



# LEADERSHIP ACADEMY FOR STUDENT SUCCESS

## Pathways Project Implementation Memorandum

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**RE:** Project Based Learning  
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### EXECUTIVE SUMMARY/INTRODUCTION

While PBL is not a new concept, it is beginning to invade the realm of higher education. Commonly used in K-12, this innovative teaching method is beginning to take root in colleges across the nation. PBL is an instructional methodology that allows students to work together in groups to learn and apply knowledge through interdisciplinary projects. As many employers today are looking for students with transferable skills such as teamwork, communication, and problem solving, problem-based learning offers students the opportunity to sharpen those attributes prior to entering the workforce. PBL requires students to apply the knowledge and skills that are learned in the classroom to identify a real-world problem and develop a solution while working collaboratively with their classmates. Utilizing PBL in the classroom enhances critical thinking, increases student learning, and retention by engaging students in the learning process and by having them take ownership of their learning.

### RELEVANT LITERATURE REVIEWED

Traditional classroom instruction such as a lecture was meant to get as much of the information as possible out to students as quick as possible. Today's students do not respond to this "old fashioned" method and are often disengaged in their studies. Recently more institutions of higher education and been taking a page from the K-12 system and using Project Based Learning or PBL. PBL is a teaching method in which students learn by actively engaging in real world and personally meaningful projects. (<https://www.pblworks.org/what-is-pbl> ) Project based learning is considered a high impact practice that greatly benefits students (Vaz, 2019). Research shows that students construct knowledge not just take it in as presented but they build upon previously learned information (Cross,1998). Since this practice is new in higher education the literature available is minimum.

Taking a Leap of Faith by Lee, Blackwell, Drake and Moran found, that Three emerging themes came from implementing PBL: community partnerships, student engagement and assessment. While for PBL there were challenges with working with community

partners such as finding a business to partner with, instructors found this made the experience in the course more authentic. The article stated that collaboration was a challenge with student engagement but instructors found that the students were as a whole more engaged because they were grounded in real world projects and focused on meaningful learning. Lastly, instructors who were not familiar with assessment in PBL a challenge and found it especially challenging to assess more creative projects.

Why Interdisciplinary Project-Based Learning? Assessing the Benefits and Challenges at US Institutions of Higher education discusses the need for PBL across disciplines and the challenges that can occur. They found that interdisciplinary PBL aligns with the current needs in business such as a collaborative environment where people are trained in multiple areas.

Transforming Higher Education Through Project Based Learning discusses how Worcester Polytechnic Institute (WPI) has been using PBL for close to 50 years and the student success they have had. WPI stated that through PBL students are learning essential skills for the workplace such as collaborations, communication, leadership, and problem-solving. They have also found that this method of instruction has been highly beneficial for students in underrepresented groups.

High-Impact Practices at Work by Richard Vaz discusses that high impact practices in higher education such as PBL has : been linked to "greater gains in learning and retention" compared to traditional instruction. The resistance of faculty members is also highlighted and includes unfamiliarity in how to provide structure in high impact practices and faculty feeling they have to cover more material than actually necessary for success in college. Vaz also discusses strategies for successful implementation of high impact practices.

Business, community and students areas are calling for change in their education. Having job ready skills such as collaboration and problem solving is critical in today's world. Researching high impact practices that address these skills is necessary for higher educational institutions to survive.

## **DATA EXAMINED**

Employers are looking for college graduates with interdisciplinary and hands-on skills to help meet their demands. To help fill that demand institutions of higher education have begun to develop or incorporate project based learning into their classrooms. Some have more experience than others, but the collaborative effort of students to working together to facilitate learning is making progress.

Worcester Polytechnic Institute has been a leader in the implementation of project-based learning for almost fifty years. WPI built its curriculum around project work to help students gain responsibility for their own learning by tackling tangible, opened

ended problems faced by people in the world. In 2012, the University of Massachusetts Donahue Institute conducted a survey of over 2,500 WPI alumni spanning 38 years of graduates. The graduates attributed a wide range of personal and professional benefits and long-term impacts to their project work while attending WPI. The long-term impacts cited by the graduates include a positive impact in taking responsibility for own learning, developing ideas, viewing issues from different perspectives, solving problems, functioning effectively on a team, and the development of a stronger personal character.

The Blum Center for Developing Economies at UC Berkley is one of a number of academic programs across the country that has begun working with project-based learning. The Blum Center is home to Development Engineering that began in 2014. The course class for Developing Engineering integrates engineering, economics, business, natural resources development, and social sciences to create, implement and evaluate technologies that address the needs of people living in poverty. First, the students have to understand the problem context and the needs of the community receiving the intervention. Second, students work together to create effective prototype technologies to social problems and third they must field test and assess the impact of these technologies on the receiving communities.

### **PROPOSED CHANGES/REFORMS TO BE ADOPTED**

If an institution of higher education would like to begin to utilize PBL in the classroom providing professional developed on PBL would best help faculty begin to prepare. The professional development needs to encompass all parts of PBL such as what PBL is, why and how it can be successful, and best practices. Remember, project based learning involves students designing, developing, and constructing a “hands-on” solution to a problem or presentation to fellow classmates and instructor.

The first step is to begin with an essential question which needs to be engaging and open ended. The question will need to pose a situation or a problem that students will work to answer knowing that possibility there is not one best answer or solution. Many times PBL will take a real-world topic and begin an in-depth investigation. Choose a question that students believe they can help solve and have an impact on in the world. You want the question to have meaning to the students.

Creating a schedule or timeline is the second step when completing Project Based Learning. A schedule or timeline is created to help students realize that a date is needed to finalize any thoughts, findings, and evaluations, but flexibility is needed sometimes. Sometimes students may need to go in a new direction and that is okay, but help them stay on track to find an answer or solution to the essential question. It may be best to ask students to explain the reason behind their actions because they may have a solution or answer that the instructor may have not seen. Some questions to consider:

- What is the time allotment for the project?

- How will the project be conducted, in class or out of class?

Third, it is important to monitor the students and progress of the project. It is important to facilitate the process and love of learning and teach the students how to work collaboratively. It may be necessary to have students choose their roles, but teach the students to assume responsibility and interactivity for all roles. Resources for the project may need to be provided to help get the students started. Students will find it helpful if team and project rubrics are given to them to reference. Students will appreciate knowing each team member has expectations to meet which can be defined in the team rubric. The following should be observed:

- How well are the students participating?
- Are the students engaged in the process and to what level?

Project rubrics defined what is required for the completion of the project. When developing the project rubric make sure the requirements are clear so students can understand and achieve success.

Finally, assess the outcome. Provide the students with feedback on how well they understand the information and what they need to improve. It can also be helpful to allow the students to conduct a self-assessment to allow them explain his or her understanding the content and outcome.

After conducting Project Based Learning for the first time, reflection is needed. It will be important to analyze what went well versus what changes will need to be made to make PBL more successful. Also, share the findings with a colleague who may be able to help you look at new ideas for PBL and assess the implementation.

### **IMPLEMENTATION CHALLENGES**

While Project Based learning (PBL) is most generally associated with K-12 schools, it is starting to take root in certain areas of higher education. However, acceptance and implementation of PBL isn't without challenges. Realizing that community colleges and other institutions of higher education can and do benefit from PBL, it is a route that all colleges should explore to see best practices and other evidence of its success. By understanding the implementation pitfalls, we can attempt to remediate the biggest challenges that institutions will face if moving to a PBL classroom.

Faculty buy-in is the biggest hurdle to overcome when attempting to integrate PBL into the classroom for the fact that PBL does not follow the traditional role for the instructor. In addition, the student can be a barrier to the implementation of PBL. In a traditional classroom, the instructor would be responsible to convey their knowledge to the student through lecture and labs. According to a survey completed by Buck Institute for Education, 91% of higher education faculty use lecture 50-75% of the time. (Buck Institute for Education, n.d.)

Lesson plans detail each day's class time and serve as the guide to lead students to knowledge. Students, in turn, absorb the information provided to them and gain the knowledge through an instructor centered methodology. In a PBL classroom, the role of the student and instructor are slightly different. Rather than being a disseminator of knowledge, the instructor becomes a facilitator for knowledge. They help guide students to knowledge through actively engaging them in real-world projects. Students, in turn, take on the role of directing their own learning, while increasing problem solving and critical thinking skills to gain a more in-depth understanding of the particular subject based on a real world scenario. While PBL has proven to provide students with an advanced, deeper level of understanding of the content knowledge, getting instructors and students to modify their role in the classroom, is a major challenge to overcome. Instructors tend to feel like they have lost control of their classroom if they are not covering the specific content related to the topic at hand. Likewise, students may experience some anxiety and apprehension because the learning is not straightforward and they are required to own the responsibility of learning rather than learning through the more traditional passive learning model. (Weimer, 2009)

Most people don't like change. So, when you ask instructors and students to change the way they teach and learn, you will undoubtedly be met with resistance from both sides. Many people resist change because they are not aware of why the change is taking place, how the change can benefit them or they do not receive adequate training to prepare them for the change. Schools can overcome this resistance by providing training on PBL to both the student and the instructor. The training should be comprehensive and include what PBL is, why PBL is a successful teaching methodology, a list of clear expectations, best practices, information on how to design a project, plan exhibition, how to put students in to groups, student expectations, and more. If you provide your faculty and student body with the background knowledge and data to support why their classrooms should be using PBL and an in-depth training of how to convert from the traditional modes of teaching to student centric education, then instructor and student buy-in may be more prevalent.

Group dynamics can also be a negative factor and impede PBL effectiveness. Establishing guidelines and expectations for each group participant is key to overall group success. Not all students are equally motivated in their education. We have all been part of a group project in school, the workplace, or maybe with some other club/organization. It often does not take long to figure out that not all participants in the group are equally participating and/or contributing to the end goal. As a result, sometimes a couple of people get stuck doing all of the work. When this happens, some students may earn a much higher grade than they should have based on their own performance/involvement in the project. Likewise, higher performing students may receive a lower than normal grade based on a group assessment. By giving out group grades rather than individual grades for students, we create learning gaps. If everyone in the group is receiving the same grade, then it is hard to determine if there

are students that are not actually understanding the material/content. Therefore, figuring out how to grade students individually rather than based on the group progress is important to make sure all students are taking part in the PBL process and to make sure students are involved in the collaboration progression. According to Vaz, "Effective student teamwork doesn't just happen; it requires intentional support and structure, including attention to how students are evaluated in team settings." (Vaz, 2019) By grading on an individual basis, students will be more encouraged to participate and work together for the purpose of the group project. As each student brings content/knowledge to the table for the purpose of the group project, it will allow each student to use the "group information" toward their individual assignment. This allows the instructor to assess the knowledge and understanding level of each individual student while garnering a group effort for the project as a whole. (McCarthy, 2019)

## **CONCLUSION**

Project based learning can be an effective teaching method in a college classroom. It provides the hands on real world experiences that today's employers require. Upon graduation, students in a classroom using PBL have skills such as communication, teamwork, and problem solving which is necessary to be productive in today's workforce. While implementation of PBL in higher education requires major changes in curriculum development, the benefits of the outcomes for students make it worth the time and effort.

## References

- Lee, J., Blackwell, S., Drake, J., Moran, K., (2014). Taking a Leap of Faith: Redefining Teaching and Learning in Higher Education Through Project Based Learning. *Interdisciplinary Journal of Problem Based Learning* 8(2), 19-34. [www.ijpbl.org](http://www.ijpbl.org)
- Major, C & Palmer, B (2001) Assessing the Effectiveness if Problem-Based Learning in Higher Education: Lessons from the Literature. *Academic Exchange Quarterly*, 5(1), Retrieved from [www.rapidintellect.com](http://www.rapidintellect.com)
- McCarthy, J. (2019, October 23). 3 Common PBL Problems-and Solutions. EduTopia. <https://www.edutopia.org/article/3-common-pbl-problems-and-solutions>
- PBL is Making Headway in Higher Education: MyPBLWorks. (n.d.). Retrieved August 20, 2020, from [https://my.pblworks.org/resource/blog/pbl\\_is\\_making\\_headway\\_in\\_higher\\_education](https://my.pblworks.org/resource/blog/pbl_is_making_headway_in_higher_education)
- Project-Based Learning: How Does Project-Based Learning Work?. (2007, October). Retrieved August 28, 2020, from <https://www.edutopia.org/project-based-learning-guide-implementation>
- Transforming Higher Education Through Project Based Learning (2018, November) Retrieved August 18, 2020., from [www.chronicle.com](http://www.chronicle.com)
- Vaz, R. (2019, June 4). High Impact Practices Work. Inside Higher Ed. <https://www.insidehighered.com/views/2019/06/04/why-colleges-should-involve-more-students-high-impact-practices-opinion>
- Weimer, M. (2009, November 12). Problem-Based Learning: Benefits and Risks. Faculty Focus. <https://www.facultyfocus.com/articles/effective-teaching-strategies/problem-based-learning-benefits-and-risks/>
- Why Interdisciplinary Project Based-Learning? Assessing the Benefits and Challenges at U.S. Institutions of Higher Education. (2018, September 13). Retrieved November 7, 2019 from <https://blumcenter.berkeley.edu/deveng/why-interdisciplinary-project-based-learning/>