HEWLETT FOUNDATION FUNDED PROJECT

Title: Personalizing Open Web-based Educational Resources (POWER)
Leaders: Marcia C. Linn, Libby Gerard, Korah Wiley, University of California, Berkeley

Overview
The Technology Enhanced Learning in Science (TELS) group at the University of California, Berkeley is a partnership of classroom teachers, researchers, and technologists who conduct design-based research to develop Open Education Resources (OERs) that promote integrated, coherent understanding. We have created Personalizing Open Web-based Educational Resources (POWER) to support teachers to design curricular units using OERs that develop students’ self-directed learning. Self-directed learning is key to the Hewlett Foundation goal that every student and teacher have access to and ownership of activities that create deeper learning experiences.

The TELS research program has resulted in principles, OERs, assessments, and professional development activities that lead to knowledge integration. Students come to science class with multiple, fragmented, and often contradictory ideas about scientific phenomena. Knowledge integration is a process of building on these existing ideas, exploring new ideas introduced in interactive activities, distinguishing between the new ideas and prior knowledge, and consolidating ideas to explain complex phenomena such as thermodynamics and photosynthesis.

POWER will develop a professional development model featuring OERs for teachers that supports the personalization of instruction while maintaining the goal of promoting integrated understanding. The proposed project will support design of instruction for self-directed learning. Future work will expand the model and OERs for teachers to address additional goals of deeper learning. The model will support teachers to set goals, personalize their curriculum to achieve those goals, and implement and test their curriculum. The personalized curriculum will include embedded assessments and logging of student work. This evidence will help teachers to guide students and designers to refine the curriculum.

POWER will address the challenge of supporting teachers to deepen student learning by personalizing their instruction to feature self-directed learning. We will collaborate with teachers to refine the self-directed learning construct, identify activities that promote self-directed learning, design ways to evaluate student success at self-directed learning, and personalize WISE units to promote self-directed learning. We will prototype an online tool, the Personalized Open Web-based Educational Resources Evaluator and Designer (POWERED) where teachers can combine and customize OERs to deepen student learning.

POWER will develop a professional development model featuring POWERED so teachers can combine OERs to personalize instruction while maintaining the goal of promoting integrated understanding. The model including POWERED will be widely disseminated to designers to set goals, engage teachers in personalizing their curriculum to achieve those goals, and supporting teachers to implement and test their curriculum. The personalized curriculum will include embedded assessments and logging of student work. Teachers and researchers will use this evidence to guide students and to refine the curriculum. POWER will support design of instruction for self-directed learning. Future work will expand the model using POWERED for teachers to address additional goals of deeper learning.