

In the Classroom 56

Getting Started With Project-Based Learning

SEE THE SHOW NOTES AT: <http://tubarksblog.com/itc56>

Stan Skrabut: Well, thanks everyone so much for coming join me on this beautiful wintery day that we're having in western New York. We have about eight inches of snow out there. I know you could be doing other things but you're hanging out with me on this podcast and I do appreciate it. This week we are going to be exploring project-based learning, why did I choose this topic? Well, my primary motivation is, this coming week or actually two weeks from now, the community college I'm working at is holding their spring faculty development day and the topic of focus is project-based learning. I just wanted to get a jump start on it. I know a lot about project-based learning but sometimes what I think I know and what I should know, don't always jive. I just wanted to brush up on the topic, and so I'm going to share what I've learned with you guys.

First of all, what is problem-based learning? I mean problem-based or project-based learning. They're very similar. I couldn't really find any good nuances between them but basically, you're focusing on a problem or something that you're going to build a project out of. That's where they tie together. Project-based learning or PBL, as it's known, is designed to help students integrate real-world problem and apply critical thinking to this and see if they can have a practical application to it. It is different than traditional instruction. In a traditional classroom, we typically present all the content, we just lay it right out there. We have some activities that are going on throughout the course to assess where they're at, this formative assessment and then typically they have final exam and to see what they all learned. Well, one of the biggest complaints that we often hear from students is like, "When am I ever going to need to know this? How does this apply to me? Why are we doing this?" You've probably heard it before. Rather than go that direction, this flips it on a tad a little bit. It's not necessarily flipped instruction but with a project-based learning, what you're doing is you are having them work on a problem and through your mentorship, you're guiding them through the content because they need the content in order to complete the project, but they're working on a real-world problem. They need a real-world problem, it's a long-term problem, it's going to go through the whole term, and they're going to come out with a solution that is creative and authentic as opposed to solutions that we have predetermined. In order to get to that solution, they're going to need to be able to meet the standards of the course, and they do that by working on this and through self-exploration or self-directed learning. It's messy learning but it's cool learning, that's where learning happens, when it's messy.

The research is showing that students end up learning more about the topic because they have to fight through the content to be able to learn it. One of the reasons that it is come into vogue is because it reflects the way that people work on day-to-day activities outside the classroom. You are tossed a project and you have to work on it.

There's a lot of things that you know that you bring to the table to work on these projects, but there is a lot of things that you don't, you have to go figure it out.

This is what you're trying to replicate in these project-based learning activities. Normally, these are group projects that you're building these little teams and each person on the team has a different role, but they can also be independent that students can work on it on their own. You have different ways that you can approach this, but everybody's basically working towards a common goal. The instructor is more of a facilitator, they are a coach, a mentor, a facilitator, a guide. They are helping them by posing questions and reviewing their material and giving other things to think about and that's where you can guide them through your curriculum.

The interesting thing about project-based learning is the outcomes or the final project, that there can be multiple diverse solutions to it that it's not predefined, and there's not one way of getting there and that adds to the messiness, but like I said, I think that's where learning really happens. Not everything works out, the students may be following a path that just doesn't work out, they have to regroup, they approach it from a different angle and this is true of real-life, and that's one of the benefits of this project-based learning.

While in there based on the research and as other people have been applying project-based learning, there are a number of skills that students have to employ in order to come to a successful outcome. Things that they're going to have to do is being able to do inquiry and research. They're going to have to collaborate with others, be able to communicate their position and also being able to present their final product. Organization is huge, being able to keep track of multiple objects at one time, managing their time, so they can meet the deadlines necessarily to complete the project. Self-assessment, reflection is also part of this that they're going to have to be able to critique themselves but also listen to critique from others.

Being able to work as a group, some are going to apply leadership skills, there's critical thinking, synthesizing and a lot of these are the high-level Bloom's Taxonomy goals which leads to stronger learning. When you're creating, when you are synthesizing, all those things really means that you're getting it, that you are being able to apply the things that you are learning in the classroom. There is also some other characteristics that are necessarily for problem-based learning. The first thing is, you got to tie it to something meaningful. If you just have a project that has no meaning to the student, they are not going to be motivated and enthused to do it.

We have all these projects that we typically say, "You have to do this." What we want to do is create a project where they want to do this, as opposed to have to do it. They want to be able to do it and if you can relate this project to the real world, where they are solving a real-world problem, they feel that this work is meaningful. You want to be able to organize your problem or challenge around a real-world problem that doesn't have a predefined solution and, once again, that's that's where the messiness comes about.

Some of these other characteristics came from a project-based learning guide that was created by Brandon Goodman, so I'm going to share some of those things with

you. Students are going to be the ones that are designing the process for getting to the solution. Based on what they're researching, they're going to develop the problem, they're also going to develop the way to solve that problem or get to a solution.

Like I said, this is going to require critical thinking, problem-solving, collaboration, all kinds of forms of communication. It also allows the students to examine the problem from different perspectives and figuring out solutions that are based on a variety of resources and information, some of it relevant, some of it irrelevant. They have to be able to sift through that and figure out what's going to work and they pull that all together. Students are also going to have to work independently, take responsibility, they're the ones that are making the choices in this. It's not just step by step, here do this and you come out with a predetermined solution, that's a recipe. What they're doing is learning how to make a unique cake, but there's still basic principles that go in there and they have to be weaved into there.

Other characteristics, students must learn through investigation of defined goals and they're going to be constructing and building knowledge. They're going to also be required to reflect on what they're doing and being able to do that self-critique. In the end, there's going to be a final product that is going to be presented to the rest of the class but also to maybe some subject matter experts and it's strongly advised that you bring these subject matter experts in, it gives it more meaning to the project. As I noted the instructor is going to be a facilitator rather than upfront leading everything. In the end, there is a task, a process, a product and a reflection, all this is bundled together.

From Sam Houston State University, they outlined eight essential elements. Significant content. Number one, significant content, this is tied to your learning outcome. What do you want them to be able to walk away from your course, knowing or being able to do? This major activity is to guide them to be able to do that. Now, the learning outcome, there may be multiple learning outcomes that are weaved together in this project that students are going to come to learn and know by the time things are done, but you want to make sure that these things are really tied to the learning objective.

Then, a need to know. The second essential element is a need to know. This is why. If you can tie something back to the why, then folks have a tendency to be more engaged with the product. You're presenting the information, it could be with a video, it could be with an article, it could be with some world event that you're pointing students too that gets them excited about that particular topic. It lays out the why. This is what's going to activate the students to want to get to an answer, but first, they have to get a driving question. They have to basically put together their thesis, their research question that everything else is going to be wrapped around.

What is that driving question? They need to be able to communicate that because that's going to guide this whole project. The instructor is going to be very much involved independently with each student or student group to narrow down this question that's going to shape their project. Once you get to that point, whether the students are working independently or as part of a team, they get to have voice and choice on how they address their goals.

This means that they get to decide how they are going to solve this problem and what the final product is going to look like. Now, you may narrow the options of this final product, but if you can keep it more wide open where they have choice, then certainly I would recommend that and as well as others recommend that. That the more that you can provide this choice, the more it ties into this student-centered learning.

In my episode 49, I talked about the raft, which was the role, the audience, the format and the topic. That is very much an idea where students get choice, and it ties back to that Universal Design for Learning. The more choice that you provide, the more engagement that you get out of students. They're the ones that own and have responsibility for the project. We're also looking at 21st Century skills. These are skills that are necessary in the workplace, and it's a lot of skills that I already mentioned, everything from communication and collaboration, to the use of technology and how to present and leadership. I mean, just that whole wealth of different skills.

Another essential element is inquiry and innovation. Basically, as instructors or faculty in this facilitating or coaching role that you're going to guide them through this whole research project, or the whole process as students are figuring out what they're looking for as far as an outcome. This is going through being able to set up their research, being able to test it and implement it. As they come to answers, basically you're going to coach them through this whole process. Feedback and revision, I think faculty are essential to this because they're going to be looking at the process as the students are working through this, and they're going to ask questions and provide guidance on directions that students can go throughout the project.

You don't have to do it alone. What you may also want to do is maybe bring in experts. There's one show that I enjoy watching. It's called *Face Off*. These are makeup applicators who create these monsters and stuff. It's a fascinating show, but on a regular basis, they will bring in a professional from the field to critique their processes, their methods, the directions that they're going. This is a rewarding part of the show, not only for the audience, but also for the participant. Being able to bring in these experts or subject-matter experts into your classroom, who can sit down with these various groups or talk to each of the students about their project and give them direction, this is also very invaluable. Then there's also publicly presented projects.

Once everything is said and done, the project is completed, the students should have an opportunity to present this. It could be in a formal presentation. We've seen that where students are given 10 minutes to present on their project, but one of the things I like is, having one of those fairs or at a conference where you have poster sessions. Where half the class is set up in poster sessions, the rest of the students mingle, go check out these posters. The students have to present over and over as different groups come to visit them and talk about this. I would also encourage that you have these presentations made in front not only their classmates, but also administrators, other faculty, community members and leaders, parents, bring other people into the sessions to get to see the project.

Those are the eight essential elements and, once again, those elements are, significant content, a need to know, a driving question, voice and choice, 21st century skills, inquiry and innovation, feedback and revision, and publicly presented products.

The article that I took those from, I will definitely have in the show notes, so make sure that you check those out. The next thing that I wanted to focus on was how to design implement and assess a project-based learning activity.

What I'm drawing this from is an article written by Vincent Genareo and Renee Lyons. This is basically, there are six steps on how to design, implement and assess a project-based learning activity. Step one, identify outcomes, talked about that already. That you want to make sure that this is weaved together with your learning outcomes and that you have assessments laid out where you're going to be able to regularly assess where they're at in their learning. Talking about this scenario, this is where it comes to that why? Why do we have to? Why are we doing this? Getting a complex issue that they're going to work on, and it doesn't mean that the issue has to be solvable. This is where the messiness comes in, but what do they think is needed in order to solve the problem or the issue? You want them to be able to think this out and be able to line up some research and do some research to get to that point.

Step number three introduce project-based learning to your students. Many of them may not have already done project-based learning, and so you want to introduce this. You may introduce it at the beginning of the term with some small project that they work on as a group, something easy and simple, but they can get a feel for how this is all going to work.

Step four is the research. This is where you have the students get into groups or independently, define what the problem is and develop a research question. That's what's going to start them on working on the problem, and then set them out to work on the problem.

Step five, product performance. This is, they've created a final product, they've pulled the research together, they synthesized it, they have their learning solution together, and then they're just going to present it to others. This is where they can do a formal presentation as part of their group, but I would also, as I mentioned before, bring in local professionals who can provide commentary on this.

Then finally, the last step is step six, assessment. This is where you use a rubric to analyze the project and does it meet what your intentions of the course are? Did they communicate the problem and the background, the research methods, solutions, the resources, all that? Did they do that effectively? That is the final step. Those six steps, once again, identify outcomes and assessments. Number two, design the scenario. Number three, introduce problem-based learning or project-based learning. Number four, research. Number five, product performance. Number six, assessment.

Now, this is not a solution for everyone. Matter of fact, there's some criticism about project-based learning. Students don't necessarily effectively use their time and energy and focus on the right thing, that sometimes they just start chasing down rabbit holes and totally off topic. One of the other criticisms is that the grading is subjective, that it's not like giving an assessment where you have multiple choice or fill in the blank. Some folks don't think that learning could be effectively measured that way.

Some disciplines have difficulty applying this, but once again, in the show notes, I'm going to include some links on where you can get some ideas that are of a variety of different disciplines that you may want to consider as your entry point into this problem-based learning. Once you get one or two of these project-based learning activities under your belt, then you'll probably figure out how to do it and fall in love with it and continue to do it. That brings me up to speed on project-based learning prior to this workshop that we're going to have. Like I said, I've included a lot of resources that you come up to speed on this topic, check out my show notes. I'd really appreciate if you do that. Before I let you go, here's a quick plug for my book.