

Criteria for the Analysis of Virtual Learning Environments

MA in ePedagogy Design – Visual Knowledge Building

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1 What is a Virtual Learning Environment?

To define the term *virtual learning environment* (VLE) we need to look at the two parts it consists of: *virtual* and the *learning environment*. The interplay of methods, techniques, learning material and media can be seen as a learning environment. The socio-cultural context and the situation of learning also need to be taken into account. In my opinion any framework designed with the intention to support learning processes can be called a learning environment.

A virtual learning environment implicates a computer-based learning environment that provides certain possibilities to allow for learning processes. Very often learning platforms like WebCT, Moodle, Blackboard, MimerDesk are referred to as VLEs. These platforms are designed on the basis of different didactic concepts mainly with the intention to arrange online courses or a combination of online teaching and face-to-face teaching – often referred to as blended learning¹. But in consideration of the above proposed definition for a learning environment there are many different platforms on the web that can be used as VLEs. For example if a blog or a wiki – or a combination of both – are used for the support of a learning process it can also be seen as a VLE. It depends on the social context the web-based platform is used in. The technological framework becomes a central point of a virtual learning environment; it is the basis for communication, transfer of material and information and the presentation of material. But as learning is a social process not only technological aspects determine a VLE – and therefore it is not possible to establish one definite form of a VLE.

2 Criteria for the analysis

Learning is a social process. Social processes are based on communication. Concerning virtual learning platforms we are dealing with computer-mediated communication (CMC). CMC is contrary to the co-present face-to-face communication; the communication channels are reduced to digital media. Most of the CMC theories mainly focus on only one communication channel, the text-based online-communication. Other communication channels like videoconferencing are not taken into account. There are two main perspectives to be found in CMC-theories: a technology-determined approach putting media into the focus and a culture-based approach, which is more user-centred. DÖRING (2003) provides a copious compilation of theories looking at CMC out of different perspectives (see Döring 2003, p. 128 ff). In addition she integrates these theories into a *media ecologist framework model* (see fig. 1) to avoid focusing either on the media-centred or the user-centred perspective (see *ibid.*, p. 128f). This model provides the basis to develop criteria for the analysis of VLEs. The media ecologist framework model consists of five main components: 1. Choice of the medium², 2. features of the medium, 3. media-based communication patterns, 4. situation of use and 5. (social) effects. Tabelle 1

¹ There is a wide range of differing definitions and meanings for blended learning. A broad discussion of this term would exceed the subject of this paper. OLIVER & TRIGWELL published a very good discussion on the use of the term „Blended Learning“ (Oliver/Trigwell 2005).

² Adopting this model for the analysis of a VLE, the VLE will represent the medium.

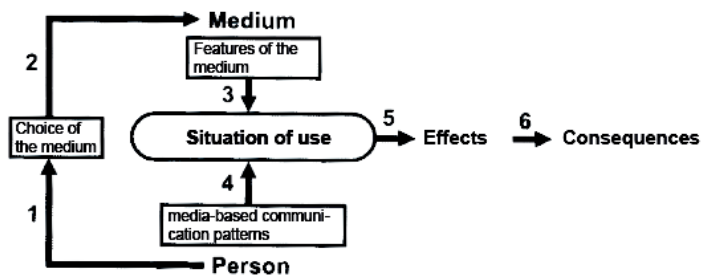


Figure 1: Media ecogis framework model (Döring 2003)

The choice of the medium used for communication is correlated to the features of the medium, which are more technical determined, and the communication patterns, which are determined by the media used. That means the analysis of a VLE always requires the analysis of both, the technical conditions and

the communication patterns. In the centre is the situation of use, i.e. it is a user-centred approach. The situation of use in our case covers more than only communication processes. Therefore the model needs to be extended. The transfer of information and material as well as learning theories and learning scenarios must be included. In the following I will present a list of criteria for the analysis of a VLE. Taking into consideration that there is no definite form for a VLE this list is not exhaustive.

2.1 Features of the medium – technical conditions

The implied features are an important component of a VLE. But the analysis should not primarily focus on technology; it only provides a basis to support learning processes.

The main questions in this context are:

- How does the transfer of information and material work?
- In which way is this material stored and indicated?
- Who has the rights to upload/edit material?
- Who has the rights to publish content/questions/articles?
- Is there a possibility of action and interaction for the learner?
- Is feedback possible? Who can give feedback?
- Does the VLE allow for asynchronous and/or synchronous communication?
- How is the usability? Is it good to use for teachers/coaches/facilitators and learners without technological expertise?
- How can central announcements be made?

2.2 Media-based communication patterns

The second component that needs to be analysed are the communication patterns that result from the medium. If we regard media as an extension of our senses (McLuhan, 1964) we can say that every medium has a direct effect on our communication pattern. Especially communication media are never neutral concerning form and content of the communication. One example is the Chat-talk (see Döring 2003), which takes over a special form of writing and communicating. The lack of personal closeness and the reduction on the text-based communication channel results in the use of special symbols to communicate emotions (the so-called emoticons). Another characteristic are the short, incomplete sentences to have a quick conversation that does not show too much the physical distance. That means the analysis has to take into account which communication channels are used in the VLE and what communication patterns they meet with.

There are two ways of computer-mediated communication: the synchronous and the asynchronous communication. The asynchronous CMC is in general a text-based communication. There is no direct interaction in the same time; the users have time to think about arguments, reactions, comments, feedback etc. Therefore it supports a more topic-centred discourse. The results can be elaborated articles, which can be of further use. In contrast the synchronous communication is not necessarily only text-based. Video and telephone conferencing is also possible. But irrespective of the mode of communication the synchronous communication is more spontaneous. Moderation is needed to keep the communication focused on one topic. Using also images via a videoconference is helpful for the moderation because signs like raising hands can be used. As said earlier in a text-based communication virtual action is often used to pretend nearness.

There are restrictions in each form of CMC that have to be compensated for. But there are also options provided by the features of the medium. These restrictions or options depend on the situation of use.

2.3 Situation of use

The situation of use depends on the methodical conditions of the learning process. There are two main fields that have to be taken into account: the teaching method and the learning scenario and social formations respectively.

2.3.1 Teaching method

The teaching method cannot be seen without learning theories in the background. This results in the first question: which learning theory is behind the VLE? This affects very much the presentation of the knowledge. In this context we limit to three main learning theories: constructivism (problem-orientation), cognitivism and behaviourism.

Further questions concerning the teaching method are:

- What kind of learning process shall be supported? Incorporative learning, exploratory learning, cooperative learning, integrative learning
- What teaching method shall be implemented?
- Allows the VLE for presenting the content in multiple perspectives and different contexts respectively? (See Bremer 1999)

2.3.2 Learning scenario and social formations

The learning scenario and the social formations the students learn in are a central point in analysing a VLE. There are different learning scenarios that need variant learning environments – focusing on the individual learner or on groups, supporting self-organised study or instructional course design etc. Below you find some central criteria of learning scenarios and social formations that meet for very different requirements a VLE should have:

- Physical distance
- „Blended learning“
- Self-organised study
- Tutored self-study
- Group work. A group work over a physical distance requires more time for organisational problems

- Synchronous/asynchronous seminar – what is the time structure of the seminar?
- Branch of study –what kind of information is communicated? What communication structure is needed? There is a big difference between natural science and humanities

2.4 Effects of the medial setting - focus on the learner

In the centre of a learning process is always the learner. Therefore to determine the effect of the VLE we need to put the learner into the focus of our analysis. How does the medial setting of the VLE affect the learner as an individual? What is the impact on group-specific processes? What are the positive or negative results? But for the analysis one has always to bear in mind that the effects on the learner are never universally valid as it depends very much on the individual's characteristics.

3 Literature

Bremer, Claudia (1999): „Die Integration verschiedener Lehr- und Lernmethoden in Online-Veranstaltungen“ in: Information Management Consulting, Schwerpunkt „Telelearning“, 1/1999, S. 49 – 57.

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Marshall McLuhan (1964): Understanding Media: The Extensions of Man. New York: McGraw Hill.

Oliver, Martin/Trigwell, Keith (2005): “Can ‘Blended Learning’ Be Redeemed?” in: E-Learning, Volume 2, Number 1.