Does the Difference Make a Difference?
Reflections on E-Learning

Claus-Peter Appel

The object of this paper is to reflect on the challenges posed by a course taught over the Internet, especially the quality and structure of information presented. Throughout the paper, some of the problems encountered in the use of the new technology are scrutinized and compared with conventional forms of teaching and information delivery.

The paper's intent is not to suggest remedies for these problems but merely to point out that many problems have little to do with the fact that information is presented or education is delivered by means of the Internet or computer. Instead, it is claimed that we deal with problems well known to us in conventional education, yet unsolved. It is suggested that these aspects should be given more attention than they commonly get in the production of both educational and commercial information presented on web sites.

Nearly every technological innovation in the realm of information technology has also been used in teaching. Some of them have caused more debate than others, since their usage questioned the role of teachers. A good example of this was the introduction of tape recorders in the acquisition of language. It raised questions, like: Were machines better "teachers" than teachers? Were teachers still necessary? Would students accept the new technology? When compared with one another, which approach would render the best outcome in a cost benefit analysis? Looked at today, with the wisdom of hindsight, most of those questions seem out of date, may even cause a smile. Anybody knows how to use

a tape recorder nowadays, but how many students use a tape recorder while learning a new language?

The introduction of computers to the world of teaching – and maybe even more so the combination of the Internet and computers – seems to create the same type of questions once again. In this paper it is argued that this type of teaching poses high demands on the structuring and timing of materials presented and that much more attention needs to be given to these aspects of information production.

Since there is good reason to believe that no two e-learning classes are alike, it might be helpful for the reader if the context in which these reflections have emerged was described before developing this point any further.

The scenario is this: A course in psychology (university level, A and B level, two terms) is taught on the Web. Each module of the course has its own folder containing mostly handouts, mini lectures, pictures and exercises, and hundreds of questions regarding the contents of the literature for downloading. For most modules, supplementary information is offered on various web sites and on a CD students can purchase. The CD contains richly illustrated mini lectures, movies, exercises, quizzes and an electronic dictionary. Each module has a so-called Forum where students can ask questions and get answers regarding the contents of the module within 24 hours. A chat function gives students the opportunity to "talk" with one another.

One basic idea in the production of the course was to minimize the time students needed to be on-line in order to reduce the costs accrued by the participants. The CD helps to achieve this and thus plays an important role in the course. Both part-time and fulltime students enroll and students can choose between alternative modules and to some extent in which order modules are studied.

Not only are there many types of e-learning classes, but also many models when it comes to teaching. Therefore, it seems to be a good idea to clarify the theoretical platform for what is to come, i.e. a clarification of what teaching is all about. In the mind of the present writer, the

simple and maybe even simplistic answer to this complicated question goes something like this:

> *Clear presentation of information and facilitation of the learning process is what teaching is about i.e. a combined behaviorist and constructivist (cognitive) point of view* (Gow & Kember 1993).

Some readers might argue against this emphasis on information rather than other aspects of teaching. The reason for this is the fact that a clear presentation of information is a "sine qua non" for anything that goes beyond, provided there is anything beyond. Thus, the importance of clarity cannot be emphasized enough in the type of partly pre-packed course discussed here.

In the literature on distance learning the argument is prevalent that the stress on information, especially pronounced in prepackaged materials, automatically leads to surface learning (Garrison 1993) due to a restriction of choice in such a system. To those adhering to this point of view, I can but respond that a restriction of choice is evident in all types of (learning) systems, no matter how they are constructed, since any system constitutes a restriction by definition. However, no matter what the system, experience shows that students will always construct their own interpretation of the information presented (West & Pines 1985).

Differences that Make a Difference?

Having clarified the context of this paper, let us consider for a while teaching with the assistance of the new technology without using the popular new language that usually accompanies it. Let us begin by taking a closer look at some of the common features that are part of the process of teaching:

Students in most classes, no matter whether taught on-line or on campus, still read books. Students still get handouts, which help them to handle the body of information that is part of the course requirements.

On-campus students get "in vivo" lectures; on-line they may get something similar – sometimes in "canned" form. However, getting information from sender to receiver without face-to-face interaction is not all that new: Correspondence schools have offered instruction by mail, sending lessons and examinations to students for quite some time. Obviously, they too relied heavily on the written word.

Yet, one often encounters the argument that having access to these "in vivo" lectures makes all the difference between on-line and on-campus learning. A closer look at this argument reveals that much of what is conveyed during "in vivo" lectures is well rehearsed and presented in much the same way term after term. In corroboration of the point, the reader is invited to think of an elementary course in descriptive statistics.

In this context, it is interesting to note, that students most often are busy taking extensive notes while attending lectures on campus – they seldom use a tape recorder to record lectures. It is a bit like postponing learning to a later point in time. Why should this be so? Could it be that this is evidence of the superiority of written materials over the spoken word when it comes to learning?

One reason for the popularity of written materials is of course the fact that they can be read repeatedly, while "in vivo" lectures cannot be handled this way, unless taped. In addition, if taped, listening to them is more time consuming than reading notes. Students know this. Some teachers do too. Those who do, tend to supplement their lectures with notes distributed to students. And quite a few of those teachers who have distributed the entire text of a lecture have experienced that students preferred reading the manuscript to attending the lecture.

So, whether off-campus or on-campus teaching: Both rely heavily on written materials. There is not much difference between them in this respect.

So, what could a class taught with the aid of a PC have to offer a student? I should think, convenience most of all. One does not actually need to be on campus, it is a bit like home banking, nearly everything one needs to do can be done at home. There is no need to expose oneself

to the whimsies of weather and traffic. Everything can be done while enjoying the comfort of one's favorite armchair. At least that is what the familiar message wants us to believe; yet, reality is far from this idyllic scenario, since the message conveys but part of reality.

Provided there are no technical hassles (which sometimes is the case) when starting the computer, shaking hands with the Internet provider or gaining entrance to the site where all the goodies attracting you to the class are presented, you will enjoy the wide varieties of options presented to you. The well-known slogan by one of the major producers of software "Where do you want to go today" would probably be adequate to describe the situation.

Provided one has survived this far, it will be at this point problems will start. Once you are on-line you find yourself in a predicament familiar to most drivers coming to a new city: It is difficult to drive while reading a map, at least if you want to keep a decent speed. Chances are that sooner or later one will take a wrong turn and be lost – in this case out in cyberspace. If you are lucky, it will not be outer cyberspace.

Let us suppose you took the right turn, what are the chances that you will take the right turn next time around? It is interesting to note, that web sites have provided for the possibility of making the wrong turn and consequently getting lost: They have a nice little feature sometimes titled "Home" which gets us back to square one – which is nice, if it is where you wanted to go in the first place.

The point is this: When reading a book a simple, well-rehearsed routine takes place: One starts reading the letters at the upper left of the page, one after another. Reading a web site does not initiate such a simple routine. It would not be of much use either: There are no simple rules for reading a site. Where to go or what to read is not self-evident, and once one has decided what to read, it does not mean it is what one wanted to read. Consequently, one has to scan the whole page, which is hard work even if you happen to own a decent monitor. It strains the eyes, it takes time and is likely to create irritation, since most of us like to get to the point as quickly as possible.

Sometimes information is presented like loose, unnumbered pages between the covers of a book. In order to read them in the right order you need to read a little of each page, make it stay in memory, and then decide in what order you would put them back between the covers so that reading them later will make sense to you. Of course, such a book has one advantage for the producer: It is easy to exchange pages and to update information. However, how does the reader know when he has to update his own edition of the book?

Stated in a different way: The flexibility of a web site is both its advantage and disadvantage. It is nice to know that there are constantly updated versions of the book on-line – but it is probably equally frustrating never to know whether one is up to date at a specific point in time – unless one stays "on-line" all the time. It is in the natural interest of the "webmaster" (teacher) to offer the latest information – an interest shared by the consumer (student) of the information offered. Since it is the responsibility of the webmaster to stay ahead of the consumer (otherwise he will loose customers) a perpetual race goes on. One can but speculate on how it will end – if it will ever end. It is a bit like reading a book out of Alice in Wonderland: Every time you open it, it has a different text. It would be very difficult ever to know what book one has on one's shelf, let alone know when one has read the entire book.

A point evident in this scenario is this: Acquiring knowledge with the assistance of the PC and WWW is a setback in that it demands that one masters the skills required on top of the demands following from the curriculum. It is a bit like learning to write with a fountain pen while learning how to write: It is unlikely that one can avoid inkblots on the table surface. One will have to concentrate hard on both tasks and it is not until one masters the fountain pen that one will fully concentrate on the contents of the curriculum.

Thus far, only the presentation of information has been addressed, that is, the formation of insight and understanding has been excluded. Some readers would claim that the process of reaching insight and understanding is greatly benefited by the presence of others, i.e. is social

in character. On campus, they would claim, one has ample opportunity to talk to fellow students and sometimes even teachers, especially in seminars, a type of teaching that cannot be simulated via the WWW, or can it? This issue requires that we take a second look at the issue of face-to-face communication frequently encountered on campus.

Before I had access to the presently used platform on the Web, I did a course entirely by e-mail. At regular intervals, I sent a memo with questions and answers to all those attending the course – without the names of those asking. The rate of questions regarding the content of course materials was quite high. My impression was, that it surpassed the rate on campus by far. When I later changed to a platform on the Web, students told me that this was a less personal way of handling things and that even though there were many advantages in having a platform or site on the Net, something was lost in the process, most likely the personal touch of privately asking questions was one of them. Consequently, the rate of questions dropped drastically.

Does this behavior differ from behavior exhibited by students on campus? In my experience, the reluctance to ask questions in the presence of others described here is present even on campus, an observation corroborated by social psychological research (Sabini 1995).

Actually, this should not surprise us. As teachers, we are not automatically perceived as the friendly guy next door who is lending a helping hand. We are also the ones who make major decisions about students' futures: We evaluate their contributions; we give grades for their performance in exams. We are a little bit like a boss in any job and encourage behaviors accordingly, whether we teach in a virtual classroom or in a classroom on campus.

How can this predicament be handled successfully? Research in social psychology suggests (Sabini 1995) that contributions, especially those deviating from the expected, need much encouragement in order to see the light of day. Thus I have made a habit of answering questions by starting with an appreciation of the question asked and end my answer with an encouragement to ask further questions should my answer be

regarded as unsatisfactory or lead to new questions. Some students have noted this and responded positively. Albeit, it did not have the impact I had wished for, neither on campus nor off campus, namely a substantial reduction of the silent majority. Maybe it would be best to provide an opportunity to pose questions incognito, something easier done in e-learning than on campus. The situation is similar when discussions are concerned. The reluctance to actively join them is similar in on-line and "in vivo" contexts.

There are many possible conclusions that could be derived from this observation. I shall restrict myself to one: I suggest, that less emphasis should be made on the importance of face-to-face communication in education. The concentration on media, in my view, only clutters the issue. It would probably be more rewarding to address the issue of how to simplify and encourage communication between teachers and students independent of the means of communication.

I imagine that what comes to mind when reading a strong statement like the one made above is something like this: But what about the bold student who overcomes the psychological obstacle and still asks a question? In a lecture, he can reckon with an immediate answer, which of course he rarely can when attending the virtual classroom. I would go along with this argument. Most of the time, the student in a classroom on campus will get an answer more quickly than a student in a virtual classroom. However, I am not so sure that the speed with which the student receives an answer tells the whole story. The quality of an answer also merits attention. When teaching in a virtual classroom, I enjoy that I (sometimes) have time to prepare an answer. I especially enjoy those questions that stimulate me to look things up. The result is often the publication of a written mini-lecture. In my experience, something tantamount is rarely possible when teaching a class on campus. Judging from the reaction I get from students they seem to notice – and enjoy – the difference, and so do I. Often the publication of the mini-lecture results in a sequel of new questions, which seems to generate a lot of fun for all involved. Teaching at its best? Surely,

for those actively involved; I have my doubts about the possibility of generalizing the effect beyond those directly involved. The point I am trying to make here is that good teaching is good teaching – regardless whether it takes place on-line or "in vivo".

The question that keeps popping up while writing this paper is this: What is the difference that makes a difference – provided there is one? Ever so often, I hear myself saying: The only control one has in teaching is that we can control what and how information is passed on. That's it. No more, and no less. We cannot control how the information is received, how it is understood, how it is restructured, how it will be used, regardless of the means by which teaching is carried out.

The Need for Simple Structure

What we can do, however, is to prepare the information to be sent in ways that make it as straightforward as possible – both on campus and off campus. This requirement is even more imperative for Net-based courses since they are likely to attract other kinds of students than those attracted to studies on campus. Hence, one has to reckon with a greater variation of the personal background of those students; it probably exceeds even our wildest imagination. This calls for simple structure and clarity in the organization of materials published, even when the message is complicated. Having people read their messages is a challenge relevant to anyone in the business, as most of us have experienced when trying to figure out the instructions that come with a newly purchased video-recorder. The partly inappropriate use of language (often due to sloppy translations) is only part of the problem; the other one is – and maybe it is the more important one – the structure of the information presented.

Maybe we could learn more by facing the challenge created by the production of decent instructions for a video recorder? What should the structure look like? Would it help if the question were rephrased into others like the ones below?

- How can we organize information for the quickest possible retrieval?
- How can we present information in an unambiguous fashion?
- How can we get the reader to notice information important to the sender?
- How can we influence the reader's reading speed?

Let us address the last question first since it seems a little odd. We all have an understandable wish to get the information we want as quickly as possible. Under circumstances where we experience some kind of pressure – like when we are in a novel situation, let us say when scrutinizing a new web site in a course – we tend to be a little nervous. Under such circumstances, we are not performing at our best. The more pressure we feel, the greater our fear of failure (and who has not experienced fear of failure after reading instruction leaflets), the worse our capacity to digest information, to follow instructions, get. In short, we become sloppy readers, yet we read quicker and quicker, flying over the words and sentences. In circumstances like these, we tend to give up and probably sometimes loose our temper. My guess is, that quite a few of my students experience this every day. How can we foresee at what passages in our text or instructions this will happen? How can we reduce the resulting strain? Would it help if we monitored the reading of our information better? Would it be helpful if we cautioned the reader when arriving at passages with a potential for producing stress?

The point is nicely illustrated by an event that took place the other day. I received a question from a newcomer to the course. It went something like this: "What should I read first?" This brings us to a related aspect of the present issue: The confrontation with a lot of simultaneous information. Under such circumstances the reader has the propensity to jump from one issue to another, the eyes make erratic movements, the speed of reading goes up, so does the pulse and the pupil's size increases. All these are signs of stress and usually mean that reading comprehension tends to slow down. This is usually not what we want to achieve, we want our students or customers to read carefully, which

in this case is the same as slowing down their reading process and thus maximizing comprehension in order to arrive at a sound decision of which "box" they should open. Achieving this is not a simple task! The situation is a bit like reading a bulletin board at a supermarket; more often than not, it takes a lot of effort to find the message one would like to read. My guess would be that a good web site would look a lot like a perfect bulletin board.

The tricky part with a bulletin board is, however, that most boards deal with information well known to all of us: Sold: BMW, 98, one owner, call 909089; Wheelchair wanted; – Pampers, 1000, unused, call Maggie at… are all examples of things offered on the bulletin board and spread in an almost random fashion. Imagine what would happen if there were 50 such messages on the board, and what about a bulletin board containing information less obvious in character: Pferd sucht Stall & Weide; Windeln zu verkaufen, ungebraucht, 1000 Stück; Fässer direkt von Bierbrauerei. I guess that this is what things often look like to students who enter the web site of my course and probably a lot of other courses as well.

Experts in cognition state that our capacity for holding separate pieces of information is 7 give or take 2, i.e. between 5 and 9 pieces (Weiten 2001). This is probably a very good piece of information to remember for all of us who design information with clarity and simplicity in mind. If more is presented, we need to restructure the information given to us in order to remember it. If we cannot manage restructuring the materials, it is likely we will give up.

Whenever we acquaint ourselves with instructions, we come to passages that seem familiar to us. We do not like to waist time reading them, instead we want to find what we are looking for as quickly as possible. The problem is to get the reader there before he gets frustrated and without skipping passages he needs to know. This is a formidable task when considering the variation of prior knowledge of the potential readers. The usual sequential presentation of information is not likely to help much. Yet, almost all file managers use this principle of

organization as well as most web sites and instruction manuals. In the platform I use for teaching on the Net, it is the same. It takes an awful lot of clicking before one eventually finds what one is looking for unless one already knows what one is looking for. The common remedy for this is to introduce finer and finer distinctions in such a navigation tree, which is a great idea if you are familiar with the contents of the various folders, but what if you are not? It is a well-known dilemma in many other areas. Take language for example: There is an inverse relationship between a constructs range and its content. Translated to our dilemma this means that if we use folders with a wide range of contents they loose specificity and vice versa and there are no simple rules to help us know where to draw the line, there is no knowing what suits the individual customer.

Once one has decided what to say and where to put it, there is no room for much ambiguity. A simple enough request, thus it should be easy to comply to. Consider the following sentence:

> *Modules at B level can be studied in any order, provided the exam of the corresponding module at A level has been passed.*

Why may this statement be difficult to understand? In how many different ways could this sentence be understood? The reader is invited to brood over this for a while. One reason why this sentence might be hard to digest may be the fact that one is used to attend modules in a course in a predetermined order. The sentence above challenges this experience and creates cognitive ambivalence, even dissonance, and hence insecurity (Weiten 2001). Such dissonance needs to be reduced; hence the consumer/student needs to be able to ask questions which need to be answered with a minimum of delay. The point made here is that the ambivalence experienced is not only a question of the quality of the sentence but also a result of the prior experience of the reader. The question is how to produce information which creates a minimum of such ambiguity without knowing who the reader will be. This means the wider the range in background in the audience, the more difficult it

will be to produce unambiguous information. It is not a problem unique in the context of e-learning. However, it sometimes seems more difficult to resolve such unintended ambiguities when these occur in the context of e-learning. Members of a class on campus, i.e. during a lecture, can hardly avoid listening to the clarification. Message and clarification occur, in other words, close in time and space and need no extra mental activity from those in class at the same time. This proximity in space and time can rarely be achieved in a virtual class where members are not on-line all the time. Hence, one needs to find ways of addressing participants of an e-class in such a way that they cannot avoid noticing a clarification or correction. In my experience, the only means to do this is to send an e-mail to all concerned – a time-consuming activity when compared with saying a few words in class.

A question similar to the one posed above is how we can avoid that the reader misses information considered by the sender to be important. Consider this piece of information published on the first page of the course web site under the heading "News" (which is the teachers' message board):

The exam in cognition will take place on Monday at 9 pm and will be published in the exam folder for fulltime students.

Now imagine you receive a lot of mail asking things like: "Does the exam take place on Monday?" "At what time does the exam on Monday take place?" "Where will I find the exam taking place on Monday?" and "When does the exam in cognition take place?" Please note that this is neither a joke nor an exaggeration. It is a serious matter. People as competent as you and I ask these questions. Reading this you are probably as baffled as I was, when I received those questions (and still receive). It is obvious that the message has been seen, read and to some extent even comprehended by all students who posed questions, except maybe for the last example presented.

What shall one make of this? It is anybody's guess. The other day, I had a conversation on the phone with a new student that might shed

some light on this phenomenon. She asked for clarification of virtually all the information that came with a memo sent to students enrolling in the course. The only thing I did was to confirm what she had read in the memo. She had actually missed next to nothing of the information presented in the memo. It seemed a waste of time. Finally, I asked her why she was asking questions about things she already knew. What I learnt was this: It was the need to confirm that she had understood what she had read that made her ask all those questions. This need seemed to be more pronounced regarding aspects of the course structure that were novel to her (e.g. free choice regarding the order of modules and similar things).

What can we learn from this? What looks like a misunderstanding or sometimes even mere stupidity – isn't. At least some of the time, questions asked by our students do not have anything to do with their capacity to understand or their level of attention when reading information on the Web or elsewhere. What they ask for is merely the reassurance that they were right in their conclusions.

Since not all participants are attending the virtual class at the same point in time, not all members of the class receive the information simultaneously. Hence, little is learnt from questions that could have been posed by fellow students in class on campus, questions that might come to mind when reading the information in solitude. Thus in an e-class everybody has to ask his own set of questions and hence much time needs to be allocated to getting answers to questions (by both students and teachers), especially questions regarding formal aspects of a course; in my experience more than in classes taught on campus. It is probably a price that has to be paid for the flexibility such courses offer – and to many students it seems worth paying. Nevertheless, it is also likely to give rise to irritation and frustration in both students and teachers if it goes beyond a tolerable point. It makes clarity and simplicity imperative, otherwise we will receive questions like the one mentioned above: What shall I read first?

Concluding Remarks

How can e-learning be made user friendlier? Provided the technical aspects of the set-up are working well (and to my mind it must be kept as simple as possible if technical breakdowns are to be kept to a minimum), the question needs to be rephrased: How can learning be made user friendlier? To the present writer, the answer to the question does not seem to be media specific. What we need to do is to pay more attention to clarity and structure of the information we want to present. As with the technical aspects of the system, simplicity is a virtue.

It matters little to an audience if the reason for a low comprehension of a piece of information is due to sloppy structure of an indigestible but downloadable handout on the Web or simply a poorly presented lecture or argument in a class on campus. With this in mind, it is probably safe to say, that the medium matters little for the success of teaching. What seems to matter though are the teacher, the quality of the materials presented (Kember 1991) and how they are followed up.

Much more could be said about the topic of learning on the Web. Last but not least, for the student it is still a question of learning what others have learnt and, in the end, students still attend exams, most likely, with the same kind of jittery feeling generations of students have had when attending exams. So, does the difference make a difference?

The author, assistant professor in applied psychology at the University College of Borås, is presently engaged in teaching on the Net and in the production of materials for e-learning. Earlier publications on education have dealt with the process of studies at the doctoral level and methods for the evaluation of courses.
E-mail: Peter.Appel@hb.se

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