Fedora Goes to School: Experiences Creating a Curriculum Customization Service for K-12 Teachers

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Educational digital libraries provide a rich array of learning resources uniquely suited to support teachers to customize instruction. The problem we address is how to customize instruction to meet the learning needs of increasingly diverse student populations while ensuring that district learning goals and national and state standards are being met. This tension between supporting customization while supporting standards is further complicated by the challenges of scale: large urban school districts need technology infrastructure to support teachers district-wide to tailor curriculum, while still ensuring fidelity to learning goals.

In partnership with Denver Public Schools (DPS), we are using open source digital library infrastructure available through the NSF-funded National Science Digital Library program to create a scalable Curriculum Customization Service. We are building on top of the Fedora-based NCore EduPak, which consists of the NSDL Collection System, the Digital Discovery System, and the NSDL Data Repository. DPS teachers will use this Service to (1) customize curriculum with digital library resources, formative assessments, and district-developed materials to aid student learning, (2) share their customizations as part of an online learning community and professional development program, and (3) discover, remix, and reuse other teachers' contributions.

In this presentation, we will describe the Curriculum Customization Service and lessons learned from building an e-learning application supporting instructional planning and collaboration on top of Fedora. The Service uses learning goals as the central organizing concept of the interface. Organized around these are several curricular components including digital versions of the student textbook, digitized components of the associated teachers' guide (formative assessments, teaching tips, instructional resources, and background knowledge readings), and digital library resources. Digital library resources are further broken down by Top Picks (recommended), Images/Visuals, Animations, Additional Activities, and Working with Data.

We will also present results from a 10 week pilot study with DPS middle and high school teachers (completed in Fall 2008) and plans for a large-scale, district-wide field study commencing in Fall 2009. In the pilot study, we used interviews, reflective essays, usage logs, and pop-up and email surveys to develop a detailed picture of how teachers were using the Service, and to examine how their usage of the Service changed over the course of the 10 week study. Results suggest the Service offers a powerful model for: (1) embedding digital library resources into mainstream teaching and learning practices and (2) enabling teachers to customize instruction to improve learner engagement and learning outcomes.