

# Recommendations for Project-Based Learning at QCC

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**WPI**



**QUINSIGAMOND**  
Community College



# Acknowledgements

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## Advisors

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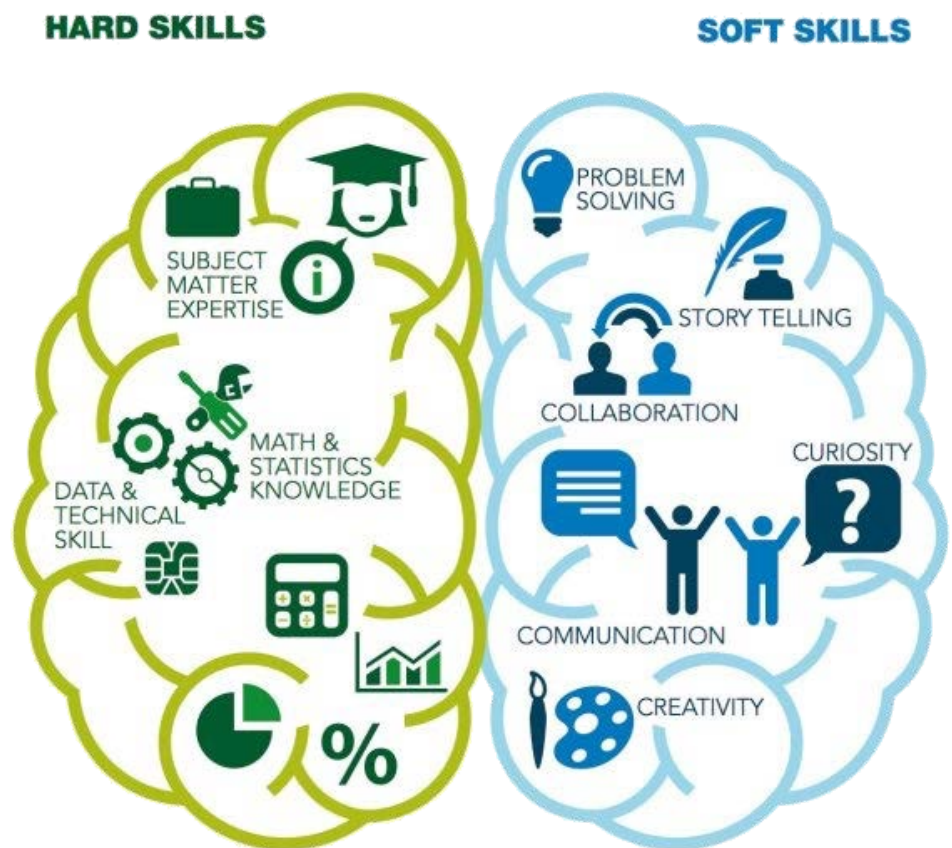
# PROJECT-BASED LEARNING

## *Preamble*

**The job market is changing rapidly**, and the **skills previously needed to succeed** in the workforce **are becoming inadequate** for today's job market. In the digital age, workers need to have knowledge for their trade along with strong analytical and collaboration skills (Schmitz, Baber, John & Brown, 2000). Due to the increasing demand for these skills, known as soft skills, there is a growing need for teaching styles to change to accommodate the changing job market.

People with **underdeveloped 21st century skills** are more likely to lag behind in the workplace and **are prone to having low-wage or low-skill jobs** (Bellanca, 2010).

One study showed that **hard skills** only contribute to **15%** of an employee's success while **soft skills** contribute to the remaining **85%** (Robles, 2010). The image to the right exemplifies the difference between hard and soft skills. **Technology has** and will continue to **develop rapidly** throughout this century, and as a result, **college graduates need to be adaptable to change**. Learning soft skills is the best way for students to become adaptable. Therefore, **universities must adapt** to the needs of the students.



*Hard and Soft Skills*



# PROJECT-BASED LEARNING

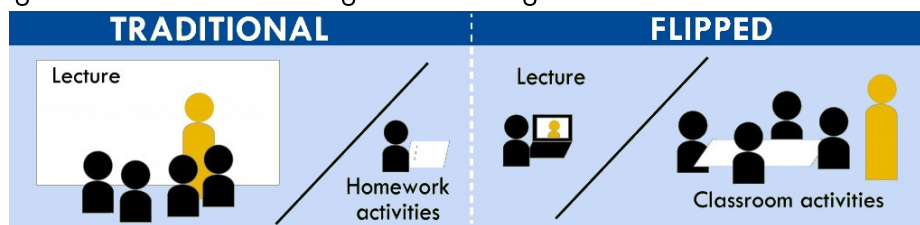
**Project-Based Learning is an innovative method used to educate students** by centering teaching around the **use of projects to reinforce soft skills**.

Students gain **knowledge** through **sustained inquiry** and use **problem solving skills** based on **real-world questions** to create **active and collaborative learning**. This teaching style **develops the skills that the current job-market is requiring** (Buck Institute for Education, 2019).

There are several approaches to the implementation of PBL ...

## The flipped classroom

consists of lectures being posted online for students to review before class. This allows students to review the material at their own pace (Slomanson, 2014). Class time is then used for group work and problem solving to reinforce the material learned at home. This reduces time conflicts that students may face with commitments outside of school while allowing a greater certainty that groups will meet. Image source: University of Washington Center for Teaching and Learning.



## Weekly projects or labs

consist of a project question based on the material covered in class the week prior and a procedure to aid students in solving said problem. Each week the projects build off of one another in order to demonstrate how the material applies to the real-world.

WEEK 1	WEEK 2	WEEK 3	WEEK 4	WEEK 5	WEEK 6	WEEK 7	WEEK 8	WEEK 9	WEEK 10
10%	20%	30%	40%	50%	60%	70%	80%	90%	100%

## Capstone projects

are semester long projects where students dedicate their time to solving a problem that could help their community while referencing their academic major. The problem being solved can either be given by the professor or the project team can come up with their own idea, which is then approved by the college.

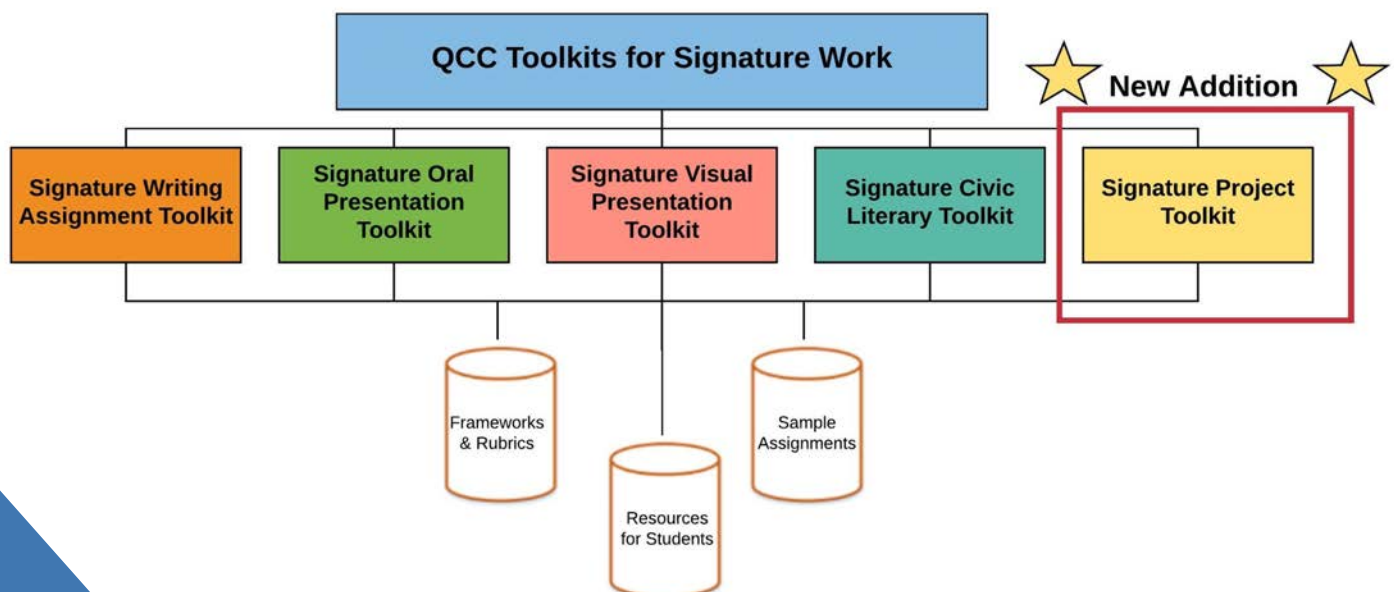
Capstone  
Projects



# ACHIEVING OUR GOAL

The goal of this project was to **provide recommendations on the implementation of Project-Based Learning (PBL) that would best suit Quinsigamond Community College (QCC)**. To achieve this goal, the project team:

- Identified the practices commonly used to implement PBL in the Community College setting.
- Determined the extent to which PBL is used in classrooms at QCC and identified faculty utilizing PBL in their courses.
- Developed a PBL toolkit and framework for QCC.
- Created and worked with PBL Champions.
- Presented recommendations of PBL techniques to the QCC faculty and introduced them to the PBL toolkit.



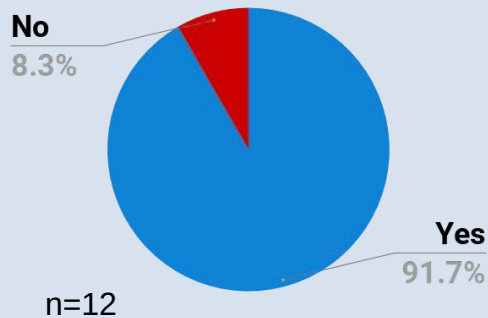
# FINDINGS

## *QCC administrative questions*

The findings for this project have been characterized into three categories: findings for administrators, findings about students in the PBL environment, and findings for professors.

In our initial sponsor interview with the QCC QORE team, several questions were voiced to the project team that they had with the implementation of project-based learning. The QORE team was curious about overall professor interest as well as the steps necessary to implement PBL.

### Professor interest in PBL



**A survey sent to QCC faculty and staff received twenty-four responses:**

- **50% answered that they are using PBL in some** form in their course.
- **91.7% of those that answered that they do not use PBL said that they are interested in PBL** in order to potentially reevaluate their course structure.

### Step to implement PBL



Buck Institute for Education

**P**ick the skills and abilities the students would benefit from gaining throughout the project. PBL has many different aspects but not every project can focus on every element. The professor can choose skills to focus on for each individual assignment.

**B**rainstorm the learning objectives and tangible evidence that is needed at the completion of the project to confirm that students have attained those skills or abilities. Detailed rubrics are the most common way of accomplishing this while also letting students know what is required of them.

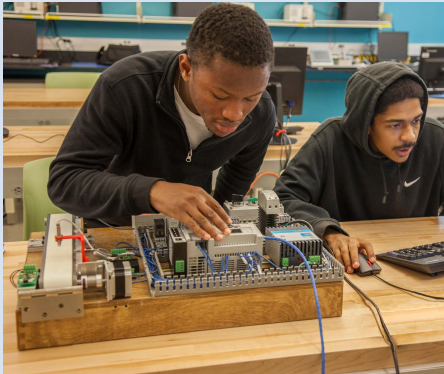
**L**ist project ideas to incorporate the desired skills and utilize the evaluation tool.

# FINDINGS

## *QCC faculty questions about students and PBL*

Along with the initial concerns that were voiced at the sponsor interview, the other concerns voiced were then reinforced by the QCC professors throughout a focus group and interviews. QCC's student and faculty population varies with student ages, part time and full time students, students that work full time, full time professors, and adjunct professors. Because of this faculty emphasized their concerns on student engagement and outside of class commitment.

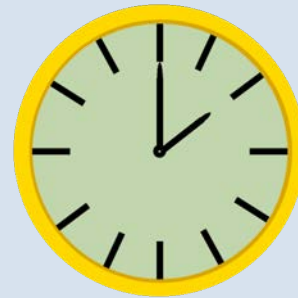
### Student Engagement



**Dianne McDermott, North Shore CC, says that she...**

- **provides students with time to work during class**, she walks around the class as a manager to see who is vocal about their contributions and ideas.
- Holds a **check-in every week** with each student to find out: what they prepared, contributed, learned, and issues they have. **check-ins are helpful in keeping each student engaged and participating.** This is also a time for students to address a concern about a teammate .
- Additionally, feedback from students revealed that **peer pressure keeps them from procrastinating.** They feel accountable to their group mates.

### Outside of class commitment for both students and faculty



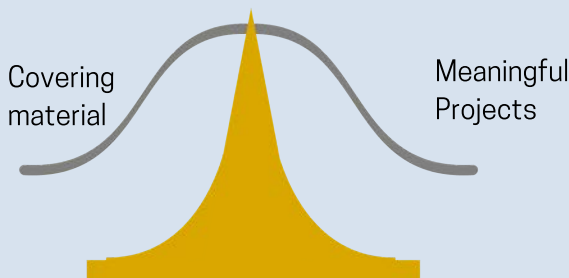
- Based on interviews with faculty, they **are looking for students to work about 8-10 hours a week outside of class, currently.**
- **A typical project would require a similar amount of time.** If professors decide to use a flipped classroom approach, students will also have time in class to work on assignments. There are tools such as Blackboard, Google Slides, and Docs for students to work collaboratively online together so they can still carryout their own personal commitments.

# FINDINGS

## *QCC faculty logistic questions*

Other questions voiced to the project team during the research portion of the project were logistical concerns. These arose during interviews with faculty who did not use Project-Based Learning and were addressed by others who used PBL.

### Covering the necessary course work while using PBL in an introductory level course



- Dianne McDermott, a **Marketing professor at North Shore Community College (NSCC)** teaches an introductory marketing class for first year students which utilizes the flipped classroom approach in order to allow students the time to complete their projects. **She finds that she is able to still cover all the relevant information for the course. In fact, she has seen a significant increase in engagement and decrease in dropouts** since switching to a PBL approach.

### PBL in Online Classes



- **Blackboard and Google Documents** are key platforms to work online collaboratively.
- Both of these sites have chat rooms so the students can interact while completing work.
- Linda Grochowalski, a **QCC technical writing professor**, uses online class with PBL. She **uses blackboard to set up online group rooms** for the groups to complete work. **She can also view their progress.**



# RECOMMENDATIONS

## Overview

### 1. PROMOTE PBL TO PROFESSORS AT QCC

#### 1.1

*The Project-Based Learning Booklet, Flyer, Brochure*

### 2. RESOURCES TO EXPAND PBL

#### 2.1

*PBL Champions and Learning Communities*

#### 2.2

*Departmental Connection Survey*

### 3. UTILIZE THE PBL TOOLKIT

#### 3.1

*PBL toolkit*

#### 3.2

*Develop a Workshop*

### 4. ACTIVE LEARNING CLASSROOMS

#### 4.1

*Evaluate classroom spaces*

# RECOMMENDATION 1.1

## Advertise, Advertise, Advertise

ONE OF THE MOST IMPORTANT RECOMMENDATIONS THAT THE PROJECT TEAM HAS TO OFFER QCC AND THE QORE TEAM IS TO **ADVERTISE** PBL.

THERE ARE **THREE** TOOLS CREATED TO ADVERTISE PBL.

- ***The Project-Based Learning Booklet***

This booklet defines PBL, talks about key components, discusses the types of PBL, and gives faculty places to go in order to learn more.

- ***The Project-Based Learning Flyer***

This flyer is a advertisement designed to have a lot of the attention grabbing information from the booklet while being short enough to be effectively distributed

- ***The Project-Based Learning Brochure***

The brochure is an advertisement designed to have the majority of the material from the booklet. The brochure is supplemental to the flyer and is designed to be used if the person viewing the flyer is interested in learning more

## Advertising Project-Based Learning on the QCC Campus

This need for advertising was brought to the forefront while speaking with the QORE team and then solidified by Paula Quinn at the Center for Project-Based Learning at WPI.

By printing a handful of booklets and using them as permanent advertisements for PBL, interest in the subject will grow.

Then in meetings where faculty are present, the flyers and brochures can be distributed to further spread the word about PBL and the new toolkit. Additionally these items can be distributed around campus like any other brochure or flyer.

Lastly, using a surveying tool administration should send out yearly questionnaires to faculty to see how much PBL has grown over the past year and attempt to create metrics and goals

# RECOMMENDATION 2.1

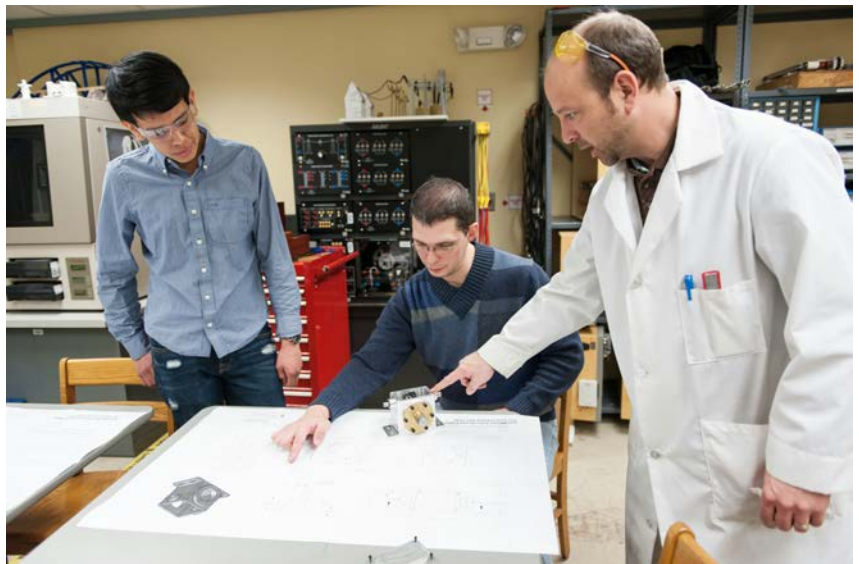
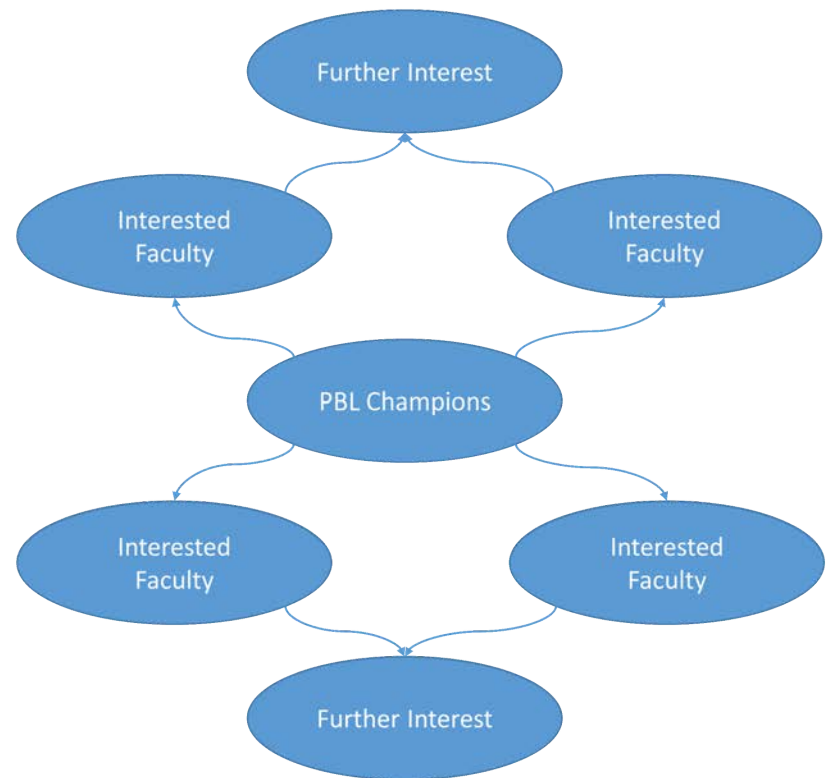
## *Utilizing the Project-Based Learning Champions and Creating Learning Communities*

The project team worked closely with two professors to make them **PBL champions**. This was an idea given to the project team by our advisers and then developed with the QORE team and Paula Quinn. With them, the project team took a closer look into their syllabi and course objectives and constructed a rough syllabus that implements a PBL frame into their courses.

This will allow them to develop their own projects built onto a frame, taking some of the stress away. These **champions are the central people to spread PBL** at QCC.

Using the PBL champions to help to create faculty learning communities for discussing PBL is the continuation of their role.

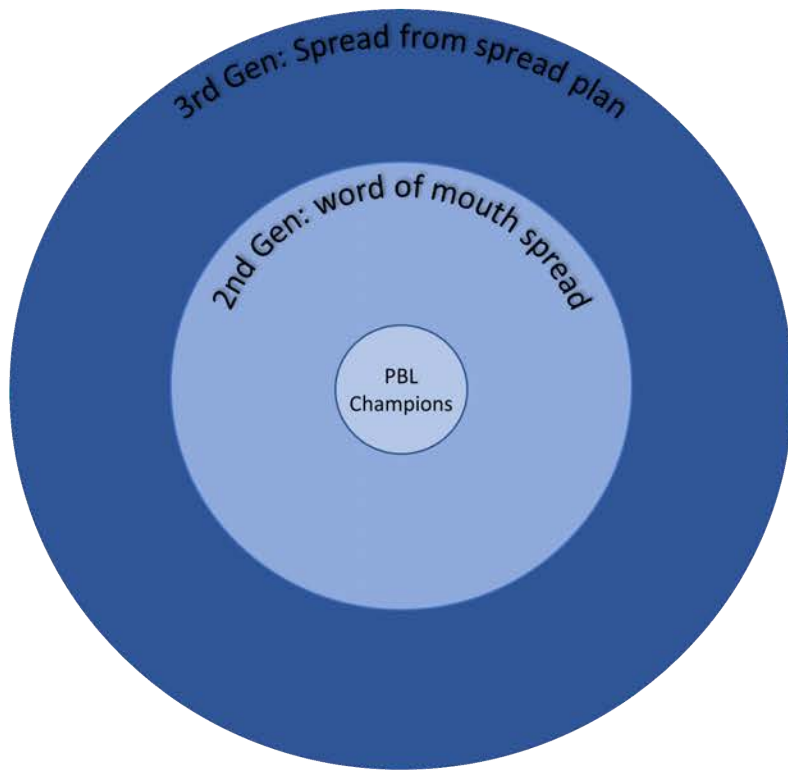
The PBL champions are great people to start this community, and based on results from the survey, there is very strong interest in expanding PBL. The concept for learning communities were developed in response to the professors wishes to collaborate to use the best methods possible. This community should be used to discuss what professors are trying to accomplish with Project-Based Learning. They can talk about successes they have had and some obstacles they may have faced.





# RECOMMENDATION 2.2

## *Using the Departmental Connection Survey*



To help the QORE team and the PBL champions with this expansion, the project team has developed a **spread plan aka the Departmental Connection Survey**. This spread plan consists of a survey to be sent out to the program coordinators or to the entire faculty body. The survey is designed to connect departments after the initial launch.

This idea was pitched to the team by a handful of members of the QORE team and then solidified during the Think Tank presentation when other professors showed interest in the idea.

This data could then be compiled and allow for the **pairing of departments to create collaboration** between departments and share ideas. The **key factor** that will dictate how well PBL spreads at QCC **is the flow of information**. Since some faculty do not know about the toolkits, word of mouth will be a very powerful tool in getting PBL to more than just a startup phase.

The project team recommends for the QORE team to utilize all of the tools provided to spread PBL as effectively as possible.

# RECOMMENDATION 3.1

*Continuing development of the toolkit and allow professors to use the toolkit*

Allow professors to use the draft of the toolkit in order to continue its development

While working with the QCC QORE team, the early stages of development for a Project-Based Learning toolkit were finished. However, the team recommends **publishing the developing toolkit**.

Use the professors on campus that use Project-Based learning to **gather more material and resources for success**.

## Continue development of the toolkit with the resources available

This will allow them to use their faculty to help gather more material and feedback on the toolkit.

This is a concept thought up by the project team and reinforced when speaking with Paula Quinn, PBL needs to keep momentum in order to spread effectively through QCC. Allowing the professors to have access to the draft of the toolkit is essential for this.

There is a collection of example PBL assignments for professors to utilize, held within the PBL toolkit. In order to get PBL started, access to the toolkit should be granted even in it's draft form. These assignments are the building blocks for professors to develop their classes into a Project Based class.

There are also supplemental readings that professors can do if they want to learn even more or need more information in order to get started.

# RECOMMENDATION 3.2

## *Utilizing the tools provided to create and host a workshop*

The project team recommends that QCC holds a PBL workshop or two. **PBL** is a teaching style that **takes time to implement** and master. A workshop is a very useful tool throughout this process. There are several ideas that the project team believes could be effective at a workshop.

Based on recommendations from the Center for Project-Based Learning they believe QCC should reach out to Paula Quinn at the WPI Center for PBL or another PBL professional, to come and facilitate this workshop.

The workshop should cover how to create assignments and **think of open-ended questions that can lead to projects**. By putting professors through small PBL activities, the benefits of PBL will be shown to them. In a workshop, **professors can see cases where PBL is successful**.

Alternatively the QORE team can **create their own workshop** using the materials they have from the Summer Institute for PBL and the project team's work. Or they can hold a campus wide interactive PBL meeting. In this meeting **similar ideas to those in a workshop would be covered** but in a **less formal** setting.



# RECOMMENDATION 4.1

## *Determining which classrooms are best suited for active learning*

The last recommendation that the project team has for QCC is to **evaluate classrooms** on their campus in order **to determine which are good candidates for active learning classes**. Active learning classrooms should allow for collaboration as well as presentations.

The first step to this is to find the classrooms in each building that work the best for both. Some may already be structured for this, while some may need some slight rearranging. After these classrooms have been determined, QCC administration needs to have an application process for these rooms. Professors should be able to request these rooms based on their course structure. This evaluation process should help with implementation as it will allow for an **easier transition** if faculty can use the classrooms best suited for PBL.





# Final Thoughts

Our project team believes that using the tools we have provided, it is possible to implement Project-Based Learning at QCC. If the QORE team continues to spread Project-Based Learning each year and encourage the faculty to fully embrace the tools the team has provided, Project-Based Learning will have a significantly higher chance to become an integral part of an education at QCC. A professor at QCC said during our project that, it takes approximately 10 years for something to permanently change in education and the project team believes that when QCC reaches that point Project-Based Learning will be integral to their college.