Control and Constraint in E-Learning - Choosing When to Choose
(Book Review)

Reviewer:
Sabine Graf
National Central University
Graduate Institute of Learning and Instruction, Jhongli, Taiwan
sabine.graf@ieee.org

Introduction

How much control do learners have over their learning process when using e-learning systems? How much do teachers and learning systems constraint learners? And how much control shall learners have over their learning trajectory in order to learn effectively and successfully? The book "Control and Constraint in E-Learning – Choosing When to Choose" discusses these and many related issues. It gives a well-grounded theoretical background on control and learning, discusses and analyses typical features/tools of learning environments with respect to control and constraints, and finally gives suggestions about how to design better learning environments, focussing on self-organisation, learner-centralisation, and the principle to let learners choose whether they want to be in control of their learning trajectory or give control to someone else.

Section I: Control and Learning: A Theoretical Background

The first section deals with giving the reader a theoretical background on control, constraints, and their relationship to learning, using a lot of real life examples. In the first chapter, the basic terms and concepts are explained. The chapter discusses questions such as "What is a teacher?", "What is e-learning?", and "What is an e-learning environment?" by not only giving facts but also encouraging the reader to reflect about the terms in more detail.

The second chapter gives a very well-grounded introduction in transactional distance, discussing different viewpoints on this concept as well as on structure, dialogue, autonomy, control, and self-direction. Jon Dron demonstrated quite clearly that there are several different views on these concepts and that the theories show some weaknesses when applying to the new generation of e-learning. Furthermore, he introduces the concept of transactional control, which underpins the concept of transactional distance and focuses on the perspective of control, dealing with "the fact that choices are made, when they are made, and how they affect and are affected by each other" (p. 33).

In the next chapter, the concept of choices as well as the need of teachers is discussed in more detail. Jon Dron argues that the number of choices increases with the educational level and points out the global goal of education, which is to learn students to make their own choices or in other words, to learn them how to learn. Furthermore, this chapter discusses the relationship of choices and control, the need of guidance, and whether letting students choose is always a good thing. In fact, too many choices can confuse learners and in some situations it is wise to delegate choices to someone who can handle them better than the learner himself/herself, however, having in mind that a learner should be able to choose whether and when to choose.

The fourth chapter discusses the concept of constraints. Intrinsic and extrinsic constraints are described, discussing about subject matter, context, space, power, cost, time, and personal traits. Based on this discussion, Jon Dron introduces a model of constraints, where two dimensions are distinguished: intrinsic/extrinsic and content/context.

Subsequently, constraints in face-to-face and online learning environments, in particular wikis, are compared, concluding that online environments can have fewer constraints in general and especially with respect to the context.

The next chapter provides a comprehensive discussion about scales, distinguishing small and big choices as well as choices somewhere in between and discussing their relevance for learning. Small choices are usually more deterministic and easier to decide than big choices which usually have more impact. Furthermore, a hierarchy of choice is discussed, pointing out that big choices strongly influence smaller choices.

The last chapter in this section shows practical examples about transactional control in traditional institutional learning, and demonstrates how to apply the theoretical concepts of the previous chapters in real-life teaching/learning situations. Typical elements of education, such as teacher-led presentations, learner-led presentations, classroom discussions, Socratic dialogue, traditional lecture, and so on, are discussed in the context of transactional control, constraints, and scale. Furthermore, guidelines for analysing the dynamics of transactional control are provided.

Section II: E-Learning, Control, and Constraint

The second section describes how the concepts of control, constraints, and scale can be applied to key feature in e-learning. The first chapter in this section discusses electronic publication of content, including linear media such as PDF files and movies as well as non-linear media such as hypertext. It gives fruitful suggestions about how to enrich e-learning content with clues and signposts (in contrast to fence posts), so that learners can make easier their choices where to go next. Furthermore, the term "reusable learning object" is discussed and a definition in the context of transactional control is introduced, helping to describe the granularity of reusable learning objects more precise.

While the previous chapter discussed e-learning content itself, chapter VIII deals with how to find good content. Resource-based learning is discussed and possibilities for supporting learners to find good learning material are described, including criteria for good learning material as well as the use of collaborative filters/recommender systems, shared annotations, adaptive hypermedia systems and intelligent tutoring systems. These approaches are discussed in the context of control and constraints, showing whether they can provide autonomous learners with enough freedom and, on the other hand, are able to provide less autonomous learners with enough guidance.

The next chapter deals with asynchronous communication, especially in discussion forums, with respect to control and constraint. After a brief discussion about transactional control in forums, a real forum discussion is used to explain the concepts of control and constraints in more detail. For each posted message, its influence on the learners' and teacher's control, whether the message constraints or opens out a discussion, and how a teacher can actively constraint and open out the discussion and therefore lead it in the intended direction is explained. The increasing complexity of a discussion with many postings is demonstrated and recommendations for transactional control in discussion forums are provided.

In the next chapter, synchronous communication tools are discussed, including mainly text chat but also other tools such as instant messaging, video conferencing, audio conferencing, and web meeting systems. Issues of control and constraints of learners and teachers are explained and demonstrated by using an example from a real teaching/learning situation, analysing a text chat session. Furthermore, possible problems with synchronous communication tools as well as hints for overcoming them are shown and the benefits of combining different synchronous communication tools within one session are pointed out.

The last chapter of this section discusses e-learning environments (or learning management systems), which integrate many different tools including the ones mentioned in the previous chapters. Jon Dron demonstrates that such environments give a lot of constraints to teachers and learners, or in other words, system designers and programmers have control over teachers and learners. Several problems related to this issue are discussed. Furthermore, approaches such as open source, open architectures, and open frameworks are introduced, which allow an institution (or even teachers) to control the system and customise it.

Section III: Designing Better E-Learning Environments

The third section deals with how e-learning environments can be designed in a better way, introducing social software which has high potential to help in overcoming many problems of today's e-learning environments. The first chapter in this section introduces social software and points out its benefits for e-learning. Social software has the advantage to be more learner-centralised, giving more control to learners. It enriches learning by the concept of groups, which consist of individuals but can still be seen as something distinct. The impact of groups as well as their interaction with learners, teachers, and content is discussed. Furthermore, approaches how to incorporate social software in e-learning environments are introduces, presenting two directions, namely to generate dialogue through structure and structure through dialogue, whereby the latter might offer the greater rewards in an educational context.

In the next chapter, eight design principles for e-learning environments, which are based on social software and aim at generating structure through dialogue, are introduced, allowing environments to become sustainable and self-organised. These principles include a design which easily allows changes and adaptations, the use of stigmergy, an evolutional approach for patterns of use and structure, parcellation of the environment, consideration of the entire system in the context of other systems, the level of control exerted by the system designer/administrator, the provision of trust, and the design for sociability. Furthermore, the connectivity of these principles and the consideration of multiple scales need to be incorporated as meta-principles.

The next chapter introduces some e-learning environments based on social software and discusses them in the context of the eight principles. The chapter gives an overview of approaches and tools which use different concepts of self-organisation for generating structure through dialogue. Different ways of how learning can take place are shown, introducing a new generation of e-learning environments, which allow learners to take control and guide other learners, intentionally or non-intentionally.

However, there are also problems and pitfalls with this kind of e-learning environments, which are described in chapter XV. A major problem is that it is very hard to generate an effective and coherent sequence of a learning trajectory through self-organising systems. Other problems include the impoverishment of dialogue through stigmergy as well as the issue that stigmergy does not necessarily lead to creativity and novelty. Another problem deals with the wisdom of crowds, which is negative influenced as soon as people follow the lead of others. Moreover, the Matthew principle (the rich get richer and the poor get poorer) needs to be considered and limited, avoiding that the blind lead the blind. Furthermore, pedagogical concerns arise for self-organising e-learning systems, dealing with whether the result of evolution in such systems will really be useful from educational and pedagogical viewpoint.

The last chapter of this book summarises the book's main arguments and shows a possible perspective of how e-learning and e-learning environments might look in near and far future. The potential of research topics such as personalisation, virtuality, augmented reality, ubiquitous and pervasive learning, the use of artificial intelligence, and standardisation are discussed in the context of self-organising e-learning systems and some scenarios are described, giving ideas about how e-learning might be work in future.

Summary

The book deals with a very important topic of education, namely that learners need different amounts of control in their learning processes, considering that some learners are more autonomous and therefore like to be in control of their learning processes, whereas others are less autonomous and prefer to be guided by someone else. This topic is not really new and is already discussed in literature years ago. What makes this book special is that it analyses this issue in the context of current learning technologies as well as shows the potential of new technologies and approaches such as social networking, instant messaging, wikis, and blogs to overcome problems related to control and constraints in current learning systems.

A major message of this book is to let learners choose to choose. While currently typical e-learning environments focus more on a teacher-centred approach, where teachers are in control of the learning trajectory, self-organising e-learning systems which generate structure through dialogue allow learners, on the one hand, to participate actively in

the generation process and therefore take control and, on the other hand, allow them also to participate passively and take guidance from others.

Besides contributing significantly to the understanding of control in the context of new learning technologies and providing an interesting analysis of today's e-learning environments and tools, the book gives a lot of good ideas about how e-learning and e-learning environments can be improved in future, in terms of making them more learner-centred, social, and self-organised. It demonstrates the problems of current e-learning environments in the context of control and constraints and opens a lot of interesting research questions dealing with improving the current situation.

When I read this book I was quite fascinated by the idea to provide learners with self-organised environments that support them in building learning communities and facilitate learners to help each other in learning. It would be quite different from how e-learning typically works nowadays. In conclusion, I strongly recommend this book to everyone who is interested in enhancing e-learning, regardless whether teachers, researchers, or developers.