

Institution: University of Wales Trinity Saint David		
Unit of Assessment: 23		
Title of case study: Practice into Policy and Policy into Practice: transforming entrepreneurship education through competency development.		
Period when the underpinning research was undertaken: 2014-2018		
Details of staff conducting the underpinning research from the submitting unit:		
Name(s):	Role(s) (e.g. job title):	Period(s) employed by submitting HEI:
Professor Andrew Penaluna	Research Director, International Institute for Creative Entrepreneurial Development	1982 – April 2019
Associate Professor Kathryn Penaluna	Associate Professor & Enterprise Manager	2005 – current
Period when the claimed impact occurred: 2014-2020		
Is this case study continued from a case study submitted in 2014? N		
1. Summary of the impact		
<p>Entrepreneurial education across all levels and disciplines, both formal and non-formal has advanced significantly through the research, practice and interventions of the International Institute for Creative Entrepreneurial Development (IICED). Entrepreneurship is a priority agenda for policymakers across the globe, yet there had been acknowledged dearth of underpinning research for developing the competencies of creativity within the extant literature. IICED's work has addressed this gap producing a body of research directly informing national education curricula and guidance in the UK, such as the revised Quality Assurance Agency's Education, Enterprise and Entrepreneurship Guidance (2018), and the Welsh Government's National Curriculum for Wales Areas of Learning Experience (2020). At a European level, this work has directly informed the European Union's EntreComp: The Entrepreneurship Competence Framework (2016) as well as UN and World bank curricular developments in the Balkans. The work has also been influential in China, informing government directives to embed enterprise and entrepreneurship education into all Higher Education Institutions.</p>		
2. Underpinning research		
<p>Based in UWTSD International Institute for Creative Entrepreneurial Development (IICED) Prof. Andy Penaluna and Associate Professor Kathryn Penaluna's research has taken a global lead on innovation, enterprise and entrepreneurship education. It has challenged many theories of business education and informed the international entrepreneurial community on approaches for engaging and enhancing creativity in an enterprise context. IICED's research has spearheaded international efforts to find new ways of supporting students and to equip them for the 21st century working environment, where flexibility and adaptability will be key skills. While developed in an evolving policy and practice facing dialogue with key institutions and end users, the following six publications broadly represent the underpinning research for the impacts reported below.</p> <p>UK Higher Education had been continuously redefining entrepreneurship and related competencies up until the publication of the Quality Assurance Agency for Higher Education's (QAA) definitional guidance in 2012 (e). IICED's Director Prof. Andy Penaluna conceptualised and Chaired the 2012 and subsequent 2018 revision, following a national consultation. This was informed by collaborative work with the Creativity Research Lab in Applied Cognitive and Brain Sciences Program at Drexel University indicated that creative capacity could be enhanced through educational strategies that took account of micro-molecular structuring in the brain through remote compound association, where differing types of brain activity contribute to either analytical or alternatively, insightful (creative) thinking (d). Using these insights, IICED have proposed different pedagogical approaches and devised new types of assessment metrics, for competency development. The research is specifically designed to conceptualise new approaches to entrepreneurial types of education. It also provides a critical synthesis of where informed practice already exists, and how it can be collectively harnessed (c & f).</p>		

IICED research also includes policy work for the All-Party Parliamentary Group for Micro Businesses, consulting stakeholders such as entrepreneurs, small business owners, and national representational bodies. This resulted in a proposed pipeline from school education, through to post-doctoral researchers, which supported the development of Wales' new curricular design (a, b). The Prime Minister's Enterprise lead Lord Young used the research when setting up of the Careers and Enterprise Company for English Schools, stimulating more research at IICED on differing practices and approaches that enhance entrepreneurial capacity across different age groups (b, c). Concurrently, collaborative research and research supervision for the United Nations Conference on Trade and Development (UNCTAD) focussed on the missing elements of entrepreneurial education that had been identified by IICED (a). Working with the Chief of the Entrepreneurship Section at UNCTAD, research supported a better understanding of the abilities of knowledge harvesters who demonstrate capacity to seek out opportunities that others have missed (a, b, c). This is especially important when research indicates that in developing countries necessity often overrides intention.

In order to provide some clarity for teacher trainers, the OECD in partnership with the European Director General for Education and Culture commissioned IICED to research and develop a practice and policy paper on a range of issues that IICED had identified (c). This and the earlier work at QAA led to further engagement with the European Joint Research Centre, which culminated in the EU's 'de facto' guidance document for member states - the EntreComp Framework. EntreComp subsequently provided a platform to help develop Welsh Government's new school curriculum developments, and IICED undertook two commissioned research projects prior to leading the writing of 'Skills Integral to the Four Purposes'

3. References to the research

- a) Mugione, F. and Penaluna, A. (2017) Developing and Evaluating Enhanced Innovative Thinking Skills in Learners. Chapter 7 in James, J., Preece, J and Valdes-Cotera, R. (Eds.) Entrepreneurial Learning City Regions: Delivering on the UNESCO 2013, Beijing Declaration on Building Learning Cities. Springer / UNESCO.
- b) Penaluna, A. (2019) Through the Lenses of the Two I's; Implement or Innovate? Chapter 10 in Kapranos, P. (Ed.) The Interdisciplinary Future of Engineering Education: Breaking Through Boundaries in Teaching and Learning. London: Routledge
- c) Penaluna, A. and Penaluna, K. (2015) Entrepreneurial Education in Practice, Part, 2 – Building Motivations and Competencies, Entrepreneurship 360 Thematic Paper. Paris: Organisation for Economic Co-operation and Development (OECD) and the European Commission (DG Education and Culture).
- d) Penaluna, A., Penaluna, K and Diago, I. (2014) The Role of Creativity in Entrepreneurship Education. Chapter 13, "Handbook of Research on Entrepreneurship and Creativity" Sternberg, R & Krauss, G. (Eds.) Cheltenham / Northampton MA: Edward Elgar Publishing Limited
- e) Rae, D., Matlay, H., McGowan, P., Penaluna, A. (2014) 'Freedom or Prescription: The Case for Curriculum Guidance in Enterprise and Entrepreneurship Education', *Industry & Higher Education*, Vol.8, No.6, December 2014: 387 – 398
- f) Penaluna, K., Penaluna, A., Usei, C. and Griffiths, D. (2015), Enterprise education needs enterprising educators, *Education + Training*, Vol. 57 No. 8/9, pp. 948-963. doi.org/10.1108/ET-03-2015-0016
- g) Jones, c. Penaluna, K. Penaluna, A. Matlay H (2018). The changing nature of enterprise: Addressing the challenge of Vesper and Gartner. *Industry and Higher Education*, vol. 32, 6: pp. 430-437. doi.org/10.1177/0950422218804075

Awards

Prof. Penaluna, has been recognised for his UK-wide contribution to business and enterprise skills by being awarded the Queen's Award for Enterprise Promotion in 2015. The Queen's Awards scheme is regarded as the most prestigious business awards in the county and 2015 year marked its 50th anniversary. The Queen's Award for Enterprise Promotion is presented to

people who have played an outstanding role in promoting enterprise skills and attitudes. The accolade comes six months after Professor Penaluna won the Institute of Enterprise and Entrepreneurs and the Small Firms Enterprise Development Initiative Enterprise Educators Award at the House of Lords

4. Details of the impact

IICED The International Institute for Creative Entrepreneurial Development (IICED) was established in 2014 by Professor Andrew Penaluna and Associate Professor Kathryn Penaluna and has been described by the EU Joint Research Centre as one of the world's foremost institutions in developing creativity-based entrepreneurship education. IICED's aim is to inform international best practice in enterprise, entrepreneurship and entrepreneurial teaching, learning and evaluation. The interventions detailed below have informed the development of entrepreneurship education in 42 countries.

UK - Quality Assurance Agency's Graduate Enterprise and Entrepreneurship Group

Prior to the current REF cycle, but ongoing in the 2018 review and update, Prof. A, Penaluna conceptualized and chaired the Quality Assurance Agency's Graduate Enterprise and Entrepreneurship Group (2011 to date) which developed the QAA's *Education, Enterprise and entrepreneurship guidance: Guidance for UK higher education providers* (2012). Following a proposal from the UK Prime Minister Theresa May (letter dated 28/11/2016) Penaluna was invited to chair the development of updated QAA Guidance. The revision drew on research reported in **a**, **b**, **d**, and **e**, and was published and launched in January 2018 (**6**). At its 2018 relaunch, the guidance was described as a landmark document by the British Government's Chief Entrepreneurial Adviser Prof. Tim Dafforn, while a joint OECD / EU literature review concurred (**7**), calling it an influential taxonomy in the field. The OECD / EU review highlights the unique key aspects of the Gateway Triangle, first proposed by IICED's Jones, Penaluna, Penaluna and Matlay (**g**). The QAA guidance now provides the benchmark for all UK universities, and has also been adopted by Enterprise Educators UK (for whom Prof. A, Penaluna is a Fellow), who represent 115 HE providers, mostly Universities. The guidance has also had significant impact in European policy development with the European Commission and United Nations, and Internationally, with China, as well as in the Welsh national context, as detailed below. Later in 2018 Penaluna also joined the team of 13 authors that produced the Learning and Teaching section of the UK Quality Code for Higher Education.

EU - European Policy Development.

Since Aug 2013 Prof. A, Penaluna has entered a period of significant engagement across Europe helping to craft the development of enterprise and entrepreneurship education throughout the continent. In 2014 Andy Penaluna was invited to speak at the EU Thematic working group on Entrepreneurship Education, and met with the EU Director General for Enterprise to discuss the QAA guidance and underpinning research (**b**, **c**). In 2016 Kathryn Penaluna keynoted at the European Parliament in Strasbourg on behalf of IICED, presenting research reported in **c**, **d** & **f**, and sat alongside the European Commissioner for Employment, Social Affairs, Skills and Labour Mobility on an expert panel on youth and employment. Following this high-level engagement, IICED played a leading role in developing the European Commission Joint Research Centre's work on entrepreneurial competency development, published as *EntreComp: The Entrepreneurship Competence Framework* (2016) (**8**). IICED were engaged in EntreComp's development from outset, leading in areas related to creativity, future visioning and working in situations of ambiguity and risk. The framework, which can be used as a basis for the development of curricula and learning activities fostering entrepreneurship as a competence, was launched by the European Commission in 2016. It serves as a key driver for the development of the entrepreneurial capacity of European citizens and organisations is one of the key policy objectives for the EU and Member States, and is set to become a reference *de facto* for any initiative aiming to foster entrepreneurial capacity of European citizens. EntreComp is now embedded into the European Union Key Competences Framework and accepted by all European Member States. It has thus far been translated into 15 languages while increasingly

being used to inform and underpin curriculum reforms both in the EU and partner countries bordering the EU.

The pioneering work in North Macedonia and the Balkans Region.

Concurrent with the development of the EntreComp framework, in 2016, Eurydice (a network of 43 national units based in all 38 countries of the Erasmus+ programme) reported that no country in Europe had fully integrated entrepreneurial education in schools and that teacher training was fragmented. However, supported by a successful bid the World Bank's Skills Development and Innovation Support Project, North Macedonia introduced the world's first compulsory and progressively evaluated Entrepreneurship and Innovation curriculum in 2015, following policy decisions made in 2014 at government level by the President, Deputy Prime Minister, Education and Science, Economy and Labour and Social Affairs. IICED research informed this policy development and jointly led the project in partnership with North Macedonia's National Centre for Development of Innovations & Entrepreneurial Learning (NCDIEL). The resultant 'Methodology Matrix' progression model starts with primary children who investigate who an entrepreneur is, right through to Entrepreneurial Leadership experience for those aged 17–18 **(9)** has now been used to teach an estimated 55,000 pupils. Concurrently, IICED were employed by the South East Europe Centre for Entrepreneurial Learning (SEECCEL) to develop EU funded pilot entrepreneurial schools in Albania; Bosnia and Herzegovina; Croatia; Kosovo; Macedonia; Montenegro; Serbia and Turkey. IICED led the ISCED level 3 learning outcome framework and designed the entrepreneurial school methodology. By the conclusion of the project in 2016 in Šibenik, Croatia, 245 different teacher development plans had been produced by 2408 teachers, 44,314 teachers had engaged and 51,171 beneficiaries were recorded.

United Nations Policy Development and the OECD.

Other International work includes 8 years (Prof. A. Penaluna, 2011 to 2019) as an expert advisor on education to the United Nation's Chief of Entrepreneurship Fiorina Mugione on the updating and development of their 37 country Empretec Program, based on the body of research undertaken by IICED **(a)**. Empretec is a flagship capacity-building programme of the United Nations Conference on Trade and Development (UNCTAD) for the promotion of entrepreneurship and micro, small and medium sized enterprises (MSMEs) to facilitate sustainable development and inclusive growth. By 2018 the Empretec network had expanded to 477,000 and based on UN figures, 160,000 had received the training by the end of that year, with increasing numbers suggesting an estimated total of 210,000 by the end of 2020 **(1)**. The Organisation for Economic Co-operation and Development (OECD) in partnership with the European Commission developed practice and policy documents that fed into EntreComp **(c)**, and Penaluna was one of 4 experts commissioned to lead the advisory panel that produced the HE Level assessment tool HEInnovate 'EPIC' in 2020 **(7)**.

Developments in East and South East Asia

While IICED's work has had a significant focus in the UK and European context, there have also been international impacts in East and South East Asia. On 16/2/2016 one of China's major state newspapers, *Guangming Daily*, reported that QAA guidance was the "most experienced...the world's first national-level guidelines on quality assurance in this field." An official Chinese translation of the QAA guidance was co-launched in 2018 and the National Centre for Entrepreneurship Education in China is employing it in response to government directives to embed enterprise and entrepreneurship into all HEIs. Subsequently, NCEE China (for whom Prof. Penaluna is Chair of Directors) has been designated by the Chinese State Council as an International Distinguished Organisation and a formal agreement with Beijing Municipal Education Committee has been signed, representing a reported 1,200 HEIs. Similarly, in Thailand and with the support of Welsh Government through Big Ideas Wales a new Guidance Document for Vocational Education was developed based on the QAA work, with trials ongoing in 5 colleges.

UK - National Strategy Development.

In 2013 the Minister for Education and Science David Willets invited IICED to contribute to a report on developing entrepreneurial education at all levels, which following research gathered

via the All-Party Parliamentary Group for Micro Business, was published in 2014 as *An Education System fit for an Entrepreneur*. Further work with BIS / BEIS followed and culminated in Andy Penaluna receiving a Queens Award for Enterprise Promotion. He later joined the Enterprise Group under the Chief Scientific Officer for Enterprise, and contributed to the UK Industrial Strategy with advice on the potential for educational pipelines. (a, c, g, e). Other work related to the QAA guidance includes a guide on educator standards produced by the Institute of Enterprise and Entrepreneurs in collaboration with the sector skills body Small Firms Development Initiative. As QAA's Chair, Penaluna received their educator award at House of Lords in 2014.

Wales: Curriculum Development.

At a devolved level in Wales, IICED worked with Welsh Government on forward-facing policy drivers for schools in Wales offered insights that closely aligned to the evolving entrepreneurial education agenda at the EU level. This work followed Graham Donaldson's review of Curriculum and Assessment Arrangements in Wales (Donaldson, 2015) and IICED was commissioned in 2018 by Welsh Government's Curriculum, Assessment and Pedagogy Division (within the Government's Education and Skills Department) to provide an audit/report on work completed and to propose a series of responses to the 'Areas of Learning Experience' (AoLE) teams who were writing the new curriculum guidance. The aim of the review was twofold: 1) to provide an audit/analysis of how the Wider Skills have been embedded in the work produced so far by the AoLE group; 2) to advise and suggest next steps for the AoLE groups as they continue their work. Subsequently, Penaluna led the development of the central 'Skills Integral to the Four Purposes', which is to be used by an estimated 28,000 Welsh teachers, and is currently leading the Innovation for Head Teachers programme as part an advisory role at Wales' National Academy for Educational Leadership.

5. Sources to corroborate the impact

1. Former Chief of Entrepreneurship Section at UNCTAD, Geneva / Empretec and UN contributions
2. Deputy head of Unit, EU Joint Research Centre, Seville / EntreComp and other EU contributions.
3. Former Chief Scientific Officer at BEIS / UK Industrial Strategy and related contributions.
4. CEO National Centre for Entrepreneurship in Education (UK) / National Centre for Entrepreneurship in Education (China).
5. Chief Executive, Quality Assurance Agency / QAA for Higher Education contributions.

Documents

6. Enterprise and Entrepreneurship Education: Guidance for UK Higher Education Providers. Gloucester: QAA. English language version online at: https://www.qaa.ac.uk/docs/qaas/enhancement-and-development/enterprise-and-entrepreneurship-education-2018.pdf?sfvrsn=15f1f981_8
7. Moberg, 2020, Evaluation of Entrepreneurship Education Programmes in Higher Education Institutions and Centres (EPIC) https://heinnovate.eu/sites/default/files/EPIC_Academic%20Literature%20Review.pdf (p. 14)
8. EntreComp: The Entrepreneurship Competency Framework. Online at: <https://publications.jrc.ec.europa.eu/repository/bitstream/JRC101581/lfn27939enn.pdf>
9. Polenakovik, Radmil and Stankovska, Ivana and Penaluna, Andrew and Penaluna, Kathryn and Jovanovski, Bojan (2019) *A methodology for closing the gap between the competences of students and recent graduates and labour market needs. The case of the Republic of North Macedonia*. In: International Conference of Education Research and Innovation, 11 - 13th November 2019, Seville. <https://repository.uwtsd.ac.uk/id/eprint/1131/>
10. UK Standing Committee for Quality Assessment/Quality Assurance Agency (2018) Quality Code for Higher Education https://www.qaa.ac.uk/docs/qaa/quality-code/qc-a-g-learning-and-teaching.pdf?sfvrsn=1f2ac181_6