



## **Institute of Technology**

### **Ciência sem Fronteiras / Science Without Borders**

#### **Postgraduate Project Template**

<b>Institution:</b>	Institute of Technology Blanchardstown
<b>Title of Postgraduate Opportunity:</b>	Authentic Cloud-based Assessment (PhD, Level 10)
<b>PI Name &amp; Contact Details:</b>	Dr. Luke Raeside ( <a href="mailto:luke.raeside@itb.ie">luke.raeside@itb.ie</a> ) Dr. Larry McNutt ( <a href="mailto:larry.mcnutt@itb.ie">larry.mcnutt@itb.ie</a> ) Department of Informatics, School of Informatics and Engineering, Institute of Technology Blanchardstown, Dublin 15, Republic of Ireland
<b>Department/School:</b>	School of Informatics and Engineering
<b>Research Centre /Group:</b>	DELTA E-Learning Group ITB
<b>Research Centre/Group website:</b>	<a href="http://www.itb.ie">http://www.itb.ie</a>
<b>Brief Summary of PI research / research group /centre activity</b>  Dr. Luke Raeside and Dr. Larry McNutt have many years of experience within the education system. Dr. Raeside holds a PhD in Computer Science from the National University of Ireland Maynooth (NUIM) and has an honours degree in Computer Science from NUIM. Dr. McNutt holds a Doctorate in Education from the National University of Ireland Maynooth (NUIM) and an honours degree in Computer Science from UCD. Dr. Raeside and Dr. McNutt have an interest in the development of advanced and innovative software systems to support quality	

education delivery with a strong foundation in educational theory and pedagogy. The DELTA E-Learning Group is a recently formed research group focused on the development of educational, learning, teaching and assessment software systems for use in education institutes at all levels.

#### **Brief Description of Masters or PhD Project**

As education continuously evolves towards a primarily constructivist model so too does the level of requirement for continuous assessment. As the level of continuous assessment increases there will be an increased need for software and technology supports to enhance the continuous assessment processes that are proliferating throughout the education sector. This research proposes the development and review of the effectiveness of a third-level authentic cloud-based assessment (A-Class) software system. Authentic learning attempts to emulate the type of learning that occurs in a natural setting, for example, in the workplace; those acquiring skills in the workplace (or in other non-educational settings) rarely acquire their skills through repeated examination or frequent multiple choice questions. Assessment within an authentic context would advocate less examination questioning and more continuous assessment that would take place over time to allow for reflection and feedback between the learners and educators. The proposed software system will be designed to codify constructivist educational theories and processes and will investigate possible constructivist software supports including the addition of self-assessment into a continuous assessment process in order to formalize and record continuous feedback. Quality and timely feedback forms a very important part of constructivist learning. There are a number of research questions that will be investigated as part of this project but central to this research will be the ability to support continuous assessment using a cloud-based approach and the potential benefits of this type of software support. In a more general sense the use of touch screen technologies and mobiles applications (Apps) within the educational sector will also be explored. This research will be of interest to educators, educational technologists, interactivity designers, software developers and universal design researchers. The challenge for educational technology developers is to create and design software that enhances the learner experience while

also delivering systems that support educators in terms of module delivery, communication, continuous quality improvement and accountability.

This 4-year PhD program intends to fully investigate and make a contribution to e-Learning research.

Some of the main research questions that will be investigated during the course of this interdisciplinary study:

- To investigate the encapsulation and codification of an authentic assessment process within a cloud-based educational software system
- Examine the type of software supports that can be created to formalize and codify these learning and assessment approaches and to examine the possibility of the creation a software system to support the constructivist-type approaches to assessment
- To investigate the effects of the formal addition of a self-assessment phase within a constructivist assessment process
- The project will also examine aspects of assessment that can be fully virtualized (ported to the cloud) and aspects which may still require the traditional face-to-face assessment

#### **Key Attributes of Project for Brazilian Postgraduate Students**

This is a research project that will incorporate several different disciplines including, educational technology, educational theory, software development, web-development, interactivity (human-computer interaction) and universal design.

This project will employ several leading edge technologies in terms of software development, development of interactive software, touch-screen technology and mobile application (App) development. The graduate who attains this level of experience with these technologies will be well placed to seek a research and development role in many of the leading edge industries that surround the campus here at ITB and will be in a position to pursue a research career in academia.

ITB is situated in West Dublin. Dublin has a well-established international reputation as a European digital hub for technology-based industries including: Microsoft, IBM, eBay, Google, Intel, Hewlett-Packard and many others.

The cross-disciplinary skills and experience offered by the co-supervisors of this project offer a unique opportunity to innovate in the area of e-Learning and will be of great benefit to the pursuance of an academic and/or education career.

**Name and contact details for project queries, if different from PI named above:**

**Please indicate graduate disciplines which are eligible for application:**

Computer Science and Information Technology

**Alignment with Science Without Borders Priority Areas:**

Please indicate the specific programme priority area under which the proposed postgraduate project fits – choose only one (tick box)

Engineering and other technological areas	
Pure and Natural Sciences (e.g. mathematics, physics, chemistry)	
Health and Biomedical Sciences	
Information and Communication Technologies (ICTs)	✓
Aerospace	
Pharmaceuticals	
Sustainable Agricultural Production	
Green Chemistry	
Oil, Gas and Coal	
Renewable Energy	
Minerals	
Biotechnology	
Nanotechnology and New Materials	
Climate Change	
Biodiversity and Bioprospection	
Marine Sciences	
Productive Inclusion and Social Technologies	
Housing and Sanitation	