Observing Online Curriculum Planning Behavior of Teachers

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Abstract. Curriculum planning is perhaps one of the most important tasks teachers must perform before instruction. While this task is facilitated by a wealth of existing online tools and resources, teachers are increasingly overwhelmed with finding, adapting and aligning relevant resources that support them in their planning. Consequently, ripe research opportunities exist to study and understand online planning behavior in order to more generally characterize planning behavior. In this paper, we introduce a web-based curriculum planning tool and study its use by middle and high school Earth science teachers. We examine the web analytics component of the tool and apply clustering algorithms to model and discover patterns of the use within the system. Our initial results provide insights into the use of the tool over time and indicate teachers are engaging in behavior that show affinity for the use of interactive digital resources as well as social sharing behaviors. These results show tremendous promise in developing teacher-centric analysis techniques to improve planning technologies and techniques to study online curriculum planning patterns.

The use of the Internet in the classroom, applied either as a direct instructional tool or as a student learning tool for research and self-directed learning, has become essential to teachers and learners alike. Much empirical research indicates that Americans in general and K-12 students in particular are using technology in their day-to-day lives more than ever before; communication technologies that leverage the Internet are particularly popular with young people [2]. A large body of education research indicates that the best learning experiences are those that make direct connections to students' existing knowledge and life experiences [1]. Thus, it is vital that K-12 education leverage Internet technology not only because it offers instructional benefits in and of itself but because it can bridge students' in-class experiences with their out-of-class lives, thus making learning personally relevant.

Tools supporting teachers through planning, organizing and integrating instruction around the complexities of individual student skill, curriculum goals, district-wide standards, etc. lack maturity, perhaps because the fluid nature of planning in general or the changing demands of the classroom. Despite the myriad of teacher resources in the form of shared ideas and re-usable lesson plans, activities, etc., successfully integrating these resources yet requires a fair amount of customization. Teachers often become overwhelmed by the customization task that it becomes *more* time consuming to re-use and re-purpose existing materials than develop their own.

This poster describes the application context, research questions, initial experiments and results of an online curriculum planning and development tool called the Curriculum Customization Service (CCS). The tool was deployed for use by 6th and 9th grade middle

and high school teachers within the Denver Public School system, and usage observations were made over the course of a semester of tool use. We detail the tool : its motivation, interface and content, as well as the web analytics data generated by the end user interactions. We describe the initial exploration and selection of data features and the application of clustering algorithms to analyze system usage. Our research focuses on developing and applying tools and techniques for observing and classifying teachers' online behavior in educational applications, offering a unique view port into educators' online usage patterns and behaviors.
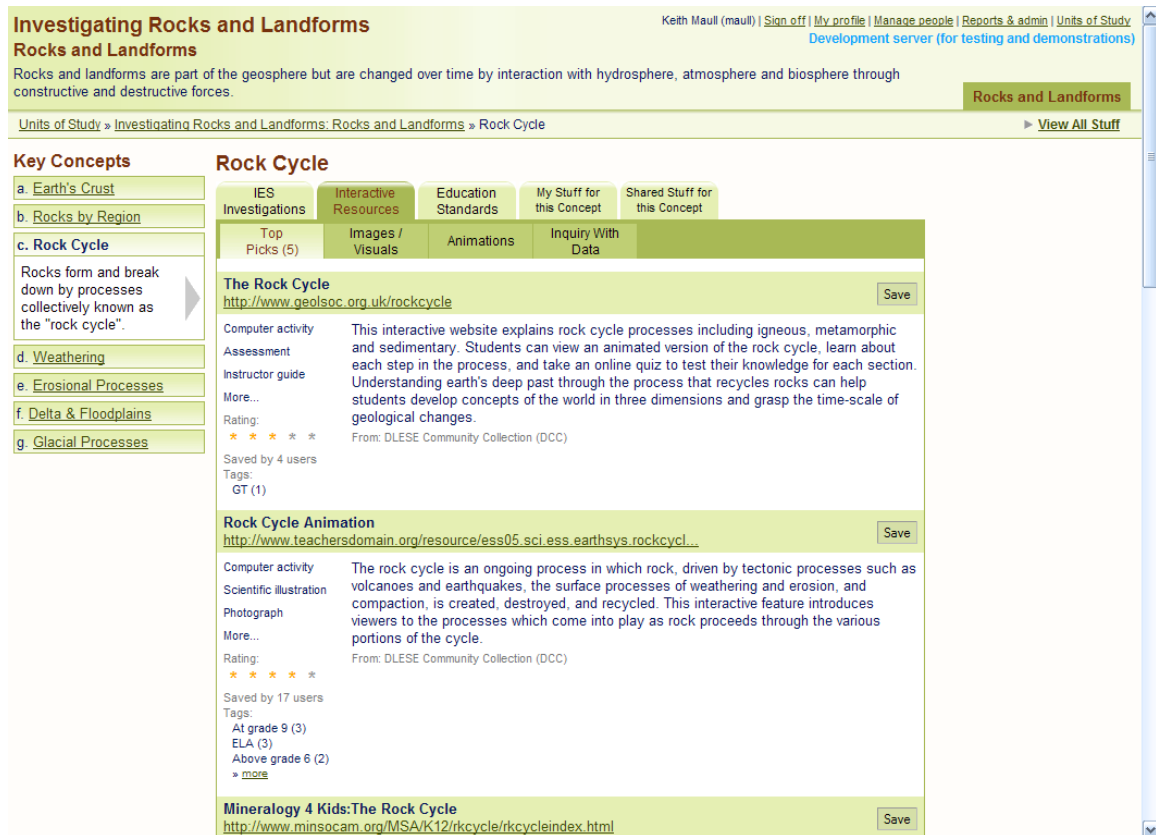

Figure 1 : The CCS Interface

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