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This resource is intended to be read in conjunction with the case study on the project led by Derby College	
This is what this resource is	A practitioner PBL poster-story
This is what it is for	To support effective PBL
This is how it could be used	As a CPD tool

Outstanding Teaching, Learning and Assessment (OTLA) Technical Skills National Programme: sharing and developing effective practice

Output 16

PBL Poster Story 1 (Design a Rollercoaster) Derby College

12/11/2017



Trialling Problem Based Learning with Level 3 BTEC Engineering Students

What We Did

Pedagogy is in a constant state of evolution, with practitioners continually searching for more effective and engaging methods of developing students into successful candidates for society. Problem based learning, or PBL, is a method of presenting students with a multi-solution problem before guiding them through a process of discovery, in both skills and knowledge, as opposed to either project work in which a student would apply knowledge already received.

As part of induction we used a PBL activity focused around the design of a rollercoaster. Students were grouped and then asked to design a rollercoaster and pitch it to a panel of judges (lecturers). They needed to look at theme, design, mechanics, cost, impact on the theme park and unique selling point. Students were given two weeks to achieve this with the first week consisting of varied masterclasses, which would help guide the students initially and also develop their confidence in the problem.

What Went Well

While slightly unsure at the beginning, the openness of the project allowed many students to get carried away with their imaginations, creating ideas and supporting those ideas with real knowledge and understanding which, in a more structured setting, might not have occurred. For the students who made an effort to overcome their initial worries, confidence increased exponentially as the project progressed, as did their excitement.

Collaboration between the students was also a highlight and certain individuals, meeting on equal ground, were able to integrate much more effectively.

For us as lecturers, we were able to see what students could achieve with limited information or input, which was greater than expected. Students were able to create a diverse and interesting array of ideas and concepts which became all the more real for the research and support they were able to give it.

What Next?

The plan is to introduce much more problem based learning into the curriculum with the possibility of mapping problems to outcomes and making these part of student assessments. While there is still a lot of work to do in terms of development, it is clear that this pedagogy has much in terms of potential for both us as lecturers but more importantly, the students.

Difference made to the students

The difference is difficult to measure as we have had no prior experience with these students, however compared to previous years. The students appear to be working much more closely having all been dropped in the deep end together. In addition to increased social cohesion, students have a greater confidence and motivation to achieve the distinction marks in their assignments. Overall, it appears so far that the PBL activity has had a positive effect on the students in this instance.

Lessons Learned

For us as lecturers, we learned that giving students more independence or control over their own learning can produce some amazing results. We can be a lot more sparing with our input and instead focus on targeted guidance and positive reinforcement to assist students through times of low confidence and misgivings.

Barriers Faced

The most profound barrier we faced as well as the students was the timing. As the students were largely new, an entirely new way of learning with limited input filled many with trepidations. Many students craved the answer, which was a style of learning they were much more familiar with. Many students craved structure, and needed not only a well-defined approach to solving the problem, but also a given way of organising their time over the week. For students that were so used to rigid timetables, the flexibility was a little concerning.

Biggest Success

Following the PBL activity, students have been much more likely to engage with difficult tasks. We have put several problems in front of them and with limited instruction, students begin by discussing and pontificating on several solutions which may or may not be successful. Students became much more independent and resilient which has assisted their transition from GCSE to Level Three study perfectly.

