precise vocabulary than the widely used term “learning strategies”. During the development of eLogg we have used a distinction between strategies and tactics to identify three different groups of communication patterns within education: Strategic, tactical, and adaptive communication patterns.

Deciding to use communication patterns as a principle for designing a virtual learning environment may seem radical, as long as these patterns do not tell anything about how education and learning actually take place. However, these processes are complex, involving a multitude of different perspectives, and even if we were able to describe the actual learning-processes these descriptions would be difficult to operationalize in a discussion about design issues. Working with communication patterns makes the discussion less abstract, providing a

vocabulary adaptable to the designers' terminology as well as corresponding to social constructivistic theory that emphasize the importance of communication in all kinds of learning.

Overall the use of strategies and tactics in relation to communication patterns as guidance in the thinking about the design has been fruitful, even though many of the ideas that followed have been abandoned as a result of negotiations between educators, researchers, developers, and designers. In retrospect it becomes evident that even during the design process, when we believed we were in the position to plan strategically, we were often forced to think and behave according to tactics. Nevertheless, we believe the principles and initial ideas behind the design and development of eLogg is worth following in other and future projects.

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[1] In medieval monasteries rare or "dangerous" books were chained to the reading desks, not only to prevent them from disappearing, but to a large extent to limit, and control access to the information within these books.

[2] See "Studenters lærings og studiestrategier: Kvalitetsindikatorer i høgere utdanning?" (Pettersen 2004) for a discussion of these terms.

[3] de 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 outside the armed forces, like in higher business education etc.

[4] "Space" is not limited to our physical environment, but may also include virtual spaces.

[5] When 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)

[6] These nine patterns are found by asking two initial questions (Bordewijk & van Kaam, 1986): 1. Is the transmitted information owned by an information service providing centre or an individual information service consumer? 2. Is the transmission and use of the information controlled by an information service providing centre or an individual information service consumer?

Bordewijk and van Kaam came up with four patterns because they did not consider the possibility that both production and distribution may be "controlled" collectively.

See also Jens F. Jensen, A new typology of information services  
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[7] Dramaturgy 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 2005).

[8] The term "adaptive communication patterns" is used to emphasize that these patterns are those most likely to extend the "space" where education and learning can meet, by acknowledging both strategies and tactics.

[9] For a description of the different functions in eLogg, see Hoem & Schwebs 2005.

[10] Any communication environment will facilitate several, sometimes all, communication patterns. Designing with particular focus on the adaptive patterns do not imply that the other communication patterns are absent when the system is used for practical purposes.

[11] Commenting does not only resemble the communication pattern "commenting", but also "dialog" and "registration".

The communication patterns are analytical tools, not a system designed for absolute classification (Hoem 2005a).

When discussing the communication pattern commenting the user controlling the post that is commented may be considered as a centre.

[12] Making it easy to flux between different user roles is a central idea behind the design of eLogg. This becomes evident through the close connection between "consultation" and "dialog", an interplay that continuously draws the communication towards "collaboration".

[13] The possibilities of producing information on different levels are considered important, especially when the learners are socialised into a publishing culture. Jean Lave and Etienne Wenger argue that we are involved in a number of "communities of practice", in some of these networks we are core members, in others we are in the periphery (Lave & Wenger 1991). New, potential members will have to begin their in the periphery. This is similar to the situation which meets a student when he log on to a virtual learning environment for the first time. Regardless technical or social reasons some areas of the community will feel easier to enter. (Hoem 2005b:3)

[14] At the moment the owner of a post will be the only one able to import the post into a project. Initially we wanted everyone to be able to import any post into a project, with reference to the author. However we decided not to implement this from the same reasons as abandoning wiki-functionality.

[15] A blogroll normally display a list of names, where the names corresponding to the blogs 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.