

Understanding the Implementation of Problem-Based Learning in New York City High School Economics Classrooms¹

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Overview

This poster reports on research conducted in conjunction with the implementation of a Problem-Based Economics (PBE) curriculum in New York City high schools. The purpose of this study was to better understand the factors that influence the implementation of the PBE curriculum. We were interested in documenting teachers' and students' responses to the units and the challenges that teachers faced when implementing the PBE curriculum in their classrooms. The results of this research are being used to inform the development of professional development approaches to better support teachers in their efforts to integrate problem-based learning into their economics curriculum.

The Problem-Based Economics curriculum that formed the basis of this research was developed by the Buck Institute for Education and consists of 10 units that teach micro and/or macro economic principles and concepts using real world problems that students solve as stakeholders. The curriculum has a modular design, allowing teachers to use each unit independently of each other. In each unit, students and teachers confront a particular economic problem that, through investigation, research, and cooperative input, allows for more than one possible solution. Through this learning process, students discover that economics is essential to understanding and solving the problem. The idea is that the curriculum will help students recognize the need to understand economics and thus to become motivated to learn the material in the curriculum.

Methods and Data Sources

The research was conducted in five New York City high schools during the 2002-2003 and 2003-2004 school years. Altogether we were able to document the implementation of five different PBE units across ten different high school classrooms. The research is drawing on multiple sources of data, including formal and informal interviews with teachers conducted at different points during the implementation of the PBE units, classroom observations during the implementation of the units, and video recordings of selected PBE lessons. The qualitative data was used to create implementation profiles for each teacher. The implementation profiles were analyzed for similarities and differences in implementation strategies, challenges encountered, and the perceived impact on teachers and students. We also administered post-unit surveys to students and teachers. These surveys were designed to document teachers' and students' experience with a unit, their evaluation of it, and the perceived impact on teaching and learning. Survey data was available for 3 teachers and 80 students.

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Findings

Below we summarize the key themes that emerged from individual teachers' implementation profiles and the survey data:

Overall, participants' responses were very positive. The teachers liked the real-world applicability of the units and the support they received through the curriculum guides. Students liked the hands-on nature of the PBL approach. They responded positively to working in groups, role-playing, the economics content, and the problems to be solved. Teachers and students concurred that the curriculum helped them to learn key economics concepts as well as important skills such as problem solving, making decisions, working in groups and giving presentations.

Our data also indicates that the teachers faced a number of implementation challenges. First, the fidelity of implementation was most accurate for the unit that teachers had experienced themselves as part of their training. All of the teachers who participated in this study chose to use this unit and their implementation of this unit followed most closely the outlines in the curriculum guide. The implementation of other units deviated more from the curriculum guides.

Second, teachers who implemented the curriculum in schools that generally do not employ project-based learning had a more difficult time implementing the units as outlined in the teacher guide. For instance, in schools that used a predominantly lecture-based approach, students were not very used to work in small groups and to have discussions with each other. In these settings, group work was not always as effective as it could have been, and teachers needed to spend extra time and effort to scaffold small group work and student-to-student interactions. In at least two schools, group work was further complicated by inconsistent student attendance. The teachers who had little economics background but had taught for many years tended to be able to rely on their experience with pedagogy and classroom management to facilitate group work. Teachers who brought a strong economics background but had less teaching experience felt less prepared for this and may need guidance for how to scaffold group work.

Third, teachers were uncertain about how to best integrate content and benchmark lessons within the units. They supplemented the benchmark lesson that came with the curriculum with additional lectures, textbooks, and content-based discussions. They also felt the need to teach specific content in between units to prepare students for the next one. This seemed to reflect their thinking of problem-based learning as a method for students to apply previously learned concepts rather than as a method to learn new concepts in the context of solving problems.

Fourth, teachers found that students related best to those units in which the problems and the role-playing related most closely to their own lives. According to the teachers, students responded less enthusiastically to those units that dealt with more abstract, macro-economic concepts and in which the role-playing was more removed from their immediate experience.

Finally, the teachers had relatively low expectations for students' interest and performance in economics. Teachers' expectations influenced which unit they chose and how they implemented them. Interestingly, they reported that in several instances their low expectations were proven wrong. For instance, prior to implementation they had anticipated that students would struggle with the mathematics activities that are part of some of the units, but then found that students were highly engaged in them.

Conclusions and Implications

In summary, students and teachers had very favorable responses to the PBE units overall. We found that teachers' knowledge and beliefs influenced the implementation of the PBE curriculum. The effectiveness of the implementation of the PBE curriculum depended to a large degree on scaffolding provided by teachers to students.

These findings suggest that we need to alert teachers to the need to scaffold small group work and self-directed learning and include strategies for how to do so – providing instructions for helping students to seek and evaluate information, and helping groups to negotiate roles and effectively interact with each other.

Our findings also suggest that we need to discourage teachers from thinking that some content is too difficult or too remote. The professional development should emphasize the ability of all students to learn.

To help insure the fidelity of the implementation it would be helpful to have teachers experience the units they will be teaching from a student's perspective during the training workshop. In particular, it may be useful for them to experience the macro economic units in addition to micro economic units to encourage their use. More hands-on experiences with the unit will also help to clarify for teachers how the benchmark lessons and the economics content are most effectively integrated into each unit. If time is not sufficient to have teachers experience all of the units first hand, it would be useful to give them at least a quick tour and possibly make classroom videos available so they can get a feel for what the implementation of each unit looks like.

Our next steps in this research are to conduct further studies to better understand the challenges that students face when engaging in self-directed learning and working in groups, and to investigate what scaffolds and instructional strategies are effective in supporting students in self-directed learning and during group work. We are also interested in documenting how the PBE curriculum contributes to the development of students' problem-solving and inquiry skills.