



# Supporting Learners' Appropriation of a Web-Based Learning Curriculum

*Dorothée Rasseneur-Coffinet, LIUM - Université du Mans, France*

*Georgia Smyrniou, University of Puerto Rico, USA*

*Pierre Tchounikine, LIUM - Université du Mans, France*

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## ABSTRACT

*This article presents an approach and tools that can help learners appropriate a Web-based learning curriculum and become active participants in their learning. The approach is based on a detailed modeling of the curriculum and intends to equip the learners with different computer-based tools facilitating a multiple point of view perception of the curriculum, while promoting self evaluation and self regulation of the learners' curriculum performance. The proposed architecture is generic and can be used in the context of an already existing Web-based learning system. We define what we call "appropriation," describe our approach, present different tools that have been implemented, and present the findings from the first experiments.*

*Keywords:* distance education; Web applications; Web-based curriculum

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## INTRODUCTION

Learners utilizing Web-based learning curricula, distance learners in particular, often face problems related to the curriculum (i.e., the components of the curriculum and how these components are related one to the other) and how the curriculum corresponds with their personal wills and objectives. This problem, that we will call the "appropriation problem," is closely connected to autonomy and motivation issues.

It is well known, even from educational research that focuses on the early school years,

that the student's participation in his learning process in terms of motivation and independent learning (Wang & Han, 2001) is very important. Independent learning involves student's meta-learning (meta-control) in a framework of goal driven learning (Ram & Leak, 1994). Meta-learning from an educational pragmatic point of view occurs with a student's self-reflection and self-evaluation of his own performance in relation to his goals, to the other students' performance, and to the tutor's evaluation of his performance. Meta-learning also continues after reflection/evaluation and encompasses

the regulation phase. In the regulation phase, self-regulatory mechanisms are set up to change behavior taking into consideration cognitive and affective factors as well as environmental factors, such as group dynamics, class structure and interaction with the tutor (Pajares, 2002).

The transition of the meta-control of the learning process from the tutor to the learner has been discussed for a long time. Some researchers have found that the transfer from traditional guided learning to an autonomous learning is not easy for teachers or students (Grow, 1991). A major difficulty for the learners to become autonomous is setting goals and making plans for their learning (Kelly, 2002). According to Sinista (2000), technologies are able to make it smoother by arranging intelligent support for learning-related activities. Examining the issue of technology integration into traditional education from the tutor's and students' perspectives, researchers Anand & Zaimi (2000) mention that being accustomed to extensive tutor guidance can make learners feel abused when they are thrown into a self-directed activity all of a sudden, and the tutors then become unable to fulfill their goal to create independent learners. The researchers tried to involve their learners into an evaluation of Web-based learning materials by asking them their opinions and suggestions. This involvement affected the attitude of the students, made them collaborative and opened the door of independent learning for many of them. In addition, Forcheri et al. (2000) identified three steps in the transition using technology: a need, identification of an objective, and a strategy for attaining the goal. Sinista (2000) mentions that during the learning process, apart from the typical learning activities that are necessary for the learner to acquire knowledge, he (the learner) also performs control, evaluation and monitoring functions. She calls these activities meta-learning activities and proceeds to elaborate on them in detail. For Fischer (Fischer et al., 1993; Sumner et al., 1997) such types of reflection are difficult and a human coach/teacher or a design critic can help the learner to identify the breakdown situation (these breakdowns can happen due to

missing knowledge, misunderstandings about the consequences of actions, wrong self-efficacies or any reason that hinders the learner from attaining his goal) and prompt the learner to reflect. Fischer in his work chooses the computational critic to provide some of this support when humans are not present.

The objective of the exploratory research presented in this article is to study how a learner can be helped to appropriate a Web-based learning curriculum by proposing different computer-based tools dedicated to this issue. In order to explore this question we have constructed a model for appropriation based on three dimensions (perception, evaluation and regulation) and have designed different tools (the Saafir architecture) that address these dimensions: first, perception tools that allow learners to browse a detailed model of the curriculum from different points of views. Second, evaluation tools that allow learners to annotate the different items of the curriculum, to indicate a level of achievement and to propose syntheses of the annotations. Third, regulation tools that promote peer-to-peer help and allow us to introduce some control issues, such as deadline warnings. The preliminary experiments suggest that such functionalities do result in a better understanding by the learners of the curriculum and better motivation. These results pave the way towards further experiments, which will allow for more detailed analyses of the respective use and impact of these tools, a continued refining of the tools implemented thus far, and the designing of new ones.

This article is organized as follows: the second section presents the research questions that address this work and the methodology, the third section presents a conceptualization of the appropriation issue and the overall approach, the fourth section presents examples of tools that we have designed according to this conceptualization, the fifth section presents the implementation approach, the sixth section presents some findings from the experiments realized so far, and the seventh section summarizes the work and its perspectives.

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