

Enhanced Education: Multimedia to Improve Teaching and Learning Performance

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Being the individual target of information attacks – round around the clock and wherever you may be, how do you feel, what do you see? Something like the dawn of a more or less chaotic information universe. Internet-freaks all over the world are delighted, educators at all stages and in all fields are frightened. What will the individual be like in an information society in which everybody at any time and in any place is able to produce and distribute information for and to everybody. And all that of an relatively high standard – in terms of ICT? Is the information society to come in fact a “learning society” or – even more an “educating society”?

There is no doubt at all that science and technology is progressing at high speed. ICT is by now omnipresent. The mysterious letter “e” is bewitching bothering an bewildering businessmen, politicians and consumers. Teachers und pupils und their parents are hoping for release from teaching and learning pains. Do they have a real chance to get rid of their traditional pedagogical tortures?

To answer this question we have first of all to find out what “eLearning” or much better “eEducation” is about? To shut a very long story of the creation and distribution of marketing-terms and successful trademarks short, let’s define operationally

eEducation as a compound of different methodologies of teaching to stimulate and assist completed learning of human beings by

employing Multimedia i.e. information and communications technologies of the newest kind.

It is quite natural that educators, teaching and learning experts are urgently calling for „Media Competence“ in the situation like that. It is at least an inalienable prerequisite for completed learning processes.

This term is by no means new. It came – as a notion not as a label - first into discussion in the times when Gutenberg had invented his revolutionary printing technology. Media competence was a topic of paramount importance during the sixties and seventies of the last century, when television programs were spreaded out all over the world. It is quite natural that media competence is a subject of concern during the present period of „multimedimania“.

What can be understood by media competence? In general and with respect to newest ICT-developments namely multimedia and global information networks?

I suggest the following working definition for the use in our discussion:

Multimedia competence, means the ability of human beings to use chaotically produced, stored and distributed information in various forms for self-controlled and effective personal development i.e. education in the broadest sense of the word.

No question, that is what educators and politicians with preferences for democratic structures and processes would like to achieve for both the individuals and the society as a whole. What we need urgently is both technological and political competence. How can we achieve it?

There are experts who suggest to do – nothing. They believe that information universes like the Internet are in a way teaching themselves. No doubt, „chaotic learning“ is possible. It is the way mankind as a whole has learned and developed over the ages. On the other hand, this

darwinistic style of learning is not very effective nor human. As far as we can judge by now, „chaotic learning“, as fascinating as it may be, is no substitute for deliberated and guided education, which makes its objectives and methodologies transparent and which is open to a variety of methodologies both technical and educational.

What we need to make the “new learning” real is a compound of educational strategies which link together traditional methodologies of completed learning with new educational visions. That is what I have denominated by

“dynamic education” being achieved by intentional teaching using all kind of appropriate educational technologies and methodologies resp. aiming at the permanently completed learning of human beings.

To do so you have to know quite a lot not only about computer science and ICT but about human teaching and learning be it individual or social.

If multimedia competence is a key-qualification for the time and the learning society to come, we are forced to find a strategy to develop it on a broad scale. To be able to teach multimedia competence one has to know first what it is – in detail. The answer is twofold: multimedia competence is on the one hand a matter of handling the multimedia „machinery“ i.e. hardware, software and sysware making up what we know as global multimedia networks. On the other hand it is a matter of using information presented by multimedia networks. As I see and understand, handling of multimedia is a technology-oriented objective, using multimedia is otherwise a content-oriented objective of teaching multimedia competence.

Using multimedia by individuals in a self-controlled manner requires abilities (qualifications and motivations) at least in the following fields:

- gathering information from different resources
- selecting information by means of individuals priorities
- comparing information (formally and/or content-oriented)
- detecting redundancies (even in multilingual information)

However multimedia competence comprises both methodologies (i.e. "instrumental knowledge") and contents (i.e. "substantial knowledge"). The first means how to use information and communication be it personal or technical e.g. by multimedia networks, the second is focusing on knowledge of (almost) any kind, it is by no means restricted to knowledge about multimedia.

Multimedia competence arises from an broad basis of "new general knowledge" pushed forward by individual and social experience. Clearly speaking: multimedia competence comprises - on the communication side - traditional individual methodologies like reading, writing, painting, speaking, listening and - on the information processing side - methodologies like systematic thinking and effective knowledge production (i.e. personal development and "learning"). Thus, the new key qualifications meet and match the (very) old educational goals.

Following these ideas we can see that multimedia competence cannot be transferred within and/or by one single and closed curriculum. Developing multimedia competence is obviously a lifelong process. It appears as a mixture of formal learning elements and phases of free experience. Multimedia competence affords a solid foundation laid by formal education comprising a variety of different disciplines, fields and subjects.

The basic educational process can be supplemented in a quite "natural" way by multimedia.- presented interactive programs. Multimedia can be seen as both a medium of teaching multimedia competence and a field

of experiments and experience with respect to multimedia competence.

However, to be able to learn by support of multimedia first of all individual learning competence – which can as pointed out above be understood as part of multimedia competence – is required. We have to look at learning as both an externally stimulated communications process and as an internally realized function of information processing. Following Ortner's concept of complete learning ("Vollständiges Lernen") we understand this process as comprising three integrated steps:

- acquiring and/or adopting information,
- connecting new with already stored information and thus transforming it into individual knowledge,
- saving and storing new knowledge within the individual (biological) memory.

Following these ideas we should look at eEducation in a twofold way. To understand functions, functionalities and functioning of eEducation it makes sense to split the entity into two separate fields which I prefer to call

- eEducation information function which comprises all formal und substantial information i.e. every content, which has to be learnt completely, in other words all semantic material to be learnt and all didactic tools which help reaching learning objectives
- eEducation communications funktion which comprises all forms, methodologies, ways and directions of interpersonal communications in order to achieve completed learning results.

The lighthous product in the field of eEducation information functions are eLearning programmes being printed on CD-ROMs or distributed via

Internet, which are nothing else but highly elaborated and multimedia enhanced programmed instruction products of the Skinner-Crowder-type.

The lighthours product in the field of eEducation communications funktion is the "learning" plattform which provides all commmunication facilities to organiase and administrate multimedai teaching and persoinal learning in waht can be called a virtual learning space.

Bringing both functional fields together we see state-of-the-art eEducation in practice as a consistent compound of

- multimedibased teaching
- face-to-face teaching
- online/ offline administration
- online/ offline learner's communication
- face-to-face learner's communication
- personal learning

This compound of funcitons and functionalities is very similar to the tollbox of state-of-the-art blended learning concepts. It is rather identicall to what distance teaching is doing since quite a number of years, however, using different technologies. That's why eEducators in theory and practice can take advantage from the experience collected at distance teaching organisaions as f.e. the FernUniversität in Hagen, which started not

Because of the paramount importance of language in human communication we have to concentrate on linguistic competence if we want to promote multimedia competence. Hardware knowledge and/or computer skills are more and more dispensable as far as multimedia users are concerned. Handling of multimedia software is becoming easier from release to release. What we have to develop is multimedia literacy as a powerfull basis for full individual learning competence.

Preparing an effective and efficient educational system for the future we don't need more armies of automobile constructors and engineers, what we need at the time being are people who can drive safely and self-controlled on the global data highways and we need people who are prepared to help others who have difficulties to find their ways.

What we urgently need are people with both learning and teaching competence, being two strongly connected but unfortunately quite different types of human competence. And what we need even more urgently is both communication and cooperation between educational and computer scientists on the one hand and between academic educators and software developers of highest quality and practical experience on the other.