

**TUS****Technological University of the Shannon:  
Midlands Midwest**  
Ollscoil Teicneolaíochta na Sionainne:  
Lár Tíre Iarthar Láir[www.tus.ie](http://www.tus.ie)

---

## POSTGRADUATE RESEARCH OPPORTUNITY

**Project Title:** Investigating the development of technological capabilities for future success and participation in STEM disciplines

**Project Description:**

Current research that is being undertaken by members of the Technology Education Research Group (TERG) is investigating the role of cognitive skills development in an Irish second level educational context.

This research project consists of a number of key phases to contribute to this research agenda: the initial phase is concerned with development and implementation of interventions for second level STEM students. The study will measure the students' pre and post-performance scores in relation to identified technological capabilities, and engage with the participants to gather both quantitative results and qualitative feedback in relation to their learning experiences throughout the interventions. These results and feedback will then be used to conduct an analysis of the effectiveness of the piloted intervention to inform required amendments to the design and delivery of the intervention for a particular demographic of second level learners.

The following phase of the study will be concerned with preparing second level teachers from STEM disciplines to deliver the piloted intervention effectively. This aspect of the study may be in collaboration with the national Professional Development Service for Teachers (PDST) organisation whereby formal training can be designed and delivered to participating teachers, to ensure that they are suitably equipped to deliver the intervention to its full potential and in a consistent manner. The designed intervention will then be rolled out nationally, within participating second level schools, where this study will gather and evaluate the required data to discern the effectiveness of the intervention in developing the general technological capabilities of the participating students. Further analyses will be conducted to investigate if the development of such capacities can have a positive effect on performance in completing tasks within technology and engineering education with particular emphasis on design and make activities.

**Duration of Project:** 48 months

**Funding Agency:** TUS Presidents Doctoral Scholarship

**Type of Degree Offered:** PhD by research

**Minimum Qualifications/Experience Necessary/Any Other Requirements:**

Candidates who will hold a primary degree in the following or aligned fields on or before 1<sup>st</sup> October 2022:

- STEM education

- Design education
- Educational psychology
- Cognitive psychology

Minimum classification of *2.1 honours or equivalent*.

IELTS [International English Testing System] Applicants must have a minimum of 6.0 with no component score less than 6.0.

**Supervisory Panel:**

Dr Rónán Dunbar (*Technological University of the Shannon, Ireland*)

Dr Jeffrey Buckley (*Technological University of the Shannon, Ireland & KTH Royal Institute of Technology, Sweden*)

Dr Niall Seery (*Technological University of the Shannon, Ireland*)

**For further information please contact:** Dr Rónán Dunbar (rdunbar@ait.ie)

**Download Application Form at**

<https://www.ait.ie/research-and-innovation/postgraduate-research-opportunities>

Closing date for receipt of completed application forms is Friday 11<sup>th</sup> June 2022.

Please submit your completed application: [pro@ait.ie](mailto:pro@ait.ie)

Please reference **Project Title in all correspondence.**