



**Report for the Period October 2021 – August 2022**

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## Director's Overview



It's been another productive year at CARPE. The team has delivered a substantial body of high quality research focused on a range of topic pertinent to assessment in education and the credentialing industry. In all, this report lists details about nine peer-reviewed papers, one book chapter, 20 conference papers and seven reports/white papers as well as various blogs, podcasts, research outreach publications and media contributions. I was especially grateful for the opportunity to contribute to a debate about Senior Cycle Reform at a meeting of the Joint Committee on Education, Further and Higher Education, Research, Innovation and Science last November. Events such as these help to enhance CARPE's reputation and research profile.

Significant progress has been made on a variety of other research projects also. For example, Dr. Eadaoin Slattery leads the work on the Minecraft study supported by Microsoft. Over the next academic year, an experimental research study will be conducted in Irish primary schools on the impact of Minecraft on the spatial reasoning skills of 10-12 years old pupils. This study will be the first of its kind in the world. Work will also continue on the development of two situational judgement assessments – one focused of Junior Cycle students' (13-15 year olds) understanding of wellbeing and one that can be used to measure understanding of bullying in the workplace. Both projects pose considerable challenges in terms of "hard-to-measure" constructs. Important work on live remote proctoring, teachers' feelings and beliefs about high stakes assessment in Ireland and the impact of COVID-10 on high stakes assessment internationally are due to be published in the coming months.

Sylvia Denner successfully defended her doctoral dissertation in June. Her research explored outcomes resulting from moving PISA testing from the Spring to the Autumn. Her research has global significance given that many countries are considering similar changes to PISA testing time. Current Prometric PhD, Conor Scully, is due to submit his research on the reliability of OSCE assessment for examination in September. I am delighted to welcome new Prometric PhD, Fainche McCormack to CARPE. Fainche is a post-primary teacher of Mathematics. Her PhD research will be focused on issues pertaining to diversity, equity and inclusion in high stakes assessments.

John Gardner, Larry Ludlow, Garrett Sherry and Gerry Shiel will be stepping down from the CARPE Advisory Board following the annual meeting on September 1<sup>st</sup>. I am so grateful to them for all their unstinting support over the years. I am delighted that Marguerite Clarke, Zita Lysaght, and Matthias von Davier will provide continuity by remaining on the Board for the foreseeable future. The wise counsel of Linda Waters' has been of enormous benefit to me personally and professionally. Thank you Linda. I would also like to acknowledge Li-Ann Kuan's great contribution to the work of the CARPE Advisory Panel. Linda, Garrett and Li-Ann

played vital roles in advocating for CARPE during periods when the centre's funding was being reviewed at Prometric. My sincere thanks to Roy Simrell for his ongoing commitment to the relationship with DCU and to Daire Keogh, Anne Looney and Claire Whelehan at DCU for all they do to support that relationship.

It is with a mix of sadness and delight that I announce the departure of Gemma Cherry from CARPE on Sept 5<sup>th</sup>. Gemma has been an outstanding Prometric post-doctoral researcher and has been a joy to work with. I was not surprised that Queens University Belfast, her alma mater, offered her a position as lecturer in Sociology and Quantitative methods. I wish Gemma all the success in the world in her new role. An advertisement for her replacement has been shared internationally. Thanks are also due to Gemma for her painstaking work in compiling this report.

I will step down from the role of Prometric Chair in Assessment at DCU and Director of CARPE at the end of August. Leading the centre and working with all the wonderful people who have contributed to its success has been a most rewarding chapter of my professional life. I will be forever grateful to former DCU President Brian MacCraith and former Prometric CEO, Michael Brannick for the opportunity they created for me in 2015. It's true that while many factors impinge on how well one's professional career progresses, a little bit of good fortune always helps!

At the time of writing a new Prometric Chair in Assessment/Director of CARPE has yet to be appointed. Zita has graciously accepted the invitation to take up the position as Interim Director from September 1<sup>st</sup>. Given her skills as an assessment specialist and her in-depth knowledge of how CARPE works, I am confident the centre is in safe hands.

Onwards and upwards!

A handwritten signature in purple ink that reads "Michael O'Leary". The signature is fluid and cursive, with a long, sweeping tail on the 'y'.

Michael O'Leary

Prometric Chair in Assessment/Director of CARPE

## The Centre

### Governance

As a research centre within the Institute of Education, CARPE is managed by the Research Centres Committee (an Education Faculty Committee) comprising the Chairs/Directors of Research Centres 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:

- Dr. Marguerite Clarke, World Bank, Washington
- Professor John Gardner, University of Stirling
- Professor Larry Ludlow, Boston College
- Dr. Zita Lysaght, Dublin City University
- Mr. Garrett Sherry, Prometric
- Professor Gerry Shiel, Educational Research Centre
- Professor Matthias von Davier, Boston College

The Board meets 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.

A standing committee of the advisory board, the CARPE Advisory Panel (CAP), meet three to four times a year using online or face-to-face sessions to review and plan individual projects related to Prometric's needs and interests. The members of CAP are:

- Professor Michael O'Leary
- Dr. Zita Lysaght
- Dr. Linda Waters (Prometric)
- Dr. Li-Ann Kuan (Prometric)

## Staff



**Professor 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 relating to primary and second level education. Between 2007 and 2015 he was Director of Postgraduate studies in education at St Patrick's College. Since 2016 he has led 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 assessment and quantitative research methods at DCU, as well as the examining and supervision of doctoral students.



**Dr. Gemma Cherry**

**Prometric Post-Doctoral Researcher**

Gemma is the Prometric Post-Doctoral Researcher at CARPE. Gemma holds a B.A. in Sociology, an MRes in Social Research Methods and a Ph.D. in Education from Queen's University, Belfast. She is also an Associate Fellow with the Higher Education Academy. Prior to joining CARPE, Gemma worked full-time as an affiliated lecturer at the University of Cambridge, specialising in quantitative research methods. At Cambridge, Gemma also coordinated the Masters in Educational Research programme and supervised the research projects of postgraduate students in the Faculty of Education. At the University of Cambridge, Gemma was involved in research that assessed the economic value of literacy and numeracy skills across OECD countries. Previously, Gemma held various positions in the School of Social Sciences, Education and Social Work at Queen's University. Her work included undergraduate and postgraduate teaching, focusing on research methods. At Queen's University, Gemma's research focused on the intersectional nature of educational inequalities and her PhD examined disparities in primary and post-primary pupils' attainment outcomes across urban and rural locations of Northern Ireland. Gemma contributes to the full programme of research at CARPE. She also teaches within the IoE on Quantitative Methods modules at postgraduate level.



**Dr. Éadaoin Slattery**

**Post-Doctoral Researcher in Game-Based Learning and Assessment**

Éadaoin is a cognitive psychologist and works as a post-doctoral researcher at CARPE. Her post-doctoral research focuses on game-based learning and assessment using Minecraft: Education Edition as well as research on educational assessment more broadly. Éadaoin holds a B.Sc. in Psychology and M.Sc. in Psychological Science from the University of Limerick. She is interested in the measurement and enhancement of cognition and behaviour, with a particular emphasis on attention and memory. Her PhD research (also completed at the University of Limerick), which was funded by the Irish Research Council, focused on the development and evaluation of a school-based attention training programme designed to improve concentration in primary school children. Éadaoin is a member of the Berkeley Initiative for Transparency in the Social Sciences (BITSS) Catalyst network, which aims to advance the practice and teaching of transparent and reproducible research in the social sciences. She has held various teaching positions at the University of Limerick and Mary Immaculate College in psychology and research methods.

## Doctoral Students



**Conor Scully** is the Prometric PhD candidate at CARPE (2019 – 2022). He holds a B.A. in Philosophy, Political Science, Economics and Sociology from Trinity College Dublin and an MSc in Sociology from the University of Amsterdam. His Master's thesis research was on the presentation of heterosexuality in Irish secondary school aged boys. His research interests include emotional intelligence, gender, sexuality, education and their intersection. His thesis focuses on the issue of inter-rater reliability in Objective Structured Clinical Examinations (OSCEs).

**PhD Working Title:** Inter-Rater reliability in Objective Structured Clinical Examinations for Nurses.

**Supervisors:** Dr. Mary Kelly, Dr. Zita Lysaght and Professor Michael O'Leary

**Progress:** Final Year



**Deirdre Dennehy** is a part-time PhD student at CARPE. She holds a Bachelor of Education in Education and Psychology and a Masters of Education from Mary Immaculate College (University of Limerick). Her research interests include the assessment of well-being, standardised testing and the use of digital assessment tools. Deirdre works as a primary school teacher and has taught a range of classes across the primary sector. Deirdre is currently in the fourth year of her doctoral work and her thesis focuses on the assessment of emotional intelligence within a problem-solving and technological environment.

**PhD Working Title:** Embedding the Assessment of Emotional Intelligence within Collaborative Problem Solving Tasks: An Exploratory Study

**Supervisors:** Dr Zita Lysaght and Professor Michael O'Leary.

**Progress:** 4<sup>th</sup> Year



## Former Doctoral Students



**Sylvia Denner** was 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. Sylvia successfully completed her Viva in June 2022.

**PhD:** 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 and Prof. Gerry Shiel

**Completed:** June 2022.



**Paula Lehane** was previously the 2018 Prometric PhD candidate at CARPE. Her research was also funded by the Irish Research Council (2019 – 2021). 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 (UCD) in 2015 and then completed a part-time Master’s in Education 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 and the use of statistics and digital tools in schools. Her research interests include SEN, school-based assessment practices and technology-based assessments. In August 2021, Paula submitted her PhD Thesis and successfully completed her Viva in October 2021. Since submitting her PhD, Paula has been working as an Assistant Professor in Inclusive and Special Education in the Institute of Education, DCU.

**PhD:** The impact of test items incorporating multimedia stimuli on the performance and attentional behaviours of test-takers.

**Supervisors:** Professor Michael O’Leary, Dr. Darina Scully and Professor Mark Brown

**Completed:** October 2021.



**Vasiliki Pitsia** was a PhD candidate working in collaboration with CARPE and the IoE for the period 2017-2020 (Vasiliki successfully defended her thesis in September 2020). Her research was funded by the Irish Research Council under the Government of Ireland Postgraduate Programme. Vasiliki holds a Bachelor of Education (BEd) from the University of Ioannina, Greece and an MSc in Quantitative Methods and Statistical Analysis in Education from Queen's University Belfast, UK. Her broader research interests include research methods, statistical analysis, and educational assessment, with a focus on large-scale international and national studies. Vasiliki has published her research in peer-reviewed academic journals and has presented at various national and international conferences.

**PhD:** Investigating High Achievement in Mathematics and Science in Ireland: An In-Depth Analysis of National and International Assessment Data

**Supervisors:** Prof. Michael O'Leary, Dr. Gerry Shiel and Dr. Zita Lysaght

**Completed:** September 2020.



**Anastasios Karakolidis** was the first Prometric PhD candidate at CARPE (2016 – 2019). 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 delivers lectures on research methodology and advanced statistical techniques (e.g. multilevel modelling) to Master's students in Greece and Ireland. His research interests include research methodology, statistical analysis, measurement, assessment, testing and large-scale international studies. Anastasios successfully defended his doctoral thesis in July 2019, passing with minor revisions.

**PhD:** Animated Videos in Assessment: A Comparison Study of Validity Evidence from and Test-takers' reactions to an Animated and Text-Based Version of a Situational Judgement Test

**Supervisors:** Prof. Michael O'Leary and Dr. Darina Scully

**Completed:** July 2019.

## Adjunct Professors



**Prof. John Gardner, University of Stirling**

John Gardner is a professor of Education at the University of Stirling and is the former Senior Deputy Vice-Chancellor of the university. In 2012 he completed a four-year term as President and Vice-President of the British Educational Research Association. He has been a visiting professor at the University of Oxford, Department of Education (2009/17) and is currently a visiting professor at Queen's University Belfast and Dublin City University. He was elected to fellowship of the UK Academy of Social Sciences in 2007, the British Computer Society in 2004 and the Chartered Institute of Educational Assessors in 2007. Since 2018, he has been Chair of the Welsh Government's Teacher Recruitment and Retention Advisory Board.



**Prof. Gerry Shiel, Educational Research Centre**

Professor 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 practicing teachers internationally. *Understanding and Applying Assessment in Education* (2017) is the first textbook of its kind with Irish authors.

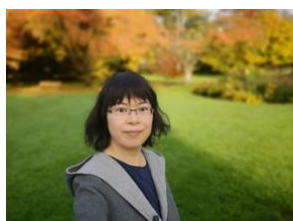
## Research Associates (alphabetical order)

### Current Research Associates



#### **Prof. Deirdre Butler (Assessment of Transversal Skills in STEM; Minecraft in Irish Schools)**

Deirdre works in DCU's Institute of Education and is internationally known as a leading scholar and creative practitioner of methods supporting teachers' professional development and students' learning. She has a particular expertise in developing sustainable, scalable models of teacher professional learning and has managed projects and school-based initiatives which focus on creative uses of digital technologies. She advises ministries of education around the globe on redesigning education systems for the challenges that face the world now and in the future. She has worked across a broad range of stakeholders in education, technology, government, corporate and non-profit sectors. She played a key role in developing the Digital Strategy for Schools (2015) and the 21CLD MOOC, the first Irish-designed MOOC for teacher professional learning. She also established the flagship Lego Education Innovation Studio with DCU's Institute of Education along with a purpose-built Minecraft Studio.



#### **Dr. Michelle Chen (Remote Proctoring)**

Michelle holds a Ph.D. in measurement, evaluation, and research methodology from the University of British Columbia. Her research centres primarily on validation studies, psychometrics, and applied statistical methods as applied in education, psychology, and the social sciences. Dr. Chen is currently the Validation Studies and Test Research Lead in language testing at Paragon Testing Enterprises. Her work supports test development, evaluates score validity, and promotes a better understanding of measurements and assessments.



#### **Dr. Eamon Costello (ATS-STEM)**

Eamon is currently chair of DCU's online BSc. in Information Technology and BSc. in Management of Information Technology and Information Systems. Eamon holds a BA (Hons) in English Literature and History from Trinity College Dublin, a higher Diploma in Computer Science from University College Dublin, an MSc in Software and Information Systems from National University of Ireland Galway and a doctorate in Education from Trinity College Dublin. His doctoral research analysed the implications of massively distributed collaborative

development processes for education and educational technology and focused on the community of the Open Source VLE Moodle.



**Dr. Li-Ann Kuan (Various Projects)**

Li-Ann is an educational psychologist with over 20 years of experience in the testing industry, engaging both in content development and psychometrics. Over the course of her career, Dr. Kuan has managed the development and delivery of large-scale educational and professional assessments both in the United States and in developing countries such as Pakistan, Namibia and Zambia. Dr. Kuan received her Bachelor of Science in Psychology from Brown University, and a Master of Arts and a Doctor of Philosophy in Psychological Studies in Education from the University of California, Los Angeles. Currently, Li-Ann is Vice President of Assessment Services at Prometric where she leads a team of exam content development and psychometric experts responsible for creating reliable measures and valid interpretations of individual ability.



**Prof. Anne Looney (Cross-National Achievement Surveys and Educational Monitoring in Ireland)**

Anne is the Executive Dean of Dublin City University's Institute of Education, Ireland's largest faculty of education. From 2001 to 2016, she was the CEO of the National Council for Curriculum and Assessment, the agency responsible for curriculum and assessment for early years, primary and post-primary education in Ireland. She also held the position of Interim CEO at the Higher Education Authority until March 2017. A former teacher, she completed her doctoral studies at the Institute of Education, University College London. In 2014/15 she was a professional research fellow at the Institute for Learning Sciences and Teacher Education, based at Australian Catholic University in Brisbane. Her current research interests include assessment policy and practice, curriculum, teacher identity and professional standards for teachers and teaching. She has also published on religious, moral and civic education, and education policy. She has conducted reviews for the OECD on school quality and assessment systems and is the current President of IPDA - the International Professional Development Association. At CARPE, Professor Looney contributes to a project entitled "Cross-National Achievement Surveys and Educational Monitoring in Ireland".





#### **Dr. Zita Lysaght (Various Projects)**

Zita Lysaght (Bed, Med, MSc, EdD) is a member of the School of Policy and Practice at the Institute of Education, DCU, where she coordinates and teaches classroom assessment and research methodology modules on undergraduate, masters and doctoral programmes. As a Research Associate with the Centre for Assessment Research, Policy and Practice in Education (CARPE) at DCU, she directs a range of research projects, supervises doctoral work and serves on both the Centre's Advisory Board and Advisory Panel.



#### **Dr. Kevin Marshall**

Kevin is a graduate of the Educational Research, Measurement and Evaluation (ERME) programme at Boston College. He is Head of Education at Microsoft Ireland. In this role, Dr. Marshall has led highly practical efforts to improve and share best practices and methodologies in how digital technology can be used to support teaching and learning. He is responsible for Microsoft Ireland's innovative Dream Space Project – a dedicated innovation and education hub at its Dublin campus headquarters designed for visiting primary and Transition Year students. During the COVID-19 pandemic the Dream Space Home Space portal gave students the opportunity to engage in STEM experiences from their homes. In September 2020, under Kevin's leadership, Dream Space TV was born, and its success has led to the creation of a new series of digital technology focused educational programmes broadcast in collaboration with RTÉ jr's Home School Hub.



#### **Dr. Angela Mazzone (Assessment of Workplace Bullying)**

Angela is a Postdoctoral Researcher at the National Anti-Bullying Research and Resource Centre (ABC), DCU. She is involved in a large-scale national study on workplace bullying which is funded by the Health Service Executive (HSE). Angela has also collaborated on several international research projects focused on bullying in early adolescence. She serves as a Managing editor for the International Journal of Bullying Prevention and Chairs the Observatory on Cyberbullying, Cyberhate and Online Harassment, based in the ABC. Her main research interests include workplace bullying, school bullying, bullying towards immigrant youth, peer relations and socio-moral development.



#### **Dr. Darina Scully (Various Projects)**

Darina is an Assistant Professor in Child/Adolescent Learning and Development, Wellbeing and SPHE in the School of Human Development, DCU. She holds a B.A. (Mod.) and a PhD in psychology from Trinity College, Dublin. Darina has extensive research experience in education and the social sciences, particularly in quantitative methods and statistical analysis. From 2016 to 2019, she held the post of Prometric Postdoctoral Research in CARPE, where her work focused on various issues in assessment and test development in educational and workplace settings. Prior to this, she worked as a Research Assistant in the Educational Research Centre, where she was involved in several high profile national and international research projects, including TIMMS and the evaluation of the School Support Programme under DEID (Delivering Equality of Opportunity in Schools).



#### **Dr. Linda Waters (Various Projects)**

Linda began her career in testing at the Educational Testing Service in Princeton, New Jersey, working as part of the team to transition the first large-scale United States-based licensure examination program from paper-and-pencil testing to computer-based testing. Dr. Waters joined Prometric in 2004 and is now Vice President. She has previously held faculty positions at the University of South Carolina and the University of Delaware. Linda is also a registered nurse and graduate of the University of Delaware with a PhD in Educational Measurement and Statistics. She is also Prometric's representative on the CARPE advisory panel.

### **Former Research Associates**



#### **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 from Boston College, with a doctoral degree in Educational Research, Measurement and Evaluation. She specialises 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 and professional development. Lisa continues to collaborate with the Centre and returned in autumn of 2018 to co-deliver the Annual CARPE Lecture.



**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 PhD 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. Sarahjane conducts research in the field of childhood physical activity and health and much of her work centres on developing and evaluating physical literacy intervention programmes.



**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). Mark is a member of the Executive Committee of European Distance and e-learning Network (EDEN) and previously chaired (2014 – 2018) the Innovation in Teaching and Learning Steering Committee for the European Consortium of Innovative Universities (ECIU). 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. Mark was previously (2016 – 2018) a representative of the Irish Universities Association on the Board of the National Forum for the Enhancement of Teaching and Learning in Higher Education.



**Dr. Gulsah Gurkan (Assessment of Well-Being)**

Gulsah has a PhD from the Department of Measurement, Evaluation, Statistics and Assessment (MESA) at the Lynch School of Education, Boston College. She also holds a B.S. and an M.S. degree in Teaching Physics from Bogazici University, Istanbul. Prior to beginning her doctoral studies, Gulsah worked as a measurement and evaluation specialist at the educational Volunteers Foundation of Turkey 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 interest mainly focus on psychometrics, item response theory, large-scale data analysis, quasi-experimental research and educational policy.



**Dr. Anastasios Karakolidis (Various Projects)**

Anastasios was the first Prometric PhD candidate at CARPE (2016-2019). He is currently a Research Assistant at the Educational Research Centre and works mainly on the National Assessments. 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 delivers lectures on research methodology and advanced statistical techniques (e.g., multilevel modelling) to Masters students in Greece and Ireland. His research interests include research methodology, statistical analysis, measurement, assessment, testing and large-scale studies.



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

Francesca is an undergraduate and postgraduate lecturer at DCU. Her teaching is primarily in the areas of Intercultural Education, Ethics and Values in 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 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. Kay Maunsell (Assessment of Well-Being)**

Kay is an Associate Professor of Psychology and Human Development in the School of Human Development, DCU Institute of Education. Kay lectures primarily in the area of developmental and educational psychology and is the Subject Co-ordinator of Developmental and Educational Psychology on the BSc programme offered through the School of Psychology at DCU. Kay also supervises students' research from undergraduate through to doctoral levels. She maintains an active research profile in the fields of developmental psychology, education, social justice, and human rights. 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.



**Dr. John McKenna (ACT@DCU Project)**

John has been a Lecturer in the School of Computing at DCU since September 2000. He graduated with a 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 a PhD 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. Prior to lecturing, he worked as a design engineer in electronics and telecommunications in the London area and as a communications consultant in Seoul, Korea.



**Dr. Sebastian Moncaleano (Assessment of Workplace Bullying)**

Sebastian is a Senior Research Specialist in Digital Assessment Development at the TIMSS and PIRLS International Study Centre, Lynch School of Education, Boston College. He previously completed a PhD in Measurement, Evaluation, Statistics and Assessment at Boston College. He majored in mathematics with a minor in education at Universidad de los Andes, Colombia. Following this, he worked for two years as a maths teacher at an international high school in Bogota. Sebastian's current research is relevant to innovative item development including new item formats and interactive elements to enhance digital assessments.



**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 categorised 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 a social psychologist. Mark co-delivered the annual CARPE lecture in October 2018.



**Prof. Damian Murchan (Assessment in the Primary School)**

Damian is an Associate Professor and teaches at the School of Education in Trinity College Dublin, the University of Dublin and is a Fellow of the Association for Educational Assessment – Europe (AEA-E). Damian collaborated with CARPE staff on the discussion paper for the NCCA on assessment in the re-developed primary school curriculum. He also acted as a reviewed for the CARPE/INTO Standardised Testing Project. Damian was previously Head of the School of Education in Trinity College Dublin where he led a school with extensive national and international engagement with teaching, research and policy. A former teacher and school principal, Damian’s research interests include educational reform, assessment methods, e-learning and assessment, incorporation of key skills into the curriculum, and teacher professional development. He co-chairs a consortium established by Trinity and the Educational Research Centre Drumcondra and will host the Annual Meeting of the Association for Educational Assessment – Europe in Dublin in November 2022.



**Dr. Deirbhile Nic Craith (Standardised Testing Project)**

Deirbhile is Director of Education and Research, and Assistant General Secretary with the Irish National Teachers’ Organisation (INTO). 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 and Gaelscolaíochta, and the Standing Committee of Heads of Education and Teacher Unions. She is also editor of the Irish Teachers’ Journal. Deirbhile holds both a Masters and a PhD in Education from University College Dublin.



**Prof. James O’Higgins Norman (Assessment of Bullying in the Workplace)**

James holds the UNESCO Chair on Tackling Bullying in Schools and Cyberspace and is Director of the National Anti-Bullying Centre, DCU. 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. His other research interests include gender and cyberbullying, and diversity and bullying in schools. He has also taught professional ethics at University College Dublin and was previously a post-primary school teacher.



**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 and Languages and an MBS in Strategic International Marketing, both from DCU. Her teaching interests lie in digital marketing, and she is currently pursuing her PhD in Technology Enhanced Learning at Lancaster University.



**Dr. Katherine Reynolds (Assessment of Critical Thinking at DCU; Shortened Assessments: MoC and Micro-Credentiailling)**

Katherine received her doctorate from the Department of Measurement, Evaluation, Statistics and Assessment at the Lynch School of Education, Boston College. While at Boston College, she worked as a graduate assistant at the TIMSS and PIRLS International Study Centre. Prior to graduate studies, she taught 7<sup>th</sup> and 8<sup>th</sup> grade science in Charlotte, North Carolina. She holds a B.A. in History and an M.S. in Educational Policy Studies and Evaluation, both from the University of Kentucky. Katherine's current role is Assistant Research Director at the TIMSS and PIRLS International Study Centre, Boston College. Katherine manages the development of the TIMSS and PIRLS context questionnaires. Katherine's research interests include scale development and university student-faculty interaction.



**Prof. Steven Stemler (SJTs)**

Steven is a Professor of Psychology at the Psychology Department, Wesleyan University, Connecticut. He is a graduate of the Educational Research, Measurement and Evaluation (ERME) programme at Boston College. He has spent nearly two decades systematically studying the purposes of school (elementary through to post-primary) and how those purposes get measured via testing. Steven 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. Steven has also published more than 50 peer-reviewed articles, books and chapters.



### **Olivia Szendey (Assessment of Transversal skills in STEM)**

Olivia is a doctoral student studying Measurement, Evaluation, Statistics and Assessment at the Lynch School of Education and Human Development at Boston College. She holds a B.S. in psychology from the James Madison University. Her research interests include campus climate, quantitative critical methodologies for secondary data analysis in higher education and measurement of complex constructs. As Boston College Olivia works as a graduate assistant at the office of Institutional Research, Planning and Assessment. She is also a research assistant for Dr. Larry Ludlow and is working with him and others to develop a scale measuring “leading a life of meaning and purpose”.

## International Research Advisors



**Dr. Marguerite Clarke**

Marguerite is a Senior Education Specialist in the Human Development Network of the World Bank. She holds a PhD 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. Marguerite is currently based in India, where her work has focused on the impact of citizen-led assessments in India and elsewhere.



**Prof. Therese Hopfenbeck**

Therese is a professor of Educational Assessment at the University of Oxford and Director of the University Centre for Educational Assessment. Originally a secondary school teacher with many years of experience, Therese has worked as a school district supervisor and as a consultant on national examinations for the Norwegian Directorate for Education. Therese is elected Vice-President of the Association for Educational Assessment – Europe (AEA-E) and Lead Editor of the journal *Assessment in Education, Principle, Policy and Practice*. Therese has been published widely in her native Norway, in the UK and across the English speaking world.



**Prof. Larry Ludlow**

Larry chairs the Department of Measurement, Evaluation, Statistics and Assessment (MESA) at the Lynch School of Education, Boston College. His expertise and research interests include Rasch model applications, psychometrics, applied statistics, student ratings of instruction and teacher attrition models. During his career, Larry has rigorously and internationally advanced how learning is assessed and how we improve teaching. Larry received the Association for Assessment and Research in Counselling/Measurement and Evaluation in Counselling and Development Patricia B. Elmore Award for outstanding research in Measurement and Evaluation. Larry is also a Fellow with the American Educational Research Association.





**Prof. Laura O'Dwyer**

Laura is a professor at the Department of Educational Research, Measurement, and Evaluation in the Lynch School of Education at Boston College. She teaches courses in applied data analysis, quantitative research methods, survey construction and experimental design. Laura'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 randomised experimental designs to examine educational interventions.



**Dr. Matthias von Davier**

Matthias is a Distinguished Research Scientist at the National Board of Medical Examiners (NBME), in Philadelphia. Previously, he was Senior Research Director in the Research and Development Division at the Educational Testing Service (ETS), and co-director of the Centre for Global Assessment at ETS, where he led psychometric research and operational analysis for assessments such as PISA, PIACC, TIMSS and PIRLS. He earned his PhD in Psychology from the University of Kiel, Germany, in 1996, specialising in psychometrics. His areas of expertise include item response theory, latent class analysis, diagnostic classification models (distribution models, computational statistics, person-fit, item-fit etc.) and the analytical methodologies used in large-scale educational surveys. Matthias is currently on the prestigious AERA 2021 Fellows list. His current work is concerned with extending, implementing and applying multidimensional IRT, IRTree, and latent response models, as well as speed/accuracy models to process data research using log-file and timing data from large scale tests e.g., PISA, PIAAC.

## Linked Centres

CARPE and the National Anti-Bullying Research and Resource Centre (ABC) at DCU are linked through the Assessment of Bullying in the Workplace Project. See: <https://antibullyingcentre.ie>



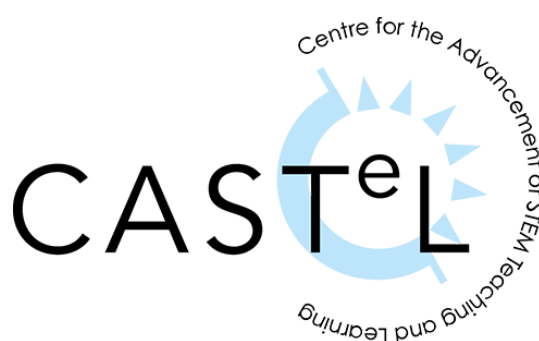
CARPE is linked to the National Institute for Digital Learning (NIDL) through its research on learning portfolios and the assessment of transversal skills in STEM funded by an Erasmus+ grant. NIDL Director, Professor Mark Brown was co-author with Darina Scully and Michael O’Leary on the Review on the Use of Learning Portfolios in Higher Education, published in February 2018. See: <https://www.dcu.ie/nidl>



The current Director of the Oxford University Centre for Educational Assessment (OUCEA), Professor Therese Hopfenbeck, plays an important advisory role in CARPE. Prof. Hopfenbeck was also the external examiner for Anastasios Karakolidis’ doctoral thesis. See: <http://oucea.education.ox.ac.uk>



CASTeL is Ireland’s largest research centre in science, technology, Engineering and Mathematics. CASTeL and CARPE are collaborating on the ATS-STEM project funded by Erasmus. See: <https://castel.ie/>





## Research

In 2021, CARPE completed a number of high profile projects (as outlined in last year's report [here](#)). CARPE continues to pursue an extensive research programme and is currently engaged in several research projects addressing many of the challenges posed by existing and new conceptions of assessment. Some of our research projects focus on Irish educational assessment, whilst others address more global issues such as the assessment of “hard to measure” skills, technology-based assessment and issues pertaining to the field of certification and licensure assessment. An overview of all our research projects and the progress made with each in the past eleven months is provided below.

### Ongoing Research

#### **(i) An Evaluation of Minecraft: Education Edition (M.EE) as a tool for Teaching, Learning and Assessment**

*Project Directors: Michael O’Leary, Deirdre Butler, Éadaoin Slattery (IOE) and Kevin Marshall (Microsoft Ireland)*

In recent years, interest in digital game-based learning has burgeoned. Minecraft: Education Edition is a special purpose digital game-based learning platform designed for use in the classroom. The platform is very popular with educators and schools in many countries, including the United States and Sweden, have decided to integrate the platform into their curricula. However, as identified in a recent [white paper](#) from the centre, *Building a New World in Education: Exploring Minecraft for Learning, Teaching and Assessment*, there is a lack of robust evidence behind its use.

Minecraft is a ‘sandbox’ video game first released to the public in 2009, where players control virtual avatar in a Lego-like world made up of blocks that can be moved to construct buildings and used to create items and structures. It is currently the second most popular video game of all time, with more than 100,000,000 copies sold worldwide. Schools in many countries, including the United States and Sweden, have decided to integrate the educational version of the game (Minecraft: Education Edition) into their curricula. Minecraft: Education Edition is a platform that allows students to freely explore, imagine and create in virtual environments and collaborative worlds that have special features specifically designed for classroom use. In DCU, the Institute of Education (IoE) has a dedicated Minecraft Studio (opened in December 2018) that student teachers can use to explore how innovative virtual and physical learning spaces can transform the curriculum and engage young people with new educational environments.



*(L-R) Prof. Anne Looney, Justin Edwards (Director of Minecraft Education Edition) with report authors Prof. Deirdre Butler, Dr. Kevin Marshall (Head of Microsoft Education Ireland) and Dr. Paula Lehane at the White paper launch.*

To address this gap, the overall aim of the current project is to evaluate Minecraft: Education Edition as an educational tool for use in primary school classrooms. This is a collaborative project between CARPE, the IOE and Microsoft Ireland. The project consists of three inter-related work packages.

**Work package 1: Assessing the benefits of digital game-based learning in children, adolescents and young adults: A systematic review of Minecraft**

The aim of this work package was to systematically review the evidence for the use of Minecraft / Minecraft: Education Edition in improving learning outcomes. This review was conducted from November 2021 to June 2022 (8-month period). The review was conducted in line with best practice standards for systematic reviews and represents the first rigorous review of the benefits of Minecraft for learning. The paper from this work package was submitted for publication in June 2022 and the findings will be presented at the European Conference for Educational Research (ECER) in September 2022.

**Work package 2: Understanding teachers' and students' experiences of Minecraft: Education Edition as a tool for teaching, learning and assessment**

This work package aimed to understand teachers' and students' experiences of using Minecraft: Education Edition as an educational tool as part of [Ireland's Future is MINE](#) (a joint initiative between Microsoft DreamSpace and RTÉ Learn). Multiple data sources were collected, which included student questionnaires, student focus groups, teacher questionnaires and teacher interviews. Data was collected from January to March 2022. Two manuscripts from this work package are currently in preparation. The first manuscript focuses

on students' experiences of using the platform, while the second manuscript focuses on teachers' experiences. These manuscripts will be submitted for publication in September 2022. The findings from this work package will be presented at the World Conference on Computers in Education (WCCE) in August 2022.

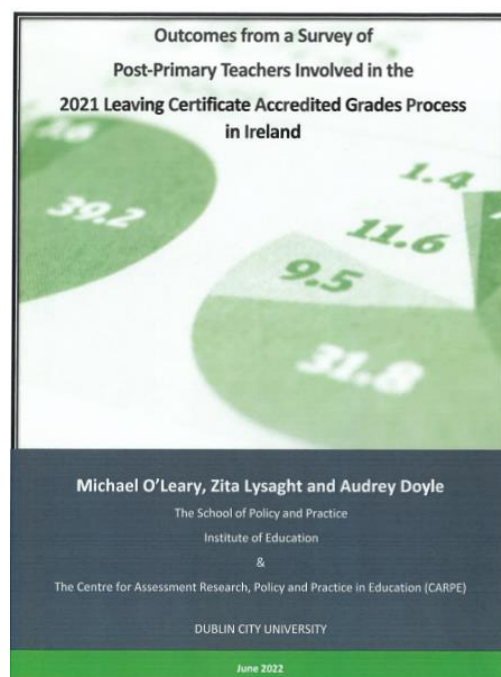
### **Work package 3: Evaluating the impact of Minecraft: Education Edition on students' spatial thinking**

The aim of this work package is to evaluate the impact of Minecraft: Education Edition on students' spatial thinking. This work package builds on the findings of work package 1 & 2. In this study, primary school classes will be randomly assigned to an intervention group or control group. The intervention group will complete activities in Minecraft: Education Edition aligned to the curriculum and designed to improve spatial thinking over a 6-week period. The control group will complete their normal classroom activities. Spatial thinking will be measured over the course of the study to track any intervention-related changes. More information about the study can be found here <https://www.creativespacestudy.com/>. This study represents the first of its kind and will run September 2022 to January 2023. The findings of this research will be submitted for publication in April 2023.

### **(ii) Leaving Certificate Accredited Grades: Teachers' Reflections on the Process.**

*Project Directors: Audrey Doyle, Zita Lysaght and Michael O'Leary*

The use of Accredited Grades (AG), as well as traditional examination grades for the Leaving Certificate (LC) in 2021, was an historical event in Irish post-primary education and, in global terms, a unique response to the cancellation of certificate exams precipitated by Covid-19. During the month of May 2021, post-primary teachers in schools across Ireland worked individually and in collaboration with school colleagues to generate an estimated mark for their students. Data from all schools were then submitted to the State Examinations Commission for national standardisation. The majority of the LC2021 class opted to receive an Accredited Grade in addition to sitting an exam in at least one subject in the secure knowledge that, should grades differ, they would be awarded the higher of the two. Following completion of the key elements of LC2021, a survey was launched to gather data on the experiences of teachers involved. The research sought to answer two questions:



1. How did post-primary teachers engage with the Accredited Grades process in their schools?
2. How did the process impact their perceptions of their role as assessors?

Data from a total of 233 teachers was collected and [a report containing findings from the survey](#) was published in June 2022. The results of this survey provide valuable insights into the Accredited Grades process. A paper detailing further findings from this survey is currently under peer-review. Data from this survey as well as those contained in the report of the [LC2020 Calculated Grades process](#), were provided by over 850 teachers who have been through a series of exceptional assessment experiences over the past two years. In the main, findings across both studies are consistent. With Senior Cycle reform firmly on the educational agenda, the opinions, insights, feelings and beliefs communicated in both reports deserve very careful consideration.

### **(iii) Remote Proctoring**

*Project Directors: Gemma Cherry, Michael O’Leary, Michelle Chen (Prometric), Li-Ann Kuan (Prometric) and Linda Waters (Prometric).*

Remote proctoring refers to the process of using technology in lieu of face-to-face proctoring when examinations are administered online. In 2017, a research brief was submitted to Prometric which outlined the benefits and main concerns associated with remote proctoring. In 2020, researchers at CARPE updated this research through two memos. Both memos highlighted that empirical research in this area was limited, especially in relation to certification and licensure assessments. Considering the COVID-19 pandemic, the necessity of remote proctoring significantly increased when many bricks-and-mortar testing centres closed due to health concerns. This meant that tests changed from standardised to non-standardised administration because tests were being taken at home using personal desktop or laptop devices. The concern with this is whether outcomes from tests taken in testing centres and via live remote proctoring differ? It seems likely that the demand for remote proctoring options will continue to increase over the next decade and as such, it is critical that we increase our understanding of this practice through research.

As a response to the limited empirical research in this area, various studies have been conducted by CARPE and Prometric personnel to investigate the equivalence of candidate outcomes and test psychometric properties across tests taken in test centres and via live remote proctoring modes. A paper presenting results from more than 14,000 test takers was published in *Computers and Education Open* in December 2021. At the time of writing, a further paper that utilised data from health/medicine examinations is currently under review with the *International Journal of Testing*.

This is an ongoing research project that is currently investigating candidate performance and the psychometric equivalence of language assessments taken in test centres and via live remote proctoring. This third paper will be submitted for peer-review in the autumn of 2022.

#### **(iv) High Stakes Assessment in the Era of COVID-19: Interruption, Transformation or Regression?**

*Project Directors:* Louise Hayward (University of Glasgow) and Michael O’Leary

A special issue of *Assessment in Education: Principles, Policy and Practice* is being edited by Louise Hayward and Michael O’Leary. This special issue contributes to the debate regarding what has been learnt from the experience of COVID-19 and how that learning may inform the future of high-stakes assessment both for individual nations and internationally. Empirical and conceptual papers were considered that address relevant topics, such as the impact of COVID-19 on future assessment thinking. This special issue will be published in Autumn 2022.



#### **(v) A Conceptual Framework for Exploring Change in Teacher Assessment Agency**

*Project Directors:* Louise Hayward (University of Glasgow), Jana Groß Ophoff (University of Tuebingen), Sotiria Kanavidou (University of Southampton), Michael O’Leary (CARPE) and Dennis Opposs (Ofqual).

This research project focuses on how teachers’ agency in assessment played out in the high-stakes context of terminal examinations at the end of secondary education in England, Germany, Greece, Scotland, and Ireland. This research involves an analysis of key policy documents. This work is being conducted under the auspices of the International Congress for School Effectiveness and Improvement (ICSEI). Authors from all five countries are currently preparing a paper for publication in 2022.

#### **(vi) High Stakes Examinations in the Era of Covid-19**

*Project Directors:* Vasiliki Pitsia, Michael O’Leary (CARPE), Marguerite Clarke, Diego Armando, Luna Bazaldua, Julia Liberman and Victoria Levin (World Bank).

As the COVID-19 pandemic forced the closure of more than 90 percent of schools across the world, ministries of education had to rethink how to make high-stakes decisions. These are decisions that would shape their students’ futures. This research, which is a joint venture between CARPE and the World Bank, sets out to capture the diversity of responses across countries when COVID-19 placed plans to hold high-stakes examinations in jeopardy. The

responses of different countries from different parts of the world and with different economic profiles included: (i) shifting to online administration of high-stakes examinations, (ii) postponing the examinations to a later date, (iii) continuing the examinations as planned, with various social distancing/safety measures, or (iv) cancelling the examinations altogether

and drawing on alternative sources of information to make decisions about students. This research describes the different approaches adopted by countries, reviews the evidence on what worked well and what did not, and highlights important lessons that were learnt from these approaches. A report on the work is due to be published in 2022.

#### **(vii) Research on Leaving Certificate Assessment over the Decades**

*Project Directors: Michael O’Leary and Gillian O’Connor*

This project is focused on developing a structured/searchable database of all academic papers and research reports that refer to the Leaving Certificate assessment, published in the 30 years between 1994 and the 100<sup>th</sup> anniversary of the LC in 2024. Each entry contains the full citation, an abstract, type of publication, key themes explored and details pertaining to the research methodology, sample size and key informants for empirical studies. The database currently has more than 100 entries, all of which are hyperlinked to a digital copy of the paper/report. The completed database will be publically available on the CARPE website in due course.

#### **(viii) Assessment of Bullying in the Workplace**

*Project Directors: Zita Lysaght, Angela Mazzone (Anti Bullying Centre), Michael O’Leary, Conor Scully (CARPE).*

One of the most important tools in combating bullying behaviours in schools and workplaces is to ensure that people have a good knowledge and understanding of what bullying behaviour looks like so that they can implement appropriate procedures. For the purposes of this research study, workplace bullying is conceptualised as behaviours that involve an imbalance of power, that are repeated over time, that are intentional and that make the target feel threatened, humiliated stressed or unsafe at work. This project is focused on creating a measurable instrument that can be used to assess people’s ability to identify bullying in the workplace. To date, bullying assessment measures have generally focused on bullying in schools and interactions between peers.

In 2020, the CARPE team, in collaboration with subject matter experts from the IoE’s Anti Bullying Centre (ABC), developed several scenarios that can be used to measure people’s awareness of bullying behaviours in workplace settings. These scenarios were field tested with 1000 workplace participants in the Spring of 2021 and data from the study are currently being analysed. In 2022, chapter outlining the research methodology used was published in SAGE Research Methods: Doing Research Online.

This research is a collaborative venture involving CARPE and the Anti Bullying Centre (ABC) at DCU. When developed, the workplace bullying instrument will be made freely available to organisations interested in planning programmes of professional development for staff.

#### **(ix) Student Experience of Feedback**

*Project Directors: Michael O’Leary, Zita Lysaght and Sean McGrath (Glanmire College)*

This study is being conducted jointly by CARPE and Glanmire Community College, Cork and is designed to gather data on how second year students in school experience feedback from their teachers. Using an online questionnaire, the study aims to gather data from students on variables such as how often they receive feedback and what types of feedback they find most useful.

#### **(x) Assessment for Teaching and Learning (ATL)**

*Project Directors: Zita Lysaght*

The Assessment for Learning and Teaching (ATL) 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, 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, at scale, to learn about AfL and integrate it into their day-to-day practice.

Since the initiation of the ATL project, significant process has been made in all three areas: The Assessment for Learning Audit instrument (AfLAI) 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. The research focused Assessment for Learning Measurement instrument (AfLMI), first developed in 2013, is being updated with data from almost 600 Irish primary teachers. Programmes of professional development continue to be implemented in pre-service undergraduate teacher education, in postgraduate teacher education and as part of site based in-service teacher education. In December 2021 a research output article describing the instrument and research behind it was published.



**(xi) Inter-Rater reliability in Objective Structured Clinical Examinations for Nurses (PhD Thesis)**

*PhD Candidate: Conor Scully*

*Supervisors: Mary Kelly (School of Nursing), Zita Lysaght and Michael O'Leary*

Objective Structured Clinical Examinations (OSCEs) are an assessment format common in medicine and nursing. In an OSCE, a student moves through a series of stations at which they must complete a specific task e.g., recording patient history. They are judged on their performance at each station by a trained examiner, using a scoring rubric specific to that station. Compared to previous examination methods in medicine and nursing, the OCSE is generally considered to produce reliable scores, but score reliability is often at a less than acceptable level.

Assessor cognition is a field of research that seeks to understand how exactly assessors in examinations make decisions about student performances. It is increasingly accepted that because assessors are all unique, they are likely to judge students in idiosyncratic ways. This study employs a mixed-methods approach to understand how nursing OSCE assessors make decisions about students, and whether the cognitive processes through which assessors go have an impact on score reliability. Additionally, it investigates the extent to which score reliability can be improved if there is increased alignment between the scoring rubrics and assessors' cognitive processes. In June 2021, Conor completed his viva to transfer from the PhD track to the PhD register began the third year of his doctoral work. He will submit his PhD Thesis in September 2022 and his Viva will take place in the Winter.

**(xii) Embedding the Assessment of Emotional Intelligence within Collaborative Problem-Solving Tasks: An Exploratory Study (PhD Thesis)**

*PhD Candidate: Deirdre Dennehy*

*Supervisors: Michael O'Leary and Zita Lysaght*

Emotional Intelligence (EI) assessment is significant against the background of global interest in transversal skills assessment which were previously termed 21<sup>st</sup> century skills. The term transversal skills refer to key abilities and aptitudes which are transferable across all areas of modern life and are pertinent to overall successful functioning in a digitalised society (May et al., 2015; Munro, 2017). Historically, the type of knowledge that was esteemed by humanity was content and knowledge based. However, the development of the globalized market and advances in technology have altered the skills that are required for many careers. Today, many jobs require individuals to collaborate, communicate and use their interpersonal skills to a high level. An individual who is skilled in perceiving, managing, and using their emotions will flourish in these types of problem-solving environments. As a result, the domain of EI education and assessment has attracted substantial interest from economic organisations and educational settings alike.



However, there are significant limitations facing current EI measures. The majority are text-based and assess EI in isolation. This may not adequately reflect how an individual exhibits their EI skills in real-life as these are frequently demonstrated in tandem with other important cognitive skills like problem-solving. There is a need therefore for the development of authentic high-fidelity EI assessments which capture the dynamics of true human interaction. The current study will attempt to embed an EI assessment within an existing problem-solving assessment. Technology will assist in creating an evaluation which is both time and user friendly. This PhD project aims to contribute to this field of research by serving as an exploratory blueprint for the future development of authentic EI assessments.

### **(xiii) Measuring Non-Cognitive Factors in Educational Achievement**

*Project Directors: Lisa Abrams (Virginia Commonwealth University), Mark Morgan (DCU) and Michael O’Leary (CARPE).*

Cognitive skills involve conscious intellectual effort, such as thinking, reasoning, or remembering. In contrast, non-cognitive skills are related to other important interpersonal or ‘soft skills’ like motivation, integrity, persistence, resilience, and interpersonal interaction. These non-cognitive factors are associated with an individual’s personality, temperament, and attitudes. Research at the international, national and school level is increasingly looking at the value of non-cognitive skills and at how education systems impact their development. As demand for these skills will continue to change as economies and labour market needs evolve, with trends such as automation causing fundamental shifts, this is an issue that should be addressed by researchers and those in industry.

### **(xiv) Teachers Assessment Literacy – Scale Development**

*Project Directors: Zita Lysaght, Darina Scully, Anastasios Karakolidis, Vasiliki Pitsia, Paula Lehane and Michael O’Leary.*

Assessment literacy (Stiggins, 1991) has long been viewed as an important characteristic of effective teachers. Assessment literacy can be defined as “an individual’s understandings of the fundamental assessment concepts and procedures deemed likely to influence educational decisions” (Popham, 2011, p.267). Correct use of different assessment types and forms, accurate administration and scoring of tests, appropriate interpretation of student performance etc, all form part of a teacher’s assessment literacy. At present, very few objective measures of teacher assessment literacy exist. CARPE is currently attempting to rectify that with the current research project as the centre is now trying to develop a scale to measure primary teachers’ assessment literacy in Ireland.

#### **(xv) Assessment of Learning about Well-Being**

*Project Directors: Darina Scully (School of Human Development), Nisha Crosbie/Deirdre O'Brien (School of Psychology) and Michael O'Leary.*

Well-being of the child/young person and its significance for developmental and educational outcomes are unequivocal. There is an abundance of instruments in existence that purport to measure various aspects of wellbeing, or an individual's subjective state of wellbeing. However, a heretofore understudied area is how young people's knowledge and understanding of the concept can be assessed. Wellbeing has been identified as a key curricular area in the reformed Junior Cycle programme, and the NCCA's Guidelines for Wellbeing in Junior Cycle (2017) call for the use of a wide variety of approaches in assessing student's learning in this area. Consequently, the development of tools that can aid student and teacher judgement making about student's progress in knowing about and understanding wellbeing may prove useful. With this in mind, this study sought to examine the potential use of scenarios/vignettes to achieve this.

Nisha Crosbie and Deirdre O'Brien, both from the School of Psychology at DCU, completed an internship at CARPE, where they worked closely with Darina and Michael on this project. There are now 25 scenario-based/situational judgement type items that have been developed and critically reviewed. The ultimate aim was that not only will summative judgements regarding students' progress be informed but also that formative assessment activities would be promoted, such as classroom discussions and debates.

#### **Research Completed Since October 2021**

##### **(i) Multimedia Items in Technology-Based Assessments (PhD Thesis)**

*PhD Candidate: Paula Lehane*

*Project Supervisors: Michael O'Leary, Mark Brown and 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 (e.g., drag-and-drop items, simulations) and continue to expand as technology develops. However, the impact of these item types and their interaction with multimedia stimuli on test-taker performance and behaviour in assessment situations has yet to be fully clarified. Failure to address this shortcoming in research could lead to poorly designed digital assessments that could impact on the accuracy of interpretations being made from such tests. Paula's PhD project examined the influence of multimedia items and different item types on test-taker performance in TBAs by investigating the following research questions using performance data (in the form of test scores) and process data (in the form of eye movement data):

- How do test-takers allocate attention in TBAs that include multimedia stimuli and involve different item types (e.g., multiple-choice questions, drag-and-drop items)?
- What is the impact of (i) multimedia stimuli and (ii) item types 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?

In August 2021, Paula submitted her PhD Thesis. Her Viva took place in October 2021.

This research was funded by the Irish Research Council under the prestigious government of Ireland Postgraduate Programme.



## **(ii) The use of cross-national achievement surveys for educational policy reform in the European Union: Ireland**

*Project Directors: Anne Looney, Michael O'Leary, Gerry Shiel and Darina Scully*

This research contributed to a book volume that examined the range and salience of different international achievement surveys for policy design and reform within European countries: Germany, France, Italy, Netherlands, Sweden, Finland, Ireland, Poland, Estonia, and Slovakia. Collectively, the national profiles provide a critical analysis of the use (and misuses) of cross-national achievement surveys for monitoring educational outcomes and policy formation.



## Research Outputs October 2021 –August 2022

### *Peer-Reviewed Journal Articles*

Cherry, G., O’Leary, M., Naumenko, O., Kuan, L. and Waters, L. (2021). Do outcomes from high stakes examinations taken in test centres and via live remote proctoring differ? *Computers and Education Open*, 2, 100061. <https://doi.org/10.1016/j.caeo.2021.100061>

Cherry, G., Scully, C., O’Leary, M. and Waters, L. (2022). A consideration of factors affecting the use of automatic item generation (AIG) in developing items for use in certification and licensure assessments: A review of the literature. *CLEAR Exam Review*, Spring 2022, p.19-25. <https://www.dcu.ie/sites/default/files/inline-files/CLEAR%20Exam%20Review%20AIG%20.pdf>

Lehane, P., Scully, D. and O’Leary, M. (2022). ‘Time to figure out what to do’: Understanding the nature of Irish post-primary students’ interactions with computer-based exams (CBEs) that use multimedia stimuli. *Irish Educational Studies*, 41(1), p.5-25. <https://doi.org/10.1080/03323315.2021.2022517>

Lysaght, Z. and Cherry, G. (2022). Using SPSS and NVivo to conduct mixed-methods analysis collaboratively online: Challenges, opportunities and lessons learned. In *SAGE Research Methods Cases*. <https://methods.sagepub.com/case/spss-nvivo-mixed-methods-analysis-collaboratively-online>

Lysaght, Z., O’Leary, M., Mazzone, A. and Scully, C. (2022). Scale development: Identifying and addressing potential validity threats linked with online piloting using paid-for samples. In *SAGE Research Methods Cases*. <https://methods.sagepub.com/case/scale-development-potential-validity-threats-online-piloting-paid-samples>

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### *Book Chapters*

Looney, A., O'Leary, M., Scully, D. and Shiel, G. (2022). Cross-national achievement surveys and educational monitoring in Ireland. In, *European Commission, Joint Research Centre, Cross-national achievement surveys for monitoring educational outcomes: policies, practices and political reforms with the European Union*, Klinger, D., Volante, L. and Schnepf, S. (Eds.), (pp.153-176). Luxembourg: Publications Office of the European Union.

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### *Peer-Reviewed Conference Papers*

Cherry, G. and Scully, C. (2022, November). *A consideration of factors affecting the use of Automatic Item Generation (AIG) in developing items for use in high-stakes assessments*. Paper accepted for presentation at the Association for Educational Assessment Europe (AEA-E) conference, Dublin, Ireland.

Doyle, A., Lysaght, Z. and O'Leary, M. (2022, September). *Disturbing the teachers' role as assessor: The Case of Calculated and Accredited Grades 2020-2021 in Ireland*. Paper accepted for presentation at the European Conference on Educational Research (ECER).

Lysaght, Z., Doyle, A. and O'Leary, M. (2022, September). *Irish Post-Primary Teachers' Experiences of Assessing their Students for High-Stakes Certification Purposes: Pandemic or Endemic Challenges and Opportunities?* Paper accepted for presentation at the European Conference on Educational Research (ECER).

Slattery, E.J., Lehane, P., Butler, D., O'Leary, M. and Marshall, K. (September 2022). *Educational implications of Minecraft: A systematic review of academic, cognitive, motivational, and psychosocial outcomes*. Paper accepted for presentation at the European Conference on Educational Research (ECER).

Butler, D., Slattery, E., O'Leary, M. and Marshall, K. (August 2022). *Building a sustainable world: Developing transformative competences and higher order skills using Minecraft Education Edition*. Paper accepted for presentation at the World Conference on Computers in Education (WCCE).

Denner, S., O'Leary, M. and Shiel, G. (2022, November). *The impact on the performance of 15-year-olds in Ireland on the PISA reading, mathematics, and science tests when testing occurs at two different periods in the same year (spring vs autumn)*. Paper accepted for presentation at the Association for Educational Assessment Europe (AEA-E) conference, Dublin, Ireland.

Scully, C. and Cherry, G. (2022, October). *Theoretical and practical considerations when adapting performance assessments for remote administration*. Paper accepted for presentation at the European Association of Test Publishers (E-ATP) conference, London, United Kingdom.

Chen, M., Cherry, G. and Kuan, L. (October 2022). *Examining the suitability of live remote proctoring for language proficiency assessments from a psychometric standpoint*. Paper accepted presentation at the European Association of Test Publishers (E-ATP) conference, London, United Kingdom.

Cherry, G. and O'Leary, M. (September 2022). *Live Remote Proctoring and Test Centre Proctoring: The same but different?* Paper accepted for presentation at the European Conference on Educational Research (ECER) online conference.

Scully, C. and Cherry, G. (2022, April). *Practical and Theoretical Concerns when Administering Remote Performance Assessments*. Paper presented at the Irish Educational Studies Association of Ireland (ESAI) conference, Dublin, Ireland.

O'Leary, M., Lysaght, Z. and Doyle, A. (2022, April). *Irish Post-Primary Teachers Feelings and Beliefs about Assessment following the 2021 Accredited Grades Process*. Paper presented at the Irish Educational Studies Association of Ireland (ESAI) conference, Dublin, Ireland.

Lehane, P., O'Leary, M. and Scully, D. (2022, April). *Exploring Irish post-primary students' interactions with computer-based exams*. Paper presented at the Irish Educational Studies Association of Ireland (ESAI) conference, Dublin, Ireland.

Kuan, L., Chen, M., Cherry, G., O'Leary, M. and Zumbo, B. (2022, March). *Comparability of High-Stakes Exams in Test Centre Proctored and Live Remote Proctoring: A Multimethod Psychometric Investigation across Multiple Testing Programmes*. Paper presented at the Association of Test Publishers (ATP) conference, Orlando, United States.

Cherry, G. (2022, April). *Inequalities in Educational Attainment across Rural and Urban Locations of Northern Ireland*. Paper presented at a Roundtable discussion at the American Educational Research Association (AERA) conference, San Diego, United States.

Cherry, G., O’Leary, M., Kuan, L. and Waters, L. (2022, April). *Comparing Outcomes from Examinations Proctored in Test Centres and Online using Live Remote Proctoring Technology*. Paper presented at the American Educational Research Association (AERA) conference, San Diego, United States.

Lehane, P., O’Leary, M. and Scully, D. (2022, April). *Understanding Simulation-Type Items using Eye Movement and Log-File Data*. Paper presented at the American Educational Research Association (AERA) online conference.

Lehane, P. (2022, April). *Items in Technology-Based Assessments: Examining the use of Multimedia Stimuli with Post-Primary Test takers*. Paper presented at a Roundtable Discussion at the American Educational Research Association (AERA) online conference.

Costello, E., Brown, M., Butler, D., Girme, P., Kaya, S., Kirwan, C. McLoughlin, E. and O’Leary, M. (2022, April). *Assessment of Transversal Skills in STEM: From theory to practice in a large-scale research project*. Paper presented at the annual Society for Information Technology and Teacher Education (SITE) conference, San Diego, United States.

O’Leary, M. (2021, November). *Assessment and Student Wellbeing: Perspectives from a High-Stakes Assessment Context in Ireland*. Keynote address at the 11<sup>th</sup> Lifelong Learning Week, Lifelong Learning Platform.

Scully, D., Crosbie, N., O’Brien, N. and O’Leary, M. (2021, November). *“What do you think Jessica should do?”: An innovative tool to support the formative assessment of Junior Cycle students’ knowledge and understanding of wellbeing*. Paper presented at the SPHE Network’s 5<sup>th</sup> conference, Institute of Education, DCU.

## Reports

Lehane, P., Butler, D. and Marshall, K. (2021). *Building a New World in Education: Exploring Minecraft for Learning, Teaching and Assessment* [White paper]. Dublin City University.  
[https://www.dcu.ie/sites/default/files/inline-files/m90135-minecraft-191121\\_web\\_singles.pdf](https://www.dcu.ie/sites/default/files/inline-files/m90135-minecraft-191121_web_singles.pdf)

O’Leary, M., Lysaght, Z. and Doyle, A. (2022). *Outcomes from a survey of post-primary teachers involved in the 2021 leaving certificate accredited grades process in Ireland*. Dublin:

Centre for Assessment Research, Policy and Practice in Education (CARPE), Dublin City University.

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### *Industry Reports*

Cherry, G. and Scully, C. (2022). *A consideration of the use and intended outcomes of incorporating gamification in assessment and learning environments*. Dublin: Centre for Assessment Research, Policy and Practice in Education (CARPE), Dublin City University.

Scully, C. and Cherry, G. (2022). *A White Paper on theoretical and practical considerations for the administration of remote Objective Structured Clinical Examinations (OSCEs)*. Dublin: Centre for Assessment Research, Policy and Practice in Education (CARPE), Dublin City University.

Cherry, G. and Scully, C. (2022). *A Brief on Security Protocols for Live Remote Proctoring*. Dublin: Centre for Assessment Research, Policy and Practice in Education (CARPE), Dublin City University.

Cherry, G. and Scully, C. (2022). *A consideration of factors affecting the use of automatic item generation (AIG) in developing items for use in certification and licensure assessments*. Dublin: Centre for Assessment Research, Policy and Practice in Education (CARPE), Dublin City University.

O'Leary, M., Cherry, G. and Scully, C. (2022). *Theoretical and Practical Considerations for the Development and Validation of a Hazard Test for Use in Driver Licensing in Ireland*. Dublin: Centre for Assessment Research, Policy and Practice in Education (CARPE), Dublin City University.

### *Other Outputs by Members of CARPE*

Slattery, E. (2022). *Can children's concentration be improved using cognitive training?* CARPE Blog Post: <https://www.dcu.ie/carpe/carpe-blog-posts>

Cherry, G. and Scully, C. (2022). *ATP/AERA Blog Post*. CARPE Blog Post: <https://www.dcu.ie/carpe/carpe-blog-posts>



O’Leary, M. (2021). Towards a balanced, high quality assessment system for the certification of achievement at Senior Cycle. Submission to the Joint Committee on Education, Further and Higher Education, Research, Innovation and Science (JCES). Dublin: CARPE/DCU.

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Lysaght, Z., O’Leary, M. and Ludlow, L. (2021). An instrument for measuring Assessment for Learning (AfL) in the classroom. *Research Outreach*.

<https://researchoutreach.org/articles/instrument-measuring-assessment-learning-afl-classroom/>

Slattery, E.J. Tooled Up Education, Researcher of the Month, Improving Attention in Children and Adolescents (expected August 2022) <https://www.tooledupeducation.com/>

Slattery, E J. and Butler, D. Is Minecraft the Future of Education? RTÉ Brainstorm

O’Leary, M. Let’s Talk Research: A Research podcast series for the Institute of Education at DCU <https://www.dcu.ie/instituteofeducation/lets-talk-research>

### *Papers in press or currently under review*

Members of CARPE currently have several papers under peer review and in press. These papers include:

Ahern, E., White, J. and Slattery, E. J. Stability and course of cognitive deficits in major depressive disorder: A systematic review and meta-analysis.

Chen, M., Cherry, G., O’Leary, M., Kuan, L. and Waters, L. (under review). Comparing the psychometric outcomes of high-stakes examinations administered in test centres and via live remote proctoring. *International Journal of Testing*.

Lysaght, Z. and O’Leary, M. Post-primary teachers’ feelings and beliefs about high-stakes assessment in Ireland.

Slattery, E., Lehane, P., O’Leary, M., Butler, D. and Marshall, K. (in preparation). Assessing the benefits of digital game-based learning in children, adolescents and young adults: A systematic review of Minecraft.

Slattery, E. J., Butler, D., Marshall, K., O’Leary, M., Barrett, M. and Hyland, N. A Mixed Methods, Cluster-Randomised Preliminary Trial of Minecraft: Education Edition for Improving Students’ Spatial Thinking.

Slattery, E.J., Butler D., O’Leary, M., and Marshall, K. Teachers experiences of using Minecraft: Education Edition as an educational tool: An Irish perspective.

Slattery, E.J., Butler D., O’Leary, M. and Marshall, K. Digital gamed-based learning with Minecraft: Education Edition: Understanding students’ learning experiences.

Slattery, E. J., Ryan, P., Fortune, D. G. and McAvinue, L. P. Evaluation of a school-based attention training programme for improving sustained attention: A cluster-randomised pilot study.

## CARPE Events

### Kildare Education Support Centre Assessment Series

In September 2021, Michael O’Leary and Zita Lysaght began a webinar series focused on classroom assessment for the Kildare Education Support Centre. This series provides professional development on classroom assessment and is designed to explore the key principals and strategies that underpin good assessment practice. Michael and Zita delivered four webinars:

1. Principles underpinning good assessment practice
2. Standardised testing: Key concepts informing appropriate use in schools
3. Embedding formative assessment / Assessment for Learning (AfL) in the classroom
4. Revisiting assessment issues arising from webinars 1-3.

Following these four webinars, Michael and Zita delivered online workshops focusing on each of the four AfL strategies that were introduced and discussed in webinar 3.



### OECD review of the Calculated Grades and Accredited Grades processes in respect of the Leaving Certificate in 2020 and 2021

During 2022, the OECD’s Directorate for Education and Skills undertook a review of the calculated grades and accredited grades processes used in respect of the leaving certificate in 2020 and 2021. This review is being used to inform a report by the OECD which will be

submitted to the Minister of Education. This report was published in the Summer of 2022. The review is intended to reflect on the design and implementation of the alternative assessment arrangements which applied to the Leaving Certificate during the COVID-19 pandemic.

As part of this review Michael O’Leary was invited to participate in a group interview with other sectoral experts in Education, Assessment and Teacher Education. This interview took place in February 2022 with the OECD asking Michael for his valuable input given his role on the Independent Steering Committee for the Calculated Grades process in 2020 and his continued interest and expertise in assessment at Senior Cycle.

## Graduation 2022

Due to Covid-19, CARPE researcher and former IRC scholar, Vasiliki Pitsia was unable to graduate following the successful completion of her PhD in 2020. However, that was rectified at a DCU graduation ceremony in June 2022. She was joined at the event by her mother and brother who travelled from Greece. Vasiliki also celebrated her wedding on July 9<sup>th</sup> to former Prometric PhD scholar, Anastasios Karakolidis in her hometown of Katerini, Greece.



*Dr. Pitsia on her graduation day.*



*Vasiliki and Anastasios on their wedding day.*

On March 25<sup>th</sup> 2022, CARPE PhD Scholar Paula was conferred as Dr. Paula Lehane. It was a wonderful day for both CARPE and Paula's family.



*Dr. Lehane with her family and supervisors on her graduation day.*

### Kathleen Tattersall New Assessment Researcher Award

In May 2022, Paula Lehane was awarded the 2022 Kathleen Tattersall New Assessment Researcher Award by the Association of Educational Assessment-Europe (AEA-E). This award gives recognition to members who are new to the field of educational assessment and who have made a considerable contribution to the field through their research. Paula will receive her award at the conference in Dublin in November 2022, where she will also give a keynote talk with the title "Understanding Technology-Based Assessments that use Multimedia Stimuli". Everyone at CARPE is delighted for Paula and are looking forward to attending her Keynote presentation at the AEA-E annual conference in Dublin in November.



#### **Dr Paula Lehane**

#### **Winner of the Kathleen Tattersall New Assessment Researcher Award 2022: Understanding Technology-Based Assessments that use Multimedia Stimuli**

**Dr Paula Lehane** is an Assistant Professor in the School of Inclusive and Special Education. A graduate of the B.Ed in Education and Psychology programme at Mary Immaculate College Limerick, Paula started her career as a primary school teacher in a developing school in Dublin. While working as a primary school teacher, she gained extensive experience in the areas of digital education, literacy, assessment and inclusive education.

[Read More](#)



## CARPE in the Media

In 2020-21, CARPE significantly increased its engagement with the wider public on issues related to assessment. In 2021-22 this engagement has continued to increase, and CARPE research has featured in numerous media outlets.

In June 2022, CARPE research conducted by Vasiliki Pitsia, Zita Lysaght, Michael O’Leary and Gerry Shiel made [the front page of The Irish Times](#). In this article, numerous findings were presented in relation to high achievement in mathematics and science subjects in Ireland. The authors of this research were cited extensively. It was noted that a more challenging Leaving Cert examination may be required in order for top students to reach their full potential. Further details on the published study can be found [here](#).



In January 2022, Michael O’Leary was cited in The Irish Times, reports on BreakingNews and in regional publications including The Carlow Nationalist on Leaving certificate and whether it would continue as a ‘hybrid’ model in 2022.

In November 2021, [a report](#) on the Oireachtas meeting on Senior Cycle Reform was published in the Irish Independent newspaper. In this report, Michael O’Leary and Anne Looney were quoted extensively.

**Teachers’ role in assessing students must be discussed in Leaving Cert reform process, Oireachtas committee told**



This report was followed by [an article](#) published in The Irish Times which featured Michael and Anne's discussions on the future of Senior Cycle. In this discussion, Michael calls for a broader range of assessment approaches rather than the current reliance on high-stakes exams at the end of school.

## Leaving Cert has 'pernicious' impact on learning, committee hears

Pandemic has shown students can progress to further education without 'high stakes' exams, academics say

© Tue, Nov 16, 2021, 17:39

Carl O'Brien Education Editor



The pandemic showed it was possible to progress students to further and higher education without sitting the Leaving Cert exams, the Oireachtas education committee has heard. Photograph: Dara Mac Dónaill

## 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. Since summer 2018, a set of formal guidelines have been in place to ensure this support can be provided in an adequate and timely manner. Specifically, proforma has been put in place on CARPE's [website](#), 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 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 has 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 and inferential statistics. These workshops take the form of three two-hour sessions, held regularly throughout the academic year. 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 supervises five doctoral students and contributes occasional lectures on the EdD Programme. In 2022, Gemma taught the module: "Quantitative Research Methods", to post-graduate students. Conor has been a Writing Tutor within the DCU Writing Centre since September 2020, where he works with students on a one-to-one basis as well as providing online and group writing support. Paula has also facilitated academic writing workshops and creates resources on this topic. Paula is now working as an Assistant Professor in the School of Inclusive and Special Education in the Institute of Education, DCU.



## CARPE External Engagement

In October 2021, Michael participated in a focus group ran by the **Lifelong Learning Platform (LLLP)**, where discussions were held regarding the changes made to the ways we assess and evaluate learning due to the emergency distance learning which occurred because of the Covid-19 pandemic. This focus group was part of LLLP's annual theme position paper of the year entitled "The changing nature of evaluation in education and its impact on learners' wellbeing – Rethinking learning outcomes: from assessment to wellbeing".

On November 16<sup>th</sup> 2021, Michael O'Leary along with Anne Looney took part in a debate about Senior Cycle reform at a meeting of the **Joint Committee on Education, Further and Higher Education, Research, Innovation and Science Oireachtas Committee**. Michael and Anne's contributions went on to be featured in both the Irish Independent and Irish Times newspapers (see pages 45-46). Michael's opening statement to the Oireachtas Committee can be found in the appendix on page 50. A full video broadcast of the Oireachtas meeting can be accessed [here](#). A report by the Oireachtas Committee was published in May 2022. Some of Michael O'Leary's earlier presentation to the Committee was referenced in the report. The full report titled, *Leaving Certificate Reform: the Need for a New Senior Cycle* can be found [here](#).

On August 23<sup>rd</sup> Michael led a seminar at the **Minecraft EDU Learning Week**. His topic was, *The future of assessment: Implications for how Minecraft might be used for assessment and educational measurement*. Participants were Microsoft employees from around the world.

On August 24<sup>th</sup> Michael conducted an online professional development session on the topic of **Assessment Literacy with Prometric employees**. He highlighted the important of using assessment terminology accurately and provided examples of how concepts such as reliability, validity and fairness in testing could be explained clearly to Prometric clients.

## CARPE Staff Professional Development

Members of CARPE have engaged in numerous professional development opportunities at different points throughout the year. An overview of the courses that CARPE members attended is outlined below:

- Writing for Publication
- Mixed methods approaches to educational research
- NVivo
- Starting out teaching: A teacher's toolkit
- Python for non-programmers
- Finance for researchers
- How to effectively manage social media
- Designing and delivering training like a Pro
- ATP Edtech and Computational Psychometrics Summit Conference.

## Appendix 1

### **Towards a Balanced, High Quality Assessment System for the Certification of Achievement at Senior Cycle**

A Submission Prepared for the Joint Committee on Education, Further and Higher Education,  
Research, Innovation and Science

by

Professor Michael O'Leary

Centre for Assessment Research, Policy and Practice in Education (CARPE)  
Institute of Education, Dublin City University

November 2021

#### **Executive Summary**

There is broad consensus in the research literature that high quality educational assessments are underpinned by a number of key principles. The first is that all assessments should be designed to support accurate (valid), consistent (reliable) and fair decision making about the progress and achievement of learners. The principle that all assessments contain measurement error means that single assessments are a poor basis for making high stakes decisions about learners. In addition, while assessment systems provide information to many stakeholders (including policy makers), learners are the most important users of assessment information and, for this reason, a balance needs to be struck between assessments that support learning and those that measure it. The positive and/or negative consequences that derive from the use of an individual assessment or the implementation of an assessment system must always be considered when making judgements about assessment quality.

These principles underpin arguments outlined in this submission for why the certification of achievement at the end of Senior Cycle needs to be based on the outcomes of a broad range of assessment approaches. Four proposals are made: (1) exams spread out over fifth and sixth year with reduced content that, in time, move from paper-based to computer-based so that the power of digital technology can be leveraged to broaden the scope of what can be assessed; (2) continuous assessments that involve a combination of tasks externally set and marked and tasks assessed by the student's own teacher; (3) the collective judgement of in-school teams of teachers about the achievement of students across the Key Skills Framework for Senior Cycle; (4) an element of student self-assessment contributing to decisions around the grading of some assignments and, in particular, competences associated with the Key Skills Framework. Data from all four modes of assessment should be used for certifying achievement at the end of post-primary education.

The potential for over-assessment and increased workloads/stress for both students and teachers are threats that need to be considered when evaluating the proposals outlined in this submission. Moreover, the current relationship between the Leaving Certificate Examination and the CAO points system poses a formidable barrier to assessment reform at Senior Cycle.

## 1. Introduction

1.1. My name is Michael O'Leary. I hold the Prometric Chair in Assessment at the Institute of Education, DCU where I also direct the Centre for Assessment Research, Policy and Practice in Education (CARPE). In June 2020 I was appointed by the Minister for Education to the Independent Steering Committee on the implementation of Calculated Grades. Over the past five years I have led a number of large-scale research studies focused on assessment at Senior Cycle. My commentaries and research on assessment have been published in academic journals across Europe, Asia and the US.

## 2. Assessment Terminology and Principles

2.1. In this written submission I address issues related to **Assessment Options** for certification at Senior Cycle. However, I would like to draw your attention to two issues before I begin to move to the main substance of my paper.

2.2. I use the term, **assessment**, to refer to the process of gathering, recording, interpreting, using and/or reporting information about learning (i.e. the knowledge, skills, attitudes, dispositions we want learners to have) to aid decision-making. All assessments are fundamentally about decision-making of one kind or another. For example, students make decisions about subject choice based on their past exam performance or teachers use questioning to decide who needs help in class. At the system level, a decision to implement a policy such as the Literacy and Numeracy Strategy would have been inspired by the outcomes of national and international assessments.

2.3. It is also important to note that tests and examinations (summative assessments or Assessments of Learning) are just one way of collecting information about learners. Indeed, formative assessments, or those assessments carried out on a daily basis in classrooms, are crucial given that they are designed to support learning as it is ongoing.

2.4. There are at least five principles that I believe underpin high quality educational assessments and assessment systems. These principles are well established in the assessment literature (e.g. Gardner, 2006; Russell & Airasian, 2012), but are worth reiterating here as they may be unfamiliar to non-assessment specialists. They are:

- High quality assessments facilitate highly accurate (valid), consistent (reliable) and fair decision-making.
- Single assessments are a poor basis for making important decisions about learners because all assessments contain (measurement) error.
- Assessment provides information for many stakeholders but learners are the most important users of assessment information.
- A balance needs to be struck between assessments that support learning (Assessment for Learning or Formative Assessment) and those that measure it (Assessment of Learning or Summative Assessment).
- The positive and/or negative social consequences that can result from using an assessment are important to consider when evaluating the merit or worth of an assessment (known in the assessment literature as consequential validity).

### **3. High Quality Assessment Systems**

- 3.1. If principles serve as the foundation for a chain of reasoning, then our actions within assessment systems should be consistent with our assessment principles in so far as is practically possible. I have drawn on the principles set out in Section 2 to provide a critique of the Leaving Certificate examination system that was in place up to 2019 (see the Appendix on page 7). Here, I wish to focus the Committee Member's attention on how assessment quality at Senior Cycle might be improved to support good decision making while at the same time remaining balanced, useful to stakeholders (especially learners) and consequentially valid.

### **4. The Use of Teacher Judgement in Assessment for Certification**

- 4.1. Leaving Certificate (LC) assessment has been firmly on the agenda since the National Council for Curriculum and Assessment (NCCA) began its review of Senior Cycle in 2016. Documents detailing the outcomes of the consultation process with teachers, parents and students (see [NCCA.ie](https://www.ncca.ie)) reveal an acceptance that the LC examination system, and especially the traditional (established) LC, needs to be reformed in a way that places less emphasis on written exams each June with: (1) exams being spaced out over the final two years of Senior Cycle and (2) more emphasis on continuous assessment including approaches more apparent in the LC Applied programme (e.g. portfolios). I agree wholeheartedly with both proposals. However, the issue of whether or not the grades awarded to a student at the end of post-primary education should be reflective of their teachers' judgements, in addition to the outcomes of written examinations and externally marked assignments, has not featured strongly in the debate up to now.
- 4.2. Those of us working in education could never have foreseen the crisis brought about by the cancellation of the traditional Leaving Certificate examinations in June 2020 as a result of COVID-19. The fact that post-primary teachers agreed to be directly involved in assessing their own students for certification purposes that year and again in 2021 seems scarcely believable now given their previous opposition to any idea suggesting such involvement. But has the experience of calculated grades in 2020 and accredited grades in 2021 changed teachers' hearts and minds about assessment? Are teachers more or less likely now to consider playing a part in deciding what appears on the certificate students get at the end of their post-primary education? It will take some time for these questions to be addressed fully but findings from a recent online survey of over 700 post-primary teachers involved in the Leaving Certificate (LC) 2020 calculated grades process are worth considering in the interim.
- 4.3. As described in a report on the survey (see Doyle, Lysaght & O'Leary, 2021, <https://www.dcu.ie/carpe>), many respondents expressed confidence in their professional judgements with most indicating that they had enough information to reach an informed decision about the most likely mark the majority of their students would have achieved had the examinations gone ahead. While most agreed the process in schools had gone well, decision-making around grade boundaries, reconciling inconsistencies in student performance, maintaining an unbiased position with respect to individual students and the strict application of Department of Education calculated grades guidelines were seen as particular challenges. Many teachers did not hold back when describing the pressure and stress they felt throughout the process. While many were adamant that they would not

engage in a calculated grades process in the future, some took a more nuanced view indicating overall satisfaction with the process in the context of exceptional circumstances and highlighting the potential benefits it offered some students.

4.4. This latter point in particular is worth highlighting. Prior to 2020, personnel representing teacher unions were adamant that teachers did not wish to be directly involved in state exams, arguing that a system of external marking was fairer to students. However, additional analyses carried out on data from the DCU study (yet to be published) suggest that this may not be how all post-primary teachers see it. In this study, over a third of respondents indicated their belief that teacher involvement in assessment for certification purposes would lead to fairer outcomes for the students in their schools. Perhaps even more surprising was the significant minority (almost 30%) who agreed that, as a result of having been involved in the calculated grades process, they felt more positively disposed to being involved directly in assessing their own students for certification purposes. While fully acknowledging the limitations of a study drawing on data from a sample of a relatively modest size, the findings seem significant in that they point to the possibility that there are voices among the teaching body that have not, heretofore, been heard.

4.5. Surely now, given everything that has happened in education since the advent of the pandemic, a conversation about solutions involving teachers in state certification examinations must take place? I don't believe anyone will be arguing for a system of calculated/accredited grades where teachers are the sole arbiters of what appears on a student's leaving certificate. International research showing that teachers tend to overestimate their students' performance in exams and the levels of grade inflation witnessed in Ireland in 2020 and 2021 make this a dubious idea in any event. But what about a teacher judgement element in addition to modified exams and continuous assessments? Would that result in a more balanced assessment system – one where teaching, learning and assessment are better aligned in terms of the aims and aspirations of the Senior Cycle programme? For example, could a system be designed so that a determination about achievement in cross-curricular areas such as communication, creativity, problem solving, collaboration or global awareness has the same standing on a student's certificate at the end of post-primary education as a grade in one of the traditional subject areas? It is hard to argue against the notion that teachers are likely to know more about their students' achievements than any set of examinations can reveal. At the heart of the matter is fairness for students. There is much to learn from the unprecedented experiences of everyone involved in the past two iterations of the LC. If the conversation about the role of teachers in assessment for certification is shut down, then the pandemic will have resulted in an educational crisis wasted.

## **5. Proposals for Assessment Reform at Senior Cycle**

5.1. I wish to focus this section of my submission on four assessment approaches that, if implemented, have the potential to improve on the current system. The first two are variations or extensions of proposals contained in the NCCA Senior Cycle Review documents, while the third relates to the use of teacher judgements in the context of cross-curricular or transversal skills. The fourth is focused on how an element of student self-assessment might be incorporated into the certification of achievement at Senior Cycle.

- 5.2. Externally set and marked examinations should count for no more than 50% of final grades in all subjects (remember, single assessments are a poor basis for making important decisions about learners). They should be designed to examine greatly reduced subject content and should take place over the two years of Senior Cycle. The results of those exams taking place in 5<sup>th</sup> year should be available to students and teachers during the first term of 6<sup>th</sup> year to ensure that the outcomes can be used for formative purposes (remember, learners are the most important users of assessment information). As soon as possible, all exams should become computer-based so that the full capabilities of digital technology can be leveraged to create questions that use something other than static text. The use of video, virtual reality, interactive images can help in creating exams that assess something other than low-order cognitive functioning. Computer-based exams are also likely to be more highly regarded by today's generation of technologically-savvy young people.
- 5.3. A limited set of continuous assessments designed to assess the higher-order skills of analysis, synthesis and evaluation should be administered throughout the two years of Senior Cycle (good practice in continuous assessment for the Leaving Cert Applied Programme and Leaving Cert Vocational Programme should be noted here). Some of these assessments could be completed by the end of 5<sup>th</sup> year with results available in 6<sup>th</sup> year to support assessment for learning. While, in the short term, it is likely that teachers will want assessments to be externally set and marked, consideration should be given to how some element of this work can be undertaken by students' own teachers. After all, they are in the best position to identify students' strengths and weaknesses (remember, high quality assessments facilitate highly accurate, consistent and fair decision-making). Some inspiration can be drawn from what happened with the LC in 2021 where exams and teacher judgements were given equal status. So, for example, teachers could also be asked to submit ratings of the externally set and marked continuous assessments. In the short term students could be allowed to keep the higher mark, but, over time as moderation procedures to ensure alignment of judgements across schools become embedded and teachers become more confident in their assessment judgements, full responsibility for marking some of the externally set continuous assessments could be given to schools.
- 5.4. Teacher judgements of achievement across the Key Skills Framework for Senior Cycle especially those pertaining to, for example, Information Processing, Communication, Collaborative Problem Solving, Critical Thinking and Creativity, should be introduced on a phased basis. These should be assessed by in-school teams of teachers who know the student being assessed, e.g. the students' subject teachers and Year Heads. These teacher judgements should be based primarily on data from daily interactions with students. To ensure credibility and academic standing, the grade awarded for the key skills should count for certification purposes in the same way as a grade in say, English, Irish or Maths (remember, consequential validity is important to consider here). It is accepted that learning outcomes/curriculum content would need to be agreed for each of these areas and that some system of moderation would need to apply to ensure fairness across schools. It is also likely that an extensive pilot of one or two of the areas would need to be conducted in the early phases of implementation.
- 5.5. Taking a longer term view, some element of student self-assessment should be incorporated into the certification of achievement at Senior Cycle. For example, students could be asked to contribute a percentage of the marks (say 10-20%) towards a grade for some continuous assessments and/or assessments of key skills. The rationale for such an approach derives from



the fact that learners are the most important users of assessment information and being able to self-assess is crucial to life-long learning. Moreover, an argument can be made that an assessment system incorporating data from student self-assessments is a more balanced one. I acknowledge that the idea of involving students directly in certification decisions is unusual (even radical) and that research tells us that students are prone to overestimate their grades (e.g. Attwood et al., 2013). However, the idea is democratic and would be a clear expression of trust in our young adults to be responsibly involved in a process that has a major impact on their futures. All of that being said, any initiative involving the high stakes use of student self-assessment data would need to begin at Junior Cycle to ensure that, by the time students reach the final years of their post-primary education, they are competent and confident enough to make accurate, reliable and fair decisions (judgements) about their own achievements.

## 6. Caveats

- 6.1. To end, I wish to add some caveats. First, it is important to bear in mind that a more balanced system of assessment does not necessarily guarantee positive consequences. For example, there is a danger of over-assessment in the proposal with the associated danger of increased stress and workloads for both students and their teachers.
- 6.2. Second, the system of assessment I am suggesting will not, in and of itself, alleviate the difficulties caused by the current relationship between the LC Examination and the CAO points system. It is difficult to envision real reform of assessment at Senior Cycle occurring as long as institutions of higher education (and further education and training) use the LC exam as a mechanism for streamlining the process of how our learners move from one phase of their education to another.
- 6.3. Finally, as we build on the experiences of the past in trying to improve what we do with assessment at Senior Cycle in the future, a warning contained in the recent OECD publication, *Education in Ireland: An OECD Assessment of the Senior Cycle Review*, is worth remembering:

There is ambivalence in the support that some stakeholders manifest for change, which jeopardises the chance to settle some of the issues acknowledged. Even when convinced of the need for change in senior cycle education, stakeholders tend to disagree on the nature and scope of the change, which makes finding common solutions considerably more challenging.  
(OECD, 2020)

## A Short Critique of the Current Leaving Certificate Examination Drawing on Principles Underlying High Quality Assessment Systems

Five principles, well established in the assessment literature, are worth considering when evaluating the quality of any assessment system and here I draw on each to offer a critique of the current arrangements for certifying achievement for the majority of Irish students at the end of their post-primary education. These principles are:

1. High quality assessments facilitate highly accurate (valid), consistent (reliable) and fair decision-making.
2. Single assessments are a poor basis for making important decisions about learners because all assessments contain (measurement) error.
3. Assessment provides information for many stakeholders but learners are the most important users of assessment information.
4. A balance needs to be struck between assessments that support learning (Assessment for Learning or Formative Assessment) and those that measure it (Assessment of Learning or Summative Assessment).
5. The positive and/or negative social consequences that can result from using an assessment are important to consider when evaluating the merit or worth of an assessment (known in the assessment literature as consequential validity).

While the LC examination system has many strengths, we should be careful about holding it up as a paragon of accuracy, consistency and fairness. There are very good reasons why efforts to reform it are underway. The reality is that there is no ultimate truth in a LC result (or the outcomes from any assessment for that matter) because each exam cannot measure all elements of a subject area. As a consequence, every educational assessment contains what is called **measurement error** (which also accounts for some of the variation in rankings). It is analogous to the idea of the *margin of error* (e.g.  $\pm 3\%$ ) in opinion polls that involve a sample rather than all possible respondents. There are also the myriad factors that affect student performance on the day of an exam, e.g. misreading a question, not feeling well etc. And yet we persist in making important decisions about what we will allow our young people to do in terms of pursuing further studies on the basis of one-off exams in June. It is true that many LC subjects are partly assessed using approaches other than written exams, but it is worth remembering that there are at least a dozen subjects where 100% of the grade awarded is down to a single exam (e.g. English, maths, applied maths, physics, chemistry, biology, economics, business and accounting). For many others, the final grade is heavily weighted in favour of the one-off written exam e.g. history and geography.

The LC is fair in so far as everyone takes the same test and under the same conditions that include anonymous marking. The public has confidence in the system and that is important. However, students do not arrive at the testing centres with nothing but ability and a track record of diligent study separating them. Some had better teachers than others and some were able to avail of the benefits that economic advantage bestows e.g. grinds. Indeed, so many of the problems faced by students in 2020 and 2021 in terms of having access to technology, having a quiet space at home to study and so on, have been relevant to the LC **fairness** issue long before the arrival of Covid-19.

In terms of teaching and learning, it has been well flagged in multiple studies conducted at Senior Cycle that the current LC examination system dominates the final two years of post-primary education (e.g. see, <https://www.esri.ie/news/as-leaving-certificate-and-leaving-school-looms-teenagers-participation-in-cultural-activities>). The focus on exam outcomes and CAO points narrows the curriculum to the extent that anything not likely to be on the exam is considered superfluous. The problem of rote learning and its corollary, a lack of engagement with higher order, critical and creative

thinking skills are other **negative consequences** highlighted by many commentators (e.g. McManus (2018; Baird et al., 2016). A research study conducted with undergraduate students at the end of their first year in DCU indicated that the majority of participants did not regard the LC Programme (Senior Cycle) as having been a good preparation for higher education (O’Leary & Scully, 2018).

Moreover, the public focus on the content of LC papers in June and on the LC results when they are issues in August of each year is another **social consequence** of what some have referred to as a national obsession with the exam. We are so familiar with the behaviours associated with this obsession in Ireland that it comes as a surprise to learn that in most other countries the state exams pass by without undue public fuss. External observers marvel at how the link between the LC exam and the CAO points system and the “race” for places at third level consumes acres of news print every Summer (Baird et al. 2016). All of this attention does little to reduce the stress felt by students prior to and during the examination period. The finding from research conducted at Maynooth University in 2020 following the cancellation of the LC exams that “a substantial proportion of students reported a strong sense of relief and lower levels of reported stress and anxiety” is worth noting (Quinn et al., 2020).

The **negative consequences** of distilling all learning at Senior Cycle down to a number – a CAO points total – are many, but **the lack of balance** in how assessment functions at Senior Cycle is an important one to consider. It is well known that when summative assessment dominates, the role of formative assessment in supporting day-to-day teaching and learning tends to be diminished as priority is given to “exam content coverage” rather than to ensuring learning is taking place. And when that happens, the assessment information needs of learners play second fiddle to the assessment information needs of the system.

In Ireland, it could be argued that the assessment information required to aid decision-making focused on moving learners from post-primary into higher and further education has been paramount. Moreover, the teachers’ familiarity with the traditional LC exams is so ingrained and the streamlined system put in place by the State Examinations Commission to administer and mark them is so efficient and well organised that efforts to effect change at Senior Cycle have often been stymied or supported with little enthusiasm. This is certainly the view expressed in a recent publication entitled *Education in Ireland: An OECD Assessment of the Senior Cycle Review*: “Even when convinced of the need for change in senior cycle education, stakeholders tend to disagree on the nature and scope of the change, which makes finding common solutions considerably more challenging” (OECD, 2020)

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