



A Project Approach to Teaching Collision Repair: A Story of Change

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This publication describes a case whereby embedding literacy and numeracy into the programme resulted in improved student retention and pass rates. A project approach was used in combination with changes to teaching, which is now being applied to other trades programmes at EIT.



Introduction

The Eastern Institute of Technology, Hawke's Bay [EIT], is a regional polytechnic that delivers over 90 programmes, from certificate to post-graduate level, either full-time, online, by distance, or part-time. The main campus is at Taradale, with five regional centres in Central Hawke's Bay, Hastings, Flaxmere, Maraenui and Wairoa. Most students (85%) come from within the Hawke's Bay region.



This is the story of John Banks, an EIT tutor's change in practice. It is also the story of the restructuring of the Collision Repair programme. It describes what happened, and how both the restructuring and the change in practice have had a dramatic impact on outcomes for students. Information in this story was drawn from statistics and interviews with the tutor and some students.

When the Collision Repair programme began in 2007 it was based on teaching and assessing to unit standards, and students had to pass all courses to gain the qualification. Retention, pass and qualification achievement rates were low, as Table 1 shows. During 2008, John, one of the tutors on the programme, took part in Tertiary Education Commission [TEC] funded workshops on embedding literacy and numeracy into foundation education programmes. At the time John was dissatisfied with the way he was teaching, and attending the workshops gave him the impetus not only to embed literacy and numeracy, but also to initiate other changes to his teaching. Better engagement with students resulted in significantly better retention and course pass rates. However, the qualification requirements and programme structure remained the same, which may explain why the qualification rate did not change.

This seems to have been resolved with the introduction of a project-based programme structure in 2009. Integrated teaching and assessment, the continuation of engaging teaching practices, and embedded literacy and numeracy, have brought retention, pass, and qualification achievement rates to a much higher level. As more programmes at EIT move to this way of teaching the positive results in this programme have inspired wider changes in the School of Trades and Technology.

Table 1 Retention and Pass Rates¹

Year	Total students enrolled	Course retention rate	Average course pass rate	Qualifications awarded
2007	12	57%	52%	50%
2008	12	83%	70%	50%
2009	first intake 8	89%	87%	75%
2009	second intake 13	86%	74%	69% ¹

Background

John Banks started teaching on the existing Certificate in Automotive Engineering at EIT in 2003. His long experience in the industry made him enthusiastic about passing on what he knew. The Certificate in Automotive Engineering was based on teaching and assessing to unit standards and was largely teacher led with 'hours spent in front of a whiteboard'.

Early in 2006 EIT began investigating a short Collision Repair programme. Older workers in the trade were concerned about what would happen when they retired because there were very few new apprentices coming. Who could take over their businesses? John developed a programme in the traditional fashion, based on Collision Repair, Auto Body Repair, and Automotive Engineering unit standards. The first Certificate in Collision Repair started in 2007. An introductory programme that could lead to an apprenticeship in collision repair, it now has two annual intakes, each 17 weeks long, delivered on the Taradale campus. Students are on campus for 3 days a week and are required to undertake at least 1 day a week industry experience. Successful course completion requires a minimum of 60 credits and 120 hours work experience. The programme attracts mainly young male students, over half the students are 20 years old or younger, very few are over 25.

John taught the automotive engineering portion of the programme; the part-time tutor for the collision repair section of the programme had recently retired from the collision repair industry. John also coordinated the programme he had created. At EIT a programme coordinator is responsible for providing academic leadership and administrative coordination for a specified programme. The move to a coordination role coincided with John's growing sense of disillusionment about the way he had been teaching the Certificate in Automotive Engineering. He had a wealth of knowledge about the industry but after a day in front of the whiteboard John thought the students had probably taken onboard about 3 or 4% of what he was saying. There had to be a better way. The Certificate in Collision Repair was John's opportunity to try out new ways of doing things.

What John Did

From the beginning of 2008 TEC sponsored workshops at EIT aimed at assisting foundation-level tutors to embed literacy and numeracy into their courses. While John was initially diffident about participating, he soon found that what was being suggested at the workshops coincided with ideas he was already formulating about classroom activities. Other participating trade tutors would meet between workshops and share ideas about how they could improve classroom practice and embed literacy and numeracy in their courses. Some ideas were trialled in class. John became part of a community of practice in the institute intent on integrating literacy and numeracy in their teaching.

At the same time John made other changes to his teaching. Students were usually given a workbook that they were expected to work with on their own outside class time. Many of these workbooks languished in the boot of the car for most of the programme – some were never seen again. The first change in 2008 was to complete workbook activities in class time where discussion could take place and students could bounce ideas off each other. Students could ask about the meaning of words they

¹ The first 2009 intake had few students and the tutor was able to spend more time with individuals. The larger second 2009 intake meant less individual tuition time was available, resulting in a fall-off in the pass rate.

had not come across previously. The books were collected at the end of class and John could check the quality of the writing and whether there were areas students did not understand.

By the first intake in 2009, John realised the students were often very good with their hands. They could draw well and they enjoyed drawing. He would open up a topic by getting students to create a poster, for example about safety gear, or safety practices. Students were then encouraged to go and research the reasons for these safety requirements or practices in the library or on the internet. Suddenly John noticed the learning had become deeper and his students had gained a better understanding of why safety was important. Students were going beyond what was taught in the classroom and becoming independent learners, more confident with their own ability. This freed-up some tutor time to concentrate on helping struggling students.



At the beginning of an EIT programme, students participate in an orientation session. The session is supposed to provide students with a friendly introduction to various support staff they may or may not access while studying, to explain protocols relating to student behaviour, and to take students on a tour of the campus. Staff have wondered why little of this information is retained. Unfortunately, the orientation session often takes place on the first morning of a programme when the overwhelming concern of many students is just to find the right venue. In 2009 John found that spreading the orientation process over the first week allowed students to take in more information. He has also discovered it is important for students to get to know each other and learn to work together, which results in many students working in friendly competition with each other.

Programme Changes

At the start of 2009 the Certificate in Collision Repair switched from working through unit standards to becoming project based, making the learning activities much more like reality in the workplace. 'Projects', as described by Knoll (1997), became the central focus of teaching. The programme now comprises a series of project tasks. Students are still assessed against unit standards but the performance criteria for all units were now attached to the most appropriate task and thus spread throughout the programme. A matrix was created to keep track of student progress.



Spreading the performance criteria appropriately through the programme allowed for more flexibility within the programme, while still meeting the unit standard requirements. Initially this created more paper work, but John sees this as positive paper work, as mini-assessments to meet individual performance criteria were created and are now kept on file. Fine-tuning of assessment tasks does not require extensive rewriting, and is now seen as an on-going process. In 2009 students were assessed against the literacy and numeracy progressions. While literacy and numeracy are embedded into each project, measurements of progress need to be refined before conclusions can be drawn.

At the time these changes were taking place in the Certificate in Collision Repair, the original workshops on the Taradale campus were due for redevelopment and new trade facilities were planned. EIT took advantage of the opportunity to plan the new building around a project approach to teaching, not just for Collision Repair but also for Automotive Engineering, Mechanical Engineering and Welding, Carpentry and Electrical Engineering. This building is now operational, supporting the project approach.

Impact on Learners

The combination of changes in teaching, embedding literacy and numeracy, and the introduction of the project approach have resulted in better student engagement in the learning process. Some student comments from the second intake 2009 are:

"I really enjoyed this course."

"It's a really good course."

"We are more confident, focused..."

"Tutors were really good when struggling."

"Literacy has improved over the course."

Nine students, including one young woman, of the eleven students enrolled on the first 2010 programme were asked what they thought about the project approach to learning. Two students who had done previous training programmes thought Collision Repair was better because it gave more opportunity for practical work than previous programmes had done. Asked if they remembered information better by learning theory or by doing practical activities, one student said he remembered "by doing 100% better than by just hearing".

The spread orientation process, with some effort made to encourage the students to get to know each other and work as a collaborative group, was seen positively. While students work mainly in pairs, they also share information as part of the larger group. They are all currently undergoing work experience, and this is varied. On the days when they come to EIT there is quite a lot of informal sharing among themselves about what their work experiences. Students also find that what they are learning on the programme is helpful in supporting the work experience. One student was critical about the health and safety practices at his work place.

The students like the workbooks and the way the workbooks are used; rather than a single workbook that covers the whole programme, a number of small workbooks cover different topics. Workbooks are discussed and completed in class. The students like this for two reasons: they can talk about aspects of the topic in class, both with the tutor and with each other, which helps understanding; and the workbooks are useful to go refer to, which helps students remember what they have covered. Workbooks are not homework.



Students think the amount of written work they have to do is about right. The tutor usually introduces a topic with just enough theory so that students can operate safely and have a basic understanding of the task. Once the students have carried out a task there is a return to theory. Students said they understand the theory better once there has been some practice. Theory is presented in a variety of ways, not solely the tutor talking and writing on the whiteboard, for example, to introduce safety theory to this class the students viewed a YouTube clip, followed by discussion, and did a crossword related to safety issues. The students were asked whether, if they knew in advance what the programme would be like, they would still attend. They agreed they would.

Conclusion

The changes John made to his teaching and the successful implementation of a project approach, including the embedding of literacy and numeracy in the programme, has resulted in improved student retention and pass rates. A project approach and changes in teaching are now being applied to the other trades programmes at EIT. At the final EIT full staff meeting for 2009, John Banks was acknowledged by the Chief Executive for the dramatic results he had achieved through his reorganisation of the Certificate in Collision Repair.

References

Knoll, M. (1997). The project method: Its vocational education origin and international development. *Journal of Industrial Teacher Education*, 34, 59–80.



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