

A NEW DIMENSION IN THERMAL ANALYSIS

Virtual class-room teaching over the Internet

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An enormous development has taken place within the last five years in synchronous teaching over the Internet, i.e. both the teacher and the students are simultaneously in direct communication with each other as in a normal class-room or auditorium. With this concept it is possible to communicate orally, to exchange Power Point Presentations, documents, programmes and live web-camera pictures. It is even possible to use an electronic ‘black’ board on which both the teacher and the students can work simultaneously. The great advantage with this type of teaching is that it is not restricted to a single class-room/auditorium with limited access, but in a virtual room accessible to everybody in principle all over the world, and which certainly open up new possibilities in teaching. The purpose of this paper is to present and to discuss the concept of virtual class-room teaching, how the system operates in practice, its advantages and, finally, how its inherent limitations can be overcome.

Keywords: e-learning, Internet, new dimension

What is e-learning

By e-learning is generally understood any type of teaching performed via an electronic media. A typical example is the numerous radio- and TV-courses in foreign languages and technical topics which have been offered for many years and which have been and still are, very popular. These courses have no doubt played a great role in the technical and economical development we have experienced within the last 25 years. Another example is the growing number of courses now offered over the Internet, the so-called web-based learning systems, which, no doubt, will become even more important and widespread in the future.

Types of web-based e-learning systems

Studies by correspondence were earlier very popular. In these courses the course material was exchanged by correspondence, which of course was rather time consuming and inefficient. Today, however, much course material is available on a digital form and such studies are now generally performed via a PC. This type of e-learning method is generally termed as ‘non-synchronous teaching’, that is the teacher and the students are not present simultaneously, the student can perform his studies at any time on a pre-prepared course material, which of course can have some advantages, but which also requires a high degree of self-discipline in order to be successful.

With the latest development in Internet communication it is, however, now possible to perform on-line

teaching in a so-called ‘virtual class-room’ in which the conditions are much closer to those in a normal class-room or in an auditorium. By this method the teacher and the students are present simultaneously and it is thus termed as ‘synchronous teaching’ or ‘on-line teaching’. From a teaching point of view this type of teaching is obviously much more efficient than the non-synchronous teaching (Fig. 1).

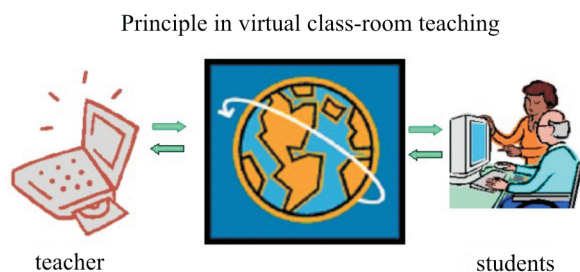


Fig. 1 Synchronous ‘on-line’ Internet teaching

Operation of virtual class-room

The virtual class-room is operated through a server. All participants need to download a programme which enable and control the communication. It is possible to log on as a teacher, presenter or a student, but it is the teacher who has the full control over the session. The communication can take place in several ways:

- Orally, all participants. Controlled by VoIP (voice over Internet Protocol). The teacher controls the possibility of the students to speak.

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- Chatting, all participants. Students can even write questions or comments which only the teacher can see.
- Writing/drawing on a common 'black-board', all participants.
- Presentation of Power Point Presentations, Word documents, Excel files.
- Recording of documents and presentations.
- Presentation of Internet Homepages.
- Web-camera presentation of teacher and speakers.
- Presentations of videos and animations.

To participate is required a reasonable fast broadband connection (ADSL – 256/128 Kbyte s⁻¹) to the Internet as well as a head-set with microphone and headphones.

Advantages/disadvantages of virtual class-room teaching

The great advantage of the virtual class-room teaching is of course that it can be performed under conditions which are close to those in a class-room as mentioned above. The virtual class-room even has the additional advantage, compared to the normal class-room, that the students here have the possibility to ask questions or to draw the attention of the teacher to all sorts of problems – for instance that he/she wants to have some part repeated, that the speed of presentation is too high (or too low) – and the fact that the student can be anonymous certainly improves the efficiency of learning for many students.

Besides, the following unique advantages can be mentioned:

- World-wide participation is possible.
- Specific topics can be covered by external experts from all over the world.
- Courses can be run at suitable times – for students from industry it is generally of interest to participate in what can be termed as 'go home courses'.
- Long travels not needed.

The main disadvantage with this type of class-room is the lack of personal contact. For the teacher he

cannot see the reaction of his audience and it is therefore important that he is well trained for this type of lecturing. In Denmark this training can today be obtained through a course given by the Danish e-Learning Consortium (Technical University of Denmark). For the students the effect of the missing personal contact to the teacher is to some extent diminished by frequent web-camera presentations. However this does give the personal contacts to the other students which also are very important. One way to diminish this effect is arrange that the students work together in smaller groups and that all occasionally meet during long courses. The teacher should also take care that everybody introduces themselves regularly and create an atmosphere of active participation of all students.

Meetings/conferences

Besides for teaching, the virtual class-room is also suitable for meetings, for instance between partners in international projects. With the facilities it is even possible to collaborate on common documents.

Finally the virtual class-room is also suitable arranging smaller conferences. In this case the teacher plays the role of a moderator (chairman), who introduces the speakers and run the discussions. The number of participants is probably limited to say 50.

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References

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