

Project-Based Learning

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History and Theory

John Dewey was a philosopher and scholar who pioneered educational reform in the 1900s who said, “Give the pupils something to do, not something to learn; and the doing is of such a nature as to demand thinking; learning naturally results.” He is credited for coining the phrase “learning by doing” which is the foundational principle of Project-Based Learning (PBL).

PBL, sometimes referred to as Problem-Based Learning, is a student-centered approach to teaching that can be considered an informal method of teaching. This pedagogical technique underlines student choice and voice; teachers relinquish control and promote students to govern their own learning by completing a project to solve a real-life problem. The role of the teacher shifts to a more facilitative position. Teachers become directors, rather than “a dispenser of information and instruction” (Thomas, 2000).

Typically, teachers stand in front of the class to provide information to students and through an assessment, students are asked to regurgitate the knowledge they have gained. Teacher-centered learning is what is most common in schools; however, when the shift in classrooms become student-centered, the focus is on providing assistance to students to learn relevant content on a subject matter that is important to them (Chen, 2010). Students are encouraged to work collectively to get involved with their surrounding community. Through this process, students learn to adapt and reevaluate their plans. Students learn to work within groups to problem solve and come to a consensus. Students reflect on their own progression and learn to make necessary informative adaptations with guidance from his/her teacher. PBL allows students to “engage in authentic learning and experiences that prepare them to become knowledgeable, informed members of the global community” (Garran, 2008).

Context

Research shows that there are many benefits to PBL, particularly to promote problem-solving, backward design, and project management aptitudes. Ideally, relevant skills crucial to the 21st Century workforce, such as innovation, critical thinking and communication, should be introduced and developed within a school setting. If students are exposed to settings that mimic the workplace, students will have an authentic role in a simulated environment. The PBL experience will allow children to develop the skills needed to confront the challenges they will face in the workforce when they get older.

Schools are educational facilities that provide opportunities for students to explore areas they are passionate about. Allowing this paradigm shift within schools connects students to the world they live in. When students feel connected, their level of engagement is heightened. This inquiry approach to learning allows students to dominate their learning. Students learn to assess themselves and reflect on their progress for what they are envisioning for the project, as the teacher serves as a mediator, instead of a dictator. With PBL, some students create prototypes to find answers to problems, which bring in exterior elements, such as Engineering and Architectural Design Frameworks. This apprentice-like exposure is relevant and more applicable to life. Possibilities are endless with PBL as the criteria comes from students' questions. Topics such as addressing hunger in a foreign country, responding to the polluted streams in local community parks, or creating a campaign for endangered animals, are all projects children can undertake with PBL. Even while watching the news, students may have an idea of how they want to respond to current events, in a way that is profound and momentous. These are the moments that can birth PBL in a classroom, if teachers take the time to listen. In turn, students

are engaged in meaningful content that will guide their learning, while also making an imprint in the world they live in as they cultivate empathy through PBL.

Success

The following three studies are examples of successful PBL implementations. In the first study, the researcher compared a school that implemented PBL to a school that practiced traditional teaching methods. After examination, both schools were equally able to answer procedural questions; however, the PBL school was “superior in answering applied and conceptual problems” (Bell, 2010). The researcher noted how students gained analytic thinking skills and performed better on both standardized and project-based assessments (Bell, 2010). In the second study, nineteen facilities in Europe were assessed to measure their effectiveness of PBL within their level of production. It was concluded that the company that did not practice PBL outperformed the company that integrated PBL principles in quantity; however, their quality was incomparable. The researcher highlighted that *quantity does not equal quality*; PBL promoted “organic learning” which fostered retention and better quality overall (Keegan, A. & Turner, J., 2001). In the third study, De La Paz & Hernandez (2013) studied the role students with disabilities had within a general education classroom when PBL was used. It was concluded that there was a benefit to students with different capabilities because PBL provided them with the “educational opportunity that are available routinely to their academically more capable peers”. The researchers noted how every student had an important role, which created an inclusive learning experience. All three studies assessed the effectiveness of PBL in various settings. The more children were exposed to opportunities to collaborate with their peers and share ideas, the more productive the group became. PBL fostered collaborative thinking, which lead to innovative ideas, while including everyone in the group.

Conclusion

PBL challenges education reform to consider a new method that questions traditional theory and pedagogical practice. However, as the demands of the 21st Century workforce shift, the preparedness within educational facilities must adjust accordingly. PBL examines conceptual thinking with innovative application. When students walk out of a classroom acquiring empathy, collaboration skills, and critical thinking – educators have done their moral duty to prepare children for real-life. "The aim is to get the students actively involved . . . their role is not simply to do tasks as decided by teachers, but to actively manage and understand [their] . . . learning gains. This includes evaluating their own progress, being more responsible for their learning, and being involved with peers in learning together . . . " (Hattie, J., 2008). PBL can be considered informal to traditionalists; however, studies show that it is an effective method for all children to have an opportunity to respond to the world, and in doing so acquire lifelong skills that will be used beyond the classroom walls.

References

- Bell, S. (2010). Project-Based Learning for the 21st Century: Skills for the Future. *Clearing House*, 83(2), 39–43. Retrieved from: <https://draweb.njcu.edu:2139/10.1080/00098650903505415>.
- Chen, M. (2010). Education nation—Six leading edges for innovation in our schools. San Francisco, CA: Jossey-Bass.
- De La Paz, S. & Hernandez-Ramos (2013). Technology-Enhanced PBL: Effects on Historical Thinking. *Journal of Special Education Technology (JSET)*, Volume 28, Number 4.
- Garran, D. K. (2008). Implementing project-based learning to create “authentic” sources: The Egyptological Excavation and Imperial Scrapbook Projects at the Cape Cod Lighthouse Charter School. *The History Teacher*, 41(3), 379–389.
- Hattie, John. (2008). *Visible Learning*. Abingdon, Oxon: Routledge.
- Keegan, A. & Turner, J. (2001), *Quantity versus Quality in PBL Practices*. SAGE: Thousand Oaks, CA.
- Thomas, J. W. (2000). *A review of research on project-based learning*. San Rafael, CA: The Autodesk Foundation.