Defining adaptation in a generic multi layer model: CAM: The GRAPPLE Conceptual Adaptation Model

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Adaptive Hypermedia can potentially offer a rich learning experience with content adapted to the users' needs. However, this potential depends heavily on the ability of authors to create adaptive material. There exist several Adaptive Hypermedia reference models like AHAM (*Adaptive Hypermedia Application Model*) and LAOS (*Layered WWW AHS Authoring Model and their corresponding Algebraic Operators*) that are specifically developed for authoring. But even when using tools developed based upon these models, authoring remains a time consuming task. A problem, even with graphical authoring tool like the Graph Author developed for AHA! is that the adaptivity is specified in a single layer. Adaptation is based on *concept relationships* (of different *types* or *crt*s[1]) that have to be created one by one. The author will either have to make do with the crts defined by an expert or has to learn how to create new crts (for which there are no special design tools).

In this talk we will present the authoring approach of the GRAPPLE project. This is an EU FP7 STREP project aimed at bringing adaptive technology-enhanced learning (or adaptive TEL for short) to the masses, by interfacing and/or integrating an *adaptive learning environment* (ALE) with different *learning management systems* (LMSs). The authoring approach in GRAPPLE is to offer a graphical tool to create a *conceptual adaptation model* (CAM). We will explain the structure of a CAM with multiple adaptation layers and show how an author can create concept relationships (leading to adaptation), either one by one or many at a time, and how the author can create *crts* in a similar graphical way. Although the multi-layer model is loosely based upon LAOS & LAG (*Layers of Adaptation Granularity*) authors are not required to write "pseudo code" as they do in LAG. We discuss the translation of a CAM to actual adaptation rules executed by an adaptation engine (while the user is using the learning application), and some issues regarding *termination* and *confluence* resulting from the CAM to adaptation rule translation.

[1] concept relationship types