Putting Tele-Pedagogy into Practical Use: How, Why and When - Will It Affect the Administration and Organisation of Education and Educational Institutions?

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Abstract: Mr. Lindberg and colleagues of the GEMOS team aim at presenting a conceptual Pedagogical Platform for OFDL consisting of a set of generic models, employing available communication technologies (audio, video, live two way sound and picture, multimedia, Internet and the WWW). The primary aim is to present a working methodology for Continuing Professional Development and the Work Place as a Learning Arena. In this paper he discusses the changes that the different parties in educational institutions will experience: the students, the faculty and the administration - when the new communication technology is taken into use. These changes calls for the reformation of teaching and learning, of education and its organisation and administration. The results of an investigation into ongoing efforts throughout the western world is also presented.

Keywords: Distance Learning, Distance Education, OFDL, Pedagogical Models, Education Paradigm Shift.

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Introduction

In a previous article I have described the Paradigm Shift that is taking place in education [LIN 99-1], asking the question: Is there a need for a new Pedagogy? The paradigm shift will influence other dimensions of education as well, other than the pedagogy and didactics. When 'describing the future', as is done in this article: How trustworthy is the description? Is it the result of 'research into the future'? Is it philosophy? Is it pure 'guesswork'? Is it 'intelligent guesswork'? In preparing this article experience from educational institutions, sound knowledge about the technology, and studies of actual trends and practical work being done, is used. Other researchers, technology and business developers and fellow lecturers work have been studied. A search for statistics and of practical examples that can substantiate the descriptions given, are sought. The search for examples documenting the shift are continuously sought and is presented in tables towards the end of the article. Let us first take a look at the Paradigm Shift and the kind of changes t might involve. Below is repeated the description of the shift itself - as a clipping from the previously mentioned article.

1. The Paradigm Shift

The traditional way of teaching: in classrooms, gathering all students in the same place, at the same time, far away from each individuals homestead - this way of teaching is under severe pressure to change. The pressure is exerted by the technology vendors and by the students perception of the inherent potential of the new technology as learning tools. The pressure is severe and a large number of the public, the industry, the commercial businesses, the politicians have great expectations to what changes the 'new learning technology' can cause of changes to society [LIN&AL 98]. The Paradigm Shift is:

'from a commonly known *public and synchronous* way of deliverance, to a way which is under demand to be *individual and asynchronous* - individualism and asynchronism being made possible by the use of new technology and not the use of new and more teachers. Individual not being meant literally, groups of learners can be called individual in this sense. The teachers and lecturers, at large, will have to change roles from being specialists and sources of information and facts, - to that of being organisers, tutors and pedagogical mentors.' [LIN 99-1]

This figure below, presented in the previous mentioned article [LIN 99-1], depicts the shift.
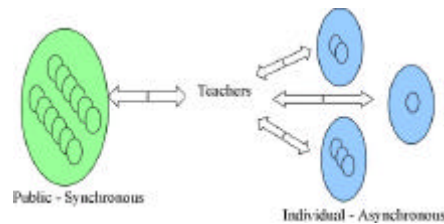

Fig 1. The Paradigm Shift

When analysing one finds that the consequences for all dimensions of education are rather dramatic. The demand on resources, to make the change and to maintain the 'new system', is high - very high indeed if traditional thinking shall be employed.

1. What are the Consequences?
Let us look at one scenario giving a possible example of 'the new system' to answer this question. Let us take different perspectives. Let us take the perspective of:

- the individual student - the group of students
- the academic personnel, as a lecturer and as a researcher
- college/university organisation and administration
  (students, academic personnel, other personnel, study programs, courses)

Below follows a discussion of the matter seen from each of these perspectives. Sometimes describing existing methods and appliances, at other times describing what is believed needed for successful results.

The student perspective
When looking at this from the students perspective it is necessary to consider who are students in the future. Is it only the children that grow up and go to college and university or will 'life long learning' and 'knowledge based enterprises' have a meaning and be given content and substance in practical terms, throug a new educational system? Will the new communication and learning technology help towards this?

'The shift also incorporates an inflow a new type of student: *the student undertaking continuing education*. A student with a prior degree and with work experience. A very different student from the ordinary undergraduate. The "new campus", where there are very few students *physically present*, will comprise of just as many continuing education students as ordinary undergraduates.' [LIN 99-1]

If statistical trends so far are extrapolated the majority of learners in higher education will be adult learners [ASL 91] - in a not too distant future.

What are the demands? How do the future students want to study?
It is necessary to realise the differences between the young inexperienced undergraduate and the adolescent part time student. They have very different needs as regards the learning arena, and they have very different needs as regards *what* they are going to learn. A lot of what a young undergraduate learns when entering university is probably 'community oriented'. This is described to more detail in [LIN 98] through the notion of *Personality Spaces*. It is difficult to perceive how some of this learning be done in a 'net based' environment. For the sake of ease, let us

concentrate on the final year students and the students that have a prior higher education and work experience.

It will be important for these students to feel confident that the study programmes, the courses and the teaching, enables them to reach their learning potential in an efficient way. *Learning potential* and *learning efficiency* in this sense is an individual measure - not at the college hands to be decided on. The future students will search the world educational networks, in order to find the courses that suits them best as regards reaching learning potential and efficiency. Is there anything to search - that makes this possible? Yes - you can now find net based courses designed by renowned universities available everywhere. It is just a matter of time before universities are confronted with students who wish these kind of courses to be part of their degrees in exchange for something else. Universities will also be confronted with students that are not satisfied with the courses available on campus - for various reasons - wanting to exchange them with a net based course arranged by a different university. The reasons might be: dissatisfaction with the course content and mode of deliverance, dissatisfaction with the teaching and tutoring, the student might want to take the course in a different semester than the ordinary study program instructs him to etc.

Ultimately this will lead to a situation where the student to some extent decides himself on which courses to take at what time in his study, and the courses he chooses might be organised by another educational institution and will thus have to be acknowledged by his 'home university' as part of his study programme. This has many implications - overwhelming and impossible it seems - but it is necessary to address the possibility of this happening and the problems that arises.

The student group perspective

Many researchers argument that learning work is nurtured by a *social context* ([DEW 16], [MYH 68], [WIL 97], [TAL 95], [WIL 96], [RHE 93], [PED 81]).When investigating net based learning initiatives it is found that almost all of them try to establish a social context and a community feeling amongst the students. This probably poses the greatest challenge to designers of net based courses and programmes. Very often traditional methods are used to facilitate the *building* of these communities: pre-course gatherings, in-course gatherings and the establishment of study groups or study circles which meet physically. Efforts are made to establish 'net based communities': telephone meetings, video conferences, net meetings using various web based programs and other computer programs, various web based collaboration tools (discussion forums, shared document production, mail systems etc.)

The community of students and the dialog that builds and sustains these communities, large or small, are believed to be vitally important for successful net based learning initiatives [LIN 98], [LIN 99-2]. Some particular students can manage on their own, but most will not. There is a lot of effort put into developing mechanisms and tools for nurturing net based communities. Till now a great responsibility is put on the net tutors to bring 'drop outs' into the communities and to 'sub group' the communities to have communities that operate and communicate at similar pace. *Communication Flooding* and *Cyber Silence* are problems that have to be addressed, a complex problem related to language context and available communication tools on the net.

As regards the current methods of tools for organising the students in learning communities, where meaningful learning dialog can occur, many of these tools are not functioning to its purpose or will represent obstacles to many of the students that want to undertake net based learning. The available technology is somewhat inadequate to be used with live, two way sound and picture communication in multi user environments. The availability of such technology can alleviate a lot of the problems encountered.

The lecturer perspective

[LIN 99-1] discusses the need for a different pedagogy for net based learning - different from the class room teaching model. It calls for a more *learner centred pedagogy* and for *factorisation of the lecturer role* meaning that the achievements of learning goals are important and that the traditional lecturere with total responsibility for the students will be replaced by a team consisting of for instance the subject specialist, one or more facilitators and an administrator.

What are the consequences for the lecturer?

Many researchers have shown that a it is difficult to design successful net based learning environments. Designing distance learning courses requires a substantial effort. Designing distance learning courses of high quality - evaluated amongst learners as such - require a substantial investment. It is not a matter of 'automating the old'. It is not a matter of transforming and putting all the learning media into the predominantly text based format that is used on the net. That does not function well. There are a lot of factors that causes the malfunctioning; the improper language context for transforming oral communication to written, time base conflicts, difficult person to person

influence on thoughts and meanings, poor community identity construction (learning being enhanced by community participation), divergence and fragmentation of meaning and thought etc. [LIN 99-2].

This indicates that one consequence for the lecturer is that rather large resource investments have to be put into a proper design of the distance learning media, the traditional media and the net based media. The design ought to be research based and it will be necessary firstly to build the lecturers competence and skills in designing such media - before any effort other to do some experiments are put into it.

What then when the design is finished and the course is presented to the students? Will the students manage to perform their learning work - on their own? Will their skills and knowledge be the intended one - when the teacher is not there to watch over them? In traditional courses we employ a linear fashion of education and training [OLI 99]. Doing the work, participating when the instruction is given, at the correct time, at the correct place, in the correct setting - are thought to ensure learning to take place. Evaluation of this probably take place in the physical meeting between the lecturer and the students and between the students themselves. What then when you loose contact with your learner and learners are not in touch? A learner centred philosophy must be employed - where progression is measured and evaluated by each individual student *reaching predefined learning goals* - and not milestones related to time and participation. This requires a different approach to teaching - and to learning. It requires that a communication about the learning goals and their achievement, is established between the student and the teacher and other participants of the learning community. This requires a lot of work - especially when considering the poor language context that exist in the net based media today. In the future a new language context must emerge - a context that makes net based communication easier and more efficient as regards content and time used. One easy example to give towards this is the professor with 50 or 150 students in class. In the lecture room the lack of social confidence prohibits the majority of students to ask questions. This is not the case in the net based environment. The level of social confidence can be virtually nil - and the student will ask questions. The result is that a huge number of questions and lengthy discussions arise in the net based environment. The numbers are so large that the traditional lecturer role becomes insufficient and must be replaced by other means and persons - which again puts a demand on resources and calls for the factorisation of the lecturer role.

In the lecturer perspective a net based learning environment, a large amount of resources must be invested in the human resource development to give the personnel the proper skills and competence to master the new learning technology and to make them able to do proper design of their courses. Furthermore a large initial investment must be made into each course to arrive at a high quality design as seen from the learners perspective. The operation of net based courses are demanding, probably more demanding than traditional courses. On the other hand net based courses are available in larger markets, the net based courses respond to market (student) demand easily and quickly (*everywhere* and *anytime*) and the net based technology has an inherent capability of providing better learning tools.

The researcher perspective

The organisation of traditional educational institutions are often imaging the study programs. In small institutions the result will be, as they often cover many subject areas, small faculties in the different subjects. In many cases the size is 'sub critical' and the academic achievements and academic substance likewise. The new technology have the ability to introduce a 'border less' academic society. Fellows working in the same field can establish 'virtual groups' and academic business ventures results in 'virtual institutes' - they aren't virtual - they are very real. The grouping is made possible by utilising personal networks and a willingness to share and support academic and business opportunities in the belief that the 'market' is larger than can be covered on your own. By the use of new communication technology and the personal networks the global market becomes locally available. This in turn leads to more and more specialisation amongst the specialists and more and more generalisation amongst the generalists - as regards education. This trend is promoted and supported for instance by European Commission Programs and many such 'virtual institutes' and 'virtual companies' will emerge. It is to be expected that academic personnel will be organised in two ways:

1) by the institution that employ and pay the salary
2) by a professional network where the tuition and research is done

This view is supported by other researchers as well [Ringen], [others+Aftenposten]. This will indeed change the way the academics work and teach. It will change the way we establish and sustain our professional relations - to a large extent with academia outside (abroad) of our own institution.

The college/university organisation and administration perspective, and the student and personnel administration perspective.

It is previously stated that the organisation and administration of an educational institution is traditionally imaging the organisation of the study programs. That means that students are gathered in classes with a relation to courses and personnel are gathered in departments with relation to study programs. What will be the case with a large influx of students who are doing their learning work net based? What about students that are taking net based courses at different universities as part of their study programme - or through the 'virtual institutes', both courses and full study programmes? Who accredits the courses and programmes - an administration or the professors - or somebody else? The 'linear' course and study programme structure is will probably be exchanged for a 'non linear' structure. How will that effect student administration and accreditation?

2. The statistics: Who are doing what?

There are a lot of activities trying to utilise the internet and other electronic communication technology for teaching and learning. An investigation is being done to find educational institution engaging in research, development and 'business' in this field in Europe and the Americas The findings are:

Table 1. Universities/Colleges found with Indicated Activities. Percentage of total in each country.
Preliminary findings**. An updated, detailed list can be found at [LIN 98]

Country	Research & Development	Single Courses	Full Study Programs	Membership in Virtual Institutes
Europe	more than 70%	more than 70%	8%	3%
Previously Eastern Europe	23%	4%	0	0
USA	90%	90%	15%	10%
Canada	more than 60%	60%	12%	5%
Mexico	30%	10%	3%	2%
Brazil	12%	2	1%	0
Chile	2%	1	0	0

The numbers and the type of activities found act as evidence that important processes of change have started in these educational institutions. Many experiments prove successful, thus stimulating further activities. As these institutions gain positive experiences they will extend their activities.

3. Summary and conclusions: How - Why - When?

As is seen from the above discussion and documentation it seems evident that net based learning environments are being developed and used in increasing numbers. This will change the way students do their learning work in the way that:

- they will not be present at campus for their full time of study
- they will be associated with more than one educational institution, at free or adviced choice
- part of their courses will be of a kind that is presented internationally
- part of the courses they take will be presented to them by specialist groups (virtual groups) thus ensuring 'state of the art' knowledge
- they will collaborate with other student electronically
- they will be part time students at some time

This will also change the way the academic personnel work in the way that:

- their role will be factorised: those with a subject speciality will specialise further and be part of networks of specialists and researchers, others will become pedagogic facilitators and tutors - loosing their specialist status
- lecturing will be reduced for some, for others tutoring will be increased

- teams will have total responsibility for students, who are not necessarily at campus
- research and research groups becomes more important
- the colleagues are not necessarily on-campus, but in the network

The university/college administration and organisation will have to change to adopt to the fact that:

- the roles of the students and the academic personnel has changed
- high quality courses, centres of excellence are key success factors
- student administration involves more than the home institution
- student administration will have a closer focus on each individual student (each one being special, a client or customer more than one of many)
- networks must be maintained and further developed, cross institutional administrative procedures must be developed
- electronic administration tools must be used, interfacing other institutions
- evaluation procedures and accreditation will be harmonised internationally
- funding will to a larger degree follow the student
- marketing becomes more and more important
- human resources development will require substantial resources

The process of change *has* started and every institution of higher education has to meet the challenge by starting their own process of change and to make the commitment to adopt the new teaching technology as integral part of their tuition. Owing to the new ways the academic personnel will organise (in virtual institutes) it seems not to be a competition between institutions in a conventional way. It rather seems that those who are able to cooperate and to share will be the successful ones. Excellence brought forward by networking, cooperation, mutual trust, supplement and reinforcement are likely to be the key issues leading to success.

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