

An Chomhairle
Mhúinteoireachta

The Teaching Council



Title of Research Project: Developing sustainable approaches around teaching creative problem-solving within STEM subjects in second-level schools with a particular emphasis on 'T' (Technology) & 'E' (Engineering)

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Relevant key words: Design, Problem-Solving, Creativity, STEM

Summary:

This research study was concerned with the teaching and learning of creative problem-solving in secondary schools with a focus on Technology and Engineering subjects. In an effort to help practising teachers to develop new skills and knowledge that align with the new Junior Cycle, we provided training at University of Limerick around a new cutting edge intervention (developed by University of Cambridge) called Designing Our Tomorrow (DOT).



Figure 1 – Experiencing how people with poor eyesight and poor dexterity might feel when using everyday products

(Taken with permission from the Designing Our Tomorrow [website](#))

Four practising teachers received a kit of tools and resources for their schools and they delivered the intervention over a 10 week period to second-year Wood Technology and Engineering students.



Figure 2 – Teacher Training Workshop at University of Limerick (February 2020)

Our research methodology comprised 3 distinct phases.

- In **Phase 1** we conducted focus groups during the training day (Figure 2) to examine teachers' beliefs and knowledge around creative problem-solving.
- **Phase 2** involved weekly conversations with the practicing teachers to discuss the progression of the intervention and provide any support.
- **Phase 3** involved a visit to Kinsale Community School (KCS) where we conducted focus groups with students and celebrated their work. Mr. Cathal O'Donnabhain (KCS) was the lead teacher researcher for the project.



Figure 3 – Project review day at Kinsale Community School

In a nutshell, we found that DOT had a very positive impact in the schools. One of the most significant benefits of DOT was that it encouraged and enabled students to develop a sense of empathy for older people in society and for people with disabilities. We also found that students enjoyed having autonomy and the space to create their own solutions for design problems. The intervention had a positive impact on teachers, particularly their views on the future role of their subjects and the pedagogical strategies that they can now employ in helping to make Technology and Engineering strong pillars with the STEM domain. The results from our study, which we will be disseminating through various channels, should help in the development of future professional learning opportunities for STEM teachers.

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