



Report for the Period October 2017 – September 2018

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Director's Overview



I was appointed as Director of CARPE and Prometric Chair in Assessment at DCU on November 1, 2015. As that anniversary approaches it gives me particular pleasure to be able to report that Prometric CEO, Charlie Kernan has recently announced that the company are committing to another three year funding period. It is a vote of confidence in CARPE, the Institute of Education and DCU for which everyone concerned is extremely grateful.

Prometric's support makes it possible for CARPE to undertake local and global policy relevant research and to engage with world class scholars and professional development. The funding is also used to deliver research to Prometric on matters of concern affecting the fields of licensure and credentialing and I am always happy when I hear that the products of our hard work are valued and put to good use in helping the company meet the needs of its clients.

Maintaining good relationships during a funding period is of course incredibly important and I feel very lucky to work with representatives of Prometric who are so supportive and respectful of what we are trying to achieve together at CARPE. Linda Waters is my "go to" person in Baltimore, with Steve Williams more than willing to offer additional wise counsel when I needed it. Garrett Sherry here in Dublin has been generous with his time on more than one occasion in attending CARPE events and in meeting with me to discuss the various challenges in directing a new centre.

My sincere thanks to everyone at DCU Educational Trust, to DCU President Prof. Brian MacCraith and IOE Executive Dean, Dr Anne Looney for the varied and important roles they played in supporting me and ensuring the negotiations between the university and Prometric went smoothly.

Over the past twelve months CARPE itself has grown with the addition of Paula Lehane as a second full time Prometric PhD. Paula came to us with a stellar undergraduate and postgraduate (Masters) track record. Indeed, when I saw her CV initially I thought she might have been exaggerating. I was wrong, very wrong! The fact that she integrated so easily with Darina Scully (post-doc) and Anastasios Karakolidis (Prometric PhD) was an added bonus.

Vasiliki Pitsia has also been with us over the past year, fulfilling a part-time administration role, contributing to many CARPE projects and working on her own PhD research. A measure of her talent is that it has just been announced that she is one of the recipients of the prestigious Irish Research Council scholarships for 2018. This is a tremendous achievement and secures her funding for the next two years. As one of her supervisors I am delighted that Vasiliki will remain connected to CARPE throughout the period of her scholarship.

Two initiatives that were in the planning for some time but became realities this year were the visiting professor and professional development programmes. In May Professor Lisa Abrams arrived for a three month stay during her sabbatical from Virginia Commonwealth University. Lisa's significant contributions during her time with us are described later in the report. In July Professors Laura O'Dwyer and Larry Ludlow delivered a superb week long high level professional development course in classical and IRT approaches to scale development.

The full list of research outputs since October 2017 are listed on pp. 28-30 of this report but I want to highlight two for special mention. The report of the use of portfolios in higher education, a

collaboration between CARPE and Professor Mark Brown, director of the National Institute for Digital Learning (NIDL), was launched by Government Minister Mary Mitchell O'Connor in February of 2018. The work was led by Darina Scully and has now been published in the world's top three languages – Chinese (Mandarin), Spanish and English. A special thank you to Professor Junhong Xiao for his diligent work with us in getting the paper ready for peer review and published in Distance Education in China.

From the beginning it was one of my goals to ensure that CARPE's educational research would be policy relevant and visible beyond the confines of the academic community. In that context it was gratifying that the research undertaken to examine first year undergraduates' views of the Leaving Cert Programme (LCP) as preparation for college and published in August got a lot of attention in the media. While the study was small scale, it did highlight the worrying disconnect between skills required at second and third level and come to public attention just as the National Council for Curriculum and Assessment (NCCA) consultation with teachers, students and parents about the LCP was about to begin.

Policy with respect to research centres in the IOE requires that a plan be put in place to ensure that they are sustainable in the long term. While Prometric's funding will put CARPE on a secure footing in terms of current staffing for the next three years, additional funding will be required to ensure that CARPE grows and develops beyond its current capacities. With that in mind I know I have to make some strategic decisions about this over the next twelve months. We have already begun this process with two NCCA funded projects due to be completed by the end of 2018. One involves the preparation of a paper that will be used by the NCCA as a starting point for discussions about the role of assessment within a redeveloped primary school curriculum. The second is being prepared to answer questions the NCCA is asking about technology-based assessments in the context of the new Leaving Certificate Computer Science programme. CARPE is also a member of a consortium involved in an application for funding under ERASMUS+ on digital-based assessment in STEM.

The autumn will see the final phase of data gathering for the Assessment of Critical Thinking at DCU (ACT@DCU) project being undertaken in collaboration with ETS and the publication of the findings from the large scale study of primary teachers' use of and attitudes to standardised testing. It will also involve working with Professor Larry Ludlow to select a suitable candidate from the Measurement, Evaluation, Statistics and Assessment (MESA) PhD programme at Boston College to take part in CARPE's research experience programme next summer. In addition, I am actively seeking someone who will also avail of our visiting professor programme in 2019.

My sincere thanks to the members of CARPE's Advisory Board for their on-going support. I want to thank Dr Zita Lysaght especially for her work on a number of CARPE projects including her key role in the standardised testing survey and for agreeing to co-ordinate and lead CARPE's programme of professional development for staff over the next two years. Finally, I want to acknowledge all the work done by Darina in getting this report compiled.



Prof. Michael O'Leary
Prometric Chair in Assessment /Director – CARPE

The Centre

Governance

As a research centre within the Institute of Education, CARPE is managed by the Research Centres & Groups Committee (an Education Faculty Committee) comprising the Chairs/Directors of Research Centres and chaired by rotation. The Associate Dean for Research is an ex officio member of the committee and the committee chair represents all DCU's Research Centres on the Faculty Research Committee. In addition, CARPE has an Advisory Board which meets annually. The function of the Board is to:

- provide ongoing advice to the Director on academic/research aspects of the Centre;
- assist in the development of strong collaborative links (national and international) with other assessment organisations and research centres;
- help to maintain the Centre's visibility and reputation in research;
- review the Centre's annual report and provide feedback of a strategic nature;
- attest to the quality of the research outputs from the Centre;
- evaluate the Centre's operational functioning and processes.

Membership of the Board (comprising five external representatives from academia, a representative from Prometric and a representative from the Institute of Education) is by invitation of the Director and is for three years. Current members of the Board are:

- Professor Jo-Ann Baird Oxford University
- Professor Jannette Elwood, Queen's University Belfast
- Professor John Gardner, University of Stirling
- Professor Patrick Griffin, University of Melbourne, Australia
- Professor Larry Ludlow, Boston College
- Dr. Zita Lysaght, Dublin City University
- Mr. Garrett Sherry, Prometric



Advisory Board members, pictured with representatives from CARPE, Prometric & DCU Institute of Education

The Board meets at least once a year. All proceedings and decisions are minuted and circulated for comment to the Board members and to those in attendance. The draft minutes are circulated prior to the subsequent meeting and are approved and signed at that meeting.

Staff



Prof. Michael O'Leary
Prometric Chair in Assessment

Michael holds the Prometric Chair in Assessment and is the Director of CARPE. He is a graduate of the B.Ed. Programme at St Patrick's College and holds an M.Ed. from Trinity College, Dublin. He gained his Ph.D. in Educational Research and Measurement at Boston College in 1999. He has acted as Ireland's representative on the OECD's Network A (student outcomes) and sat on the Board of Participating Countries of PISA during its first cycle. He was a member of the NCCA working group that developed the guidelines on assessment for Irish primary schools. He was also a member of the Child Development and Education Panel of the National Longitudinal Study of Children in Ireland during its planning phase. Michael has provided statistical analysis of data for the national surveys of reading and mathematics achievement in Ireland and collaborated over many years with colleagues on a variety of research projects ranging from the introduction of calculators at Junior Cycle to teaching for social justice. Between 2007 and 2015 he was director of postgraduate studies in education at St Patrick's College. He now leads an extensive programme of research at CARPE focused on assessment and measurement at all levels of the educational system and in the workplace. He also contributes to teaching of modules in classroom assessment and quantitative research methods as well as the examining and supervision of doctoral students



Dr. Darina Scully
Prometric Post-Doctoral Researcher

Darina is the Prometric Postdoctoral Researcher at CARPE. She holds a B.A. (Mod) and a Ph.D. in Psychology from Trinity College, Dublin. Prior to joining CARPE, Darina worked full-time as a Research Assistant at the Educational Research Centre (ERC), Drumcondra and part-time as a Tutor in Research Methods and Psychology at the National Institute of Digital Learning (NIDL), DCU. At the ERC, Darina was involved in the development of a suite of computer-based tests of literacy, numeracy and reasoning for primary and post-primary school children, and in extensive piloting of a platform to support the delivery of these tests, the *Drumcondra Online Testing System (DOTS)*. She also worked on national and international research projects such as the evaluation of the DEIS (Delivering Equality of Opportunity in Schools) programme, and the implementation of TIMSS (Trends in International Maths and Science Study) in Ireland. Darina contributes to the full programme of research at CARPE. She also teaches within the IoE on modules in assessment and quantitative research methods, and she supervises both undergraduate and postgraduate students within the IoE.

Doctoral Students



Anastasios Karakolidis is a Prometric PhD candidate at CARPE. He holds a B.A. in Primary Education Teaching from the University of Ioannina, Greece, and an M.Sc. in Quantitative Methods and Statistical Analysis in Education from Queen's University, Belfast. He was a member of the research team responsible for the Programme for International Student Assessment (PISA) 2015 report for Greece. Anastasios has given series of lectures on research methodology and advanced statistical techniques (e.g. multilevel modelling) to Master's students. His research interests include research methodology, statistical analysis, measurement, assessment, testing and large-scale international studies.

PhD working title: The use of animations to assess *Practical Intelligence*

Supervisors: Prof. Michael O'Leary, Dr. Darina Scully **Progress:** 3rd year



Paula Lehane is a Prometric PhD candidate at CARPE. She graduated from Mary Immaculate College (University of Limerick) with a first class honours degree in Education and Psychology in 2011. She completed her Postgraduate Diploma in Special Educational Needs (SEN) at University College Dublin in 2015 and then completed her Masters in Education in Additional Support Needs (ASN) there in 2016. She was previously the SEN and IT Co-Ordinator of a large urban primary school and has taught all class levels within the primary sector. Alongside her studies and work as a teacher, Paula has been employed as a research supervisor and guest lecturer in UCD, delivering inputs on topics including collaborative instruction, response to intervention approaches and the use of statistics and digital tools in schools. She assisted UCD's development of an online course for Irish teachers on the topic of Inclusive Assessment and she has also facilitated courses on the use of digital resources for the Professional Development Service for Teachers (PDST). Her research interests include SEN, school-based assessment practices and technology-based assessments.

PhD Working Title: Multimedia Items in Technology-Based Assessments (TBAs)

Supervisors: Prof. Michael O'Leary, Prof. Mark Brown, Dr. Darina Scully **Progress:** 1st year



Vasiliki Pitsia is a PhD candidate working in CARPE and the IoE. She holds a B.Sc. in Primary Education Teaching from the University of Ioannina, Greece, and an M.Sc. in Quantitative Methods and Statistical Analysis in Education from Queen's University, Belfast. Vasiliki has worked on various research projects in Greece and Ireland and previously received funding from the Geary Institute, UCD for a research project involving the 'Preparing for life' data. She was a member of the research team responsible for developing the Greek national report for the Programme for International Student Assessment (PISA) 2015. Alongside her studies, Vasiliki is a part-time lecturer in research methodology and advanced statistical techniques, as part of the University of Patras and National and Kapodistrian University of Athens online MSc programme 'Interdisciplinary Approach to STEM in Education'. Vasiliki is also responsible for designing and teaching a series of professional development workshops on using SPSS software for academic staff. Her broader research interests include research methods, statistical analysis and educational assessment, with a focus on large-scale international and national studies.

PhD working title: Irish primary and post-primary students' performance at the upper levels of achievement in mathematics and science across national and international assessments

Supervisors: Prof. Michael O'Leary, Dr. Gerry Shiel, Dr. Zita Lysaght **Progress:** 2nd year



Sylvia Denner is a part-time PhD candidate at CARPE. She holds an M.Soc.Sc. from University College Dublin and a Higher Diploma in statistics from Trinity College Dublin. Sylvia works in the Educational Research Centre, where she is currently working on PISA 2018. She was also one of the authors on the PISA 2015 report.

PhD Working Title: What is the impact on student performance in reading, mathematics and science in PISA when students in age-based samples are tested at different times of the year (*i.e.* autumn vs. spring testing), and what variables can explain the impact?

Supervisors: Prof. Michael O'Leary, Dr. Gerry Shiel **Progress:** 1st year

Suzanne McMahon is a part-time PhD candidate at CARPE. She is a Post Primary teacher of Science, Physics, Maths and IT and has also worked as a Software Engineer and Tester for Ericsson. She holds a HDip in Education and an MSC in Applied Computing & Technology

PhD Working Title: A digital-based comparative judgement approach to moderation of Classroom Based Assessments at Junior Cycle: Implications for peer assessment and on-going learning.

Supervisors: Prof. Michael O'Leary, Dr. Zita Lysaght **Progress:** 1st year

Adjunct Professors



Prof. John Gardner, University of Stirling

Professor Gardner has over 120 academic publications to his name and has authored or co-authored seven books, the most recent being: *Assessment and Learning* (2012, Sage), *Developing Teacher Assessment* (2010, McGraw-Hill/Open University) and *The Classroom X-Factor* (2011, Routledge). He has presented numerous international keynote addresses and been principal investigator for research projects exceeding £2.5million in total funding. From 1994 until 2010, he was a member of the globally influential Assessment Reform Group (ARG) and is currently a visiting professor at the University of Oxford's Centre for Educational Assessment.

Prof. Gardner is a fellow of the British Computer Society, a fellow of the Chartered Institute of Educational Assessors, and an Academician of the Academy of Social Sciences. He is currently a member of the steering committee of the Economic and Social Research Council's Technology Enhanced Learning (TEL) programme and a member of the ESRC's Peer Review College. In 2011, he completed a two year term of office as President of the British Educational Research Association. From 2004 to 2008 he was a member of the UK RAE Education panel and he is a current member of the Research Excellence Framework (REF) Panel 25 (Education).



Prof. Gerry Shiel, Educational Research Centre

Prof. Shiel is a Research Fellow at the Educational Research Centre, St Patrick's Campus. He has overall responsibility for the centre's standardised test development programme in reading, mathematics and science for primary and secondary schools. Over the past 25 years, Gerry has developed high level expertise in the teaching and assessment of reading literacy and has been centrally involved in multiple cycles of large scale testing programmes including the national assessments of English reading and mathematics and the TIMSS, PISA and PIRLS international studies. He has extensive experience of test development and item writing, scoring of student responses, scaling and analysis of data, report writing and communicating findings across a range of media. He has worked at the highest level of decision making on the OECD's testing programme having been a member of its PISA Board of Participating Countries for many years. Gerry has had a multitude of peer reviewed articles and reports published and has presented on his research all over the world. Most recently, alongside Associate Professor Damian Murchan (Trinity College), he published an important textbook on assessment for pre-service and practising teachers internationally. *Understanding and Applying Assessment in Education* is the first textbook of its kind with Irish authors.

Visiting Professor



Prof. Lisa Abrams, Virginia Commonwealth University

Lisa is an Associate Professor of Research and Evaluation in the School of Education at Virginia Commonwealth University (VCU), where she teaches graduate courses in assessment, measurement, programme evaluation and educational research design. She is a graduate of Boston College, with a doctoral degree in Educational Research, Measurement and Evaluation. She specializes in test-based accountability policy, assessment design and data-use practice. Lisa spent three months of her sabbatical as a Visiting Professor at CARPE from May to July 2018, during which time she worked on a number of projects in the areas of test development and assessment literacy & professional development. Lisa continues to collaborate with the Centre and will be returning in the autumn of 2018 to co-deliver the Annual CARPE Lecture.

Research Associates

The CARPE team collaborate with a number of individuals from other centres within the IoE, other faculties within DCU, and indeed other institutions globally on various projects. Bios of these Research Associates are provided below. Further details of the projects in which each person is involved are provided in the section on 'Ongoing Projects' (see p.16-26).



Dr. Sarahjane Belton (ACT@DCU Project)

Sarahjane graduated with a degree in Physical Education and Maths from the University of Limerick in 2001. She taught physical education for a year in second level education before completing a Ph.D. in Physical Activity Measurement at the University of Limerick in 2006. Sarahjane lectured in Physical Education in St. Patrick's College from 2006 - 2007, and has lectured in Physical Education in the School of Health and Human Performance at DCU from 2007 to present.



Prof. Mark Brown (Critical Review of Learning Portfolios)

Mark is Ireland's first Chair in Digital Learning and Director of the National Institute for Digital Learning (NIDL). He is currently Chair of the Innovation in Teaching and Learning Steering Committee for the European Consortium of Innovative Universities (ECIU) and is both an EDEN Fellow and member of the Executive Committee of European Distance and e-Learning Network (EDEN). He also serves on the Supervisory Board of the European Association of Distance Teaching Universities (EADTU) and co-leads the Empower Online Learning Leadership Academy (EOLLA) for new and emerging institutional leaders in European universities. In 2016, Mark was appointed as a representative of the Irish Universities Association on the Board of the National Forum for the Enhancement of Teaching and Learning in Higher Education.



Gulsah Gurkan (Assessment of Well-Being)

Gulsah is a doctoral student at the Department of Measurement, Evaluation, Statistics and Assessment (MESA) at the Lynch School of Education, Boston College. She holds a B.S. and an M.S. degree in Teaching Physics from Bogazici University, Istanbul. Prior to beginning her doctoral studies, she worked as a measurement and evaluation specialist at the Educational Volunteers Foundation of Turkey (TEGV) in Istanbul for three years, where she led many research and evaluation studies to foster the development of evidence-based programs implemented across the country. Her current research interests mainly focus on psychometrics, item response theory, large-scale data analysis, quasi-experimental research, and education policy.



Dr. Francesca Lorenzi (Assessment for Learning Audit Instrument Project)

Francesca is a lecturer at DCU. Her teaching is primarily in the areas of Intercultural Education, Ethics and Values Education, Philosophy of Education and Curriculum Implementation; Assessment and Feedback. She obtained a PhD in Education from the National University of Ireland, Maynooth with a thesis focusing on the role of dialogue in assessment and the democratisation of practices in education. Her specific research interests include but are not limited to dialogue in education, democratic and inclusive approaches to educational assessment, creativity in education, ethics in the classroom, values and identity in relation to education for sustainable development.



Dr. Zita Lysaght (Various Projects)

Zita is an Assistant Professor in the School of Policy and Practice at the Institute of Education (St. Patrick's Campus), DCU; she lectures in assessment and research methodology on undergraduate, masters and doctoral programmes and coordinates the final year BEd4 and PME2 research projects. She is Director of the Assessment for Teaching and Learning (ALT) Project, a member of the Advisory Board of the Center for Assessment Research and Policy in Education (CARPE) and a former Chair of Post-Graduate Studies by Research and Co-chair of the EdD programme. As part of her current role, Zita provides professional development nationally and internationally in assessment (particularly formative assessment as it relates to teaching and learning), mixed methods research design and theoretical and conceptual frameworks. Her work has been published in Ireland, Europe and the US. Zita has twice received the President's Award for Excellence in Teaching and Learning.



Dr. John McKenna (ACT@DCU Project)

Dr. John McKenna has been a Lecturer in the School of Computing at Dublin City University since September 2000. He graduated with the degree of B.Eng. in Electronic Engineering in 1988 from NIHE, Limerick (now University of Limerick). He obtained the degrees of M.Sc. in Speech and Language Processing and Ph.D. (titled "Kalman Filtering Towards Automatic Speaker Characterisation") from the University of Edinburgh in 1996 and 2004 respectively. More recently (2012) he received a Postgraduate Diploma in Technology and Learning from Trinity College, Dublin. From 1988-1995, he worked as a design engineer in electronics and telecommunications in the London area and as a communications consultant in Seoul, Korea. He spent a year (1992/3) in voluntary teaching at QingHai University in the People's Republic of China.



Dr. Kay Maunsell (Assessment of Well-Being)

Kay is a Senior Lecturer in Psychology at the School of Human Development at the Institute of Education, Dublin City University. Catherine lectures primarily in the area of developmental and educational psychology and since 2010 is the Subject Co-ordinator of Developmental and Educational Psychology on the B.Sc. Psychology programme offered through the School of Nursing and Human Sciences at DCU. She has been engaged as Irish Co-ordinator on a range of large-scale EU research projects, in the broad areas of education, lifelong learning and social justice. Most recently, she has been pursuing particular research interests in the rights of children and young people and those most marginalised, and their rights to relationships and sexuality education from a developmental perspective.



Sebastian Moncaleano (Assessment of Workplace Bullying)

Sebastian is a doctoral student at the Department of Measurement, Evaluation, Statistics and Assessment (MESA) at the Lynch School of Education, Boston College. He majored in mathematics with a minor in education at Universidad de los Andes in Bogota, Columbia. Following this, he worked for two years as a maths teacher at an international high school in Bogota. His current research interests include the use of technology-enhanced items in large-scale assessments, the development of measurement scales, and the impact of career related events on the teaching quality of higher education faculty.



Prof. Mark Morgan (Assessment of Non-Cognitive Constructs)

Mark was the first Cregan Professor appointed in St. Patrick's College, Drumcondra (now DCU's Institute of Education). His scholarship can be categorized under four broad headings: motivation and job satisfaction, substance misuse and prevention, literacy and educational disadvantage. These are derived from his training and experience as both a primary teacher and social psychologist. Mark will be co-delivering the annual CARPE lecture in October 2018



Dr. Deirbhile Nic Craith (Standardised Testing: Survey of Primary Teachers)

Deirbhile is Director of Education & Research and secretary to the Irish National Teachers Organisation (INTO) Education Committee. Her remit includes education issues and policy, including curriculum and assessment, special education, social inclusion, early childhood education and Gaeilge. She represents the INTO on many external education bodies including the Council of the NCCA, An Chomhairle um Oideachas Gaeltachta & Gaelscolaíochta, and the Standing Committee of Heads of Education and Teacher Unions. Deirbhile holds Masters' and Ph.D. degrees in education from University College Dublin.



Dr. James O'Higgins Norman (Assessment of Bullying in the Workplace)

Dr. James O'Higgins Norman is Associate Professor in Sociology and Director of the National Anti-Bullying Research and Resource Centre (ABC). He is best known for his research on homophobic bullying in second-level schools in Ireland which has drawn international media attention and was referenced in parliamentary proceedings in Ireland and at the EU Commission when these bodies were debating the implementation of policy and laws on bullying in schools. Other research interests include gender and cyberbullying, and diversity and bullying in schools. He also taught professional ethics at University College Dublin and was a teacher in a post-primary school.



Naoimh O'Reilly (ACT@DCU Project)

Naoimh is a lecturer at the School of Business at DCU. She holds a B.A. (hons) in International Marketing & Languages and an MBS in Strategic International Marketing, both from Dublin City University. Her teaching interests lie in digital marketing and she is currently pursuing her Ph.D. in Technology Enhanced Learning at Lancaster University.



Katherine Reynolds (Assessment of Critical Thinking at DCU; Shortened Assessments: MoC & Micro-Credentialling)

Katherine is a doctoral student at the Department of Measurement, Evaluation, Statistics, and Assessment at the Lynch School of Education, Boston College. She holds a B.A. in History and an M.S. Educational Policy Studies and Evaluation, both from the University of Kentucky. While at Boston College, she has worked as a graduate assistant at the TIMSS and PIRLS International Study Center. Prior to graduate studies, she taught 7th and 8th grade science in Charlotte, North Carolina. Katherine's research interests include scale development and university student-faculty interaction.



Associate Prof. Steven Stemler

Steven is an Associate Professor of Psychology at in the Psychology Department, Wesleyan University, Connecticut. He has spent nearly two decades systematically studying the purposes of school (elementary through post-secondary) and how those purposes get measured via testing. He and his colleagues have developed a number of innovative new ways of measuring broad constructs such as creativity, cultural competence, practical intelligence, and ethical reasoning. Dr. Stemler has published more than 40 peer-reviewed articles, books, and chapters.

International Research Advisors

CARPE's international research advisors contribute to its work in a variety of ways including advising on future directions for research at the centre and supporting the work of its research students.



Prof. Jo-Anne Baird

Jo-Anne is Director of the Department of Education, University of Oxford. Her research interests are in educational assessment, including system-wide structures and processes, examination standards, marking and assessment design. Her current research projects include Setting and Maintaining Standards in national examinations, Examination reform: the impact of modular and linear examinations at GCSE, Assessment for Learning in Africa (AFLA), intelligent accountability and the Progress in International Reading Literacy Study England national centre.



Dr. Marguerite Clarke

Marguerite is a Senior Education Specialist in the Human Development Network of the World Bank. She holds a Ph.D. in educational measurement and program evaluation from Boston College. A former primary and secondary school teacher, she now leads the Bank's work program on learning assessment. Currently based in India, her recent blog has focused on the impact of citizen-led assessments (CLAs) in that country and elsewhere.



Prof. Jannette Elwood

Janette is Professor of Education at the School of Social Sciences, Education and Social Work, Queens University Belfast. Her main research interests are in the social constructions and consequences of tests, examinations and assessment practices. She is a founding member of the Association for Educational Assessment-Europe and was the association's Vice-President (2004-6), an executive council member (2001-2006) and Chair of the Annual Conference Committee (2011). She is executive editor of the journal *Assessment in Education* (published by Taylor and Francis) and a visiting senior research fellow at University of Oxford Centre for Educational Assessment.



Associate Prof. Therese Hopfenbeck

Therese is an Associate Professor of Educational Assessment at Oxford and Director of the Oxford University Centre for Educational Assessment.

Originally a secondary school teacher with many years' experience, Therese has worked as school district supervisor and as a consultant on national examinations for the Norwegian Directorate for Education. Therese has been published widely in her native Norway, in the UK and across the English speaking world. Her book *From Political Decisions to Change in the Classroom: Successful Implementation of Education Policy* was published in 2014. With colleagues at Oxford, her influential *State of the Field Review: Assessment and Learning* was published in 2014. She is the current editor of the prestigious journal: *Assessment in Education*.



Prof. Patrick Griffin

Patrick is Professor Emeritus at the Melbourne Graduate School of Education, where, until recently, he held the Chair of Education

(Assessment) and was Director of the Assessment Research Centre. He is widely published on assessment and evaluation topics, with his research focusing on links between assessment and teaching in the fields of problem solving and higher order competency assessment and performance. He has led national and international studies of problem solving, literacy and numeracy and was Executive Director of the Assessment and Teaching of 21st Century Skills Project with an impact on national and international assessments including the 2015 PISA study. His work has also had an important impact on the work of teachers and school leaders in Australia and elsewhere.



Prof. Larry Ludlow

Larry is Professor and Chair of the Department of Measurement, Evaluation, Statistics, and Assessment (MESA) in the Lynch School of Education at

Boston College. He teaches courses in research methods, statistics, and psychometrics. His research interests include development of: a) Rasch-based scenario scales, b) longitudinal models for understanding and predicting faculty teaching evaluations, and c) longitudinal teacher retention and attrition prediction models.



Prof. Laura O'Dwyer

Laura is a member of the Department of Educational Research, Measurement, and Evaluation in the Lynch School of Education at Boston College. She teaches courses in applied data analysis (basic to advanced topics), quantitative research methods, survey construction, and experimental design. O'Dwyer's research focuses on examining the impact of technology-based interventions on student and teacher outcomes, and on international comparative studies in education. She has conducted several studies that employ randomized experimental designs to examine educational interventions including the effects of online professional development on teaching practices and learning outcomes.

Linked Centres

CARPE and the Anti Bullying Centre (ABC) at DCU are now linked through the Assessment of Bullying in the Workplace Project. Further details about the Centre and its director James O'Higgins Norman are available at: <http://www4.dcu.ie/abc/index.shtml>



CARPE is also linked to the National Institute for Digital Learning (NIDL) through a project focused on learning portfolios. NIDL Director, Professor Mark Brown is co-author with Darina Scully and Michael O'Leary of the upcoming Review on the Use of Learning Portfolios in Higher Education due to be published in early 2018. See: <http://www.dcu.ie/nidl/index.shtml>

The former and current directors of the Oxford University Centre for Educational Assessment (OUCEA), Jo-Anne Baird and Therese Hopfenbeck respectively, play important advisory roles in CARPE and the intention is that the two centres will be involved in collaborative research projects in the future. See: <http://oucea.education.ox.ac.uk/>



Research

CARPE continues to pursue an extensive research programme in assessment, spanning topics relevant to all levels of the education system and across the professions. Some of our projects focus on Irish educational assessment, whilst others address more global issues such as the assessment of “hard to measure” skills and competencies, developments in technology-based assessment, and pertinent issues in the field of certification and licensure assessment. An overview of all of our ongoing projects and the progress made with each in the past twelve months is provided below.

Ongoing Projects

(i) Standardised Testing: Survey of Irish Primary Teachers

Project Directors: Michael O’Leary, Deirbhile NicCraith (INTO)

Although the stakes attached to standardised testing in Irish primary education remain relatively low in comparison to other countries, recent policy changes have increased the focus on these instruments. In the wake of these changes, this research – a collaborative effort between CARPE and the Irish National Teachers’ Organisation (INTO) – sought to gather information on the attitudes and practices of Irish primary teachers with respect to standardised testing. Issues addressed included teachers’ understanding of standardised tests, how standardised tests are used formatively and diagnostically and the experiences of schools in reporting on the results of standardised tests. Data on teachers’ professional development needs with respect to standardised testing were also gathered.

During the summer of 2018, the CARPE team, in consultation with a steering committee comprised of INTO members, have conducted extensive analyses of both quantitative and qualitative data arising from the survey. Documentation of the major findings is currently underway, with a report due to be launched in December this year. Additional papers addressing specific issues in more detail will follow. Ultimately, it is intended that the findings will inform both policy and practice regarding standardised testing in Irish primary schools.



CARPE Director Michael O’Leary with members of the INTO Steering Committee

(ii) The Leaving Certificate Programme as Preparation for Higher Education: The Views of Undergraduate Students

Project Directors: Michael O’Leary, Darina Scully

The Leaving Certificate Programme (LCP) comprises the final 2-3 years of the post-primary education system in the Republic of Ireland. Despite the fact that the Irish education system is generally held in high regard, the question of whether or not the LCP is ‘fit for purpose’ has been subject to substantial debate – both in the mainstream media, and amongst educational researchers – in recent years. According to LCP syllabus documents, one of the overarching purposes of the programme is to prepare students for the requirements of further and higher education or training. With this in mind, this study specifically sought the views of undergraduate students, at the end of their first year in university, as to whether or not they believed the LCP had succeeded in meeting this goal.

Drawing on items from existing instruments, learning outcomes from first year modules at DCU, and other potentially relevant concepts, a questionnaire was developed and circulated to all first year students in DCU in May 2018. Questions focused on a range of cognitive and social-emotional activities, with students required to indicate how frequently they were



required to engage in these activities in first year, and how well they believed the LCP had prepared them for each. Analyses of the data revealed that, on the whole, the students surveyed regarded the LCP as an inadequate preparation for the demands of their first year in university. Specifically, they indicated that the LCP had involved a great deal of rote learning and memorization – in stark contrast to their first year coursework, which had frequently challenged them to evaluate various source of information and evaluate this information independently.

A bulletin of the findings was released in early August 2018, garnering extensive local and national media coverage. Indeed, a report from DCU’s Communication and Marketing department estimated that the research generated approximately 1.2 million ‘views’ across television, radio and print media. A full report of the study was released on 12th September 2018, and is available on CARPE’s website.



Michael O’Leary discusses the findings of CARPE’s LCP study on RTE News, 08/08/18

(iii) Assessment of Critical Thinking at Dublin City University (ACT@DCU)

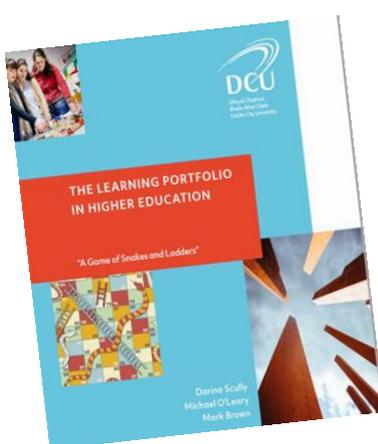
Project Director: Michael O'Leary

ACT@DCU is a pilot study investigating the extent to which an online test developed by the Educational Testing Service (ETS) in the United States to assess *critical thinking* skills in higher education is suitable for use in DCU. It is an inter-disciplinary collaboration between CARPE and researchers from DCU's Schools of Business, Computing, and Health & Human Performance. In September 2017, the test was administered to 225 first year students. Following this, the item statistics and factor structure of these data were analysed to investigate evidence of validity in the Irish context, and to provide opportunities for comparison between DCU and other institutions internationally. Prof. Michael O'Leary presented the preliminary findings of these analyses at DCU's *Teaching and Learning Day* on 13th September, 2018, and a paper has also been submitted to the American Educational Research Association (AERA) 2019 conference committee for review.

In October 2018, the test will be administered again – this time to 225 Final Year students. These data will be analysed alongside the first year data to determine if the test can measure growth in critical thinking from first year to final year in DCU. Leaving Certificate points will be used as a control variable to account for the fact that two different groups are being measured. Ultimately, if the psychometric properties of the test hold up in the DCU context, the first year cohort will be tested again in 2021 when they are in their final year, to provide a more robust indicator of growth. Eventually, it is hoped that data from this research will help to facilitate conversations among staff in DCU regarding pedagogy, curricula and educational interventions to improve teaching and learning of critical thinking.

(iv) Critical Review on the use of Learning Portfolios in Higher Education

Project Directors: Darina Scully, Michael O'Leary, Mark Brown (NIDL)



In recent years, ePortfolios – or *learning portfolios* – have come to be used as pedagogical and evaluative tools in a wide variety of disciplines and across all levels of the education system. It has been hypothesized that learning portfolios may be especially suited to the development and assessment of integrated, cross-curricular knowledge and generic skills/attributes, as opposed to disciplinary knowledge in individual subject areas - something that is of particular interest in higher education contexts. In late 2017, CARPE, in collaboration with Prof. Mark Brown – Director of DCU's

National Institute for Digital Learning (NIDL), conducted a critical review of the literature regarding learning portfolio use in higher education. The review highlighted a number of issues, most notably, that the tool is rooted in a complex pedagogy, and that its potential can only be realised if the processes underlying this pedagogy are properly understood by advocates and executed by users.

The review was launched in February 2018 by Minister Mary Mitchell O'Connor (see p.34 for further details), and in the subsequent months, it has been very well received both nationally and internationally. Just two weeks after the launch, the authors were approached by Prof. Junhong Xiao of Shantou University, China, who offered to translate the paper into Mandarin Chinese and publish it as an article in the peer-reviewed journal *Distance Education in China*. In April, Darina was successful in securing funding for a second translation of the review – into Spanish – through DCU IoE's *Elevator Pitch* initiative. The Chinese paper was published in May 2018, and the Spanish paper followed in August. Meanwhile, the authors continued to present findings arising from the work at educational conferences, including at *EdMedia & Innovate Learning* in Amsterdam, where the paper received a "Best of Ireland" award. Finally, since the publication of the review, a Learning Portfolio 'working group' has also been established within DCU. This group meets regularly, with the aim of identifying areas in which DCU might conduct in-house empirical research in the area.



Mark Brown & Darina Scully accepting EdMedia's 'Best of Ireland' paper award

(v) Development of an Assessment for Learning Audit Instrument (AfLAI)

Project Directors: Zita Lysaght (IoE), Michael O'Leary, Larry Ludlow (Boston College)

This project has its roots in assessment challenges identified from research conducted in the Irish context. This research highlighted: (a) the dearth of assessment instruments nationally and internationally to capture changes in children's learning arising from exposure to, and engagement with, Assessment for Learning (AfL) pedagogy; (b) the nature and extent of the professional challenges that teachers face when trying to implement AfL with fidelity and; (c) the urgent need for a programme of continuous professional development to be designed to support teachers to learn about AfL and integrate it into their practice.

Since the initiation of this project, significant progress has been made in all three areas: an Assessment for Learning Audit instrument (AfLAI) developed by Zita and Michael has been used across a range of Irish primary schools and in educational systems in Australia, Norway, Malaysia, Chile and South Africa. Work is currently underway in adapting the AfLAI for use in secondary schools and by students in both primary and secondary settings. In addition, a research-focused Assessment for Learning Measurement instrument (AfLMi) has been updated with data from almost 600 Irish primary teachers. Programmes of professional development continue to be implemented in pre-service undergraduate teacher education, in post graduate teacher education and as part of site based in-service teacher education.

(vi) The State-of-the-Art in Digital Technology-Based Assessment

Project Director: Michael O’Leary

In autumn 2017, CARPE was invited to contribute to a special issue of the European Journal of Education, focused on the extent to which assessments are fit for their intended purpose(s). The team produced an article providing an overview of the state-of-the-art in digital technology-based assessment, with particular reference to advances in the automated scoring of constructed responses, the assessment of complex 21st century skills in large-scale assessments, and innovations involving high fidelity virtual reality simulations. The special issue was published in June 2018.

(vii) The Use of Animations to assess Practical Intelligence (PhD Project)

PhD Candidate: Anastasios Karakolidis

Project Supervisors: Michael O’Leary, Darina Scully

Although technology provides a great range of opportunities for facilitating assessment, text is usually the main – if not the only – means used to explain the context, present the information, and communicate the question in a testing process. Written language is often a good fit for measuring simple knowledge-based constructs that can be clearly communicated via text, nevertheless, when assessments provide test takers with large amounts of sophisticated information in order to measure complex constructs, text may not be suitable for facilitating this process. This PhD project is focused on (a) the development and validation of an animated situational judgement test to assess teachers’ practical intelligence, (b) the investigation of test-takers’ views about this instrument and (c) the examination of the extent to which this animated test provides a more valid assessment of test-takers’ knowledge, skills and abilities, compared to a parallel text-based version of the test.

Over the past 12 months, Anastasios has made excellent progress with his project. In December 2018, he successfully completed his viva to transfer from the PhD track to the PhD register. He has completed the animation of 15 written scenario-type items, worked alongside a software company,

Psycholate, to develop a new platform for the administration of these items, completed a pre-pilot and a pilot study, collected data from over 200 pre-service and practising teachers in both Ireland and Greece, and has now begun to analyse these data. Anastasios has presented his experiences with the animation process at international conferences, and he continues to prepare additional papers for publication based on his work. He is now entering the final year of his doctoral studies and hopes to submit his thesis in 2019.



Anastasios presenting his work at the Association of Test Publishers Conference, Feb 2018

(viii) Multimedia Items in Technology-Based Assessments (PhD Project)

PhD Candidate: Paula Lehane

Project Supervisors: Michael O'Leary, Mark Brown, Darina Scully

The use of digital devices and technology to conduct assessments in educational settings has become more and more prevalent in recent times. While paper-based assessments are largely restricted to traditional item types such as multiple choice or short answer questions, the possibilities for items in TBAs are more extensive and continue to expand as technology develops. For example, TBAs in the education, licensing and credentialing sectors often deploy multimedia objects such as animations, videos or complex simulations when creating test items. However, the impact of these item types on test-taker performance and behaviour in *assessment* situations has yet to be fully clarified. Initial research has suggested that these items can cause changes in the information processing and attentional allocation behaviours of test-takers that were not previously seen in more traditional testing contexts or in earlier versions of TBAs. As a result, it is possible that certain multimedia items in TBAs can unintentionally lead to unreliable test scores. Further research is needed to offer further insight into this issue.

This PhD project aims to examine the influence of multimedia items on test-taker performance in TBAs by investigating the following research questions:

- How do test-takers allocate attention in TBAs that include multimedia items?
- What is the impact of multimedia items on test-taker performance in TBAs?
- Is there a difference in test-taker performance and attentional allocation behaviours in TBAs involving different types of multimedia items?

This PhD is still in the early stages of development. However, in her first few months at CARPE, Paula has already done extensive work familiarizing herself with relevant literature for the project. She officially registered on the Ph.D. Track in September 2018.

(ix) Irish students' performance at the upper levels of achievement in mathematics and science across national and international assessments

PhD Candidate: Vasiliki Pitsia

Project Supervisors: Michael O'Leary, Gerry Shiel, Zita Lysaght

Students in Ireland have often performed well on national and international assessments of mathematics and science, however, there is a notable absence of students scoring at the highest proficiency levels. Additionally, the scores of high achievers in Ireland (*i.e.* those performing at the national 90th percentile in these subjects) have tended to be lower than their counterparts in other countries. A pattern of declining performance among high achievers has been also detected in the Irish state examinations. Reports of low performance among students in Ireland on national and international assessments have not yet been given sufficient attention. Taking into account Ireland's overall performance in science and mathematics and the large proportion of high achievers in reading literacy, it seems that more Irish students have the potential to perform at the highest levels.

With all of the above in mind, this study aims to undertake an in-depth investigation of the trends and nature of high achievement in mathematics and science in Ireland, by combining national and international large-scale data. The overarching aims are to inform policy and practice, to provide country-specific recommendations, and to advance the development of exceptional skills needed to succeed in a modern, competitive society. In Vasiliki's first year, she has undertaken a thorough review of the existing research literature to inform the design of her study, and she has submitted applications for access to the data to the respective organisations. She has also familiarised herself with statistical analysis software and techniques that will be required for the data analyses.

In September 2018, Vasiliki received the news that she had been awarded one of the prestigious Irish Research Council (IRC) Postgraduate Scholarships for the period 2018-2020. This is a tremendous achievement: the IRC Scholarship programme is highly competitive, with an average success rate of 19% over the last five years. Applications from all disciplines are considered, and the award is made on the basis of a rigorous, objective selection process using international, independent expert peer review. Successful scholars are considered by the IRC to have demonstrated "*world-class potential as future research leaders and in the quality of their ideas.*" Needless to say, the team at CARPE are extremely proud of Vasiliki's success!



(x) Assessment of Teachers' Interpersonal Skills

Project Directors: Darina Scully, Vasiliki Pitsia, Anastasios Karakolidis, Steve Stemler

Effective teaching encompasses both a pedagogical and an interpersonal dimension. Despite this, the latter typically receives little attention in initial teacher education and professional development programmes due to its tacit, non-conscious and context-specific nature. Using the *Tacit Knowledge Inventory for High-School Teachers (TKI-HS)*, this study set out to explore how the interpersonal dimension of teaching plays out in an Irish context, and to compare the findings to those from other countries.

In early 2018, the *TKI-HS* was circulated to a sample of practising post-primary school teachers in Ireland. The resultant data were analysed in conjunction with data from corresponding samples of English and Russian teachers, previously collected by Steve Stemler (Weslyan University) and Julian Elliott (Durham University). The findings revealed some interesting discrepancies in how teachers from these three contexts viewed various strategies for dealing with challenging social situations encountered in the teaching profession. In April 2018, the team presented these findings as part of a roundtable discussion at the American Educational Research Association (AERA) Annual Meeting in New York. Over the summer period, Darina, Vasiliki and Anastasios have completed further analyses on the Irish data, and they are currently in the process of preparing a manuscript documenting these findings for submission to a peer-reviewed journal.



Darina, Steve, Anastasios & Vasiliki following their roundtable discussion at the AERA Annual Meeting, Apr 2018

(xi) Assessment of Learning about Well-Being

Project Directors: Kay Maunsell, Gulsah Gurkan

The significance of wellbeing with respect to developmental and educational outcomes for children and young people is unequivocal. However, the objective measurement of wellbeing is a relatively recent academic pursuit. In light of the recent introduction of wellbeing as a subject area within the reformed Junior Cycle programme in Ireland, the development of objective assessment tools in this area is likely to warrant serious academic attention in the coming years. With this in mind, this study seeks to examine the potential use of scenarios/vignettes to measure young people's experience of wellbeing as a consequence of their engagement with efforts to enhance it within second-level schooling.

As part of her work for the CARPE Research Experience Programme, and for her coursework requirements at Boston College, Gulsah Gurkan has developed a scale to measure adults' attitudes toward physical and emotional wellbeing, and has conducted some piloting of this scale with a US adult college sample. In collaboration with Kay Maunsell (DCU IoE), Gulsah hopes to expand on this work in the coming year, and ultimately, to develop a suitable scale for use with Irish Junior Cycle students.

(xii) Assessment of Bullying in the Workplace

Project Directors: Michael O'Leary, James O'Higgins Norman (Anti-Bullying Centre), Larry Ludlow (Boston College)

Bullying research has gained a substantial amount of interest in recent years because of the impact on the emotional and social development of children, adolescents and adults. Assessment measures have generally focused on school bullying and interactions between peers. The most widely used of these is the Olweus Bullying Questionnaire (OBQ). This tool and others of its kind are advantageous to research but still pose certain issues in terms of providing absolute measures of bullying behaviour.

While the OBQ has been validated in several large scale international studies among schoolchildren, there is no equivalent for adult or workplace bullying. This study aims to address that gap. As part of the 2017 CARPE Research Experience Programme, Sebastian Moncaleano, a PhD student from Boston College, conducted a literature review on current approaches to the assessment of workplace bullying. Drawing on this review, and on skills learned during the Professional Development week in the summer of 2018 (see p.37 for further details), the CARPE team, in collaboration with subject matter experts from the IoE's Anti-Bullying Centre, plan to begin developing a Rasch measurement scale to assess workplace bullying, beginning in autumn 2018.

(xiii) Developing Competency-Based Assessments: Comparing Two Types of Task Analysis

Project Directors: Darina Scully, Li-Ann Kuan (Prometric)

In recent years, there has been a heightened interest in the development of *competency-based assessments*. One of the biggest challenges facing the competency paradigm, however, is the lack of agreement as to just what a ‘competency’ is. One of the earliest literature reviews submitted to Prometric sought to unpack the concept of ‘competencies’ and outlined how they differed from traditional knowledge, skill and ability statements. This paper was subsequently presented at the Association of Test Publishers (ATP) conference in February 2018, where it was very well received.



Darina and Li-Ann following their presentation on competency-based assessments, EATP, Sept 2018

Drawing on this work, Prometric and CARPE are now collaborating on an empirical project comparing the outcomes of two different types of ‘task analysis’ – namely Job Task Analysis (JTA) and Cognitive Task Analysis (CTA) in terms of their suitability for developing competency statements. Preliminary findings from this work were presented at the European Association of Test Publishers (E-ATP) Conference in September 2018.

(xiv) Providing Effective Feedback for Non-Successful Test Candidates (Lit Review)

Project Directors: Michael O’Leary, Darina Scully, Zita Lysaght

In light of new guidelines in the most recent edition of the *Standards for Educational and Psychological Testing*, there is increasing pressure on test developers to provide diagnostic information that can (i) help unsuccessful candidates to improve their future performance and (ii) assist academic and training institutions in evaluating the success of their programmes. In a report submitted to Prometric in early 2017, CARPE outlined how test developers face a substantial challenge in attempting to meet this demand, whilst simultaneously upholding their ethical responsibility to ensure that any test data that are reported and shared with stakeholders or used to make educational, certification or licensure decisions are accurate, reliable and valid.

A further development of this work was completed in early 2018. This paper discussed issues associated with sub-score reporting and scale anchoring, outlined the concept of Wright Mapping from the Item Response Theory paradigm, and, drawing on the broader educational and psychological literature, considered alternative ways of thinking about the process of ‘giving feedback’. The paper was presented by Zita and Darina at the European Association of Test Publishers (E-ATP) Conference in September 2018.

(xv) User Interface Tools in Technology-Based Assessments (Lit Review)

Project Director: Paula Lehane

As the implementation of Technology-Based Assessments (TBAs) has become more widespread, testing authorities in the U.S. have now begun to permit the use of digital test-taking tools and personalisation features. These tools are often embedded in the user interface of the TBA and include the addition of a progress bar or timer, changes to font size and colour or the provision of annotation tools. Cross-disciplinary research in the areas of learning, human-computer interactions, graphic design and ergonomics has indicated that the adaptation or personalisation of certain features in online environments may lead to significant differences in user experience and behaviour. Therefore, clear guidelines should be followed to protect test-taker performance from construct-irrelevant variance.

Drawing on up-to-date literature in the area, a comprehensive report providing an overview of the key principles of interface design as well as a summary of current interface tools that facilitate interface personalisation was submitted to Prometric in April 2018. Topics covered included the possible influence of typical personalisation practices in relation to fonts and colours as well as the impact of standard interface tools such as progress bars, countdown clocks and note taking features on user experience and behaviour. Recommendations and implications for test-developers and researchers were also included.

(xvi) Device Comparability in Technology-Based Assessments (Lit Review)

Project Director: Paula Lehane

A wide range of administration formats for TBAs are available, including e-readers, tablets, touchscreens, laptops and desktops, and there are concerns that differences between and within device types will inevitably lead to variations in the presentation, interaction and input methods of tests and examinations which could influence test-taker performance. With this in mind, a consultation of both peer-reviewed research within the realm of education and industrial ergonomics and the grey literature of unpublished manuscripts and technical reports from testing organisations was undertaken. Drawing on this literature, a report identifying the factors that contribute to device effects, such as screen size, device familiarity and keyboard type, and providing a series of best practice recommendations for test-developers was submitted to Prometric in May 2018. A paper based on the report was subsequently presented at the European Association of Test Publishers (E-ATP) Conference in September 2018.



Paula Lehane presenting her work on device comparability, EATP, Sept 2018

(xvii) Items in Technology-Based Assessments (Lit Review)

Project Directors: Paula Lehane & Anastasios Karakolidis

While paper-based assessments are largely restricted to traditional item types like multiple choice or short answer questions, the possibilities for items in TBAs are more extensive. Technology-based items use multimedia objects and a variety of technological affordances to enhance their overall construct representation. Although it is often assumed that these items improve assessments, the exact nature of this ‘added value’ is difficult to verify and describe. Given the extensive development costs associated with TBAs, it is essential that test-developers have a clear understanding of what technology-based items are as well as their potential advantages and disadvantages. In September 2018, a report outlining a range of technology-based items types was submitted to Prometric. This report discussed the limitations and advantages of each item type according to up-to-date research, and concluded with a series of recommendations for test-developers.

(xviii) Short Assessments: Maintenance of Certification & Micro-Credentials (Lit Review)

Project Director: Katherine Reynolds (Boston College)

Shortened assessments, either as stand-alone micro-credentials or components of a larger certification system, have been proposed as alternatives to existing professional development structures, however, the full efficacy and utility of these efforts have not yet been evaluated. Drawing on up-to-date literature in the area, a report providing an overview of the adoption and acceptance of shortened assessments in two professions requiring professional licensure (medicine and teaching) was submitted to Prometric in July 2018. A selection of shortening processes is presented, and implications for reliability and validity stemming from the shortening of assessments are also discussed.

Research Outputs Oct 2017-Sept 2018

Peer-Reviewed Journal Articles

O’Leary, M., Scully, D., Karakolidis, A., & Pitsia, V. (2018). The state-of-the-art in digital technology-based assessment. *European Journal of Education, 53* (2), 160-175.

Scully, D., O’Leary, M. & Brown, M. (2018). The learning portfolio in higher education: A game of snake s and ladders (Junhong Xiao trans.) *Distance Education in China* DOI: 10.13541/j.cnki.chinade.20180509.001

Lysaght, Z., O’Leary, M. & Scully, D. (2017). Pre-Service Teachers’ Expectations for Teaching as a Career: A Snapshot at a Time of Transition. *Irish Journal of Education, 42*, 88-107.

Lysaght, Z., O’Leary, M. & Ludlow, L. (2017). Measuring Teachers’ Assessment for Learning (AfL) Classroom Practices in Elementary Schools. *International Journal of Educational Methodology, 3* (2), 103-115.



Conference Presentations

Karakolidis, A. & Pitsia, V. (2018, September). *Transforming Situational Judgement Tests through the use of animated simulations*. Paper presented at the European Association of Test Publishers (E-ATP) Conference, Athens, Greece.

Lehane, P. (2018, September). *Device Comparability – Does it matter what device is used to administer assessments?* Paper presented at the European Association of Test Publishers (E-ATP) Conference, Athens, Greece.

Scully, D. & Lysaght, Z. (2018, September). *Diagnostic Feedback – Dos and Don'ts*. Paper presented at the European Association of Test Publishers (E-ATP) Conference, Athens, Greece.

Scully, D. & Kuan, L. (2018, September). *Identifying the Task Analysis of Best Fit*. Paper presented at the European Association of Test Publishers (E-ATP) Conference, Athens, Greece.

Lysaght, Z. & Scully, D. (2018, September). *Providing Diagnostic Feedback to Non-Successful Test Candidates*. Paper presented at the Association of Test Publishers (ATP) Public Sector Special Interest Group Conference, Brussels, Belgium.

- Scully, D., O'Leary, M. & Brown, M. (2018, August). *Key Findings from a Literature Review on the Use of Learning Portfolios (ePortfolios) in Higher Education*. Paper presented at the World Education Research Association (WERA) World Congress, Cape Town, South Africa.
- Scully, D., O'Leary, M. & Brown, M. (2018, June). *The Learning Portfolio in Higher Education: An Integrative Review*. Paper presented at the EdMedia + Innovate Learning International Conference, Amsterdam, Netherlands.
- Scully, D., O'Leary, M. & Brown, M (2018, May). *A Game of Snakes and Ladders: An Integrative Review of Learning Portfolio in Higher Education*. Paper presented at the Irish Learning Technology Association EdTech Conference, Carlow IT.
- Scully, D., O'Leary, M. & Brown, M. (2018, May). *The Learning Portfolio in Higher Education: A Game of Snakes and Ladders?* Paper presented at the CRA/AAEEBL International Seminar, ePortfolios and more: the developing role of ePortfolios within the digital landscape, Dublin City University.
- Stemler, S., Elliott, J., O'Leary, M., Scully, D., Karakolidis, A. & Pitsia, V. (2018, April). *A Cross-Cultural Study of High School Teachers' Tacit Knowledge of Interpersonal Skills*. Paper presented at the Annual Meeting of the American Educational Research Association (AERA), New York, NY.
- Karakolidis, A. & Corrigan, R. (2018, February). *Is a picture worth a thousand words? Using animated items in certification testing*. Paper presented at the Association of Test Publishers Conference, San Antonio, TX.
- Scully, D. & Ridgley, K. (2018, February). *Competencies - What are they and how best to we define them to measure them?* Paper presented at the Association of Test Publishers Conference, San Antonio, TX.

Research Reports

- Abrams, L. (2018). *Best Practice in Test Design: Test Content Specification Procedures for Achievement and Credentialing Exams*. Unpublished manuscript, Centre for Assessment Research Policy & Practice in Education (CARPE), Dublin City University.
- Lehane, P. (2018). *Device Comparability: Administering the same test using different device types: A review of the literature and recommendations for practice*. Unpublished manuscript, Centre for Assessment Research Policy & Practice in Education (CARPE), Dublin City University.
- Lehane, P. & Karakolidis A. (2018). *Items in Technology-Based Assessment: A review of the literature and recommendations for practice*. Unpublished manuscript, Centre for Assessment Research, Policy & Practice in Education (CARPE), Dublin City University.

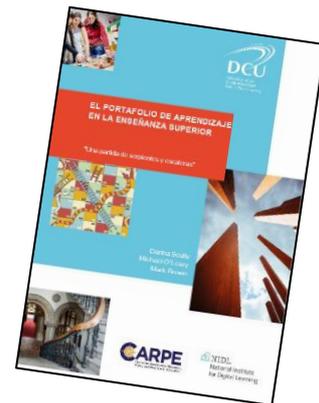
Lehane, P. (2018). *User Interface Tools: A review of the literature and recommendations for practice*. Unpublished manuscript, Centre for Assessment Research, Policy & Practice in Education (CARPE), Dublin City University.

O'Leary, M. & Scully, D. (2018). *The Leaving Certificate Programme as Preparation for Higher Education: The Views of Undergraduates at the End of their First Year in University*. Dublin: Dublin City University, Centre for Assessment Research, Policy & Practice in Education (CARPE).

Reynolds, K. (2018). *Short Assessments and Their Applications: Maintenance of Certification and Micro-Credentials*. Unpublished manuscript, Centre for Assessment Research, Policy & Practice in Education (CARPE), Dublin City University.

Scully, D., O'Leary, M. & Brown, M. (2018). *The Learning Portfolio in Higher Education: A Game of Snakes and Ladders*. Dublin: Dublin City University, Centre for Assessment Research Policy & Practice in Education (CARPE) and National Institute for Digital Learning (NIDL).

Scully, D., O'Leary, M. & Brown, M. (2018). *El Portafolio de Aprendizaje en la Enseñanza Superior: Una Partida de Serpientes y Escaleras*. Translated by DCU Language Services. Dublin: Dublin City University, Centre for Assessment Research Policy & Practice in Education (CARPE) and National Institute for Digital Learning (NIDL).



Research Projects Coming on Stream 2018-2019

(i) Erasmus+ Project: Digital Assessment in STEM

Science, Technology, Engineering and Mathematics (STEM) has infiltrated every sector of today's world. It is essential that the future workforce continues to be equipped with the knowledge, skills and abilities necessary to further develop and secure our globally connected economy. To achieve this, STEM education needs significant support and investment in school systems worldwide. The creation of classroom-based digital tasks and activities that can cultivate STEM literacy must now be a priority for educators worldwide. However, research in the area indicates that tasks that integrate technology *and* use assessment as part of instruction should be designed as a matter of priority. Beginning in late 2018, CARPE, along with other centres and faculties within DCU, will begin working with a variety of partners to conduct a literature review on the use of digital assessment to support STEM learning in Irish secondary schools. This will inform the project's future development of digital assessment tasks that support formative assessment practices in Irish classrooms. If funding is received from the Erasmus+ programme, the project will involve active experimentation in at least 150 schools.

(ii) Considering the Essential Role of Assessment in a Redeveloped Primary Curriculum

Project Directors: Zita Lysaght, Damian Murchan, Michael O'Leary, Darina Scully, Gerry Shiel

The National Council for Curriculum and Assessment (NCCA) are currently in the process of redeveloping the Irish primary school curriculum. This redevelopment work takes place at a time when Irish society comprises more diverse cultural, ethnic, religious and linguistic groups. While both inclusion and integration are a welcome part of the education system, they place increased demands and expectations on teachers and principals to cater for and respond to a diverse range of teaching, learning and assessment needs. A major part of the redevelopment work is the production of a series of short research papers to generate discussion and debate on what a future curriculum should do for children in the next five, ten, fifteen years. CARPE have been commissioned by NCCA to complete one such research paper, focusing on assessment. In collaboration with other experts in educational assessment, this work will begin in autumn 2018, with a final draft of the paper to be produced in January 2019.

(iii) Face Validity and Test Performance

Project Directors: Katherine Reynolds & Anastasios Karakolidis

Face validity is often underappreciated by assessment professionals, but can be a key concern of assessment consumers. Drawing on aspects of Katherine's work in the field of micro-credentialing, and data from Anastasios' doctoral work involving non-traditional item types, this collaborative effort will seek to evaluate the contribution of test-takers' perceptions of face validity to test performance.

CARPE Events

Annual Lecture

On Monday, 23rd October 2017, CARPE welcomed Prof. John Gardner – Senior Deputy Principal at the University of Stirling and Adjunct Professor at DCU Institute of Education’s School of Policy and Practice – to deliver our second annual public lecture. Prof. Gardner is known for his imaginative paper titles, and this was certainly no exception. Indeed, “*The Quantum of her Wantum cannot vary – or can it?*” was immediately dubbed ‘lecture title of the year’ by the powers that be on Twitter!



John Gardner delivering the CARPE Lecture

Prof. Gardner’s talk was focused on imprecision in educational assessment. He spoke about the “psychometrician’s fallacy”, arguing that the concept of measurement has been inappropriately applied to complex psychological attributes over time, with crisp and definitive numbers and grades creating a false sense of certainty and objectivity. Distinguishing between the layman’s concept of error as a mistake or mishap, and the scientific concept of measurement error arising from sources such as variation in assessors’ judgements, Prof. Gardner urged those working in the field of assessment to be more transparent with the public about the nature and extent of this error. “Not doing so because they may struggle to understand it”, he argued, “is deeply patronizing.”



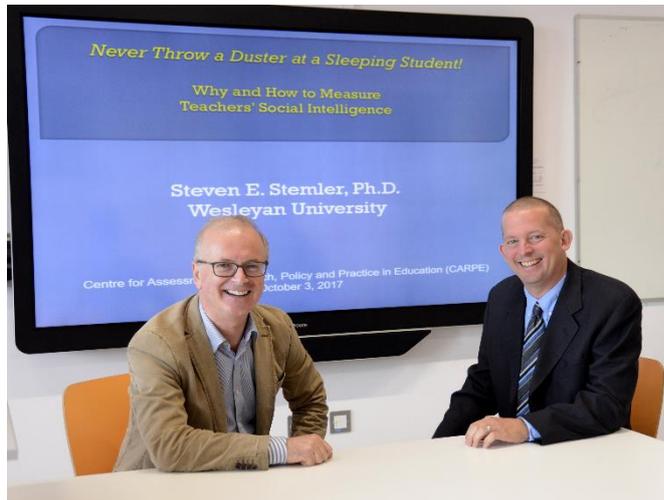
Anne Looney speaking at the annual CARPE Lecture

Following Prof. Gardner’s talk, Dr. Anne Looney, Executive Dean of the IoE, reflected on his message in light of the ongoing assessment reform taking place in the Irish education system. She noted that assessment literacy is growing, and that recent changes at Junior Cycle appear to be demystifying the concept of assessment for students, as they become more involved in the process. This developed into a spirited debate as members of the audience both commended and challenged Prof. Gardner’s

assertions. The team at CARPE are grateful to Prof. Gardner for addressing this important topic in such an engaging manner, to Paul Murphy for capturing the photographs and video on the day, and to all those who attended and contributed to the event.

Visiting Scholar Seminars

CARPE has an extensive network of connections with various international experts in the field of educational assessment, and we were delighted to host two of these, namely **Steve Stemler** (Wesleyan University, Connecticut) and **Lisa Abrams** (Virginia Commonwealth University), to share their research and expertise with IoE staff during the past year.



Michael O'Leary and Steve Stemler

Prof. Stemler visited CARPE on Tuesday, 3rd October 2017. Broadly speaking, his research is focused on 'the purposes of school and how to measure these', and along with his colleagues Prof. Julian Elliott, Dr. Elena Grigorenko and Prof. Robert Sternberg, he has developed a series of situational judgement tests (SJTs) measuring teachers' *social intelligence*. In an engaging seminar, Prof. Stemler discussed the concepts of social intelligence and teacher effectiveness,

outlined the development of his SJTs, and presented interesting findings arising from a study comparing the performance of expert and novice teachers on these SJTs. CARPE continue to work with Steve on a regular basis – PhD candidate Anastasios Karakolidis has drawn on these SJTs as part of his project investigating the use of animations to measure complex competencies, and we have also collaborated with him on a study investigating cross-cultural differences in teachers' social intelligence.

Prof. Abrams spent three months on sabbatical at CARPE, from May to July 2018. On June 29th, she delivered two informative seminars on (i) how practitioners' use of formative and summative assessment data to inform decision making can be supported and (ii) maximizing school placement opportunities in Initial Teacher Education Programmes. During her stay, Prof. Abrams also contributed substantially to various projects within CARPE, including our study of Irish primary teachers' use of standardised tests, and a White Paper on best practices in test design.



Lisa Abrams delivering the first of her seminars to IoE Staff

Learning Portfolio Report Launch



Mary Mitchell O' Connor TD at the launch of CARPE & NIDL's Learning Portfolio Report

CARPE and the NIDL were honoured to welcome Mary Mitchell O'Connor, TD, Minister of State with special responsibility for Higher Education to DCU on Wednesday, 14th February 2018 to formally launch *"The Learning Portfolio in Higher Education: A Game of Snakes and Ladders"*. This work, which critically reviewed the international literature on the use of learning portfolios in higher education contexts, represented the first collaboration between the two research

centres. DCU President Prof. Brian MacCraith delivered the opening address, in which he emphasized the growing need for university graduates to be equipped with broad skills and attributes such as enterprise, empathy and leadership, given the demands of contemporary society. He further outlined how over 9,000 students in DCU are currently using learning portfolios as a key tool in developing such attributes.

Dr. Darina Scully then shared some of the messages arising from the literature. She outlined how learning portfolio practice can be a positive and enriching experience for university students, but can also, as the title of the review suggests, resemble a game of "snakes and ladders" at times. She also commented on the relatively limited nature of the extant literature, and the need for more rigorous studies in this area.



Report authors Michael O' Leary (CARPE), Darina Scully (CARPE) and Mark Brown (NIDL) at the launch

Minister Mitchell O'Connor then formally launched the report. In doing so, she strongly emphasized the importance of teachers in supporting the successful implementation of any educational innovation. Concluding the event, Prof. Mark Brown (NIDL) explained that the concept of "lifelong learning" should always be at the heart of learning portfolio practice, and indicated the intention for this to be the case as the Loop Reflect platform continues to be developed and embedded in the student learning experience at DCU.

CARPE Research Experience Programme

Following on from the success of the inaugural CARPE Research Experience Programme (REP) in the summer of 2017, students from the Measurement, Evaluation, Statistics and Assessment (MESA) doctoral programme at Boston College were invited to apply for a place on the 2018 REP. The REP is a fully-funded two-month internship based at CARPE, during which the intern works closely with the CARPE team on projects relevant to assessment and/or measurement in education and the workplace. During a visit to BC in the autumn, Michael interviewed five students for the position. The selected candidate this year was Katherine Reynolds. During her short time in Dublin, Katherine contributed substantially to the work of CARPE. Before returning to BC, she wrote the following account of her REP experience:

“I worked on two main projects during my time at CARPE. The first was a literature review for Prometric that sought to synthesize existing research addressing various forms of “short assessments”. Specifically, this included detailed examination of two professional fields: 1) medicine, where many American medical specialty boards are in the process of revamping their Maintenance of Certification (MOC) exams, and 2) education, where some U.S. states are embracing the use of micro-credentials as an alternative form of teacher professional development. Alongside these topical discussions, validity and reliability implications of shortening existing assessments were also considered. As I was not particularly familiar with these topics, working on this literature review afforded opportunities not only to read into new areas, but also to think strategically about how ongoing conversations in multiple fields could be woven together into a single narrative report. This literature review also led to the development of a new research project regarding the importance and utility of instrument face validity, on which I will continue to collaborate with CARPE after this summer.

My second major project involved preliminary analysis of data collected from an Irish pilot administration of the ETS HEIghten™ critical thinking test - I worked to replicate the initial validity analyses performed in the United States with an Irish sample. Prof. O’Leary and I were able to submit these findings as part of an American Educational Research Association (AERA) symposium proposal focused on the international assessment of core competencies in higher education.

Although not an official CARPE project, I was also able to spend time this summer studying for my doctoral comprehensive exam. While I had initially been a bit nervous to tackle both this research experience and my comprehensive exam in the same summer, the work I did for CARPE was an extremely practical study tool. Particularly with the critical thinking test data, I was forced to confront practical analytical issues that don’t necessarily surface when completing coursework projects. Doing the readings and research necessary to feel confident in my approaches to those issues complemented my own personal exam study agenda. The various CARPE professional development meetings I attended over the summer were also helpful exam preparation.

When not working, I also spent time sightseeing. In addition to visiting many museums and sights located in Dublin, I ventured to Kilkenny where I climbed a medieval watchtower and Belfast where I explored the Titanic Museum. I also traveled to the northwest of the island, where I ascended the Pilgrim Path to the impressive Sliabh Liag clifftop while surrounded by sheep. As an avid hiker and knitter, this was a dream come true.



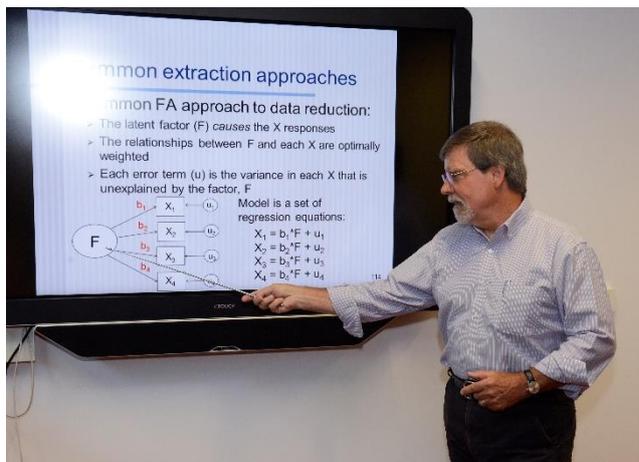
Katherine enjoying her time in Ireland as part of the CARPE REP

I cannot say enough positive things about my experience in Ireland this summer. All of the CARPE staff were wonderful to work with; in addition to being great at what they do, they are also some of the kindest and most welcoming people I've ever had the pleasure to work with. This summer truly was a "research experience"—every moment in the office was well-spent on meaningful work that was beneficial for both myself and CARPE. I look forward to staying in touch and continuing to collaborate in the future!"

The application process for the 2019 REP will commence shortly. All at CARPE are looking forward to continuing what has so far proven to be a very worthwhile initiative.

CARPE Professional Development

In July 2018, the team at CARPE participated in an intensive, week-long professional development course delivered by Prof. Larry Ludlow and Prof. Laura O'Dwyer from the Department of Measurement, Evaluation Statistics and Assessment (MESA) at Boston College. Michael first became acquainted with Larry and Laura whilst completing his PhD in Educational Measurement at BC. In the intervening years, they have collaborated on several projects including, most recently, the development of the *Assessment for Learning Audit Instrument (AfLAI)* with Dr. Zita Lysaght. Both Larry and Laura also act as international research advisors for CARPE.



Larry Ludlow discussing factor analytic techniques

The bespoke course covered a range of topics in instrument development and psychometrics, with a particular focus on classical factor analysis techniques and on the Rasch measurement model. Since completing the course, the CARPE team have met regularly to consolidate their knowledge of the material, and subsequent online sessions with Larry and Laura are likely to take place in the coming year.

Overall, the initiative provided a fantastic opportunity for the CARPE team to build research capacity, and it is hoped that this will enhance the future work of the centre. One offshoot of the course is the initiation of a collaborative project with the IoE's Anti-Bullying Centre, which will involve the development of a Rasch scale to measure workplace bullying. In addition, long-term plans to share these skills more widely across the IoE are underway.



CARPE staff and students with Laura O'Dwyer and Larry Ludlow during the professional development week in July

CARPE Contributions to the IoE

(i) Research Consultancy Hours

CARPE welcomes all requests for research design and/or data analysis support from IoE staff and students. As of summer 2018, a set of formal guidelines have been put in place to ensure this support can be provided in an adequate and timely manner. Specifically, a pro-forma has been put in place on CARPE's website (dcu.ie/carpe), whereby all requests for support can be made to the Director. Once the nature and extent of the support required has been identified, a member of the CARPE research team is officially appointed to the job. This researcher can spend up to a maximum of two consultation hours per project during the normal working day, but additional consultations that take place outside of working hours are also possible. This service has been well received, and the CARPE team have already received many requests through these channels.

(ii) SPSS Workshops

CARPE are pleased to be able to offer a series of workshops on using SPSS to analyse data from questionnaires. These workshops are aimed at those who are new to SPSS, and cover topics such as data entry and cleaning and running both descriptive inferential statistics. The workshops are led by Vasiliki Pitsia, (assisted by other CARPE staff and students), and typically take the form of three two-hour sessions, held regularly throughout the academic year. Three such series were held over the past year, and feedback from workshop attendees has been overwhelmingly positive.

(iii) Teaching and Supervision

All members of the CARPE team are actively involved in teaching and/or supervision at both undergraduate and postgraduate level within the Institute of Education.

Michael will be teaching a class on Classroom Assessment and Standardised Testing to 400+ Final Year B.Ed. students this Autumn. He will also be making contributions to graduate classes in research methods throughout the 18/19 academic year.

Darina has contributed as a lecturer on the research methods component of the Ed.D. programme, on the *Mathematics, Assessment and Digital Learning* module for B.Ed.4 students, and on the *Applying Quantitative Research Methods* module as part of the Graduate Training Elements programme. Darina co-supervises has also supervised a number of PME final year Action Research Projects. In the coming academic year, she will have full responsibility for the *Assessment and Feedback* module on the B.Sc. in Education and Training.

Paula is a part-time lecturer on the B.Rel.Ed. programme. This coming year, she will be delivering lectures on the issues of assessment, inclusion and differentiation to 2nd year students on this course. Paula is also a Writing Tutor within the DCU Writing Centre – an initiative set up to offer free writing help to any student, undergraduate or postgraduate, regardless of course, degree or level. As part of her work with the Writing Centre, Paula works with students on a one-to-one basis as well as providing online individual and group writing support. She also facilitates academic writing workshops and creates resources on this topic.

Both Anastasios and Vasiliki have been involved in facilitating SPSS Workshops for staff. They have also contributed to the *Write to Read* research project, co-ordinated by Eithne Kennedy and Gerry Shiel. Anastasios has also acted as a supervisor for PME students' Action Research Projects.

(iv) IoE Blog

As part of a commitment to transformation at the policy level, and to contribute to debates about education, the IoE has recently launched a Blog – a platform for academics to share research, ideas and opinions with a general audience. Both Darina and Paula have signed up to be members of the Blog Team and attended a training session with Chris Gilson (creator of the London School of Economics Blog) in August 2018. In the coming year, Darina and Paula will contribute to maintenance of the site, editing and regular blogging.

CARPE External Engagement

Michael acted as external examiner on a PhD thesis entitled *Item Parameter Drift on Student Ability Estimates and the Implications for Teacher Ability to Target Instruction*. The thesis was successfully completed at the University of Melbourne by Masa Pavlovic. Michael has just completed a four-year term as external examiner for the PhD programme at Mary Immaculate College, Limerick and has recently completed an external review of the ESRI's soon to be published report, *The Early Impact of the Revised Leaving Certificate Grading Scheme on Student Perceptions and Behaviour*.

Darina has acted as a peer reviewer for *Irish Educational Studies*. She is also a member of a steering group for an upcoming conference on assessment in higher education. This conference is being overseen by Quality & Qualifications Ireland (QQI), and is due to take place in November 2018.

Both Anastasios and Vasiliki lecture on an online research methodology and statistics module on the M.Sc. in STEM Education at the University of Patras, Greece. Anastasios has also acted as a reviewer for SAGE Open Journal, and is a member of the organising committee for the upcoming Irish Postgraduate Research Conference. Both Anastasios and Vasiliki will be facilitating a workshop on *Mendeley* referencing software at this conference.

Paula delivers guest lectures on the topics of co-teaching, assessment and individualised planning to practising teachers on the Postgraduate Diploma in Special Educational Needs in UCD. She is also a research supervisor for students completing their PME (post-primary) qualification in UCD. In addition to these responsibilities, Paula is a course facilitator with the Professional Development Service for Teachers (PDST), delivering courses on the use of technology and other digital tools for teaching, learning and assessment to teachers in education centres and schools.