



2012
NEW FROM THE OFFICE OF RESEARCH • SEPTEMBER

Extended Professional Development in Project-Based Learning Impacts on 21st Century Skills Teaching and Student Achievement

Compared with the matched group, the extensively trained PBL-using teachers taught 21st century skills more often and more extensively.

Although students of PBL-using teachers did not show WESTEST 2 gains that exceeded a matched group of students, their performance should serve to mitigate the concern among some educators that engaging in PBL will impede standardized test preparation.

Extended professional development in project-based learning results in increased focus on 21st century skills

From 2008 to 2010, project-based learning (PBL) was a major focus of the Teacher Leadership Institute (TLI), undertaken by the West Virginia Department of Education (WVDE), as a method for teaching 21st century skills. Beginning in January 2011, a summative evaluation was conducted to investigate the effect of PBL implementation on teachers' perceived ability to teach and assess 21st century skills and on student achievement.

Method of study. We conducted a survey of teachers who (a) were trained in PBL at TLI by Buck Institute for Education (BIE), (b) had been identified as experienced users because they had successfully published a project in the state's peer-reviewed project library, and (c) used PBL during the spring semester of the 2010-2011 school year. The survey responses of the final sample of 24 trained PBL-using teachers were compared to a matched group of teachers with similar backgrounds and teaching assignments who did not use PBL or who had used it but had limited or no professional development and had not participated in the BIE training. WESTEST 2 achievement gains in English/language arts, mathematics, science, and social studies were compared for students of the two groups of teachers.

Findings. Overall, there were substantial and statistically significant effect size differences between teachers who used PBL with extended professional development and other teachers in the sample. Compared with the matching group, the extensively trained PBL-using teachers taught 21st century skills more often and more extensively. This finding applied across the four content areas, in classrooms serving students with a range of performance levels, and whether or not their schools had block scheduling. The study also found that teachers did not feel as successful at assessing the skills as they did teaching them.

Students of these teachers performed no differently on WESTEST 2 than a matched set of students taught by non-PBL-using teachers or teachers who had not received extensive training. Although these results did not show significantly different gains, they should serve to mitigate the concern among some educators that engaging in PBL will impede standardized test preparation. This study also provided evidence of the potential of PBL to become part of the larger educational landscape by working in different types of schools.

Limitations of study. All studies of this nature that involve voluntary teacher participation in professional development and implementation have a risk of self-selection bias. Survey responses were based on teacher perceptions regarding a "target class"; consequently they do not necessarily represent the breadth of instruction provided by the sampled teachers in all of their course offerings. Due to relatively low sample sizes and small effect sizes, the achievement test analyses were afflicted by low statistical power. When we aggregated our data (across content areas) the result approached significance, but the difference between groups was still quite small in practicality.

For more information, contact Nate Hixson, Office of Research (nhixson@access.k12.wv.us), or download the full report: *Extended Professional Development in Project-Based Learning: Impacts on 21st Century Skills Teaching and Student Achievement*, by Nate K. Hixson, Jason Ravitz, & Andy Whisman, available at <http://wvde.state.wv.us/research/reports2012/PBLProfessionalDevelopment2012.pdf>.