Irish Teachers' Journal

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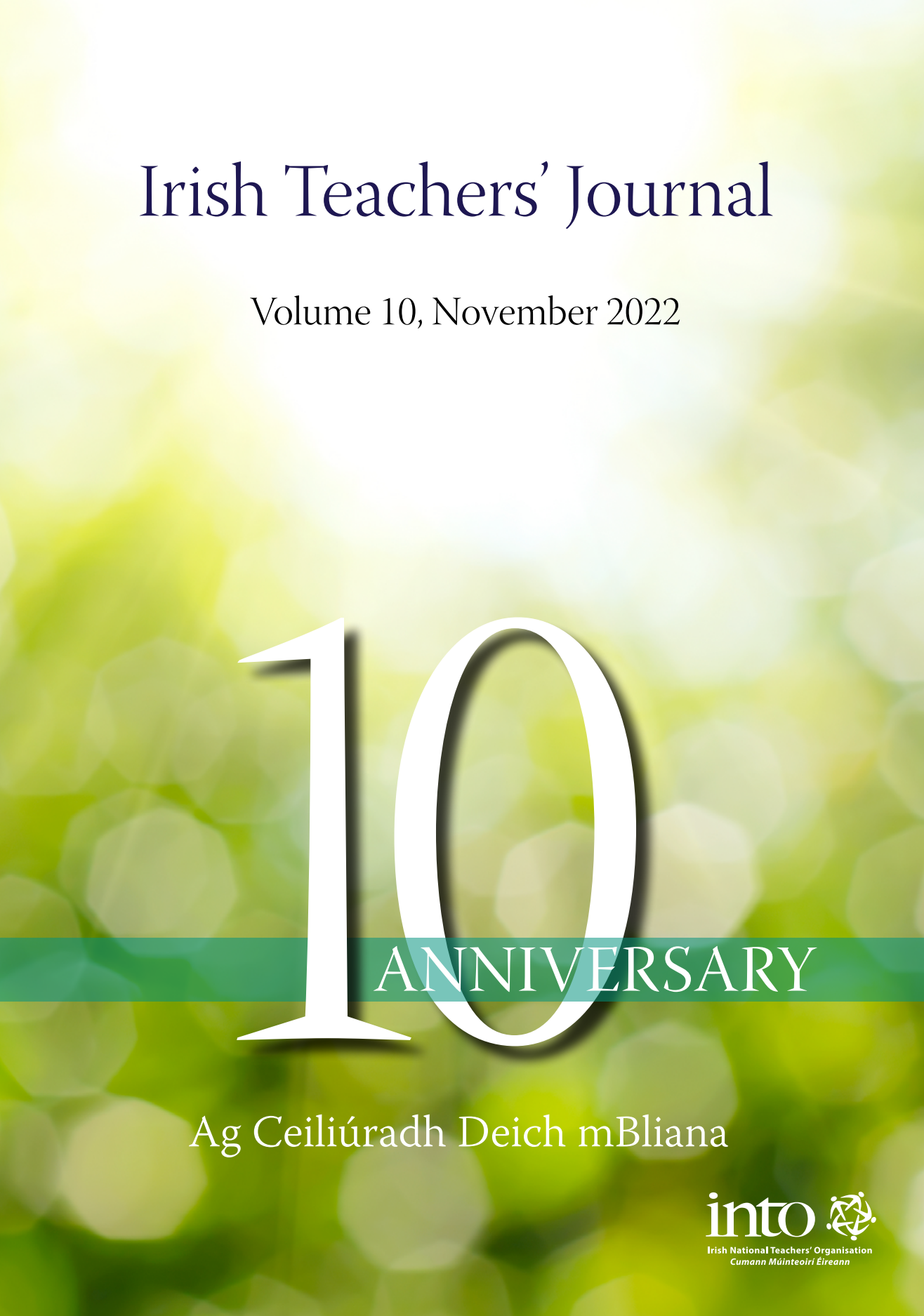

Ag Ceiliúradh Deich mBliana

into
Irish National Teachers' Organisation
Cumann Múinteoirí Éireann

Irish Teachers' Journal

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Editorial

I would like to welcome you to the 10th anniversary edition of the *Irish Teachers' Journal*. This year, in celebration, we are publishing a bumper edition containing ten articles, an increase on our usual seven or eight. This also reflects an increase in interest among teachers in submitting articles for the journal, now an established forum for teacher researchers and writers across the island.

Since the publication of our first edition in November 2013, the world of education has undergone changes none of us could have envisaged ten years ago. While no one could have predicted a global pandemic and the subsequent effect Covid-19 has had on schools and society in general, we can welcome the fact that this year, Irish schools had a relatively normal re-opening in September. Schools are now assessing the impact of Covid-19 on their school communities as it is widely acknowledged that children worldwide experienced significant learning disruption. We are also more conscious than ever of the importance of the well-being of our pupils and our teachers as we grapple with increasing levels of anxiety and other mental health issues across our school population. However, as well as assessing the more disruptive effects of Covid-19 on our schools we are also counting our successes. Learnings from the pandemic have highlighted the ability of schools and teachers to respond, learn and adapt to changing and challenging situations. Huge strides have been made in digital technology in education. The central role of schools in the lives of our communities has been acknowledged, not just as centres for high-quality teaching and learning, but as vital communities for social, emotional and personal development.

This year, for the third successive year due to INTO pressure, Irish primary teachers have seen a further reduction in class size. They have seen the restoration of 1,450 middle management posts in schools and have accepted a pay deal which provides them with some certainty in a time of increasing living costs. Some of the benefits for schools achieved during the pandemic have also been maintained. Hundreds of schools now have access to substitute supply panels and teaching principals retain one day per week release time for school administration with substitute cover. However, despite these advances, challenges in securing adequate substitute cover in schools remain, as our quest for fully qualified teachers to be available every day continues.

This year, Irish schools, along with many others across Europe have shown further adaptability and flexibility in welcoming a large cohort of pupils, and their families, fleeing the war in Ukraine. At the time of writing, schools at both primary and post-primary level have welcomed more than 12,500 pupils, amounting to almost 1.3 per cent of the current school-going population. Schools and their communities across the country have risen to the challenges of supporting these children's language needs, educational needs and social and emotional needs. The Department of Education has provided extra staffing, EAL and SET support where required and is continuing to roll out a suite of supports to schools.

The challenges of a global pandemic and a war on the fringes of Europe could not have been envisaged by the contributors to or the readers of the Irish Teachers' Journal in November 2013.

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Ten years ago, Professor John Coolahan provided our guest article. John, a gentleman and giant of Irish education, passed away in June 2018. John championed teachers throughout his illustrious career and was a strong supporter of the *Irish Teachers' Journal*. It is fitting, given John's status as an educational historian, that we have two articles of a historical nature in this anniversary edition.

John's commitment to education was recognised by the INTO in 2017 when he was presented with an honorary 'President's Medal'. We dedicate this issue of the Journal to his memory. Ní bheidh a leithéad arís ann.

This year's guest article is contributed by Noel Ward, former INTO Deputy General Secretary. As General Treasurer Noel supported the funding of the *Irish Teacher's Journal*, but as an avid writer, researcher, historian, teacher and trade unionist, he supported the journal as a forum for teachers' voices as writers and researchers. In his thought-provoking article, he looks back at a life in teaching and education and asks us to focus on the nature of our teaching. With a nod to Tom Waits, he asks whether teaching is a science or an art, poetry or prose? In a time when many teachers and school leaders are finding that compliance, governance and paperwork may be taking up a lot of headspace, Noel's article refocuses us on the creativity of our profession and encourages us to "seek the pearls" therein.

Ciara Flannery and Aisling Leavey in their article *"Talking gets them thinking": Approaches and perspectives on teaching problem-solving in upper primary school* examine the various approaches which are being used in primary classrooms to support the development of mathematical problem-solving. While examining this issue they reinforce the value of 'maths talk' and acknowledge the excellent work being carried out by teachers in Irish primary schools. Their research found that research participants had rich and diverse perceptions of problem-solving, used a variety of approaches when teaching it, took on the role of facilitators and observers in the classroom and valued high-quality problems and problem-posing activities. Teachers saw the value of problem-solving as an important life skill and a unique finding of this research is that Irish teachers are engaging students actively in problem-posing to teach problem-solving. They noted in their observations that teachers scaffolded the problem-solving process rather than the problem to enhance students' skill sets. Their recommendations regarding teacher CPD and peer observation and learning are timely as we prepare for the implementation of a new Primary Mathematics Curriculum in 2024.

Another timely and topical article from Eoin Mac Domhnaill and Máire Nic an Bhaird examines *Teachers' opinions on the supports they have received and require to aid the implementation of the Primary Language Curriculum, with implications for future curricular implementation in primary schools*. As the rollout of support and professional development to support the *Primary Language Curriculum* (PLC) was delayed due to the Covid-19 closures some schools are only receiving support this school year. In this study, the researchers engaged with both teachers and support service advisors regarding their experiences of the supports provided to aid the implementation of the *PLC*. The research emphasises the importance of teacher involvement in curriculum change for it to be effectively implemented. Teachers' views on the support provided for the *PLC* were mixed. There was a strong belief that the seminar model was not an ideal form of professional

development, though its value in ensuring consistency of message when introducing new curricula is acknowledged. The sustained support model was praised by most teachers and the importance of school leadership in curricular change was emphasised. The importance of fostering enthusiasm and collaboration among staff is also noted. The conclusions make interesting reading, especially for those engaged in the design of an effective CPD model for the upcoming *Primary Mathematics Curriculum*.

Continuing on a broad STEM theme Niamh Smyth and Bernadette Wrynn examine *Using guided inquiry based science education to enhance pupils' learning and attitudes towards school science.* This self-study action research project examines the case for inquiry-based science education (IBSE) as a pedagogy to reverse children's negative attitudes to science in primary school, positing that children should be engaged in "minds-on" as well as hands-on learning. In this honest, reflective and insightful piece, the researcher concluded that self-reflection should be incorporated into day-to-day practice, not just when challenges arise. She also concludes that using an IBSE not only had a positive impact on the achievement and attitudes of the children but also on her enjoyment of teaching.

In our first historical article in this edition, Oilibhéar Ó Braonáin looks at *Isaac Butt and Irish national education: 1852-1879.* Many of us would more readily connect Butt with Home Rule rather than education, but Oilibhéar Ó Braonáin's article gives a unique insight into Butt's interest, not only in Irish education but in Irish language and culture, the conditions and remuneration of teachers, and parental rights. Butt wrote extensively on Irish education and championed denominational education for many years, in defiance of the policy at the time on providing secular education. Butt maintained that all parents should have the right to choose a school based on ethos and that denominational education was a prerogative of parents. Brennan contends that while his campaign did not bear legislative fruit it may have subtly influenced the process whereby Irish schools assumed an increasingly denominational character from the mid-nineteenth century onwards. Throughout his career Butt never failed to acknowledge the value of an Irish education and the valuable contribution made by national schools in particular.

Bronagh Dillon examines *Teachers' perceptions of climate change education in Irish primary schools*. Her research looking at what teachers know and feel about climate change education (CCE) finds an absence of an authoritative definition of CCE and an overemphasis on the skills required to teach it. She also discusses the lack of consensus on the positioning of CCE within the curriculum and points to other research suggesting that such a multi-dimensional issue should be taught using a cross-curricular or transdisciplinary approach. Her findings include the fact that teacher interest is the most influential factor in teaching CCE. She notes that there is an element of fear and anxiety around CCE for both pupils and teachers and that some teachers can find teaching CCE quite daunting. She also discusses the importance of Children's Voice and recommends a curricular approach that is transdisciplinary. The problems of time, curriculum overload and teacher knowledge are acknowledged. However, the recommendation emerging from the research is that despite curriculum overload, CCE should be taught in primary schools from junior infants to 6th class.

In our second historical article, Donald Herron looks at the evolution of the 'course day'. Extra Personal Vacation (EPV) is a long-established concept at primary level. While examining the current compensatory nature of EPV days Donald Herron brings us back to 1883 when serving teachers were allowed to take a yearlong leave of absence to complete formal teacher training and subsequently return to their posts. Following the evolution of the concept over time, we see subsequent administrations allow teachers to take periods of leave to attend courses, most notably Irish language courses run by Conradh na Gaeilge and approved by the National Board of Education from the early 1900s onwards. In the 1930s EPV was used to facilitate in-service training on the new national priorities of music and Kindergarten education. From the 1950s onwards we can see parallels with our current system when changes were made as a result of INTO/Department of Education negotiations. It is interesting to read that the humble EPV day is now over 135 years old and that the concept has been changed and adapted over time to meet the needs of the primary system but is now institutionalised as an entitlement for a 'personal professional development decision'.

In *The use of priming to mitigate the impact of mathematics test anxiety in primary school students* Ciara Barry et al. present a study which examines test anxiety as it relates to mathematics. The literature on test anxiety, distress, worry and low levels of confidence is explored, as is the negative impact of such factors on performance and achievement in test situations. The dearth of research concerning primary school pupils is also discussed. Self-reported anxiety among the pupils participating in this study was measured using a short scale designed by the researchers. The pupils in the research group were shown a simple prime before testing and for those who scored high in test anxiety, being exposed to the prime significantly improved their scores when compared to their high-anxiety counterparts in the control group. The results in this study align with others completed at second and third level. The researchers acknowledge the limitations of the study as pupils from only one school participated but they provide many suggestions for further research in this area.

The penultimate article in this edition is *An exploration of teacher perspectives of factors affecting academic outcomes for Newcomer pupils in Northern Ireland*. Maria Stewart explores the major changes in classroom demographics in NI following the significant growth in the number of immigrant families who have made the province their home in the last two decades. She comments that despite the high value placed on education by many of these families, there remains a substantial attainment gap between Newcomer and non-Newcomer pupils in the North. The Department of Education's (DENI) policies on Supporting Newcomer pupils is examined in some detail. Factors contributing to underachievement, including language as a barrier to learning, inadequate home-school communication and lack of teacher confidence are explored. Factors which have a positive impact are discussed and there are lessons for all jurisdictions here. This article will resonate with all and any teachers who have welcomed Newcomer pupils into their classrooms and school communities.

In our final article, Aidan Raftery, a researcher and inclusive education practitioner, carries out *A critical policy analysis of special class provision in Irish primary schools*. Like all of our articles this year, it is particularly topical given the rapid growth in the number

of special classes established in Irish primary schools in the last number of years, with more promised for the upcoming school year. Various models of inclusion are discussed and Ireland's continuum of provision is examined. As a researcher and practitioner Raftery battles with the argument that the opening of a special class in a mainstream school may just be "an illusion of inclusion". He comments that despite policy shifts towards a more inclusive system, in practice, the number of special classes in Irish primary schools continues to rise. The complex concept of inclusion will give rise to further debate for many years to come as we continue to develop a system-based approach to cater for a wide range of needs among pupils in our schools.

The articles in this edition of the Irish Teachers' Journal reflect and highlight some of the current issues in Irish education, issues that interest, excite and exercise our teacher researchers and writers. We thank them all for their interest and their contributions. We would like to encourage all teachers across the island and at all levels of the system to contribute to the journal, to teachers' research, discussion and debate. We also encourage those INTO members undertaking research to apply for the organisation's educational bursaries which are offered annually.

We would also like to take this opportunity to thank especially our reviewers. Over the last ten editions, they have read, reviewed, suggested, edited and provided constructive feedback. Their work has ensured the quality of the Journal and is greatly appreciated by both the editorial board and our contributors. Their names are listed on page 12 as a sign of our appreciation and gratitude.

I reserve a special word of thanks to Claire Garvey, INTO Official, for her indefatigable dedication to the publication of the journal.

Ní féidir liom críoch a chur leis an eagarfhocal seo gan aitheantas a thabhairt do Dheirbhile Nic Craith. Chuir Deirbhile tús leis an *Irish Teachers' Journal* i 2013, choinnigh sí agus chaomhnaigh sí é mar eagarthóir thar na blianta. Táimid thar a bheith buíoch di.

Máirín Ní Chéileachair, Eagarthóir

Author notes

Noel Ward

Noel Ward began his teaching career in Our Lady of Victory Boys' National School on Dublin's Ballymun Road and then taught for over 20 years at Scoil Maelruain in Tallaght. He completed an MA in Education, his thesis was supervised by the late John Coolahan and is author of a wide range of articles on education and history. Following a period as his district's INTO CEC Representative, Noel was appointed as a Senior Official in INTO head office in 2002 and was later elected INTO Deputy General Secretary, a position from which he retired in 2021. He currently serves as board of management Chair at Rutland National School in Dublin's north inner city, and on the boards of both Ordnance Survey Ireland and the Irish Labour History Society.

Ciara Flannery and Dr Aisling Leavy

Ciara Flannery is a practising Primary School Teacher in a large, suburban primary school in Limerick. She graduated with a first class honours in both her Bachelor of Education (B.Ed) and Master of Education (M.Ed) from Mary Immaculate College. She also received the *President's Scholarship Award* 2018. Her research interests include STEAM teaching and learning and, in particular, mathematical problem-solving.

Dr Aisling Leavy is the Head of the STEM Education Department at Mary Immaculate College, University of Limerick. She is a mathematics and statistics educator and works with pre-service primary teachers, practising teachers and graduate students in STEM Education. Her research interests include children's mathematical thinking, the development of statistical reasoning, the mathematics preparation of pre-service teachers, and the use of teaching and research methodologies to support the development of conceptual understanding of statistics and mathematics.

Eoin Mac Domhnaill and Dr Máire Nic an Bhaird

Eoin Mac Domhnaill is a Primary Teacher with over a decade of teaching experience in the Irish education system. This experience comes from working as a mainstream class teacher across multiple grades and as an EAL and learning support teacher. He is currently working in an ASD classroom setting. Eoin has also had two years' experience teaching in the United Kingdom. His time teaching in the UK was eye-opening and prompted him to take a greater interest in the Irish education system and the changes which it is currently being implemented.

This year Eoin completed a Master's in Education through Maynooth University and his thesis which is titled: *A Mixed Method Exploration of Teachers' Perceptions of the Primary Language Curriculum and the Supports Teachers have Received to Aid its Implementation* earned a first class honours grade. The thesis also received funding through Round 4 of the Teaching Council's *John Coolahan Research Support Framework*.

Dr Máire Nic an Bhaird is a Lecturer in Irish Language and Literature and History of Education in the Froebel Department, Maynooth University. Her areas of teaching and research include; the life and work of Douglas Hyde, Ireland's first president, censorship of Irish language literature (1920-1960), children's literature in the Irish language, education for the science-society nexus, history of education. Her teaching is grounded in a pedagogy of community engaged learning and she has won teaching bursaries and awards for the creation of teaching materials and programmes.

Máire is leading the university's central role in the UCD-led €2 million *Horizon Europe EdBioEc* project. This multi-actor project comprises a pan-European consortium of 15 partners from across education, science and technology and the wider society. Dr Nic an Bhaird will lead an international team specialising in the development of bespoke education programmes to address the science-society nexus. Máire is a partner in an eight million European Commission funded Horizon 2020 project *AgroCycle* addressing the 'circular economy'. Her team's role relates to translating the scientific concepts of the 'circular economy' into child-centred language suitable for the primary school curriculum.

She has numerous publications relating to her research and is actively involved in several new H2020 research bids. She has also presented her research interests on national and international television and radio programmes.

Niamh Smith and Dr Bernadette Wrynn

Niamh Smith is a Primary School Teacher, teaching in a Dublin DEIS school for the last six years. She has a keen interest in primary science and lectures (part-time) in Science Education on the B.Ed course in Dublin City University . She completed the M.Ed Research in Practice with a focus on science education in the Froebel Department of Primary and Early Childhood Education in Maynooth University.

Dr Bernadette Wrynn is Assistant Professor in Initial Teacher Education and the Director of the Master's in Education (Research in Practice) programme at the Froebel Department of Primary and Early Childhood Education, Maynooth University.

Oilibhéar Ó Braonáin

Oilibhéar Ó Braonáin is is a native of Templemore, Co Tipperary. He graduated from St Patrick's College, Drumcondra, in 1996 with a B.Ed and also holds the degrees of MA (DCU; 1999) and M.Ed (UCD; 2002). He has published research papers in *Oideas*, the journal of the Department of Education; *Panorama*, the journal of the European Schools; The *Tipperary Historical Journal; InTouch; Feasta;* and *Comhar*. He is Assistant Principal and INTO Staff Representative at Our Lady's Boys' National School, Ballinteer, Dublin.

Bronagh Dillon

Bronagh Dillon is a Primary Teacher and Assistant Principal in Co Dublin. In 2020 she completed a MSc in Education, Training and Management (Leadership) from Dublin City University. She has a special interest in environmental education and has worked closely with An Taisce and *Green Schools Ireland* for many years. She is currently involved in a European research project with University of Galway titled – *Challenging the Climate Crisis: Young people's Agency to Tackle Policy Underpinned by Learning for Transformation* (ccc-catapult/.org). This project uses a co-productive youth led approach to explore young people's experiences of and learning around the climate crisis.

Donald Herron

Donald Herron is a retired Primary Teacher and was Principal in St John Bosco SBNS, Navan Road, Dublin; Director of the West Dublin Education Centre, Cathaoirleach of Dublin City North branch, INTO and is a research associate with the School of Education, Trinity College. He has completed a PhD in UCD, researching twentieth century Irish primary in-service and professional development policy.

Ciara Barry, Dr Raymond Lynch and Dr Siobhán Howard

Ciara Barry is the Acting Principal of an urban DEIS Band 1 primary school in Cork City. She graduated in 2014 with a B.Ed in Education and Psychology from Mary Immaculate College, Limerick and subsequently completed both an M.Ed in Educational Leadership and Management (MIC) and a Postgraduate Diploma in Special Educational Needs (UCC). Ciara has worked as both a Facilitator and an Associate for the National Induction Programme for Teachers (NIPT), as well as tutoring on literacy and inclusion and diversity modules for Hibernia College, Dublin. Ciara's work has been published by the INTO and the Irish Learning Support Association (ILSA) and her research was short-listed by the Literacy Association of Ireland's *Biennial Thesis of the Year Award* in 2020. She was the recipient of a PhD scholarship from UCC in 2022 and her research is focussed on literacy attainment in designated disadvantaged schools.

Dr Raymond Lynch is a qualified Technology Teacher and a Senior Lecturer in Education in the School of Education, University of Limerick. He lectures on both undergraduate and postgraduate pre-service teacher education programmes, as well as on structured doctoral programmes. His research interests focus on the relationship between task difficulty, student motivation and performance.

Dr Siobhán Howard completed her undergraduate and postgraduate studies in the School of Psychology, National University of Ireland, Galway (NUIG), graduating with a PhD in psychology 2008. Since then, Siobhán has worked as a post-doctoral researcher at NUIG in the School of Psychology, and lecturer in psychology at the Department of Psychology at Mary Immaculate College. In 2017, Dr Howard took up the position of Senior Lecturer in Psychology in the Department of Psychology at the University of Limerick. She is the past holder of an Irish Research Council *New Horizons Research Project Award*, and was joint National Coordinator of the *European Social Survey* in Ireland (with Dr Brendan O'Keeffe, Mary Immaculate College). Dr Howard has published her research widely, in

outlets such as *Biological Psychology, Psychosomatic Medicine,* and *Psychophysiology*. She regularly presents her research at international conferences. She sat on the board as secretary of the International Society for Stress and Anxiety Research (STAR) from 2012-2016, and was the recipient of the *STAR Early Career Award* in 2018. She has received funding from the Health Research Board, the Irish Research Council, and the Royal Irish Academy to support her research.

Maria Stewart

Maria Stewart is a Senior Lecturer in Early Childhood Studies at Stranmillis University College, Belfast and is also a PhD candidate at Ulster University. Her PhD study is focused on home-school partnership for translingual pupils. Her research interests include special educational needs, teacher well-being and learners with English as an additional language.

Aidan Raftery

Aidan Raftery is currently a primary school Principal in Duleek Boys National School in Co Meath. He has previously worked as a mainstream and special education teacher. Aidan is a graduate of the B.Ed from Mary Immaculate College and holds a Masters in Special Educational Needs (MSEN) from Dublin City University (DCU). Aidan is passionate about special and inclusive education with research interests in the area of inclusive school leadership. He is currently pursuing a Doctor of Education at DCU.

Acknowledgments

Over the past ten years, the INTO has been fortunate to have had the professional support of colleagues, experts in various fields of research, who have acted as reviewers for articles submitted to the *Irish Teachers' Journal*.

We would like to thank the following for giving generously of their time and expertise to guide, advise and encourage our contributors:

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Teaching – science or art, poetry or prose?

Noel Ward

Invited to contribute a guest article for the *Irish Teachers' Journal*, I thought it appropriate to focus on the nature of our teaching. Unlike most contributions to this publication, this article is not research-based; rather, it involves reflections based on long experience. Aware of the high standards of teaching which are practised daily in our schools, it may be useful to adopt an overview and to ask about the nature of what we do in our work.

"What avail my teaching?"

"What **we** do" might be taken as an inappropriate level of ownership since I am a retiree, albeit one who worked for over 20 years in primary teaching followed by another 20 in the Head Office of the INTO. I am conscious that looking back may involve rose-tinted spectacles; however, with family members still working in the classroom and as chair of a primary school board of management I believe that I can discuss teaching with a large dose of realism while advocating that we occasionally lift our heads and value this critical work and its unique nature. There is a community aspect to teaching which I believe extends to practitioners who have left behind their years at the chalkface or whiteboard face.

Those aspects of teaching which attract and retain fine people in our profession are the focus here. Conscious too that teachers are struggling daily in difficult situations with inadequate support, the aim is to highlight and even celebrate the positives in the work as recognised and captured by teachers and researchers alike.

So, we seek the diamonds among the coals. Like the poor classics teacher of the 1840s – but without accepting such limited and deferred satisfaction – we may ask (and answer):

> But what avail my teaching slight?
> Years hence, in rustic speech, a phrase,
> 'As in wild earth a Grecian vase.' [1]

A tenth anniversary

This discussion of the nature of our work is also linked with the need to be organised and have a collective voice. It is no accident that this journal sharing teachers' research interests is produced by the INTO and that the *Irish Teachers' Journal* is now in its tenth year. Reaching this milestone anniversary is due to the initiative and work initially of Deirbhile Nic Craith as INTO Director of Education, Research and Learning, and more recently that of her successor Máirín Ní Chéileachair, and of their teams. And it is a tribute also to the many contributors and the quality of their contributions to the journal over the decade.

More about organisation later. But first, how do we describe the endeavour of teaching? Hard slog of course but, is the work mainly a form of artistic endeavour, a technical/scientific practice or is there a better descriptor?

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Poetry or prose?

There will be lovers of music who recognise the lines:

> And those were the days of roses, poetry and prose
> And, Martha, all I had was you, and all you had was me.

It is not often that a Tom Waits lyric links to a discussion about teaching, but his "poetry and prose" allusion suggests a line of approach to the subject. Anyone who knows his song *Martha* may be surprised to learn that this older man's lyric (the singer loved Martha 40 years earlier) was written when Waits was only 23 years old [2], but that's another day's story.

There is a longstanding debate as to whether teaching is an art, a science, a craft or a combination of all of these. There is value, à la Tom Waits, in framing this question in another, complementary way – is teaching a form of poetry or prose?

The 'prosaic' surely predominates in the workaday aspects, the drudgery of paperwork, the rigidity of some timetabling, and the struggle for satisfactory progression. But if teaching were only prose much fewer of us would last the course and we know that in Ireland young women and men who enter the profession tend to stay, unlike the situation in many comparable countries.

It is in its poetry that the sustenance, the inspiration, the very magic and occasional exhilaration of teaching is found. And while (to reference a much-quoted poem) hope and history may not rhyme [3] every day, it is sufficient that bright flashes of insight, response and even magic periodically light our days as teachers.

Artists' and teachers' qualities

Renowned British educationalist Ken Robinson argued that teaching is an art form, that "teachers are artists" and that teaching is not "a delivery system". [4] A powerful advocate of creativity in education, Robinson also portrayed the teacher as a catalyst, learning being a process of dialogue where "the great teachers are students" as well as being teachers. It bothered him that teachers are often as a profession criticised; "They are very important in our lives". [5]

Closer to home, Listowel teacher and writer, Bryan MacMahon, characterised the teacher as an actor. [6] While acknowledging that the work "often connotes drudgery, conformity, application, monotony" there is also "keen self-satisfaction occurring at the oddest moments". [7] In his view, "a love of learning" is the most desirable requisite in a good teacher, combined with qualities such as versatility, a sense of humour and the "gift" of enthusiasm. [8]

MacMahon as *The Master* (title of his still inspiring autobiographical work) may be seen as of his time but his reflections on teaching after a career of over 44 years retain a resonance. A fuller picture of teaching includes recognising and living the moral nature of our work, reflected in MacMahon's practical steps to include children with disabilities and Traveller children in his school.

The essential moral dimension may be expressed in the idea that the good teacher is first and foremost a good person teaching. This idea is underlined in a perceptive quote attributed to US writer (and former teacher) Jodi Picoult. She observed that "The fact that you worry about being a good teacher means that you already are one".

Poetry and the teaching profession

Unsurprisingly, there are many teacher links with poetry. Some teacher poets are published, from international luminaries such as Seamus Heaney to the much-loved works of artists such as Gabriel Fitzmaurice. Fitzmaurice, another of the pantheon of fine writers from North Kerry, on occasion directly reflected his work as a primary teacher in his poetry. One particular work suggests that in teaching as a creative activity there should on appropriate occasions be a free verse approach, eschewing rigid routine in the classroom.

At a function to mark the INTO's 150th birthday at its Easter Congress of 2018, Gabriel Fitzmaurice read his poem *The Hurt Bird*. [9] This work recalls a classroom incident which led to spontaneous discussion and learning; some brief extracts are quoted here.

The children notice:
Sir, a robin sir …
He struck the window and he fell
And now he's dying

And later, as the wounded bird (a bullfinch as the teacher explains) appears to be recovering, the children fully enter into this struggle:

He's alive,
The children whisper,
Excited,
As if witnessing
His birth.
Would he drink water sir?

While this incident became the subject of verse for Fitzmaurice, it was at the same time a moment of poetry in the classroom day, of happenstance and its use as a teaching opportunity lifting that day's teaching beyond the prosaic.

It is little coincidence that retired teachers regularly express themselves in verse. In the two 2022 issues of *Comhnasc*, the Retired Teachers' Association of Ireland journal [10], to hand there are seven poems authored by association members and this is a publication which features such poetry regularly.

Collaboration and collective voice

It is a collaboration among teachers which lifts the work from being an individual 'secret service' behind closed doors to newer levels of excellence and artistry. And although the emphasis on such collaboration may be seen as quite recent, our earliest predecessor teachers were aware of its essential nature and benefits.

From the 1850s, teachers were coming together both to learn and to improve their conditions, a movement which led to the founding of the INTO in 1868. Some of the early teacher associations made clear in their titles their professional commitment, as in the Banagher National Teachers' Improvement Society (established in 1862).

The (original) *Irish Teachers' Journal* was first published in 1868 prompting and coinciding with the formal setting up of the INTO. Even earlier the *Irish Magazine* and *National Teachers' Gazette* had a short life in 1860. Like the later journal, its contents included reports on teacher organisation, classroom topics, science and literature [11].

Just as professional learning is as important for our teaching today as it was in the 19th century, so too is organisation. There is a clear link between teachers' conditions of work and their ability to practise as autonomous (but collaborative) professionals. Such conditions include not only remuneration, class size and the physical condition of school buildings, but also recognition of the value of teachers' views in education discourse, the right to avail of chosen professional development opportunities, and resources to support teaching initiatives.

For each of these, the tried and tested collective voice of teachers for over 150 years has been the INTO. History teaches that every advance toward where we are today – from the ending of 'payment by results' to securing job security – may be traced to INTO advocacy and work. That is why a discussion about teaching in a unique journal such as this cannot ignore the importance of INTO membership. I urge every teacher to play their part in maintaining a strong and unified voice through the INTO.

More recently, there is a greater international dimension to the promotion of teaching. The *International Summit on the Teaching Profession* (ISTP) has been co-sponsored in recent years by the OECD (Organisation for Economic Cooperation and Development) and Education International, a federation of teacher organisations to which the INTO is affiliated. The themes and sub-themes of this year's *ISTP*, held in Spain, indicate a commitment to teaching which is both relevant and creative in the 21st century.

A poet on collective voice and memory

Linking back to poetry and its creators, the lesson of unified organising is highlighted by one of our late, great poets. The work of John Hewitt (1907-1987) is remembered as a force for reconciliation and peace. The *John Hewitt Society* today promotes Hewitt's ethos of utilising literature and the arts to challenge prejudice, including sectarian hostility.

Belfast-born Hewitt's sense of solidarity may be traced to his primary teacher father Robert, a Methodist by religious persuasion, who was principal at Agnes mixed school in the city. In his memoir, John Hewitt recalled that his father:

> ... belonged to the Irish National Teachers' Organisation for a lifetime. The initials INTO, in my childish mind, meant somewhere my father went on Saturday mornings, conferences in Cork, Derry and badges on his lapel .... When, with partition, a section of northern teachers broke away, he remained loyal to the parent body and when, later still, principal teachers established their own union he refused to cut himself adrift from the rank and file of the profession. [12]

A similar spirit of loyalty to values of togetherness was reflected by John Hewitt in his magisterial poem of the 1970s *Neither an Elegy nor a Manifesto*. [13] Prefaced "For the people of my province and the rest of Ireland", this is an appeal to all to "bear in mind" the dead of the Troubles period.

Hewitt's injunction to "bear in mind" is expressed in carefully chosen words which:

Propose no more than thoughtful response;
They do not pound with drum-beats
Of patriotism, loyalty, martyrdom.

Another perspective – teacher as a pearl diver

This appreciation of the value of teaching, and our discussion on whether it is best described as science or art, poetry or prose, must recognise the variety of classroom engagements and conclude that there is no one easily applied descriptor for our work. There is science and technique involved but teaching must also be a creative, artistic endeavour. And if the days may often feel prosaic it is the magic and the poetry, when everything in the classroom rhymes, that we best remember and that provides essential sustenance.

A striking metaphor not explored in this discussion – but one related to it – has been proposed by Dr Kathleen Horgan, Faculty of Education, Mary Immaculate College, UL. Speaking at the 2018 INTO Education Conference, in her paper titled *Harvesting the Pearls of 150 Years*, Dr Horgan proposed pearl diving as a metaphor for teaching. Leaving aside the dangerous nature and in places exploitative history of pearling, in its most positive sense there is an apt and evocative analogy here.

She envisaged learning as the pearl, with teachers (like divers) taking up the physically challenging work of pearl harvesting, work that requires resilience and will need time to complete. And the teacher/diver's durability has "the received insights and wisdom of their lineage" as a support to rely on as they navigate the waters. Dr Horgan also observed that we are fortunate to have the INTO to withstand forces that elsewhere "threaten the professionalism and autonomy of teachers". [14]

And finally ...

While striving to move beyond the mundanity involved in classroom routines, there are creative influences to assist, both within our resources as skilled teachers and in voices such as those cited above. And one specific resource suggests itself. To bring creativity and poetry quite literally into your classroom, consider availing of the *Writers in Schools* scheme. [15] Administered by Poetry Ireland, on its website you will find a directory of artists available to your school at a subsidised rate, from poets to storytellers.

In your teaching work may you find resilience and energy even in the prose of the work, and may you take delight and sustenance from its poetry.

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"Talking gets them thinking": Approaches and perspectives on teaching problem-solving in upper primary school

Ciara Flannery and Dr Aisling Leavy

Abstract

Various approaches are used in primary classrooms to support the development of mathematical problem-solving. This study investigates the pedagogical approaches or variations of approaches in use in primary schools and examines the practices utilised by experienced teachers when teaching mathematics problem-solving. Qualitative data were collected from a purposeful sample of eight experienced 4th, 5th, and 6th class teachers in a STEM-focused school. Individual semi-structured interviews, a focus group meeting and observations of classroom teaching were carried out. The use of classroom observations provided a more comprehensive picture of the mathematical problem-solving approaches enacted during teaching. Findings reveal that teaching problem-solving is a complex endeavour that poses challenges such as sourcing appropriate problems and enabling children to tackle problems. Teachers drew on their professional knowledge and competencies to skilfully overcome these challenges and undertook facilitator and observer roles when teaching problem-solving. A new finding emerging from this research is that Irish teachers are engaging students actively in problem-posing to teach problem-solving.

Keywords: **problem-solving, problem-posing, mathematics, primary school, primary teachers**

Background

Problem-solving is the process one engages in when a simple solution to a problem cannot be identified (Foster, 2019). Good mathematical problem solvers demonstrate the ability to understand, apply, reason, analyse, evaluate, create knowledge and at the same time reflect on their thinking (Mullis & Martin, 2017). In essence, having a rich understanding of mathematical concepts and knowledge of what procedures to apply appropriately and when makes one a good problem solver (Foster, 2019).

Recent policies acknowledge the critical role played by problem-solving. Both the *STEM Policy Statement 2017-2026* and *Innovation 2020* highlight the need to teach higher-order thinking skills. The *STEM Policy Statement* emphasises how STEM subjects can ignite learners' curiosity, requiring them to solve real-world problems, build and apply knowledge, deepen their understanding, and develop their creative and critical thinking skills (DES, 2017). The critical role that schools play in enhancing students' skillset

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needed for the 21st century workplace is emphasised by *Innovation 2020* (DJEI, 2015). Consequently, there is an onus placed on supporting teachers' knowledge and skills to enhance students' skills to meet these requirements (DES, 2017).

Irish students' performance in problem-solving

Ireland participated in the *Trends in International Mathematics and Science Study* (TIMSS), an international assessment conducted every four years in 4th and 8th grades, on three occasions (1995, 2011 and 2015). In 2015, Irish 4th class students performed significantly above the *TIMSS* average and outperformed 37 countries thus revealing a marked improvement in performance in the *TIMSS* 2011 and 1995 (Clerkin, Perkins & Cunningham, 2016). However, mining deeper into the *TIMSS* data suggests there is little room for complacency. Comparing mean performance in the three cognitive skills against mean overall performance revealed relative weakness in the higher-order cognitive domain of 'reasoning' and a relative strength on the lower order processes measured in the cognitive domain of 'knowing'. Given the established links between reasoning and problem-solving, there still exists the need to develop all students' cognitive skills to a greater extent (Clerkin et al., 2016).

Another assessment which provides comparative information on 15-year-old Irish students' problem-solving skills is the *Programme for International Student Assessment* (PISA). Six proficiency levels are used in the *PISA*. Students performing at level one can complete straightforward mathematical tasks using routine procedural knowledge, whereas those performing at level six can model complex mathematical problem situations. A welcome finding was that fewer Irish students performed at levels 1- 2 (15 per cent in *PISA* 2015; 15.7 per cent in *PISA* 2018) compared with an OECD average of 23.4 per cent and 24 per cent, respectively (Shiel et al., 2016; McKeown et al., 2019). Of greater concern is the lower proportion performing at levels 5-6; this was 9.8 per cent in *TIMSS* 2015 (compared to a 10.7 per cent OECD average) and a statistically significantly lower proportion of 8.2 per cent in *PISA* 2018 (compared to a 10.9 per cent OECD average). In conclusion, whereas we have fewer lower-performing students, we also have fewer higher-performing students demonstrating the higher-order skills and processes critical for problem-solving.

Similar trends are revealed in the *National Assessments of Mathematics and English Reading* (NAMER). *NAMER* 2014 showed significantly higher mathematics performance than mathematical assessments in the *NAMER* 2009 (Shiel et al., 2014; Eivers et al., 2010). At 2nd and 6th class, significant increases were observed in all five mathematics processes (understand and recall, implement, reason, integrate and connect, and apply and problem solve); however, apply and problem solve showed the lowest increase. Another positive indicator comes from an examination of the proportion of students performing within each of the proficiency levels across the 2009 and 2014 administrations. Compared to the *NAMER* 2009, there were proportionally fewer students performing at or below level 1 in 2nd class and 6th class and proportionally more performing at or above level 3 in 2nd class and 6th class in *NAMER* 2014. While these results are a testament to the outcomes of investment in education through a range of policies and initiatives (such as the *National Strategy: Literacy and Numeracy for Learning and Life 2011-2020*), we need to remain

vigilant and be mindful of the "scope for pupils in Second and Sixth classes to improve further on higher-level mathematical processes, including Apply & Problem Solve" (Shiel et al., 2014, p. xvi).

Irish curricular perspectives on problem-solving

The *1999 Mathematics Primary School Curriculum* (NCCA, 1999) advocated a constructivist approach to teaching mathematics problem-solving and the use of group work to enhance mathematical ideas (Surgenor, Shiel, Close & Millar, 2006). While teachers reported that practical work was the greatest curriculum success, the most frequent recommendations made by inspectors involved the use of a wider variety of concrete materials within problem-solving lessons; that teachers pose more challenging tasks for exceptionally able students, present real-life contexts and rely less heavily on the textbook to supply questions (Surgenor et al., 2006).

Currently, schools are engaging with a draft *New Primary Mathematics Curriculum* (NPMC), a key target of the STEM policy statement 2017-2026, and *Draft Primary Curriculum Framework* [DPCF] (NCCA, 2017). The *DPCF* emphasises the importance of problem-solving in supporting students to become accomplished problem solvers and makes recommendations that reflect international best practices around problem-solving. Not only does the *DPCF* recognise the need for students to have a repertoire of solution strategies at their disposal, but it also recommends the provision of opportunities for students to devise mathematical problems, represent them and solve them in multiple ways. It advocates encouraging students to think flexibly throughout the problem-solving process, expand their knowledge base by solving meaningful real-life problems and apply this knowledge to unfamiliar problems or situations (NCCA, 2017). Finally, the new curriculum recommends that teachers promote a dialogic environment whereby students are enabled to justify their decisions to use certain procedures and strategies (NCCA, 2017). This use of a dialogic environment is pertinent because, through communication, students not only flex their creative higher-order thinking skills (Fülöp, 2019) but can discover and understand new concepts that would otherwise be inaccessible if they worked independently.

Teaching problem-solving in classrooms

Perspectives on problem-solving

Within the last century, three broad perspectives on problem-solving have emerged: problem-solving as context, problem-solving as skill and problem-solving as art. Stanic and Kilpatrick (1988) argue that these perspectives shape how problem-solving is presented in the primary school mathematics curriculum.

Within the problem-solving as 'context' perspective, problems are vehicles that serve other curricular areas. Problems, then, serve the role of justification for teaching mathematics, as a motivation for various mathematics topics, as recreation (i.e., "mathematics can be fun"), as a methodology to develop new skills, and as practice. Within this perspective, problems are seen to be relatively uninspiring and instead are used as a means to one of the ends listed above (Schoenfield, 1992). The problem-solving as a

'skill' perspective is rooted in a reaction to Thorndike's work which assumed that learning reasoning skills in subjects such as mathematics would improve reasoning in other areas (Islam, 2015). This theme was developed to challenge that idea. In essence, if mathematics problem-solving is important, it is not because it makes one a better problem solver in general. It is because solving mathematics problems is acknowledged as a valuable skill in its own right (Schoenfield, 1992). Problem-solving as 'art' was proposed by Dewey (1938) and by Polya (1981), who advocated that 'perplexing' problems are at the heart of mathematics. This perspective places its emphasis on mathematics as a creative pursuit and therefore is favoured by key researchers in mathematics education.

The *1999 Primary Mathematics Curriculum* focused particularly on problem-solving as context and problem-solving as a skill. Recently, international mathematics curricula advocate teaching mathematics through problem-solving, and this approach is most definitely creative and rooted in the problem-solving as art perspective (Takahashi, 2008).

Approaches to teaching problem-solving

The *1999 Primary Mathematics Curriculum* recognized the importance of focusing on problem-solving as a process (O'Shea & Leavy, 2013). *Polya's four-step process* is a popular framework for teaching problem-solving in mathematical classrooms. Different variations of the process exist, but ultimately, learners are engaged in specific activities at each step. In step one, "understanding the problem", the learner questions everything they know about the presented problem. In step two, "devise a plan", learners identify connections between the data and the unknown, consider similar problems solved in the past and develop a plan to come to a solution. In the third step, "carry out the plan", learners execute the plan they have developed, evaluate their solution strategies, and ask themselves if they are correct. Finally, at the "looking back" step, the obtained solution is scrutinised in terms of accuracy and alternative approaches to arrive at the solution.

Focus has also been placed on heuristics in problem-solving. Heuristic strategies are techniques that aid problem solvers in understanding how to solve a problem (Schoenfeld, 1980). While it may seem that explicitly teaching heuristics would unequivocally enhance problem-solving performance, both Schoenfeld (1987) and Lesh (1981) argue the limitations of such superficial analysis. Similarly, Wilson, Fernandez and Hadaway (1993) argue that an extensive heuristic repertoire is not sufficient, and students must also be able to distinguish between which heuristics to use and when appropriately.

An alternative approach that has proved effective is the structured problem-solving approach used in Japan (Hiebert, 1999) and known as "teaching through problem-solving". In structured problem-solving it is intended for students to acquire knowledge and skills through engagement with a creative mathematical activity that is stimulated by allowing students to grapple with difficult problems (Takahasi, 2008). Students then present their approaches and solutions to their class and a whole-class discussion ensues, comparing and contrasting approaches. This whole-class discussion is referred to as 'neriage' and it is at the heart of this structured problem-solving approach. What is particularly interesting here is that teachers use problem-solving not only for lessons that emphasise problem-solving skills and strategies but also for lessons that focus on developing mathematics concepts, skills and procedures (Takahasi, 2008).

Other factors influencing the teaching of problem-solving

Teachers play a vital role in problem-solving. Teacher actions that hinder students' long-term ability to solve unfamiliar problems include teaching the strategy/approach before presenting problems, interrupting the problem-solving process, over-scaffolding and providing hints (Foster, 2019). In contrast, teacher actions that include stepping back and allowing students to experience the struggle help develop creative mathematical thinking (Mason et al., 1982; Foster, 2019). Therein lies the difficulty with teaching mathematics problem-solving. Teaching students how to solve the problem before presenting it hinders the development of problem-solving skills; however, solely presenting a problem for students to struggle with is not considered (to be) teaching (Foster, 2019). However, Van De Pol, Volman and Beishuizen (2010) suggest scaffolding addresses this challenge wherein teachers interpret students' need for help and then fade out the intensity of support offered over time, thus increasing students' independence and confidence in the problem-solving process (Haataja et al., 2019). Other research suggests the value of teachers researching problems and devising various solutions for each of these problems (Özreçberoğlu, & Çağanağa, 2018) and outlining the goals of the lesson but also "reminding" students of the common misconceptions (Guner & Akyuz, 2017). These recommendations appear teacher-centred in that it is the teacher who is providing solutions to mathematics problems and over-scaffolding through the provision of hints.

Very few studies have been undertaken to examine the teaching of problem-solving in Irish primary classrooms. A case study of five primary teachers who participated in professional development (O'Shea & Leavy, 2013) revealed, in general, traditional approaches to instruction in mathematical problem-solving. Following the professional development, some teachers selected appropriate problems, acted as facilitators employing open-ended questioning techniques, and developed rich problem-solving environments. Other teachers, however, found it difficult to redefine their relationships with students and move from a didactic to a more facilitative role. The textbook-dependent culture of Irish schools is a factor identified as limiting the change in practices and limiting the adoption of reform approaches to mathematics teaching (Treacy, 2015, 2017; Leavy & Hourigan, 2019).

What is evident from this review of the literature is that there is very little published research exploring what is happening in Irish problem-solving classrooms. This study examines how experienced primary teachers think about, plan for, and teach mathematics problem-solving lessons. And the research question was:

What are Irish primary teachers' approaches to and perspectives on mathematical problem-solving?

Methodology

School and participants

This study investigated the teaching practices of senior class teachers within a large co-educational urban primary school in the southwest of Ireland. The school was identified as a STEM school of excellence and engaged in STEM-informed practices (e.g., robotics, Scratch programming, Makerspace, STEM activities). Teachers were experienced in STEM teaching and had ample professional development opportunities; thus, the school was selected as it enabled the development of insights into the practices of teachers experienced in teaching problem-solving. An information sheet was sent to the school principal and staff requesting volunteers from 4th to 6th classes. Four male and four female teachers agreed to participate in this action research project (see Table 1).

Table 1: Participants and data collection methods

Participants	Class level	Semi-structured interview	Observation	Focus group
Participant 1	4th	✓	✓	✓
Participant 2	4th	✓	–	–
Participant 3	5th	✓	–	–
Participant 4	5th	✓	✓	–
Participant 5	5th	✓	✓	✓
Participant 6	6th	✓	–	–
Participant 7	6th	✓	–	–
Participant 8	6th	✓	✓	✓

The College Research Ethics Committee provided ethics clearance. Informed consent was provided, and participants were aware that they could withdraw at any time. Anonymity and confidentiality were ensured by concealing participant names. Member checking was used to ensure the data and findings were accurate.

Data collection

Three complementary approaches to data collection enhanced methodological rigour (see Table 1). Individual 'semi-structured interviews' lasting approximately forty minutes were used to gain insights into how teachers teach maths problem-solving and focused specifically on their approaches, role and challenges encountered. The 'semi-structured interview' questions (see Appendix A) became apparent through closer examination of the strand and literature review tables that were developed as part of the literature review process on the topic of mathematical problem-solving (see Appendices B and C).

A 20-minute 'focus group interview' supplemented the interviews and provided insights into participant perspectives on how maths problem-solving should be taught. The three participants were provided with a problem-solving lesson one week in advance

of the focus group, were asked to annotate it and be prepared to engage in a discussion about the changes they made and why. The presented lesson was a *Cognitive Acceleration in Maths Education* (CAME) lesson developed by professors at Cambridge University, London. The lesson was selected because it was an example of the type of lesson educators should aspire to teach. It was a lesson underpinned by research and it demonstrated good practice in the teaching of mathematical problem-solving. For example, it incorporated strategies such as whole-class dialogue and peer tutoring.

While the use of interviews and focus groups provide valuable self-report data, 'classroom observations' address the limitations of these self-report instruments and provide further insight into the enactment of problem-solving lessons in classrooms. Four participants volunteered to be observed teaching one 45-minute problem-solving lesson of their choice. To facilitate the setting of clear goals about what was to be observed, an observation template was developed and used by the researcher, who took an 'observer as participant stance' when circulating the room and observing posed maths activities. These observations facilitated the examination of the teachers' role, how they organised and prioritised content, the types of mathematical problems posed, and the approaches adopted to teach maths problem-solving. It also facilitated observation of pedagogical challenges and teacher responses to these challenges, responses that may have been difficult for teacher participants to articulate during interviews. For those four teachers who chose not to be observed, they were asked in the interview to identify an excellent problem-solving lesson they taught and to outline why they thought it was valuable.

Data analysis

The inductive approach used to analyse the data incorporated three stages of data analysis: stage 1 (open coding), stage 2 (axial coding) and stage 3 (selective coding). Codes and categories from the eight interview transcripts were generated and once categories were identified and connected, a deductive analysis was conducted of the observation templates and interview responses to identify whether the theory on how to teach maths problem-solving was reflected in lesson observations. The same deductive analysis was also carried out for the focus group. Allowing categories to emerge question by question across the eight interviews and deductively analysing the observational and focus group data were critical to this constant comparative analysis.

Findings

The four themes which emerged from the data analysis are presented in Table 2.

Table 2: Data sources used to inform the four study themes and sub-themes

		Data sources		
		Interview	**Classroom observations**	**Focus groups**
Theme 1: Rich and diverse perceptions of problem-solving	Mathematics problem-solving is about knowledge application	8/8	4/4	Yes
	Mathematics problem-solving is a worthwhile activity	6/8	4/4	Yes
	Mathematic problem-solving develops 21st-century skills	7/8	4/4	Yes
	Mathematics problem-solving reinforces constructivist principles	5/8	4/4	Yes
Theme 2: A variety of approaches to teaching problem-solving	Polya's four-step problem-solving process	7/8	4/4	Yes
	The use of heuristics	7/8	3/4	Yes
	The Japanese open approach	7/8	4/4	Yes
Theme 3: Teachers take on the role of facilitators and observers in the problem-solving classroom	Teacher as facilitator	8/8	4/4	Yes
	Teacher as observer	8/8	4/4	Yes
	Role of content and pedagogical content knowledge bases	8/8	4/4	Yes
Theme 4: Teachers value high-quality problems and problem posting activities	Sourcing mathematics problems	8/8	4/4	Yes
	Characteristics of good mathematics problems	8/8	4/4	Yes
	Problem posing as an effective approach to problem-solving	8/8	4/4	Yes (albeit it was modified)

Theme 1: Rich and diverse perceptions of problem-solving

Participants saw problem-solving as being about 'knowledge application' as revealed in interviews "Problem-solving enables you to see how children are absorbing, consolidating and using the maths concepts you have taught them" (P_3) and in the focus group, "It really helps the children to cognitively process what they learned and apply it to what they are doing." This was also noted during Observation One when the teacher stated to the children, "it will be interesting to note ... what strategies you build upon from last week."

Problem-solving was acknowledged as a "worthwhile activity due to the real-life connections" in interviews "Maths problem-solving means that pupils can relate maths to real life" (P_5) and the focus group "Here [in this problem], they can relate to premier football scores. This makes it more relevant for them." This perspective also emerged in Observation Two when children created a story about purchasing items and turned their ideas into maths problems. The teacher then stated, "See? We are using algebra in real life to solve these maths problems that you have."

Participants valued the potential of problem-solving to aid the development of 21st-century skills. In the interview, P4 stated, "So, within math problem-solving, children are learning about mathematical thinking, analysing, reasoning, applying and questioning." Within the focus group, upon examining a presented problem-solving lesson, the participants remarked, "they have to use a variety of skills in this lesson … critically analyse and evaluate … They need reasoning skills and to be able to justify their answers." In Observation Three, the teacher asked students to solve a number pattern, questioned and encouraged them to justify their answers and then asked, "what was your thinking behind that?" When students responded, the teacher further encouraged them to analyse why they thought this way. "So, I see what you mean but could you go a little further maybe? What exactly caused you to say that?"

Finally, teachers believed problem-solving promotes 'constructivist principles' which are essential for student learning. Focus group participants highlighted the constructivist nature of problem-solving: "The children get to work together to discuss their approaches and they engage with concrete materials to solve the problem." This finding also emerged from Observation One when the students worked in groups to build structures using 'Numicon', displayed them for their classmates and explained how they were able to work within the budget provided.

Theme 2: Teachers use a variety of approaches to teaching problem-solving

Various pedagogical approaches to teaching maths problem-solving were evident. In interviews, the majority of participants referred to *Polya's four-step problem-solving process* as a framework for teaching and assessing problem-solving. The focus group also highlighted the use of *Polya's four-step problem-solving process*: "This lesson gives the children the opportunity to work together to devise a plan. They then have to think about how they went about doing that once they have the answer in order to justify it". In Observation One, the teacher permitted students to work together to devise a plan and reflect on their decisions and stated, "step one is have a chat. Step two is come up with an idea. Step three involves you carrying it out and step four, think about whether it worked. Why or why not?"

Participants referred to the value of heuristics as revealed in interview comments such as "I like to remind them to come up with a system. So, that might mean they draw a table or chart" (P8) and during the focus group interview, "Some say they shouldn't be given anything but as teachers, we have to teach to the middle, and less able students need a strategy". In Observation Two, the teacher modelled a heuristic strategy and encouraged students to use that strategy instead of coming up with their ideas to solve the problem. "I want you to do what I did on the board, the trial-and-error strategy". The presented problem was particularly suited to the trial-and-error strategy and the teacher gave children the space to use the strategy. In Observations One and Four, teachers encouraged students to think about strategies known to them and to select the most appropriate as evidenced in their questioning: "What strategies have we used for problem-solving? Which one is most appropriate to use now?". This finding is reflected in the literature where Wilson et al., (1993) argue that it is not only important for students to know and understand strategies, but they also need to be able to appropriately select which heuristics to use and when.

Participants exhibited features of the Japanese structured problem-solving approach, in particular the use of mathematical discourse. In interviews, they stated, "... I always have a piece where they can engage in maths talk and reflect on and develop their strategic competence" (P1) and "I like a lot of talk and discussion, that's the focal point really, where they can learn from each other" (P8). During Observation Two, the teacher instructed children to form a circle at the end of a lesson and informed them that this is where they would experience what good problem-solving looks like. Groups of students shared their solutions and classmates were encouraged to discuss openly and dispute different approaches. Similarly, during Observation Three, the teacher allocated time for students to discuss their approaches. Once children shared their answers, the teacher encouraged them to reflect, "would anyone agree or disagree with that approach?"

Theme 3: Teachers take on the role of facilitators and observers in the problem-solving classroom

The role of the teacher as a 'facilitator' was evident in observations of collaborative classroom environments where mistakes were acceptable, peer tutoring was frequently used, and children were scaffolded in small groups if necessary. Teachers facilitated the struggling child by requesting the aid of another child in the classroom who the teacher knew had knowledge of the various ways to solve the presented problem. Awareness of this role was communicated in interviews "I'm very much the facilitator, you give the information, you pose the problem, and you try the best you can to take a step back" (P8). Teachers acknowledged that facilitation is complex within the classroom context, "A lot of hand holding needs to be done … until the children have their conceptual knowledge built up and they have practised and played with it, then the teacher can begin to step back but at the start, the teacher would certainly be leading the lesson and learning with the children" (P1). This facilitation role was a discussion point in the focus group "It's about finding the balance between facilitating and demonstrating the lesson without showing them exactly how to solve the problem," thus supporting the claim by Foster (2019) that this balance is at the very core of the teacher's role in maths problem-solving.

Teachers also saw themselves as taking the role of 'observer'. Like the facilitator, the teacher as observer scaffolds the learner, but they do not use peer tutoring. Instead, they promote a dialogic environment whereby the whole class engages in dialogue at various stages of the lesson. During the focus group, it was suggested that taking an observer role gave students the freedom and space to organise their thoughts and direct their learning. "The lesson will always go well if you step back and let children guide themselves. Of course, you must watch how they do that and step in when necessary but giving them that space to progress their own learning, it's important!" This was further expressed in interviews, "Our mistake is that … we tell them everything and don't give them a chance to get stuck in. So, the teacher's role is just as observer, mingling in the class, providing some but not much guidance and you're encouraging a have a go attitude" (P3).

The tendency of teachers to over-scaffold the problem (Foster, 2019) did not surface during observations. It was interesting to see teachers scaffold the problem-solving process rather than the problem. In Observation Four, the teacher continuously probed children at a whole-class level as they worked on the problem together. "Think about what we learned about the radius of a circle; how can this help you all?" Similarly, in Observation Three, the teacher set up a 'clunk table' that the children could visit if they needed assistance. At this table, the teacher helped to guide students' thinking around solving the problem and often sought the help of the rest of the class. "Ok, we have five bricks at five Euro each, what can we do? Can somebody else in the class help us out maybe?" This demonstrates best practice according to Mayer (2004), where scaffolding the problem-solving process enhances students' skill sets which they can access at a later date to solve similar problems.

Theme 4: Teachers value high quality problems and problem-posing activities

Participants valued 'research informed and tested' problems for use in the classroom. They invested time in sourcing high quality problems online "We use *NRICH* maths and we do a lot of computer programming so we get a lot of maths problems from the *SCRATCH* website" (P5) and specific programmes "that book has some really challenging questions that get children thinking" (P7). During the focus group, participants expressed a preference for research-based maths programmes such as *CAME* "It comes from King's College in London … it comes from solid research, and you can trust it".

Problem 'characteristics' identified as important were problems that are open-ended, relevant, promote higher-order thinking and that are fun. During interviews, references were made to problems "creating a collaborative environment" (P5) and being "… open-ended problems … they're the best kind for children because there is not just one answer or one way of solving the problem and they need to experience that" (P3).

A unique finding of this study was the value placed on engaging students in problem-posing; six of the eight participants reported using problem-posing as a vehicle to teach problem-solving. As P1 stated, "When I'm doing any strand, I get children to think up a problem maybe incorporating a certain strategy they know. There is a lot of maths talk and they can be as creative as they like. You could have ten different maths problems going around the class; it's pure gold." Similarly, P8 stated "I try to make my lessons child-centred so I sometimes get children to pose problems for each other. It's great! Last week we were learning about golf and that it's all about directed numbers and one of them came up with the problem – if the final score is -7 then what could the golf player have scored? I find using the children as a source for problems through problem-posing is brilliant, it is the motivation for them to solve problems." Although no observations were undertaken of problem-posing lessons, during all observations participants asked students to extend presented problems once they were finished solving them. For example, during Observation Four, the teacher stated, "how could you make the money part of the 'Numicon' question more difficult?" When asked in the focus group why teachers don't purposefully plan for the inclusion of problem-posing lessons, participants replied, "it's the curriculum … a mile wide and only an inch deep. We want in-depth problem-solving to happen but how is it realistically going to get enacted unless the system changes a little bit?".

Identifying and overcoming pedagogical challenges

Participants acknowledged the "slow transition to new pedagogical approaches" and the impact on progressing the teaching of maths problem-solving. In the interview, P1 stated "I find it takes a lot of time to get the problem-solving up to a good enough standard because of the way maths is traditionally taught in Ireland. It is very procedure-oriented ... children are quite accurate in their procedural fluency, but they have very little conceptual understanding, strategic awareness and very little adaptive reasoning." Participants also mentioned the challenges of 'sourcing' high quality problems to support desirable problem-solving behaviour. All participants referred to specific difficulties students experience when tackling mathematical problems. The most mentioned was knowing 'how to start' a problem. During the focus group discussion, participants explained that children can sometimes state outright that they don't know where to start. "That's what you hear when you are going around the class talking to them." This issue was apparent during observations. Another challenge faced by children was 'mathematical language'. "Language is a huge limitation for children. Struggling children find the actual reading of the language within word problems to be very difficult and therefore, impossible for them to solve" (P3).

In overcoming these challenges, participants used a variety of strategies such as developing a dialogic environment, peer tutoring and varied differentiation to aid students in tackling problems. As P1 explained, "Doing a lot of maths talk with them would be one of the meta practices I use. If they are thinking mathematically and speaking mathematically but not exactly using the correct maths terms, I would add the words they need to a word bank, and we would have a whole class discussion on synonyms for these words in particular contexts. Talking gets them thinking." Focus group participants also mentioned creating an open space during lessons for student to visit and ask for assistance. "You need to build in mechanisms into the lesson to provide for children who get stuck on things, the clunk table is a good idea." During observations, all of these strategies were observed in action.

Participants attributed great value to the development and maintenance of a strong "professional and practitioner knowledge base", both content and pedagogical, to support the teaching of problem-solving. It emerged during the focus group that participants believe that you must be reflective about your professional knowledge, even critical of it. "First and foremost, there is something wrong if half the class are dropping out. Then the lesson isn't pitched properly, and you need to look at what you are doing as the teacher." The importance of preparedness and the selection of high-quality mathematical tasks were examples of how teachers sought to ensure high quality learning experiences and promote their knowledge development. This was expressed in interviews by P8 "I have to make sure that I am confident with the lesson content … you can't just teach off the cuff … or the lesson will be a disaster" and P6 "I have come across some challenging questions that I would only be semi-confident in solving myself and if I don't believe I know how to do it then I definitely can't teach it." An interesting discussion occurred during the focus group about lessons developed at King's College London. The participants said they like using the lessons because they are research-based "Most importantly, these lessons can be trusted because they are supported by research."

Conclusions

This study revealed that Irish primary teachers utilise a variety of best practices and a blend of elements of common problem-solving approaches when designing problem-solving experiences and when teaching problem-solving lessons. Elements of *Polya's four-step problem-solving process* and the Japanese structured problem-solving approach were reported by teachers in interviews and were evident in lesson observations. Students were encouraged to analyse problems and structure the problem-solving process using variations of Polya's framework. While Polya's approach was visible during lesson observations, the importance of discussion and reflection similar to Japanese 'Neriage' was also encouraged. Students were given the time and space to reflect, justify and debate their approaches to solving problems. Such dialogic environments are valued in the Japanese structured problem-solving approaches as they provide children with the opportunity to have discussions with each other, comparing and contrasting their approaches (Takahashi, 2008). In doing this, children develop their maths vocabulary and ability to tackle problems and this type of dialogue is vital to develop creative and cognitive learning processes (Fülöp, 2019).

Teachers in this study believed mathematical problem-solving is both relevant and meaningful for students. They introduced fun, open-ended, challenging maths problems and appreciated the vital role problem-posing plays in developing students' problem-solving skills. Hence, their beliefs about problem-solving align very closely with problem-solving as a skill (Schoenfeld, 1992) and problem-solving from an art perspective (Dewey, 1938; Polya, 1981). They acknowledged and demonstrated their role as facilitators, circulating the classroom, scaffolding students, and guiding their learning. They also adopted the role of an observer during lessons to ascertain what students are learning and how they can use this knowledge to further the learning of all students in the classroom. This is characteristic of the role of the teacher in the Japanese structured problem-solving approach (Takahashi, 2008).

However, while ample evidence emerged of teachers' ability to teach mathematical problem-solving effectively; challenges were revealed also. Teachers reported the difficulty of teaching students whose maths problem-solving skills are underdeveloped by a system undergoing slow pedagogical change. Moreover, they communicated the difficulties students experience with the mathematical language of problems. Teachers spoke of the effort required to locate rich, meaningful problems for students and develop and maintain a high level of content and pedagogical content knowledge to facilitate rich learning experiences. These teachers conquered these challenges in a system that they believe favours breadth over depth of learning and offers a limited amount of time to teach maths problem-solving to students. Overcoming these challenges is a testament to the high level of professional knowledge and thinking demonstrated by Irish primary teachers in this study.

This study illustrates how teachers effectively use their professional knowledge but just possessing the correct professional knowledge was not enough, if teachers wish to aspire to a high level of practice. We recommend the importance of engaging in continuous professional development (CPD) for teachers to make more effective use of their current

knowledge and skills. A further recommendation for teachers arising from this study is that they should collaborate and observe their colleagues teaching problem-solving. This would serve as a useful vehicle to improve practice, leverage professional knowledge, and support self-reflection. According to the European Commission (2013), teachers who engage in collaborative learning use more innovative pedagogies and show increased self-efficacy in doing so. This study underscored the difficulty teachers have in sourcing rich mathematical problems and highlights the need for the establishment of an online repository of research-based, tried and tested mathematical problems. This would facilitate teachers in focusing their time on developing pedagogical knowledge and how to effectively use it in the classroom, thus enhancing their teaching of maths problem-solving.

A limitation of this study is its scale. This study focused on how class teachers teach maths problem-solving at the senior level in primary school. It is recommended that future research investigates problem-solving practices at other class levels and from a greater diversity of school settings (i.e., urban, rural, DEIS). Furthermore, this study was carried out in a STEM-focused school and consequently, it is recommended that future research investigates how schools with little or no STEM focus approach the teaching of problem-solving.

Evident throughout this study was the high-quality teaching of mathematical problem-solving in these schools. In the words of Neil Postman (1985), American author, educator and cultural critic, "children are the living messages we send to a time we will not see." Maths problem-solving allows students to develop their abilities to think critically, evaluate, apply knowledge, and create. These are essential skills that encapsulate education in the 21st century and therefore, maths problem-solving should continue to be prioritised and taught efficaciously for the future.

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Apppendices

Appendix A: Semi structured interview questions used

1. Could you describe what mathematical problem-solving means to you?
2. Have you had any previous exposure to mathematical problem-solving as a pre-service teacher or CPD wise?
3. What are your experiences and general observations of teaching mathematical problem-solving at senior level?
4. What are the challenges for you as a teacher implementing mathematical problem-solving?
   - How do you overcome them?
5. Where do you source your mathematical problems?
   - Could you give me an example of an excellent problem you have used or seen used by others and explain why you think it is valuable?
     - Probe: What makes a problem a good problem?
6. What are the limitations of mathematical problem-solving for the learner?
7. What are the benefits of mathematical problem-solving for the learner?
8. How do you assess children's mathematical problem-solving skills?
9. What do you think a teacher's role is within a mathematical problem-solving lesson?

- Can you describe the role you undertook while teaching a mathematical problem-solving lesson?
- Probe: what stages of the lesson are you most heavily involved in (before, during or after the problem is presented)? Do you give instructions/support? (What types and in what stage of the lesson?)

10. How would you plan for a mathematical problem-solving lesson?
11. What strategies would you consider effective in implementing mathematical problem solving?
    - If not observed**:** think of an excellent problem-solving lesson you taught.
      a. Could you describe to me what happened and
      b. Why you think the lesson was excellent?

Appendix B: Excerpt from strand table – teacher role

	Author	Where did I find it? (Bibliographic reference)	What are the key findings? (What is the author saying?)	Why is it interesting? (Are there links?)	Quotes
Lit input 2	Foster, C.	Foster, C., 2019. The fundamental problem with teaching problem solving. ATM	The articles outlines how problem-solving is what you do when you don't know what to do. Teachers have a tendency to teach or reteach the approach to the solution before presenting the problem.	It's difficult to strike balance when teaching problem solving. Teachers seem to go between pre-teaching all the skills and processes needed to solve the problem and letting students struggle which is not appropriate either.	"This raises the question of what the teacher's role should be in a problem-solving lesson, which is, for me, the fundamental problem with teaching problem-solving." p. 2
Lit input 4	Özreçberoğlu, N. and Çağanağa, Ç.K,	Özzeçberoğlu, N. and Cağanağa, Ç.K., 2018. Making it count: Strategies for improving problem-solving skills in mathematics for students and teachers' classroom management. *Eurasia Journal of Mathematics, Science and Technology Education, 14(4)*, pp. 1253-1261	The article outlines the difference between routine and non-routine problems. Teachers are not presenting non-routine problems to their students. High levels of metacognition among students are needed to tackle non routine problems. Article discusses Polya problem-solving approach. There are four steps to this approach. The teacher needs to ensure the students understand the problem, devise a plan, carry out the plan and revise if necessary.	Children need knowledge of strategies and how to apply them to be competent at problem-solving. Educators I feel need to be competent themselves in applying strategies before they can teach them. Teachers need to get across to students that if one particular strategy is not working, they need to change it but educators need to approach this in a way that guides the child to make this conclusion. A lot of research suggesting this needs to be done but disappointingly the 'how to' is not addressed as frequently.	"An individual with problem-solving skills grows up as a self-confident individual who can think creatively and independently" p. 2 "The teachers who wanted to include non-routine problems in the classroom indicated that they could not include them due to the curriculum density determined by the education system and to the crowded classrooms." p. 5

Appendix C: Sample literature input table

Principles for teaching problem-solving			
Where?	**What?**	**Why?**	**Citation pearls**
Foshay, R. & Kirkley, J., 2003. Principles for teaching problem solving. Technical Paper, 4.	Children should learn mathematical content from solving contextual problems. Early ideas about problem-solving present it as convergent reasoning, problems have logical solutions with single correct answers but ideas about what problem-solving is and what it requires has changed. Bransford's IDEAL model: learning de-contextualized problem-solving skills and applying these skills to any situation. Mayer's definition of problem-solving as a multi-step process where problem solver identifies connections between past schema and current problem at hand. The article outlines what good problem solvers do and it outlines that there's a range of different problems from well-structured to ill structured.	Children need to apply their knowledge; they need to transfer what they have learned from one situation to the next and they need to be comfortable in doing this process for their future careers. The influence of cognitive learning theories has changed the notion of what problem-solving is. Skills such as visualization, association, abstraction, comprehension, and manipulation are all essential to good problem-solving. The emphasis is not placed on the correct solution any longer. This model presents problem-solving as a stand-alone, content free thinking skill which is not integrated with the rest of the curriculum. Interesting in that it's not vastly different from Polya's problem-solving approach but I believe Polya is integrated more into the curriculum. Useful because it requires the problem solver to think about how to begin tackling the problem, to think of and implement solutions and to evaluate the results.	"Learners often learn facts and rote procedures with few ties to the context and application of knowledge" p. 4

Teachers' opinions on the supports they have received and require to aid the implementation of the Primary Language Curriculum, with implications for future curricular implementation in primary schools

Eoin Mac Domhnaill and Dr Máire Nic an Bhaird

Abstract

This study uses a sequential mixed-method, quantitative and qualitative research design to investigate teachers' opinions of supports they received to aid the implementation of the *Primary Language Curriculum*. Questionnaires were used to gather data; findings from questionnaires were explored further by conducting eight semi-structured interviews, six with practising primary school teachers and two with teachers seconded to educational agencies. Findings highlighted that teachers did not feel included in the curriculum's creation. Both questionnaire and interview data revealed that teachers were unimpressed with their initial seminar-style training days and would have found well-funded, on-site, and sustained support more appropriate. Whilst participants felt many of the supports provided were adequate; there remained a negative disposition towards aspects of the curriculum. The findings in the study will have implications for how future curricula are implemented, including the supports teachers should receive, the consultation process and the type of professional development required by teachers.

Keywords: **collaboration; curriculum implementation; teacher perspectives; professional development; educational supports**

Introduction

Curricula constantly evolve and change. In the Republic of Ireland, we are now entering an era of change, where the entire primary school curriculum is being redeveloped. The first stage of this redevelopment is complete with the introduction of the *Primary Language Curriculum* (PLC) in 2015. It is envisioned that the structures of the curricula that follow will be similar to the *Primary Language Curriculum* (NCCA, 2020). The *PLC* replaced the English and Gaeilge subjects of the *1999 Primary School Curriculum*. The 1999 curriculum was seen as holistic, child-centred, and focused on active and discovery learning. The

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curriculum also included new content, approaches, and methodologies (NCCA, 1999) and it placed a priority on literacy and numeracy (Murphy, 2004). The *PLC* will seek to build on the methodologies of the 1999 curriculum but will be outcome focused, English and Gaeilge will be taught as interrelated languages rather than two separate subjects as they were in the 1999 curriculum.

Educational change is inevitable; what is not inevitable is that teachers will accept these changes (Ramberg, 2014; Zimmerman, 2006). Teachers are the foundation on which every new curriculum or initiative will succeed or fail (Le Fevre, 2014). For teachers to be receptive to a curriculum, they must be involved in its inception and implementation. They need to feel included in the curricular creation discourse and have support and resources to implement the curriculum deeply in their classrooms (Kennedy & Shiel, 2013). Whether teachers are receptive or resistant to curricular changes will have a significant effect on whether the curriculum is successfully or superficially implemented (Murphy, 2004; Park & Sung, 2013). The *PLC* is a new curriculum therefore there is limited empirical data to suggest how successful its implementation has been. This study sought to add to this research, focusing on the supports teachers need to ensure its successful implementation.

Teacher supports

What supports have already been put in place?

This study investigated the supports put in place by the Department of Education and educational agencies in Ireland to aid the implementation of the *PLC*. Many supports were promised when the curriculum was first being implemented. *Circular 0061/2015*, which the DES issued to announce the introduction of the *PLC*, sets out three stages of support that would be available for schools. The first stage involved a familiarisation year where staff discussed and read through the curriculum documents. The second stage included initial training days for principals. These initial training days used a cascade model[1] to disseminate information (McGarry, 2017). Finally, whole staff training was provided through seminar days. The circular also promised a variety of professional development (PD) models, including workshops, classroom modelling, summer courses, website resources and publications (DES, 2015, p. 5). In 2019 an updated version of the circular was published. *Circular 0045/2019* builds on the above supports and explicitly mentions that "a programme of sustained in-school support will be made available to all schools" (DES, 2019, p. 3). This circular proposed that support would be given to schools over a prolonged period by the Professional Development Service for Teachers (PDST) or the National Council for Special Education (NCSE). A suite of webinars would also be made available to teachers. The circular highlights the critical role that school leadership has in leading discussion and training in relation to the *PLC*.

1 The cascade model involves staff attending seminars and then passing on information to colleagues (Kennedy, 2005). It is important to note that the cascade model has been criticised in the literature as it can lead to a dilution of ideas (Hayes, 2000). It is also stigmatised as a cost-effective approach, used as a cheap method of training in developing countries (Hayes, 2000; Kennedy, 2005; McGarry, 2017).

Many other resources are available on the Curriculum online website (www.curriculumonline.ie/Primary/Curriculum-Areas/Primary-Language/Primary-Language-Toolkit/), including a *Primary Language Toolkit*, which offers support documents, explanation videos and exemplars of children's work (NCCA, 2021). A suite of supports is provided by the Special Education Support Service (SESS) on their website (www.sess.ie/resources/curricular/primary-language-curriculum) to help adapt the curriculum for children with additional needs (SESS, 2021). The National Council for Curriculum and Assessment (NCCA) has adapted their online planning tool (https://nccaplanning.ie/) to include the learning outcomes of the *PLC*. The curriculum documents and the progression continua are also a resource provided by the NCCA.

The initial supports offered by the NCCA.

A more traditional form of PD involves a top-down approach. This approach involves teachers sitting in a room, away from their schools, and an expert lectures them about the merits, methodology, and theory behind the change they are trying to promote (Atteberry and Bryk, 2011; Darling-Hammond et al., 2017; King, 2016; Park & Sung, 2013; Penuel et al., 2007). McGarry (2017) describes the form of PD chosen by the NCCA to disseminate the *PLC* as a top-down approach, which many participants of her research found inadequate. This traditional, top-down PD model is described as short-term, generalised, and a barrier to allowing teachers to participate in their learning (King, 2016; Van der Akker et al., 2008). It is also not inquiry-based and gives teachers little feedback or follow-up opportunities (Penuel, 2007; Ng & Leicht, 2019). However, it should be noted that the Department of Education promised sustained, on-site PD in *Circular 0045/2019*. Therefore, this study focused on investigating the supports outlined in this circular and to what extent teachers have engaged with these.

For PD to be successful, it should be inquiry-based (Penuel et al., 2007; Richardson 2003) and take place within the school context, with teachers' backgrounds and previous experiences in mind (King, 2016; Penuel et al., 2007; Van der Aaker, 2008). It should be expert-led, conducted over a prolonged period, and have extensive feedback and follow-up opportunities (Fang et al., 2014; Rogan & Grayson, 2003; Ng & Leicht, 2019). It should be collaborative, combining non-evaluative observation opportunities with teacher-led goals (Atteberry & Bryk, 2011; King, 2016; Richardson, 2003). PD should also allow teachers to investigate the theory and methods behind the new curriculum or initiative, and opportunities should be provided to discuss this in groups. This will give teachers a good understanding of what they are expected to teach (Darling-Hammond et al., 2017; Kennedy & Shiel, 2013; Park & Sung, 2013).

For PD to encompass all the above elements, it must be well funded (Kennedy & Shiel, 2013; Richardson, 2003). Kennedy and Shiel (2010) are critical of the type of PD opportunities afforded in the past to teachers in Ireland. They call these "insufficient" (Kennedy & Shiel, 2010, p. 373) as there were not enough facilitators and an inadequate amount of time was provided to schools to properly affect change (Murchan et al., 2009). The authors also challenge the Government to fund and resource PD adequately, stating, "it remains to be seen if the political will is there to provide the level and intensity of support

needed for real change" (p. 382). Park and Sung (2013, p. 28) assert that "if extraordinary resources are not levied in support of efforts to implement the new curriculum, the promise of deep reform is dim". Here, they maintain that additional resources and funding need to be put in place if a curriculum is to be implemented successfully. McGarry's (2017) study centred around the dissemination of the *PLC* found that the call to provide adequate funding for PD had gone largely ignored. Instead, teachers and principals perceived that a 'cascade model' (Hayes, 2000) used to introduce the *PLC* was chosen because it was the cheapest training method (McGarry, 2017). This study investigated teachers' perceptions of the effectiveness of the supports provided in the period following McGarry's research.

Methodology

The study took the form of a mixed-methods sequential explanatory research design. Creswell and Guetterman (2019) describe a mixed methods design as having different stages; these include piloting (Fink, 2010), combining quantitative and qualitative instruments in a study, and analysing data found using these instruments. Greene (2008) states researchers use this methodology because it can capture the general perspectives of a broad group of people and can then be used to investigate deeply specific themes or issues that have been identified. Questionnaires and semi-structured interviews were used as data collection instruments for this study. Combining quantitative and qualitative data analysis as part of a mixed-method sequential explanatory research design allowed me to obtain a more reliable picture of teachers' perspectives on the *PLC*. Furthermore, conducting interviews with both practising teachers and teachers seconded to educational advisory agencies allowed me to perform a robust analysis of teachers' perspectives and contrast these to the perspectives of two participants seconded to the educational agencies.

The first stage of research used a quantitative tool to explore the topic. This took the form of a questionnaire used to reach a broad cohort of primary teachers. Questionnaires are chosen as a data collection tool for many reasons; they are cost-effective, easy to distribute, standardised, can be distributed to many people and allow data to be analysed quickly (Denscombe, 2010). Due to the Covid-19 pandemic, all questionnaires were distributed and taken online. In total, 115 questionnaires were conducted with primary teachers in Ireland. These teachers came from a range of backgrounds and schools, they included principals as well as mainstream class teachers and teachers working in special education settings.

The second stage involved conducting semi-structured interviews. Interviewees were recruited through the questionnaires, where some participants wishing to be contacted further had volunteered their email addresses. In total, eight teachers were interviewed. Four teachers interviewed taught in mainstream classes and one teacher taught in a special school setting. In addition, one teaching principal was interviewed and two educational advisors, who conducted professional development training based on the *Primary Language Curriculum* to teachers.

Findings

The supports teachers received to aid curriculum implementation

The supports teachers receive can influence positively or negatively how a curriculum will be implemented; for a curriculum to be implemented successfully, teachers have to receive multi-layers of support (Kennedy & Shiel, 2013; Park & Sung, 2013). These layers of support (adapted from Van den Akker et al., 2008) are organised from a national level (macro supports) to the individual level (nano supports). In addition, two other levels are considered; these include supports from a school leadership level (meso supports) and the support that comes from collaboration amongst teachers (micro supports).

Macro supports

The macro supports examined in this section appeared most often in interviews. These included the initial in-service training received by teachers and ongoing sustained support.

Initial seminars

During the initial stages of curricular implementation, teachers were given in-service days and half-days to help them become familiar with the curriculum. The in-service days took the form of seminars in local education centres and on school campuses for larger schools. During these in-service days, educational advisors from the PDST or NCSE delivered seminars to teachers. The data gathered in both the questionnaires and interviews showed teachers were unconvinced by the initial seminar days. Five of the six practising teachers interviewed gave a negative appraisal of seminar days.

Eugene, an educational advisor, admitted that the seminar days are far from perfect as teachers received a lot of information during such days but retained very little. He believed seminar days should be used at the beginning of a curriculum rollout to deliver a consistent message to teachers. He acknowledged that with Covid restrictions, the online seminar-style days might be even less effective:

> To get consistency of messages is through a seminar … I remember reading a quote before; I think teachers maybe take in 10 per cent or something like that of the content in a six-hour seminar, and that's face-to-face. Imagine what it's like now online? (Eugene)

Later in the interview, Eugene pointed out that he would rather see more bespoke training for schools, but there is a place for seminar days to disseminate a curriculum earlier in the process:

> It's all about consistency of message … it's … getting the word out that this is happening … it's in the ether. But then … there needs to be very bespoke sustained support. (Eugene)

When Bridget, also working for an educational advisory agency, delivered curriculum training days, she tried to make the days as practical as possible. Days which were theoretical or just about providing information were not as helpful for teachers:

> If you go with a blanket theoretical point of view, it's just going to stay at a theory level, it is just going to stay at an information level. But for the teachers to engage with it, implement it, and take it on board, they have to relate to it. (Bridget)

Esme, a teacher in a large junior school, supports Bridget's recommendation; she found that the initial days were too theoretical. She did not see their benefit but would have preferred more practical training:

> It was more the theory behind the *Primary Language Curriculum* and how it would help the children, and there wasn't so much practical help at the training days. (Esme)

Megan, a teacher in a large country school, also found the initial training less than helpful. She remembers advisors being more concerned with highlighting the positives around the curriculum rather than giving practical training.

> They had spent the whole day trying to convince us that it was going to be OK and that they didn't want to worry us, and it was the absolute greatest load of fluff; there was no actual work done during that day. Nobody, I don't think anybody, came out of it feeling like they knew what was going on. (Megan)

Shauna, a recently qualified teacher, working in a special education school, pointed out that she and many others missed out on the initial training days. Recently qualified teachers usually engage in short-term subbing work. She drew attention to the fact that not being a temporary or permanent staff member might result in a whole cohort of teachers missing training:

> But if you are not working in a school, you didn't have that access. Because you weren't on staff of this school or whatever, and the only way as a sub you would have gotten that access would have been if you were subbing long term, which was what ended up happening for me at one point. (Shauna)

The teachers interviewed did not perceive the initial seminar days to be appropriate or practical. They thought these days were more about trying to appease teachers rather than being based on their actual practice. Eugene believed that seminar days helped deliver a consistent message to all teachers. After this initial input he suggested that more bespoke on-site training be given. Shauna makes a very important point that training should be available to all teachers, that newly qualified teachers might miss out unless something is done to ensure they have access to in-service training in the future.

Sustained support

Above, we can see that the teachers did not believe seminar days were an ideal form of PD. The PDST and NCSE are now delivering sustained support to schools. The two educational advisors explain this. First, we get Eugene's explanation of sustained support, where each school receives six visits from an educational advisor each year:

> The model we're using is sustained support, so it's not once-off visits. It is six visits over a period of a year, and within that then there's a number of different approaches and models we use. (Eugene)

Eugene then goes on to further explain why sustained support is beneficial. It is more bespoke, it can better meet the needs of individual schools and be more practical and specific:

> That's what sustained support is; it's really bespoke. The needs in your school are probably very, very different to the needs of my school. (Eugene)

Bridget is also in favour of sustained support because it is more tailored to a school. The advisor is only there in a facilitative role rather than the lecturing role they played in the seminars:

> The way we run sustained support is that it is intensive over a one-year period where … the school can have up to six visits from a support advisor and the school decide the agenda, they decide the focus, we're just there in a facilitative role to bring the school along in that journey. (Bridget)

Five of the six teachers interviewed praised the model of sustained support. Esme recalls the support she received in her school, saying how practical it was:

> It was very specific to our school. She [the advisor] was in the school; she was looking at our plans. It was very personal. That was really helpful (Esme).

When asked about the ideal form of training they would like to receive, Emer, a teacher in a large DEIS school, described the support she would have wanted. This involved an advisor coming in as a facilitator and the staff collaborating to decide a path forward:

> You would have some facilitators in for half a day, but the other half of the day is dedicated for just actual staff collaboration. To … get together, talk about what we've just been presented with, and decide, maybe on a route forward. (Emer)

The teachers and educational advisors agreed that a sustained support model was beneficial for schools. This support would be practical, bespoke and take place on-site. Importantly it would take place over a protracted period allowing for feedback and staff collaboration.

Meso supports

This section describes the supports that come from a school's leadership level. The perspectives are provided by teachers and educational advisors. Interviewees believed that the leadership team plays a vital role in setting an atmosphere congruent to implementing a curriculum successfully.

Importance of leadership

Eugene depicts the importance of leadership, especially when it comes to curricular change. The leadership in a school sets the tone and the example of best practice. This then filters down to the staff. A curriculum might not be successfully implemented if leadership don't set a good example:

> As a leader, you have to be just as invested in it, if not more invested … Demonstrating it, being an advocate of it, celebrating it, modelling it, monitoring it, for any curriculum to be … successful. So yeah, I think it's imperative that leadership are all about this and driving it. They're the drivers of change in a school, aren't they? (Eugene)

Emer agrees with Eugene, she again says that leadership sets the tone, but they can't simply impose change on the staff. Instead, they must encourage staff to become involved. They must use a dynamic bottom-up/top-down approach that fosters collaboration and includes all staff members. Leadership must include members of staff who are enthusiastic about the new curriculum or initiative. Those more enthusiastic teachers will be better equipped to encourage reluctant colleagues to become involved:

> The leadership are … the people in the school who set the tone. Who will encourage … teachers with the expertise to come forward and share their expertise. Share their enthusiasm for something … And obviously, they are the best people to help bring the more reluctant members of staff along. (Emer)

Emer also points out that there are always enthusiastic staff in a school who will try their best to embrace and implement initiatives. However, if leadership do not set the tone, this will remain on an individual level and will not be adopted by the entire staff or become part of the school culture:

> I feel like the management and the leadership in the school is one of the most important things … individual teachers will go into their classroom and take it on board, but maybe it's not overall the school culture, so that definitely has to come from the leadership, so important. (Emer)

The interviews revealed that leadership plays a vital role in determining whether a curriculum will be successfully or superficially implemented in a school. Leadership can set an atmosphere of collaboration and experimentation in a school and enable enthusiastic

staff members to encourage others to be part of the change process. The management team must lead the change culture; however, if this is left to individual teachers, the change may only occur at an individual level. Good leaders will not mandate (King, 2016). Instead, they will encourage teachers to collaborate and work together towards a common shared goal.

Micro supports

Micro supports stem from a culture of collaboration when dynamic top-down/bottom-up approaches are availed of in schools. This form of support thrives when staff are not just mandated to work together but instead are empowered and encouraged to find solutions and experiment with new methodologies and ideas (King, 2011; King, 2016).

Collaboration

The teachers interviewed felt that a dynamic top-down/bottom-up approach is not commonly availed of in Irish schools. However, when asked about collaboration in the interviews, four out of six teachers interviewed talked about collaborating with colleagues informally and how positive this was.

Emer here states that the best form of support did not come from the macro or meso support layers; instead, it came through peer support and collaboration. Through discussing what worked in the classroom and sharing practice with staff, she found the most beneficial:

> I suppose what I always find to be the best … source of support is when we do get time with staff to sit, collaborate, share practice, go off, try things, come back, talk again … (Emer)

From Megan's perspective, she also found that peer support was essential in her everyday teaching. Especially in the practical sense of discussing methodologies that work and experimenting with initiatives:

> One of the most important things has been that peer support. That kind of like, oh, I tried this in my classroom today … Did you do this yet this week? How did you find it? Did you find that children struggled with this kind of thing? (Megan)

Collaboration and peer discussion are essential in ensuring that a curriculum can be embedded successfully. However, this support should come from a dynamic top-down/bottom-up perspective where leadership and teachers work together to achieve a common goal (Fullan, 1994; Pietarinen et al., 2017; Poedjiastutie, 2019; Priesly et al., 2011; Ramberg; 2014).

Professional learning communities

Much literature points to the fact that professional learning communities are an excellent means of implementing changes in a school (Bolam et al., 2005; Kennedy & Shiel, 2013; King, 2016; Toole & Louis, 2002). Professional learning communities were mentioned

in half of the semi-structured interviews. Bridget gives an example of the makeup of a professional learning community. She highlights that they usually comprise members of the leadership team and teachers, but especially teachers with an interest in what the group is trying to achieve. The group can come together, experiment and collaborate before bringing their ideas to the broader staff:

> You have leadership level, and you have class teacher level, and you know maybe somebody who has a particular interest in literacy. Where maybe they take an idea, or they take a focus, they look at it together as a group, and they bring it to the wider staff (Bridget).

Joseph, a teacher, working in a large DEIS Band 2 school, discusses how professional learning communities were voluntary and made up of teachers and members of the leadership team in his school. These groups were very practical, tried out different ideas inspired by the curriculum, and then fed these back at meetings:

> Voluntary committees were set up by the AP1 [Assistant Principal 1] post holders looking for … feedback, and we had … working groups and working committees on the language curriculum … looking at … what aspects can we take from the curriculum … looking at the curriculum in greater detail and saying this is certainly something we could try out (Joseph).

Professional learning communities can foster an atmosphere of experimentation and collaboration in a school. They also ensure that ideas and methods are trialled before being shared with the wider staff. They are a way of ensuring that enthusiastic teachers are included in the implementation process. These teachers are in a great position to encourage colleagues to become involved in implementation.

Nano supports

Nano supports are the supports that come from teachers themselves. For teachers to support themselves to implement a curriculum, other supports mentioned above need to be in place. For teachers to have a positive attitude towards the curriculum, they need to feel trusted (Penuel et al., 2007; Rogan & Grayson, 2003); a positive collaborative atmosphere needs to exist (Le Fevre, 2014). They need time to implement the changes (King, 2011; King, 2016). These teachers felt that time was vital in determining whether a curriculum would be implemented deeply or superficially.

Time

Teachers need to have time to implement a new curriculum. However, they should also not feel overwhelmed (King, 2016). Eugene acknowledges that teachers in Ireland have faced initiative overload over the past few years and that this could affect change and lead to teachers not having the time they need to implement the changes:

> It's like there's initiative, after initiative, after initiative being introduced. We're right in the middle of curricular reform with the language curriculum. We're moving into a numeracy curriculum. Every other curriculum thereafter is going to be an outcome-based curriculum. But teachers need time to get their heads around it. (Eugene)

Five of the six teachers who were interviewed agreed with Eugene. They admitted to feeling overwhelmed and not having the time they needed to implement the curriculum properly. Emer affirms that many teachers have not yet fully interacted with the curriculum in her school. She believes that teachers do not have adequate time to implement it:

> I suppose everybody knows that the *Primary Language Curriculum* book is sitting there, but … just with the pressures of everything in the classroom … maybe it just gets put to the side, and it's gathering dust. (Emer)

Megan's experience is similar; she strongly indicates that teachers have an unbearable workload. She feels exasperated and admits that she spends a lot of time feeling guilty about what she has not achieved. For her, the curriculum is just one thing on a very long to-do-list:

> I think that, I think it's just … another thing. I feel like being a teacher these days is spending 90 per cent of your free time thinking about all the things that you should be doing. So, the curriculum, I don't think it's changed the way I teach. I think it's just yet another thing on that pile of 'the never-ending to-do list'. (Megan)

Michael, a teaching principal, comments on how teachers are dealing with more complex issues. As a result, their priority has shifted to dealing with the social and emotional needs of the children and embedding a new curriculum is not a priority:

> All of those structures are in addition to the ever-increasing social and emotional demands that, or needs that children appear to have. It effectively comes down to a matter of is it a prioritisation? (Michael)

A proposal by Eugene is to give teachers two non-contact hours each week to collaborate with staff and plan. This time, provided as a macro support from the Department of Education, could be used to help teachers collaborate or work individually to ensure successful implementation. Unfortunately, he also admits that he cannot see this being granted to teachers:

> I think if I was … Minister, I'd love to see every teacher getting two hours a week for prep during school time. But yeah, I don't think that will ever happen. (Eugene)

The teachers interviewed highlighted time as an important factor in determining if a curriculum will be successfully implemented. If teachers feel overwhelmed or are experiencing initiative overload, they will not have the capacity to implement a curriculum deeply. On the other hand, whether teachers are given enough time to research and implement a curriculum could also determine how receptive they are to change.

Discussion

The initial supports used to promote the *PLC* were investigated. McGarry's (2017) study found these to be inadequate. The opinions of participants in this study reflected McGarry's findings. Those same participants went on to discuss the supports that they needed to ensure successful curricular implementation. The supports mentioned by participants included sustained, inquiry-based PD and help to establish professional learning communities. The vital role of leadership in nurturing a positive collaborative environment and providing teachers with the time they need to implement successful curricular change was also highlighted.

Sustained, inquiry-based professional development

It was clear from previous research that teachers were unhappy with the type of PD they had received (McGarry, 2017). This study supported this finding. Initially, the NCCA used a top-down model to disseminate the *Primary Language Curriculum*. The teachers in this study felt this was inadequate and was the opposite of what they required. They wanted PD that was sustained over a more extended period in their schools and was inquiry-based. It was suggested by Eugene, the educational advisor, that at the very beginning of a dissemination process, off-site seminars can be beneficial because they provide a consistent message to teachers and also allow teachers to give feedback on the new curriculum or initiative.

The vital role of leadership

Leadership plays a vital role in implementing changes in a school (Rogan & Grayson, 2003). Leadership's influence can result in a new curriculum or initiative being successfully or superficially implemented. Leadership sets the tone and culture in a school; this could ensure an environment is either receptive or resistant to changes (King, 2016). However, it is important to note that leaders can't simply impose change. They should be part of a collaborative effort using dynamic bottom-up/top-down approaches to foster changes in a school (Priesly et al., 2011; Ramberg; 2014). It is also crucial for leadership to be a catalyst and acknowledge those teachers in a school who are amenable to changes; to tap into their enthusiasm, knowledge and skill sets allowing teachers to be a stimulus for change implementation (Atteberry & Bryk, 2011). Some enthusiastic teachers – regardless of leadership - will seek to implement changes on an individual level. However, these changes will remain at an individual level and this will not be congruent to positively affecting an atmosphere of change in a school (Rogan & Grayson, 2003).

Staff collaboration and professional learning communities

Evidence suggests that teachers do not take kindly to being dictated to; if initiatives are forced on them, they can be met with resistance (Park & Sung, 2013). Therefore, changes should take place as part of a dynamic top-down/bottom-up implementation strategy, with communication and consultation between all parties as part of the change process (Fullan, 1994; Pietarinen et al., 2017; Poedjiastutie, 2019; Priesly et al., 2011; Ramberg, 2014). Therefore, staff collaboration and instruments such as professional learning communities could be used to ensure that teachers feel their voices have been heard in the change process.

The study found that there was evidence of a dynamic top-down/bottom-up implementation strategy being used within schools to help implement changes in Ireland. The teachers interviewed in this study, spoke of collaboration with other staff members as a vital part of their professional development. The most popular forms of collaboration were informal and not mandated; this type of collaboration allowed for informal discussion of new methodologies or initiatives used in classrooms. It encouraged teachers to support each other when experimenting with new teaching methods or implementing a new curriculum.

The teachers interviewed also spoke of using professional learning communities as a good way of implementing changes in the classrooms. Professional learning communities consist of groups of teachers working together towards a common goal (Bolam et al., 2005; Kennedy & Shiel, 2013; King, 2016; Toole & Louis, 2002). This goal can focus on implementing a new teaching methodology, initiative or curriculum etc., in a school. Teachers had positive opinions on professional learning communities. These were seen as an opportunity for teachers with a genuine interest in the initiative to lead, experiment and work together. They allowed teachers to try out ideas before bringing them to the whole staff, allowing them to be 'classroom ready' and therefore more likely to succeed. Importantly, professional learning communities allow teachers and leadership teams to work together, so initiatives are discussed collaboratively and not just enforced on staff.

Time

Teachers need time to implement educational changes (King, 2011; King, 2016). Time, teachers felt, was a vital component in determining whether a curriculum would be implemented deeply or superficially. Eugene felt that teachers are currently experiencing initiative overload. Five of the six teachers interviewed stated that they felt overwhelmed. Some spoke of a never-ending-to-do-list; implementing a new curriculum appeared at the bottom of this list. Instead, teachers were more concerned with dealing with an increase in social and emotional demands and the more immediate needs of their pupils. One proposal was to grant teachers non-contact time away from their classes which could be used for planning, collaboration and professional development.

Conclusion

The approach taken in this study focused on listening to teachers' perspectives. Teachers play a fundamental role in the implementation of curriculum change and are a vital component in curricular rollout (Murphy, 2004). If teachers' perspectives are not listened to a curriculum may only be superficially implemented (Park & Sung, 2013). The Department of Education should be cognisant of the fact that the teachers who took part in questionnaires and interviews for this study did not respond well to the top-down approach taken to disseminate the *Primary Language Curriculum*. This top-down approach took the form of seminars in which an expert lectured teachers about the *Primary Language Curriculum*. Such seminars work well as a familiarisation tool and can be used to great effect to gather information and teachers' opinions during early consultation phases. However, other forms of PD should be used when it comes to embedding a curriculum (Darling-Hammond et al., 2017). A dynamic top-down/bottom-up approach such as the sustained support model should be incorporated instead (Priesly et al., 2011; Ramberg; 2014). This model is inquiry-based, conducted over a long time, and allows feedback opportunities for teachers (King, 2011; King, 2016). Teachers interviewed for this study had a positive disposition towards the sustained support model.

The PD provided by the Department of Education and educational agencies is essential in implementing a curriculum; however, two other levels of support are also vital in ensuring a successful curricular implementation. These levels of support come from the leadership in a school and through peer support. If the leadership team in the school don't show any interest in the initiative or curriculum, then a curriculum may be superficially implemented. This could mean that the curriculum may only be implemented on a 'name-only' basis, e.g. learning outcomes will be included in teachers' planning, but the essence and spirit of the curriculum will be lost. Instead, teachers might revert to teaching as they always have done. The study found that leadership in a school should not impose curricular change on staff, as this could be met with resentment and resistance. Instead, school leaders need to encourage and embrace collaboration. They can empower teachers to set up professional learning communities and provide these with the support and trust they need to succeed.

Unfortunately, none of the above will guarantee a successful implementation unless individual teachers have the inclination and capacity to implement change. Worryingly, both the educational advisors and teachers interviewed in this study highlighted a lack of time in their interviews. This perceived lack of time was seen as an impediment to curricular implementation. Initiative overload, the pressures of everyday teaching, a never-ending-to-do-list and having to deal with the ever-increasing social needs of children were seen as hindering successful curricular implementation in the interviewees' classrooms. The Department of Education needs to tackle this perceived lack of time if they want future curricula to be implemented deeply throughout the Irish education system. Teachers need to be provided with adequate time to implement a curriculum successfully. One suggestion is that teachers are provided with non-contact time where they have opportunities for PD, to collaborate and plan with colleagues, and to discover ways to embed a new curriculum in the teaching and learning of their classrooms.

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Using guided inquiry based science education to enhance my pupils' learning of and attitude towards school science

Niamh Smith and Dr Bernadette Wrynn

Abstract

The main purpose of this self-study research was to enhance the researcher's practice in the area of Science Education. It was hoped to improve the children's learning of scientific concepts while fostering positive attitudes towards science using a child-centred inquiry approach to teaching and learning. Applying a self-study action research paradigm allowed the researcher to gain a deeper insight into practice by reflecting critically through multiple lenses (Brookfield, 1995). Two cycles of research were carried out. Examination of practice in cycle 1, and introduction of an inquiry-based science education (IBSE) approach in cycle 2. The findings showed that children's interest in and enjoyment of school science increased when engaging with an inquiry approach to teaching and learning, and their academic attainment in science increased with many becoming more articulate in expressing their ideas

Keywords: **self-study, critical reflection, science education, inquiry**

Introduction

There is international recognition that children's interest in science declines as they progress through primary school (Rocard et al., 2007; Harlen and Allende, 2009) resulting in fewer children opting for science subjects in post primary education and subsequently, fewer opting for a career in science (Cermik, & Fenli-Aktan 2020; Denessen et al., 2015). Among the factors which have been attributed to influencing this increasingly negative attitude towards science are the teaching approaches experienced by the children (Den Brok, Fisher & Scott 2005). International research states that moving from deductive to inquiry-based pedagogies can increase interest and attitudes towards science; Two European Commission reports, namely Rocard et al., (2007) and Hazelkorn et al., (2015) have recommended inquiry based science education (IBSE) as an appropriate approach to engage children in science education in primary classrooms and develop their interest in the subject.

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Children's attitudes to science

Despite the growing influence of science in our daily lives, internationally there is concern regarding the lack of children's interest in science, and the decline in the number of children opting to study science beyond post-compulsory education (Osborne et al., 2003; OECD, 2007; Denessen et al., 2015). Research (Osborne et al., 2003; Cermik, & Fenli-Aktan 2020) suggests that children's attitudes towards science can have a big influence on their learning outcomes, their choice of science subjects at secondary school, and their career paths. Denessen et al., (2015) claim that children form attitudes to science at a young age, and these tend to peak at age 11.

There are worries concerning children's attitudes to science in Irish primary schools. Research (Varley et al., 2008; Murphy et al., 2015; Department of Education and Skills [DES] 2016) reveals that teachers in Ireland are still implementing more traditional didactic approaches to teaching science. Children in Irish primary schools are participating in hands-on science to some degree, but there remains an over emphasis on the use of more teacher-led, deductive approaches to science where "child-led, autonomous investigations appear to be used relatively rarely as a hands-on strategy" (Varley et al., 2008, p. 192). Reasons for this include inadequate time being dedicated to hands-on inquiry-based approaches to science, teachers' lack of confidence and competence in teaching science, and insufficient science content and pedagogical knowledge amongst teachers (Murphy et al., 2012).

The case for inquiry based science education

Over the past 20 years or so a plethora of research has highlighted the importance of IBSE pedagogies in reversing children's negative attitudes to science in primary school (Rocard et al., 2007; Harlen & Allende, 2009; Artique et al. 2012). Rocard et al., (2007) define IBSE as "the intentional process of diagnosing problems, critiquing experiments, and distinguishing alternatives, planning investigations, researching conjectures, searching for information, constructing models, debating with peers, and forming coherent arguments" (p. 9). IBSE is a very child-centred approach to teaching, children learn through asking questions, reasoning, doing, carrying out their investigations, and assessing the evidence. It allows children to learn by gaining understanding rather than by memorising information (Pollen, 2009). Harlen and Allende (2009) found that moving from deductive to inquiry-based pedagogies increased the interest of children in science and the teacher's willingness to teach it. IBSE encourages children to be more autonomous in their learning, developing their scientific skills (procedural knowledge) as well as their conceptual knowledge (understanding scientific theory), while teachers facilitate and further this learning through discussion and probing questions; children should be engaged not only in hands-on learning but minds-on (Harlen, 2014).

IBSE is not a new pedagogy, it is steeped in constructivism, especially the work of theorists such as Piaget, Dewey, and Vygotsky. Constructivism is a major influence on the teaching and learning of science education. Howard (2018) maintains that constructivism sees learning in terms of the learner constructing meaning through relevant practical experience that reconstructs thinking. The learner makes sense of their experiences by drawing on their pre-existing knowledge. Two key aspects of inquiry and constructivism in primary science, are that;

1. the children are actively answering scientific questions that are relevant to their lives; and
2. a focus is placed on eliciting and using children's prior knowledge.

IBSE consolidates many of the aims of the Irish Primary Science Curriculum (PSC) with its constructivist and child-centred approach to teaching and learning. Like IBSE, the PSC affords children the opportunity to develop their skills whilst learning scientific concepts, "first hand investigation is central to the way children learn science. It equips them with the realisation that they can provide their own answers to problems and that they can learn from their interaction with things around them" (NCCA, 1999 p. 2). The PSC recognises that not all children learn the same way, it advocates for a variety of teaching methodologies to heighten children's enjoyment of and learning in science lessons. Unfortunately, as mentioned in the previous section, a child-led inquiry is rarely used in science learning in Irish classrooms (Varley et al., 2008). Murphy et al., (2012) emphasise the important role of a teacher in an effective inquiry classroom, teachers must encourage children to become independent learners and develop and express their ideas. To do this successfully teachers need to have good scientific knowledge and pedagogical knowledge, and experience authentic inquiry activities themselves (Capps, Crawford, & Constas, 2012).

A call for 'action'

Through critical reflection, I (teacher and co-author of this paper) found that child-led inquiry was not as commonplace in my practice, and I wanted that to change. I decided to integrate an IBSE into my science lessons purposefully in the hope of enhancing the children's enjoyment of and engagement in science, without impeding their learning of scientific concepts. I wanted to cultivate a community of curiosity, creativity and critical thinking in my classroom and provide the children with opportunities to be autonomous and self-directed in their learning.

This action research took place with 3rd class in a mixed-gender suburban DEIS Band 2 school, where the variety of cultural and socio-economic backgrounds of the children promotes a healthy and inclusive school and classroom environment. This research was of particular interest to me in my school setting as an IBSE has been shown to have a positive impact on the attainment of children from disadvantaged backgrounds, as well as those with lower levels of self-confidence (Rocard et al., 2007). Currently, the *PISA* results show that Irish children in non-DEIS schools are significantly out-performing children in DEIS schools in the area of science literacy. Enhancing the engagement and interest of children in DEIS schools might be the step needed to narrow this gap and offer equal opportunities to all primary school children.

The actions I took

This research was carried out as a self-study action research project by the teacher with her 22 3rd-class boys and girls (aged between nine and ten years). Action research is defined by Elliott (1991, p. 69) as "the study of a social situation with a view to improving the quality

of action within it", the goal of this research was to improve the teaching and learning of science with that 3rd class group. Self-study research allows teachers to play a central role as the researcher, providing them with the autonomy to reflect critically and make changes as appropriate, a necessary feature of practice-based research in an ever-changing classroom environment.

Most action research models maintain four fundamental stages: strategic planning, taking action, observing and critically reflecting (Lewin, 1946). I first noticed that the children had some strongly held misconceptions regarding science at the beginning of the school year. I wondered what, if any, influence my current teaching practice was having on the children overcoming or maintaining these misconceptions. I decided to spend the first cycle of my research analysing and reflecting on my practices to observe what impact it was having on not just the children's learning, but also their attitudes to science, Elliot (1991) refers to this stage of research as "reconnaissance".

Reconnaissance (cycle 1)

I continued to teach the children in the way that I had been doing over the previous years. However, this time I started to collect qualitative and quantitative data concerning my teaching and the children's experience of science in school (see Table 1 below). I began to reflect on my practice, I kept a reflective diary where I commented on what was and was not working well in my classroom, I assessed the children's conceptual knowledge using misconception worksheets (pre and post teaching) to gain an insight into how their learning was impacted. I also consulted with my 'critical friend' to gain an outside perspective and offer alternative opinions that are not so clear in the centre of the research.

Table 1: Data collection tools

	Reconnaissance (cycle 1)	**Cycle 2**
Qualitative data	• Reflective diary • Critical friend • Open questions on misconception worksheets • Interviews with children • Open questions on the questionnaire	• Reflective diary • Critical friend • Open questions on misconception worksheets • Interviews with children • Open questions on the questionnaire
Quantitative data	• Closed questions on misconception worksheets • Closed questions on the questionnaire	• Closed questions on misconception worksheets • Closed questions on the questionnaire

The significance of the critical friend and other data sources

My critical friend was a science teacher who also had experience teaching primary science education at third level, and he was able to offer me positive constructive criticism on ideas and strategies (Costa & Kallick, 1993). At the end of the reconnaissance phase, the children filled in a questionnaire to find out their opinions of and attitudes towards school science. This consisted of closed and open questions. I also interviewed a small number of children about their experience of school science so far. The interviews provided me with very rich and valuable opinions, which would have been difficult to demonstrate in a written form given their ages. The variety of sources used to collect data allowed me to triangulate my

data and strengthen the rigour of my research (Sullivan et al., 2016). Using quantitative data allowed me to create a 'snapshot' of the children's learning, ideas and opinions, it also was informative when comparing results from each cycle. However, the qualitative data including insights from my critical friend were imperative to understanding my own thinking and the children's thinking and to provide the information which was central to the quest for improvement in my own practice.

Planning cycle 2

To plan cycle 2 of my research I brought together what I had learnt about myself as a teacher. This included my reflections and conversations with critical friends, and what the children enjoyed and disliked about their science lessons so far that year. I carried out research on IBSE, exploring how the PSC lends itself to the meaningful integration of IBSE and how to best put this into practice.

I discovered that there are four levels of IBSE each with varying levels of teacher direction and child autonomy; confirmation, structured, guided and open, (See Table 2 below). It is important to move through the levels to teach successfully through inquiry. Level 4, open inquiry, allows the child to be independent and take ownership over their learning. Although level 4 appealed to me the most with its autonomous features, I had to consider the children's previous experience of science teaching and their age, so I decided to implement level 3, guided inquiry into my practice. With guided inquiry the role of the teacher is to cooperate with children to define research questions and give opinions on procedures to be implemented by the children themselves.

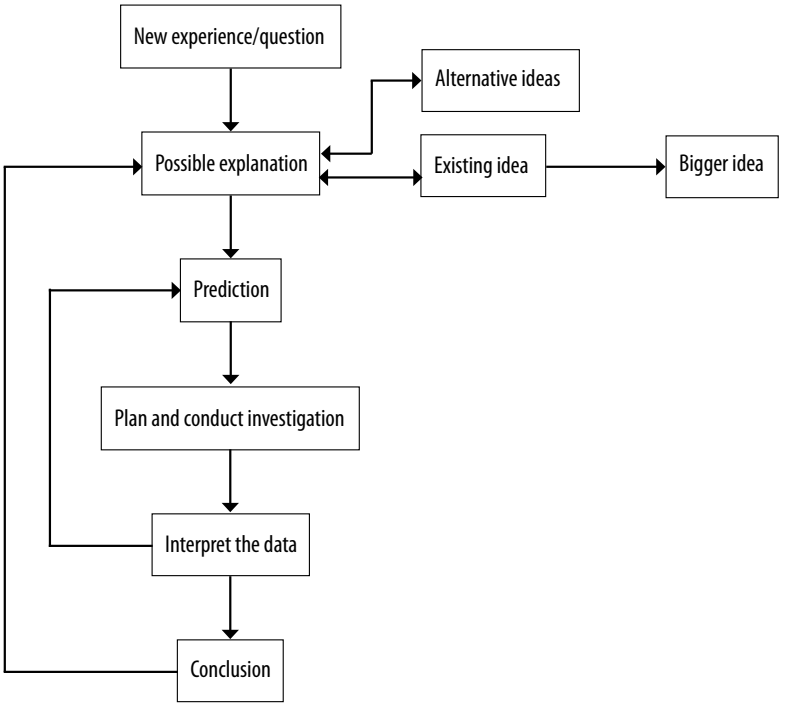
Table 2: Four levels of IBSE

IBSE levels	Questions (Defined by teacher)	Procedure (Defined by teacher)	Solution (Defined by teacher)
(1) Confirmation	Yes	Yes	Yes
(2) Structured	Yes	Yes	No
(3) Guided	Yes	No	No
(4) Open	No	No	No

The model of learning science through inquiry used in this study is based on Harlen's (2013) *Framework for Inquiry* (Figure 1) as this is closely linked with the social constructivist methodologies behind the Irish Primary Curriculum. Harlen's framework starts with the children's existing ideas concerning a specific scientific concept, and their explanations for having those ideas. It is important to acknowledge these as they are the ideas that the children worked out for themselves and make the most sense to them. Children are then given opportunities to see which ideas are more consistent with evidence by planning and carrying out a range of investigations to test their ideas. Finally, the children draw tentative conclusions about their initial ideas and share them with the whole class. The *Framework* highlights two important features of learning through inquiry: the need to introduce alternative ideas to the children's own and the role of inquiry skills, such as questioning,

observing, measuring, hypothesising, predicting, planning controlled investigations, interpreting data, drawing conclusions, reporting findings, reflecting self-critically on procedures. These skills directly reflect the skills outlined in the 1999 *Primary Science Curriculum* (PSC).

Figure 1: Harlen's Framework for Inquiry (2013)



During and after the second cycle of my research I carried out the same data collection methods as the reconnaissance phase; keeping a reflective diary, speaking to my critical friend, assessing the children's conceptual knowledge pre and post teaching, the children answering a questionnaire and interviewing the same four children. This allowed me to compare my results with the first cycle of research to identify any changes in the children's conceptual knowledge and/or attitude to science as a subject to learn in school. Table 3 below outlines the overall schedule of research and its evolution.

Table 3: Schedule of research

Time	**Project task/step**
October	Ethics approved and consent obtained
December	Cycle 1 commencement
January 2021	School closure (6 January-12 March due to Covid-19)
March - 3 weeks	Cycle 1 completion, data collection and analysis
April - 2 weeks	Cycle 2 commencement
May-June - 6 weeks	Cycle 2 completion, data collection and analysis

What the children and I learnt in cycle 1

As outlined previously, during cycle 1 I taught the children science using my traditional approach. I assessed the children's misconceptions in the areas of heat and materials and change before and after teaching the content in the traditional pedagogical approach that I had been using for the past five years. Findings show that there was a significant increase in the number of children identifying the correct answer post-teaching. However, most importantly, of the children who gave the correct answer, many of their explanations revealed that they had not grasped the correct scientific concepts and still retained their misconceptions. An example of some of these findings is shown in Table 4.

Table 4: Misconception findings for the topic of heat

Misconception	**Pre-cycle 1**		**Post cycle 1**	
Topic: Heat	**Correct answer**	**Correct answer with the correct reason**	**Correct answer**	**Correct answer with the correct reason**
1. Is heat and temperature the same thing?	40%	0%	67%	8%
3. Does heat travel from hot to cold, cold to hot or in both directions?	15%	0%	39%	29%
5. Can heat travel through a solid material? Like metal or wood	20%	25%	72%	23%

What we thought about learning science after cycle 1

The children were positively disposed to science, with 77 per cent finding it interesting while only 33 per cent found school interesting. Unsurprisingly, the children enjoyed the hands-on nature of science lessons, particularly working with their friends (72 per cent). One child mentioned that working with friends meant that they could help one another, while another acknowledged the potential turbulences of working with peers:

> Sometimes I don't like when we do it in groups because sometimes, we argue about what we should do. (Cycle 1)

The children very passionately believed that there was too much focus on writing and worksheets in science, which negatively impacted on their attitudes towards the subject. The children said they liked "everything except for the worksheets" and asked for "more experiments, less writing!" For example, one child said:

> It [science] is boring for me ... I don't like doing the worksheets. (Cycle 1)

A real constructivist approach

I had always considered myself a constructivist teacher, however, upon critical reflection, I found that although my science lessons were very active, they were teacher led and prescriptive (see Figure 2). The children were following a procedure, often without

understanding why they were doing it. I wanted the children to become more autonomous and invested in their learning. I focused too much on the outcome of the experiments being correct which often lead to teacher demonstrations at the end of lessons. Instead, I needed to emphasise the process and the development of the children's scientific skills.

Transformative power

Some of the misconceptions I was attempting to address were too abstract for the children and the link between the content of the lessons and the misconceptions needed to be more explicit. I placed too much emphasis on writing and question sheets which led to children with a lower academic or literacy ability being unable to participate to their full potential. This was a moment of transformation for me as I had always considered science to be an inclusive subject, drawing on a range of skills, not solely dependent on academic ability.

Despite my science lessons being overly prescriptive and teacher-directed, the children had a positive attitude towards science and enjoyed taking part. I found myself in a juxtaposition as I wanted to change my pedagogy, even though it was not impacting negatively on the children's attitudes. I also felt that the children were not reaching their learning potential in science, I hoped that by making the lessons more child-led and relatable for the children that the learning would improve with their growing interest.

Figure 2: Child's drawing of science at school (cycle 1) children carrying out an experiment on dissolving

Changes I made for cycle 2

Greater adherence to IBSE principles dictated my decision to amend the approaches for cycle 2, listed below:

- Allowing the children to be more self-directed learners, with me acting as a facilitator, a central feature of the 'inquiry' component of an IBSE.
- Emphasising the skill development of the children. Skill development and conceptual learning have equal weighting in the *PSC* and I wanted to reflect this in my teaching.

- Allowing the children to work with friends. This was emphasised by the children's responses in questionnaires and interviews. It was a simple step I could take to improve the children's attitudes to science lessons and demonstrate to the children that I valued their opinion.
- Using post-its and drawings to assess the children's learning and process rather than worksheets. Using post-its provided me with an insight into the children's thinking and learning but it took away tedious worksheets that the children disliked, while drawings are considered to be an effective way of allowing children to express their emotions and attitudes (Barrza, 1999).
- Aligning the investigations the children were carrying out more closely to the misconceptions they were overcoming.
- Creating more relatable learning experiences. Relatable experiences allow the children to see the relevance of science in their day to day lives (Rocard et al., 2007), eliciting an interest in the children to find out 'why?'.

I planned two schemes of work (see Table 5) in two areas I knew that the children held some misconceptions about; (1) falling objects and (2) floating and sinking. The lessons provided the children with the opportunity to work autonomously with their peers, using hands-on and mind-on activities that were supported by discussion, photographs and videos relevant to each area, e.g., *The Candy Bomber* video used to introduce lesson 3 on falling objects. The schemes were designed to develop the children's conceptual and procedural scientific knowledge. Given the nature of an inquiry classroom these lessons were not rigid, the children had the autonomy to direct their learning within the learning objectives, while also allowing me flexibility around areas in which the children needed more scaffolding.

Table 5: Summary of learning activities in two IBSE topics

Learning activities	Lesson 1	Lesson 2	Lesson 3
Falling objects	Exploring 'paper helicopters' and observing how they fall. Making changes, e.g. weight, wing length, size, etc., to the helicopters and observing the results. Identifying what the 'best' helicopter is, e.g. accuracy, speed, turns, and carrying out a tournament to find the best one.	Discussion around different objects humans use to fall safely from a height. Discussion around the scientific concepts taking place. Identifying the 'best' parachute by carrying out a fair test investigation. Children choose to explore the material, shape or size of the parachute.	Design and make an egg holder to carry out an egg drop using the parachutes made in the previous lesson. The children plan their holder by drawing a labelled diagram. Once their creation is finished and secured to the parachute they will drop it from different heights around the school.
Floating and sinking	Making and testing predictions about what fruits and vegetables will float or sink in water. Making changes to the fruit and retesting them, and drawing conclusions. Exploring different shapes that float or sink. Making boats from tinfoil and plasticine, predicting and testing how much weight the boats could hold.	Designing and making boats from recycled materials to hold a specified weight. Continuously testing their models in water and making any necessary adjustments. Conferencing with the teacher about their choices, the reasons for them	Class trip to the local park to test out their creations in a boat race on the river. Children discuss their predictions and the reasons for them. After the race, discuss the results and what worked well or what they thought would have worked better on their designs.

What we learnt in cycle 2

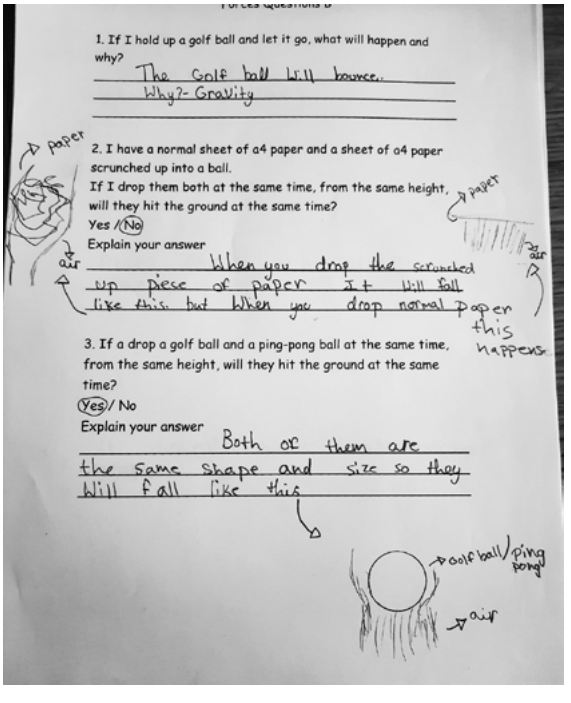
Accuracy

The results of the children's misconception worksheets for cycle 2 were particularly interesting. As seen in Table 6 below, post intervention there was a marked increase in the children answering questions correctly, for example, more than twice as many children answered question 3 correctly post-intervention. Significantly there was also an increase in the accuracy of the children's responses and their understanding of scientific concepts, for example twice as many children mentioned gravity, additionally, others drew diagrams to demonstrate their understanding (see Figure 3).

Table 6: Misconception findings for the topic of falling objects

Misconception	**Pre-cycle 2**		**Post cycle 2**	
Topic: Forces – falling objects	**Correct answer**	**Correct answer with the correct reason**	**Correct answer**	**Correct answer with the correct reason**
1. If I hold up a golf ball and let it go, what will happen and why?	95%	100% correct reason. 24% mentioned gravity	100%	100% correct reason. 53% mentioned gravity
2. If I drop a scrunched A4 page and a flat A4 page at the same time, from the same height, will they hit the ground at the same time?	75%	27%	100%	76%
3. If a drop a golf ball and a ping-pong ball at the same time, from the same height, will they hit the ground at the same time?	25%	20%	59%	60%

Figure 3: A child using diagrams to help explain their thinking



Criticality

Similar findings emerged for the concept of floating and sinking, although the results were more varied post-intervention cycles (see Table 7) there was significant evidence that the children's critical and scientific thinking had improved. The children were using terms such as hollow and solid, which they had not used pre-cycles, "Depends on what's inside, if it's hollow it might float". I was disappointed that there was no increase in the children overcoming their misconceptions. However, the responses were more considered and in-line with scientific thinking with greater use of scientific language than they had been before, "Some [light objects] don't have air so they won't float". Upon further scrutiny I felt that this was a greater reflection of the complex nature of the topic of Floating and Sinking, which has several interconnecting elements. An understanding of density is critical to overcoming the misconceptions that were addressed here, however, density does not feature on the Irish PSC. Upon reflection, my expectations of the misconceptions to overcome were likely too high given the age of the children and the curriculum objectives.

Table 7: Misconception findings for the topic of floating and sinking

Misconception	Pre-intervention		Post-intervention	
Topic: Forces – floating and sinking	Correct answer	Correct answer with the correct reason	Correct answer	Correct answer with the correct reason
1. Do all heavy objects sink in water?	56%	50%	88%	67%
2. Do all light objects float in water?	61%	55%	71%	75%
3. Does the shape of an object affect whether it floats or sinks?	72%	62%	41%	57%
4. Do all big objects sink in water?	83%	47%	76%	62%
5. Do all small objects float in water?	83%	67%	76%	69%

What we thought about science after cycle 2

Attitudes and autonomy

The children's attitudes towards school science were a significant aspect of this research, given the potential impact they can have on the children's future learning of science. I was delighted to find that the children's attitudes to science further improved after engaging with an IBSE. There was a significant increase in the number of children who liked science better than other subjects, looked forward to science lessons and wanted to do science at second level.

It was clear from the findings that the children valued the autonomy that an IBSE allows. There was an increase in the number of children who enjoyed choosing their equipment and working with friends. The children took ownership of their learning, commenting,

I like creating, like designing your own stuff.

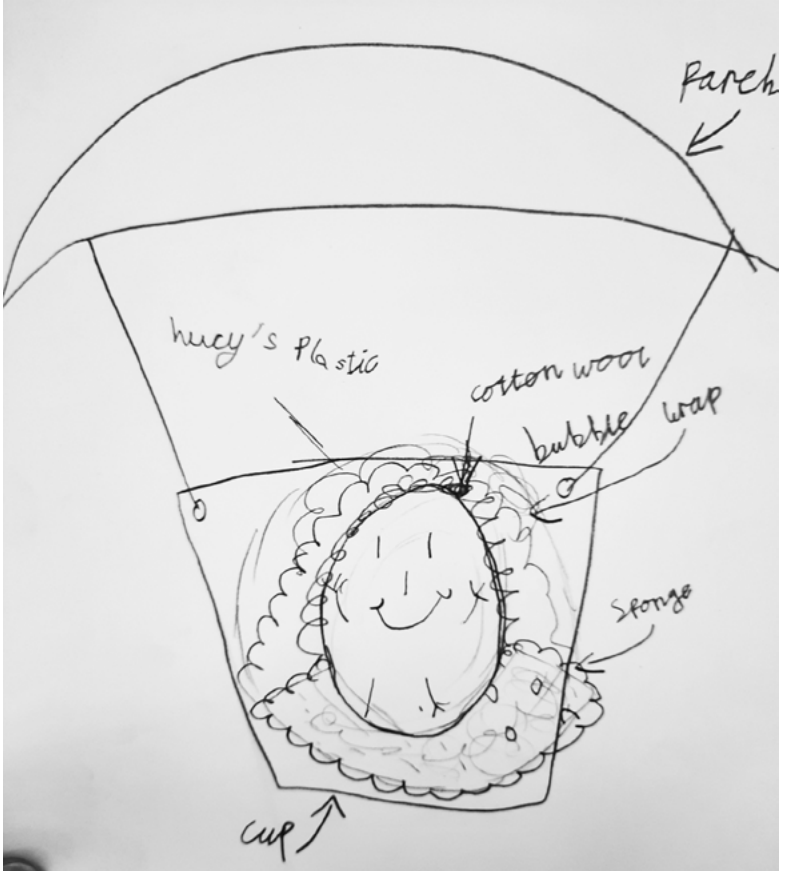
When reflecting on their favourite investigations one child explained,

I think because all of those three [filter, parachute and boat] we got to design and make our own ones … well my filter didn't work out but my parachute worked and my boat did. (Cycle 2)

... he described feeling "happy and proud" when his investigation worked out.

The children's value of autonomy was also evident in their responses to writing. As expected, there was a decrease in the number of children who enjoyed writing in workbooks or on worksheets. However, there was an increase in the number of children who enjoyed "writing about something they have done in science class", with half of the children enjoying this element of writing post-intervention. I concluded from the cycles that the children enjoyed writing and drawing when it was not prescriptive, but rather when it was structured around their ideas and experiences.

Figure 4: Child's plan for egg holder and parachute



Although the children enjoyed working autonomously, they also wanted the direction and support of the teacher, with an increase of children referring to enjoying science (11 per cent and 17 per cent respectively), when the teacher tells them what to do and when the teacher explains things to the class.

This was something I reflected on during cycle 2, I found myself having to carry out more teacher demonstrations than I would have liked and adding lessons to allow for more scaffolding. I concluded that possibly the guided level of IBSE was too ambitious for a class with no prior experience with an IBSE and perhaps level 2 would have been more appropriate.

Key learning on my practice after cycle 2

A key focus of my IBSE intervention was to change my practice from a teacher-directed approach to a constructivist child centred one. This required a complete change of my role in the classroom, acting as a facilitator and asking prompting questions to achieve the learning rather than directing it. Although this was an adjustment for me it was a profoundly rewarding experience. The children were more engaged and enthusiastic about science lessons, they looked forward to science and regularly asked when they were going to do the next stage of the investigations. Consequently, this gave me additional confidence in what I was teaching and how I was teaching. The enthusiasm and commitment of the children motivated my planning and teaching of IBSE, making cycle 2 a valuable and transformative experience for the class and myself.

A child-centred learning environment is not just about the children being self-directed learners, but also requires the teacher to listen and incorporate the children's ideas and opinions. By critically reflecting on cycle 1 I was able to integrate the children's wants and ideas into the schemes. The children recognised and appreciated that they were listened to, one child said;

> The last interview we did we said we'd prefer to do some science lessons outside and you said "yeah", and we did go outside, we did the parachutes and the boats. (Cycle 2)

These factors all contributed to the cultivation of a positive atmosphere in the classroom and strengthened the relationship between the class and me. Removing the heavy emphasis on writing allowed more children to access the curriculum and develop their conceptual knowledge and skills. This created a more inclusive classroom where all learning styles and abilities are integrated and respected.

Challenges for IBSE

The biggest challenge of implementing an IBSE approach was time management, not only with planning resources and lessons, but also with the classroom activities. As IBSE encourages the children to be autonomous learners I was required to conference with each group. However, this often resulted in the activity running overtime or the lesson conclusion being shortened. An additional contributing factor was the level of IBSE (see Table 2) and the greater scaffolding needed to support the children.

Conclusion

The main aim of this self-study was to investigate if using an inquiry-based approach to science could influence positively the children's attitudes and learning. The findings discussed above show that not only did the children's attitudes improve considerably but their scientific reasoning, thinking, skill development and general learning of the subject also improved (see Tables 6 and 7). My enjoyment in teaching science also increased and my pedagogical practice changed from a deductive to a more inductive approach.

My learning and implications for teaching

This self-study has had a considerable influence on my learning, both personally and professionally. Since starting this journey I have come to realise the benefits that critical reflection can have on my classroom practice. I now fully appreciate the recommendation that reflection is incorporated into day-to-day practice and not when presented with a challenge in practice (Brookfield, 2017). Opening up my classroom to carry out this self-study has been a gratifying and positive experience for me. I had previously found teaching to be an isolating profession, however, liaising with colleagues, peers and critical friends offered me a new perspective on my practice:

> I have always been critical of myself and my practice, zoning in on what went wrong and beating myself up about it. Breaking things down with my critical friend has really helped me to acknowledge the positive aspects of my teaching and give myself credit for what has gone well. (Reflective journal)

Critical and constructive dialogue is essential for professional growth and developing a "community of practice" (Wenger, 1998), engaging in reflective practice as a whole staff would be extremely beneficial to my school environment to promote and encourage change in a positive direction. Further implications for my practice included my 'return' to a constructivist pedagogy and mindset (Piaget, 1950; Vygotsky, 1978). Before this self-study, I felt I was teaching science using a didactic approach. Engaging an inquiry-based approach was integral to my ability to teach in a constructivist way.

From the children's perspective learning through inquiry encouraged them to become self-directed in their learning, explore different ideas and work collaboratively as scientists. The children had to work through trial and error, identifying the solutions and conclusions for themselves. Inquiry allowed the children the opportunities to be creative; choose their own materials, plan their own designs and make their own product, this was a new way of learning for many of them (Pollen, 2009; Artigue et al., 2012).

Having seen the positive influence of inquiry on the children's learning and attitudes to learning science I am encouraged to integrate it into other subject areas. As I have previously stated, IBSE was a new departure for many of the children in my class but by introducing it slowly and gradually moving through the levels (Smolleck et al., 2006) of support across the school year, I hope to inspire a classroom of self-directed, enthusiastic and independent learners.

Significance of the study and recommendations for further research

The main aim of the study was to improve children's attitudes towards learning school science by teaching using an ISBE approach. The findings indicate it was successful in my context. IBSE is important in enhancing children's attitudes to science and more extensive research should be conducted in this area. The use of IBSE in DEIS schools could be effective in closing the gap in achievement between children in DEIS and non-DEIS schools (ERC, 2020). In the Irish context, there is limited published research regarding the influence of IBSE on children's attitudes to learning science in primary schools (Murphy et al., 2015; Murphy et al. 2019) and so further practice-based research is warranted. There are often difficulties and obstacles when putting new pedagogical research into practice in the classroom (Huberman, 1993) particularly when teachers are not consulted (Van Driel, Beijaard and Verloop, 2001). Teacher-centred, or 'emancipatory', action research (Grundy, 1982) helps to bridge this gap and disseminate new research, with proven results in the classroom, to colleagues at a more local and regional level.

Final thoughts

The children's learning of science has been transformed in a positive sense. My self-study findings show that the children's interest in and attitudes towards school science improved, as has my motivation in teaching science.

> Carrying out this self-study required me to take an honest and critical look at myself as a teacher. As a reflective practitioner, I now value my inner lens and realise the impact my actions and ideologies have on the experience of the children in my classroom. For me the real success has been the journey I have undertaken rather than the destination. I now have a much deeper understanding of my core values and their instinctive influence on my practice. (Reflective journal)

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Isaac Butt and Irish national education: 1852-1879

Oilibhéar Ó Braonáin

Abstract

This paper considers the rich contribution of Home Rule leader Isaac Butt (1813-1879) to the development and reform of national education in Ireland in the second half of the nineteenth century. It examines Butt's speeches and writings on Irish primary education from the beginning of his parliamentary career in 1852 until his death in 1879, and evaluates his sincerely held opposition to mixed education and advocacy of denominational education in the broader context of mid-Victorian Church-State and Anglo-Irish relations.

Keywords: **Isaac Butt, history of Irish primary education, denominational education, secular education.**

While Isaac Butt is chiefly remembered for his tenure at the helm of the Irish Home Rule Movement (1870-79), time has obscured his significant contribution to Irish educational reform over the course of a lengthy public career. Butt was greatly interested in Irish education at all levels, university education, in particular, however, it is the chief purpose of this paper to examine and evaluate his involvement in Irish primary education between 1852 and 1879.

Born into a Protestant clerical family at Glenfin, Co Donegal, in 1813, Butt received his formal education at Midleton College and Raphoe Royal School before matriculating to Trinity College where his scholastic attainments were marked by distinction (Sullivan, 1878, p. 448; *DJ*, 7 May 1879; *IT*, 6 May 1879; *DIB*, 2009). In early life an ardent supporter of Irish Toryism, Orangeism and Protestant Ascendancy, the Famine was a catalyst for his damascene conversion towards a more ecumenical and progressive kind of politics (Murphy, 2003, p. 80). Butt founded the Home Government Association in 1870 (renamed the Home Rule League in 1873 and the Home Rule Party in 1874) and the Home Rule Confederation of Great Britain in 1873, (*IT*, 6 May 1879; *DIB*, 2009) thus charting the course of Irish politics for the following half-century. He led both organisations until his ignominious overthrow by more radically minded MPs who had come to lose faith in what they found to be his deferential and vacillating leadership. Butt paved the way for the meteoric rise of the more resolute and charismatic Parnell who dramatically eclipsed his declining mentor, ultimately confining him to long-term political obscurity.

Throughout his public life Butt was a sedulous champion of the cause of Irish education. From his first election to Westminster in 1852 he was a prolific contributor to debates on Irish primary, secondary and university education both inside and outside of parliament. He drafted the outline text of an Irish University Bill and published three works on Irish

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education, to wit *National Education in Ireland* (1854), *The Liberty of Teaching Vindicated* (1865) and *The Problem of Irish Education: An Attempt at its Solution* (1875). These volumes offer a coherent summative exposition of his views on the complex questions with which Irish education was then freighted, revealing his keen eye for detail and shrewd mastery of the issues at stake. Butt was the first Irish political figure of note to publish 'ad hoc' works on Irish education since Sir Thomas Wyse's 1836 *Education Reform, or the Necessity of a National System of Education*. In addition, Butt was one of the first Irish political leaders with experience as an educator, having spent several years as a Whately Professor of Political Economy at Trinity College, Dublin.

Butt was politically and personally a partisan of denominational education. Although his vehement opposition to the secular status of the National School system did not ultimately bear legislative fruit, it may have subtly influenced the already accelerating process whereby National Schools, from the mid-nineteenth century onwards, assumed an increasingly de facto denominational character, while remaining de jure secular (Akenson, 1970. p. 4; Coolahan, 2007, pp. 5 & 14). Butt was also an early advocate of parental rights in choice and ethos of schools, and, through the Home Rule Party, supported the campaigns of the fledgling Irish National Teachers' Organisation (INTO) for improved conditions of service. Butt also recognised the value of education in democratising society and curbing the influence of traditional elites. In his support for teaching the Irish language and his warnings against 'Anglicisation' in National Schools, he anticipated the Gaelic revival by a generation.

Primary education: Historical context Butt's views on denominationalism as a guiding principle of Irish education cannot be understood without reference to the broader historical context of Irish education over the preceding three centuries. From the time of the English Reformation, all state-sponsored educational initiatives in Ireland were designed "to proselytise the Irish to the Anglican faith and to make English the lingua franca of the country" (Auchmuty, 1937, p. 68). Consequently, state-endorsed educational endeavours were greeted with wariness by Irish Catholics who formed the principal demographic constituency they were designed to accommodate (Godkin, 1862, pp. 20-44; McGrath, 1951, pp. 21 & 24).

The most successful educational agency in Ireland anterior to the National School system was the Kildare Place Society. Founded in 1811, the Society provided mixed education for Catholic and Protestant children while disdaining proselytism and using only books free of sectarian tendencies. The Society received a guarded welcome from Catholic leaders, and in 1816 obtained a government grant of £6,000 which by 1831 had risen to £30,000. Controversy, however, attended its insistence that biblical extracts be read aloud "without note or comment" in its schools, and its funding was eventually withdrawn following accusations that it had breached its own rules on denominational impartiality (McGrath, 1951, p. 19; Kingsmill-Moore, 1904, pp. 1-16; Akenson, 1970, pp. 86-94; Butt, 1865, pp. 23-25).

The insuperable problem of formulating an education system acceptable to all creeds continued to importune the Irish Executive. Royal Commissions in 1812 and 1826 both criticised the use of scriptural schools for the education of Roman Catholic children and in 1828 a committee of the House of Commons recommended a system of united secular and separate religious instruction. (McGrath, 1951, pp. 20 & 28). In October 1831 the Irish Chief Secretary, Lord Stanley, established the National School system to provide "a combined iterary and a separate Religious Education" to children of all denominations free "from even the suspicion of proselytism" (Butt, 1865, p. 29). The system was governed by a National Board which included representatives of all the major religious traditions. Stanley considered the reading of scriptures in the Kildare Place Schools to have been a "vital defect" of that system which would not be replicated in the new National Schools (Butt, 1865, p. 30). Instead, pupils would receive joint secular education "on four or five days" of the week, with the remaining "one or two days" being reserved for the instruction of pupils in the tenets of their faith by their respective clergy (Butt, 1865, p. xiii). The Catholic hierarchy was cautiously disposed to make the best of the new system, recognising its potential, and Catholic political leaders welcomed the measure in parliament (McGrath, 1951, p. 29).

The strongest opposition to the National Schools in their early years came from elements within the Established Church and Ulster Non-Conformism. Sections within these communions initially held aloof from the national system, considering the ban on scriptural reading outside designated times as an affront to their religious sensibilities (McGrath, 1951, p. 30). Ulster Presbyterians were particularly recalcitrant, regarding "as absolute sacrilege the proposal to send their children to a school in which the Bible was not read" (Butt, 1865, p. 67) and one Ulster MP declared publicly that "He would as soon send his child to a seminary presided over by Satan himself, as trust him to the contamination of one of the National Schools" (Butt, 1865, p. 68). In 1839 disaffected Anglicans founded the Church Education Society to support independent Protestant voluntary schools and in 1845 unsuccessfully petitioned the Government for funding (Butt, 1865, p. 70).

Butt in parliament

This was the febrile, restive and antagonistic religious atmosphere in which Butt began his political career. In 1852 he was elected MP for Youghal in the conservative interest and advancing the cause of publicly funded Protestant denominational education became the platform upon which he constructed his early political identity. Butt's background and upbringing predisposed him to support denominational education, a position he would maintain until his death in 1879. Initially, he confined himself to Protestant demands for Bible-based education in the mould of the Kildare Place Society, but his position gradually broadened to encompass the demands of Catholic and Presbyterian church leaders for schools over which they would exercise more direct control and influence.

In October 1854 Butt proffered an early exposition of his views on Irish primary education in a speech to the Church Education Society at Youghal. In a strident oration addressed to an evangelical audience (and later published as a pamphlet), Butt declared his opposition to mixed education because it unfairly disadvantaged Irish Protestants. He

railed against the National Board for what he considered its unjust treatment of voluntary Protestant schools which did not comply "with the conditions upon which aid is given," viewing this as an attack on "religious principles." Butt condemned the ban on scripture during teaching hours as a violation of "genuine and deep-rooted religious scruples" and (turning Stanley's famous phrase against him with ironic intent), a "vital defect" of the new system. He pointed out that while in England the state "aided and sanctioned" Protestant education, in Ireland, a supposedly co-equal member of the United Kingdom, Irish Protestant children were "placed in a worse position than the English", accusing the National Board of having "yielded to the prejudices of the Catholic priest against the reading of the Scripture" (*BN*, 30 October 1854).

While Butt's robust rhetoric disregarded the sectarian complexities that the national system was intended to resolve, his views were nonetheless representative of a significant constituency of Protestant opinion. Butt was both articulating a genuine grievance and highlighting an awkward truth at the core of the national school system – the philosophical incompatibility of joint secular instruction with trenchantly held religious beliefs. Butt the politician was doubtless appealing to the sympathies of his electoral base, his Youghal philippic was also a sincere call for flexibility in the allocation of public funds to applicant schools, and for greater discretion in how the principles of mixed education might apply in practice. Access to state subsidies for voluntary denominational schools would allow parents to choose establishments most in sympathy with their religious convictions and obviate the need to participate in a system repugnant to their beliefs.

In parliament in June 1856, Butt declined to offer "unequivocal approval of the existing system of national education in Ireland" and reproved the National Board for what he perceived as its unfair treatment of Irish Protestants. He told the Commons that while "He did not wish to disturb the existing system … the Protestants of Ireland felt that great injustice was done to them" by it. He claimed that National Schools denied Irish Protestants "the same advantages which were given to every other persuasion" even suggesting that support for schools "in which all the children were required to read the Scriptures" was not a departure from "the fundamental principles of the national system." On the question of Irish education, Butt accurately identified the core philosophical difference between Conservatives and Liberals as hinging on whether scripture should form a mandatory component of instruction:

> the essential difference between the two parties in the House was, that [Conservatives] believed that by giving aid to schools in which all the children were required to read the Scriptures the fundamental principles of the national system were not departed from; whereas [Liberals] believed that the fundamental principles were departed from by such a practice.
>
> (HC Deb, 23 June 1856, Vol. 142, cc1807-86).

In the meantime, Catholic acquiescence in the national school system continued, albeit in qualified form. The Church's collaboration with the National Board had always been tentative, and conditional upon the concession of a reasonable measure of clerical control and doctrinal influence. The hierarchy maintained a watching brief on the operation of

the schools and jealously guarded against any intrusion on its catechetical prerogatives in particular. In 1847 the bishops had denounced revised rules on religious teaching as "most serious and dangerous, and incompatible with the safety of the religious principles of our Catholic children" (HC Deb, 23 June 1864, Vol. 176, cc176-235176).

The Church's ambivalence towards mixed education began to shift delicately in the 1850s. The elevation of the Ultramontane Dr Paul Cullen to the See of Armagh in 1849, and that of Dublin in 1852, inclined the episcopate towards a more assertive policy in favour of denominationalism. Although Cullen had guardedly recommended the mixed system to the Holy See in 1840 (Bowen, 1983, p. 52), the 1850 Synod of Thurles (which he chaired) declared strongly against mixed education (Akenson, 1970, p. 255). The laity followed the episcopal lead and in 1859 James Patrick Kavanagh, a Senior Inspector with the National Board, published *The Catholic Case Stated*, arguing that Irish Catholics fared comparatively worse 'vis-à-vis' state education than Catholic populations in other territories of the British Empire (Kavanagh, 1859, p. v). That same year Irish Catholic MPs raised opposition in parliament to the National System's secular character and in this were supported, for different motives, by Irish Presbyterian and Anglican MPs, Sir Hugh Cairns and James Whiteside respectively (HC Deb, 23 June 1864, Vol. 176, cc176-235176). In August 1859 the Catholic bishops issued a pastoral against the non-denominational system (*SNL*, 20 August 1859), by which point all factions were in apparent agreement that the non-denominational system was unsatisfactory and that the denominational system then prevailing in England should be adopted in Ireland. As Butt's colleague John Pope Hennessy informed parliament in 1864:

> ... the three denominations were arrayed against the institution of National Education in Ireland. In England, the system which prevailed was satisfactory to the various religious parties.
>
> (HC Deb, 23 June 1864, Vol. 176, cc176-235176).

Sensing an opportunity to forge a broader alliance, Butt now added Catholic disaffection to his grievances with the National Board. In parliament, he sought statistics on combined education with which he hoped to indict the Board's declared objective of uniting Ireland's heterogeneous creeds in one system. In August 1860 and again in March 1861 he moved for the Board's returns to be laid before the house, complaining that:

> He had moved for Returns at the close of the last session, which he deemed of great importance, as tending to throw light upon the working of the system of National Education in Ireland. For some reason or another those Returns ... had not as yet been laid on the table.
>
> (HC Deb, 1 March 1861, Vol. 161, cc1210-21210)

On April 19 the returns were provided by Irish Chief Secretary Cardwell, who noted "that out of 5,400 schools, nearly 3,000 were schools of united education", adducing this as evidence of the system's success (HC Deb, 19 April 1861, Vol. 162, cc854-6). Butt dismissed these figures as misleading, contending, on the contrary, that the "system of

united education" had "entirely failed" as some of the supposedly "mixed" schools had scarcely more than one pupil from a religious minority. Butt derided the system as having "separated the education of Protestants and Catholics and mutilated and maimed the religious instruction of both." He told the Commons that "the Roman Catholics of Ireland also complained of the national system of education" and that he favoured "perfect and entire freedom of religious education, both for Protestant and Roman Catholic." Butt demanded reform of the National Board's strict funding rules which he claimed had "caused dissatisfaction among a large proportion" of the people of Ireland (HC Deb, 19 April 1861, Vol. 162, cc854-6) but his arguments curried little favour with the liberal ministry which had established the system in 1831 and was ideologically predisposed towards a mixed education. Despite Butt's dogged persistence, the National Board remained resolute in its commitment to the tenets of combined secular and separate religious instruction. In general, however, it determined that the most prudent course was to adopt a malleable and amenable attitude to denominational schools seeking affiliation. Its attitude to the convent and monastic schools was a case in point

In November 1863 the Board rules were amended slightly to permit the recognition of convent and monastic-run schools, subject to their compliance with the principles of mixed education. In reaching this accommodation the Board was remaining faithful to the spirit rather than the strict letter of its original 1831 charter and the move fermented controversy at Westminster. A debate in June 1864 divided Irish MPs along generally sectarian fault lines. The Belfast Conservative Sir Hugh Cairns opposed the move as being "at variance with the principles of the system of National Education" while support came from the Roscommon and Dungarvan Liberal MPs, 'the O'Conor Don' and John Francis Maguire. Butt himself spoke with moderation and tolerance, characterising the policy change as a "trifling concession" and holding that "there never had been so much agitation raised about so small a change." He pointed out that the issue "was no new thing", having been discussed as early as 1831 and that indeed, convent schools had been supported by the Kildare Place Society. Advising the House that "There was no reason why war should be made on these schools [and that] convent schools were not antagonistic to the educational system" he criticised Cairn's opposition as "very mischievous." (HC Deb, 23 June 1864, Vol. 176, cc176-235176). In July 1864 Butt made a further effort to alter funding rules in favour of denominational schools. His proposed motion urged that schools established for pupils from one denomination only should be entitled to the same recognition and financial support as mixed schools, under the strict 'proviso' that "all aid should be withdrawn" if they admitted pupils of different persuasions (Butt, 1865, p. 1). Effectively an argument in favour of a parallel system fell on deaf ears.

In 1865 Butt published *The Liberty of Teaching Vindicated*, a lengthy critique of the National School system. The work offers a thoroughly researched history of Irish education from the Tudor period, examining the various state initiatives which had used schools as surreptitious instruments of conversion and anglicisation. While Butt deprecated the iniquity of this policy, he argued nonetheless that the lessons of history had been learned ensuring such errors could not be repeated, and that denominational education was a prerogative of parents in a religious society. Butt also noted that regarding denominational education, the position in Ireland was "the reverse of that on which the educational grants

in England are administered" (Butt, 1865, p. x). While Butt acknowledged that separate religious instruction was permitted in National Schools, he believed the regulations interdicting the reading of scripture, the exhibition of religious symbols and the invocation of prayers outside designated periods, were burdensome, intrusive and inhibiting. Indeed, Butt believed that these "vexatious restrictions" were injurious to the interests of religious education 'per se' (Butt, 1865, pp. xx, 7, 120, 144, 146, 147, 151, 163 & 164). To illustrate his critique of mixed education he offered the example of two Dublin National Schools, one Catholic, and one Presbyterian, situated close to each other. Both schools were under different religious management and yet, as required by law, open to children of all faiths. In practice, however, their enrolment consisted exclusively of pupils of their creed. Butt argued that such schools were hindered in their work by inflexible rules which presupposed a mixed enrolment:

> Not a single Protestant child attends the one - not a single Roman Catholic the other. Yet in both religious instruction is fettered and controlled. If the Presbyterian teacher obeys the rules, he dares not allude to religion in his ordinary instruction. If the sound of the convent bell were to induce any unfortunate pupil of the nuns to make the sign of the cross or repeat the invocations that her parents tell her are sacred, all the machinery of inspectors, head inspectors, and official investigations would be set in motion to discover and punish the awful infraction of the rules of 'mixed education'
>
> (Butt, 1865, p. 7)

Butt believed that mixed education was a cumbersome and doctrinaire solution to an old and deeply rooted religious problem and that it was "founded only on the fiction that schools are places of united education" (Butt, 1865, p. 163). The returns for 1864 supported this contention showing that, outside Ulster, National Schools were "almost without exception either exclusively Protestant or exclusively Roman Catholic" (Butt, 1865, p. 5). Butt was not concerned by the standard of secular instruction in National Schools (which he believed to be very good), but rather that the quality of their religious instruction was open to suspicion. An inspector's report from 1855 had lent foundation to this contention, suggesting that in certain schools religious teaching was characterised by confusion, inconsistency or, in some cases, even ignored (Butt, 1865, pp. 125-126).

Butt believed that mixed education created more problems than it solved. In *The Liberty of Teaching Vindicated*, he suggested that acknowledging the reality of denominational difference was but an appeal to reason and common sense and that framing a system to accommodate that difference would represent a more effective use of grants-in-aid. Although a thoroughly researched and impressively argued polemic, the tone of which has been described as "tolerant and magnanimous" (De Vere White, 1946, p. 188), the logic of Butt's work was ultimately specious. The author glibly elided the problematical question of how to administer a scheme of primary education in a country as fractured by sectarian mistrust as Ireland, without the sort of artful compromises and adaptable thinking that the National School system incorporated.

As a contribution to the discourse on national education *The Liberty of Teaching Vindicated* was favourably received by Cardinal Cullen, who, on 8 July 1865, wrote to Butt praising his book:

> Allow me to return you many thanks for your treatise on national education. I have already read a considerable portion of it, and derived great pleasure from doing so. It puts the question on its proper principles and throws great light on it. Undoubtedly it will do great good in the country.
>
> (Butt Papers. *Ms.* 8687(2))

Cullen's letter implied a community of shared purpose between the churchman and the politician which transcended their immediate confessional differences. In 1864 Cullen founded the *Irish Ecclesiastical Record*, which, in August 1865, published a glowing review of *The Liberty of Teaching Vindicated.* Opening with the bold declamation that "No Catholic can examine the system of National Education without being filled with alarm for the safety of our faith in Ireland," the review proceeded to lavish encomiums on "the Protestant barrister, Mr Isaac Butt, late MP for Youghal … a learned and eloquent gentleman" who had "studied the subject with the greatest care":

> His treatise is written with great clearness and moderation; his views upon education are liberal and accurate; and his arguments against allowing the education of Ireland to pass into the hands of a hostile government, are most powerful and unanswerable. Mr. Butt has rendered us an immense service by publishing so valuable a treatise. We recommend all our friends to provide themselves with it, and to peruse it most carefully.
>
> (*IER*, Vol. I, pp. 534-542, August 1865)

Despite the successful reception given to his work in supportive quarters, just how representative Butt truly was of mainstream Catholic and Protestant thinking on denominational education is debatable. A confidential government memorandum of November 1858 claimed that many moderate Catholics favoured mixed education and that their views were not represented by the "priests and demagogues who find expression in the Irish Press or in Parliament" (McGrath, 1951, p. 483). On the Protestant side, the tide of influential opinion was also turning in favour of mixed education. In 1860 the Anglican Archbishop of Dublin advised the Church Education Society to come to terms with the National Board, which it gradually did (Lyons, 1974. p. 83) and in 1866 Butt found his position to be even more conspicuously out of step with a significant cohort of his co-religionists, with the publication of *A Declaration in Favour of United Secular Education in Ireland by the United Church of England and Ireland.* Signed by 2,754 figures of eminence within Anglican circles, including the Primate of Ireland, five bishops, 733 clergymen and several senior establishment figures, the document was an effective repudiation of Butt's publicly iterated position. Despite this Butt was undeterred and his campaign against integrated education would continue unabated.

Education of the poor

An early obstacle to the National System had been the widespread view that "aid to popular education was not ... recognised as one of the duties of the state" and was even considered to be "a questionable good" (Butt, 1865, pp. 12-13). Butt had long supported educational access for the poor. His 1840 novel, *Irish Life*, reveals authorial conceptions of education's edifying influence on the underprivileged, and of the duty incumbent on those enjoying high social rank to support local schools (Butt, 1840, pp. 148-9 and p. 214). In 1847 Butt reproved the "long neglect of the rights of the poor" in Ireland (Butt, 1847, p. vii), and following his election to parliament in 1852, he argued against invisible obstacles to their education. In 1853 he warned that a proposed extension of the income tax could mean the difference between a "poor struggling clerk ... being able to send his child to school or not" (HC Deb, 2 May 1853, Vol. 126, cc912-1004). In defending funding for convent primary schools in 1864, he declared that no one "anxious to bring education and civilization to the lower classes in Ireland" could reasonably obstruct such aid (HC Deb, 23 June 1864, Vol., 176 cc176-235176).

Butt discerned education's potential to liberate the natural intelligence of the democracy, empowering the peasantry to marshal their collective strength and agitate more efficaciously for political and agrarian reform. His 1866 tract *Land Tenure in Ireland* noted that "The National Schools had diffused education and intelligence among the people" enabling them to assert their legal rights more effectively "without the aid of the upper classes" (Butt, 1866, p. 9). Butt was himself a practical supporter of schemes to enhance educational opportunities for the working poor. In Autumn 1869 he was invited to lecture at the Dundalk branch of the Catholic Young Men's Society, an organisation which provided a library and "education to a large number of young men and boys ... who, being employed during the day, would never have a chance of receiving any share of education" (*DD*, 18 September 1869). Butt was also a consistent and steadfast opponent of proselytism and actively deplored the misuse of free education as a masquerade for clandestine programmes of religious conversion. In *Land Tenure* (1866) he acknowledged the deleterious effects "religious fanaticism" had borne on the promotion of popular education and in poisoning social relations between landlord and tenant:

> About forty years ago, many of the gentry of Ireland were animated by a zeal for proselytism ... Amid a mania for Bible societies and 'scriptural schools', a new element of discord arose in efforts on the part of the landlord 'to compel his tenant' to purchase a bible, or 'send his child to a school in which the Holy Scriptures were read'.
>
> (Butt, 1866, p. 33, my emphasis).

While he remained committed to "the struggle for free education" Butt was also concerned that its realisation should not be compromised by religious differences amongst its proponents (*ME*, 20 May 1871). His views enjoyed widespread appeal and even before his involvement with the Home Rule Movement, Butt's name was favourably connected in the public mind with the Education question. In 1869, when he was approached to stand for a by-election in Tipperary, notices supporting "Butt for Education" appeared on placards "in the chief towns" of the county (*Nation*, 16 October 1869).

Education and Home Rule

In 1865 Butt had written that there was not "an Irish constituency from Bandon to Derry in which any man could be returned as an advocate of the national system ..." (Butt, 1865, p. viii) and the 1868 general election lent some truth to his assertion. The election was dominated by the issue of Gladstone's proposed disestablishment of the Church of Ireland, but the question of denominational education was not far behind. 1868 witnessed the last great Liberal triumph in Ireland as the party returned 66 of the country's 103 MPs, over 75 per cent of whose election addresses cited "the provision of Catholic denominational education" as a key demand, with the majority of those returned remaining pledged to that programme (Thornley, 1964, pp. 29-30 & p. 85). Gladstone's passage of the Irish Church Act the following year so rattled the foundations of the Irish Tory establishment, that many Irish Tories, including Butt, were drawn into the fold of Home Rule in the belief that a Dublin parliament would be a surer safeguard of their interests than that of Westminster (Sullivan, 1878. pp. 429, 446 – 449; Bowen, 1983, p. 274; Thornley, 1964, p. 85). Butt founded the Home Government Association in 1870 and the nature and extent of the powers of the domestic legislature he proposed became at once a pressing political issue.

The 1868 election had proved that support for denominational education was indispensable to electoral success in Ireland, a point highlighted in 1869 by the MP Bernal Osborne who told the Anglo-Irish Liberal grandee C.S. Fortesque that "The parish priests and bishops care most about denominational education" (Thornley, 1964, p. 84). Butt made it abundantly clear that under a Home Rule regime "our systems of education ... would all be left under the management of our domestic Parliament" (Butt, 1870, p. 60). The belief that a local parliament would benefit Irish education now formed part of the Home Rule narrative. An October 1870 letter to Butt from Lord Clancarty, an early Home Ruler, attributed the more advanced condition of education in England to the failure of the Act of Union to deliver on its promises (Butt, 1870, p. 112). The political class quickly recognised that in the altered temper of the times 'Home Rule' and 'Denominational Education' had displaced 'Gladstone' and 'Disestablishment' as shibboleths of electoral success. In February and June 1871, Mitchell Henry and P.J. Smyth were returned in by-elections for Galway and Westmeath respectively, as advocates of Home Rule and "Denominational Education". (Vaughan, 2010, pp. 5-6). The following September Butt himself stood for the Limerick City division under the Home Rule banner. In a speech accepting the nomination he stressed the importance of reforming National Schools to make their ethos more religious and nationally inclined, and his subsequent victory in this by-election was, arguably, as much an endorsement of his education platform as of Home Rule itself (*Nation*, 9 September 1871; Thornley, 1964, pp. 29-30; Vaughan, 2010, p. 6).

Butt appreciated the importance of clarifying his education policy to assuage public concerns. In a May 1871 letter to Professor J.A. Galbraith of Trinity College, Dublin, he disclosed that he favoured capitation grants for primary schools and reiterated his commitment to denominational schools, believing that "education without religion is, at best, imperfect" (*ME*, 20 May 1871). The Irish political landscape of the early 1870s was fractured into a variety of disunited factions including Repealers, Liberals, Unionists, Conservatives, Fenians, Land Reformers and "the Catholic Education party ... supposed

to include most of the bishops" (Sullivan, 1878. p. 499). While many of these vested interests held incompatible views on education, most of those seeking to engage with the parliamentary process espoused denominationalism in one form or another. Butt's task from 1870 onwards was to steer the nascent Home Rule Movement between the Scylla of an entirely secular education system (favoured by liberal radicals and anti-clericals) and the Charybdis of unfettered Church control (preferred by Tories, reactionary clerics and social conservatives). Anxious to capture the centre ground, his education policy necessitated a continued rapprochement with the hierarchy. While Cardinal Cullen was mistrustful of the new Home Rule movement and suspicious of its Protestant leader (Bowen, 1983. pp. 273-4), Butt could not ignore the political capital which must accrue from a tactical alliance with the Catholic clergy on the education question. In 1873 he advised the Catholic Bishops on their response to Gladstone's ill-fated "Irish University Bill" with a "Confidential Memorandum" which helped galvanise their successful opposition to the measure. As a reward he was offered an honorarium by Catholic University President, Dr Woodlock, which he declined (Cullen Papers, 45/2/33; Thornley, 1964. p. 152).

In securing the movement's clerical flank by a pro-denominational platform, Butt garnered clerical support for Home Rule itself. In January 1874 the parish priest of Dromiskin, Co Louth, Fr McCullagh, urged his flock to vote only for candidates "pledged to Home Rule, 'Denominational Education', and Amnesty" *(Nation*, 31 January 1874. my emphasis). That month Fr P. Horan, parish priest of Whitegate, Co Galway, wrote to Butt that "the Bishop and the priests and their candidate are Home Rulers and what more is wanting [?]" (Butt Papers. *Ms*, 8703). During the 1874 general election, a conference of Catholic priests at Dundalk resolved "that only candidates in favour of Home Rule were worthy of their support" (*FJ*, 10 February 1874), and Home Rule candidates in Cavan, Kilkenny, Longford, Kerry and Westmeath received similar clerical endorsements (Thornley, 1964, p. 187). In 1875 Fr P. O'Reilly, parish priest of Kingscourt, Co Cavan, organised a testimonial for Butt to which all "Friends of Home Rule, 'Denominational Education', Fixity of Tenure, and Amnesty" were invited (*FJ*, May 22, 1875; my emphasis) and in August 1877 the aforementioned Fr P. Horan lauded Butt in the *Nation* as a "matchless … [and] patriotic leader" (*Nation*, 25 August 1877).

Although church support led to accusations from elements within the British press that Cardinal Cullen was cynically leveraging Butt and his movement to advance the Catholic educational agenda (*SDT*, 25 October 1872; *YPLI,* 21 September 1875) the relationship between prelate and politician was reciprocal, with some Home Rule candidates pledging "support for denominational education in return for Catholic votes" (Bowen, 1983, p. 275). For some bishops home rule itself continued to remain of subsidiary importance to the overriding issue of denominational education, with the Bishop of Killala telling the Irish Chief Secretary in 1877:

> In Irish politics, the education question has practically displaced even the home rule question and the land question.
>
> (Foster, 2011, pp. 234 & 352)

Bowing to this reality, Butt openly praised Cardinal Cullen's defence of religious influence in schools (*CE*, 20 May 1871) and his support for denominationalism would soon yield the requisite political dividends.

A Dublin conference in November 1873 relaunched the *Home Government Association* as the *Home Rule League.* Although objections were raised "that the ... education question" was not to be discussed, as Captain King-Harman pointed out, education and Home Rule were practically synonymous issues:

> If [an Irish MP] thought the country demanded education following the wishes of the people, it must be the natural sequence of Home Rule. If he does not vote for Home Rule, it means that he wants England and Scotland to tell them how to educate themselves ...
>
> (*Proceedings of the Home Rule Conference*, pp. 155-156; 160-161)

A pamphlet *What is Home Rule?* by Butt's friend and propagandist Hugh Heinrick stressed that under a local parliament "education ... would be directed and controlled by the freely-chosen representatives of the people" (Heinrick, 1874, p. 11). Heinrick, a Wexford-born schoolmaster, journalist, editor and later Parliamentary Secretary to the Home Rule League, shared Butt's views on the anti-national tenor of the National School system (see below), describing Home Rule as:

> ... the watchword of the Irish nation ... whispered in the road-side school, where the peasant's child is forbidden, by the emissaries of Foreign rule, to breathe the sacred word 'Nationality'.
>
> (Heinrick, 1874, p. 1)

The 1874 general election was the first contested by the Home Rule League and while the issue of legislative independence dominated the contest, denominational education came a close second in the majority of electoral addresses by party candidates (Thornley, 1964, p. 176). As the hustings began, the influential nationalist organ, the *Freeman's Journal* trumpeted:

> The Irish platform is Home Rule and Denominational Education. Let no man get a vote who is not in favour of these principles. (*FJ*, 3 February 1874).

The election was the first to be held under the secret ballot and it proved a tremendous success for Butt. It witnessed the final rout of liberal unionism as a political force in Ireland (Thornley, 1964, p. 179) as 59 of the country's 103 MPs were returned on a Home Rule platform (*CE*, September 24, 1875). The Home Rule Party was then a loose alignment of MPs rather than a strictly disciplined political body in the modern sense, but its electoral breakthrough was significant. Butt had come to personify and unite the causes of legislative independence, tenant right and denominational education, and, significantly, in February 1875 the education portfolio was entrusted to his care by his parliamentary colleagues (Thornley, 1964, p. 252). In September 1875 at Limerick, he once more condemned the

fact that while denominational education was subsidised in England, a similar system was prohibited in Ireland. Butt inveighed against "the attempt to force upon us a system of education of which the nation disapproves, in the denial of equal rights and privileges with England" and reproached the efforts of successive administrations "to thwart and counteract the national feeling ... in our national education ..." (*CE*, 24 September 1875).

In 1875 Butt published his final major work on Irish education, *The Problem of Irish Education, an Attempt at its Solution*. It is a further remarkable testament to his forensic grasp of the detail and complexity which lay behind the Irish education system at primary and university level, and to his ability to formulate concrete reform proposals of his own. Butt reprised the now familiar theme of denominational education with a vehemence that time had not abated. He argued that since 1831, church leaders of all denominations had never retracted their wish for religious schools:

> For more than forty years the members of the Protestant Church have resisted all efforts of the Government to force on them a system of national education in which they would not be permitted to make the Bible a textbook in their schools. The Protestant clergy and laity have, over and over again ... denounced the separation of religious teaching from education. With equal directness ... the Roman Catholic priests and people have asserted the principle that all education must be based upon religion. The instincts, the prejudices, the traditions, the whole genius and spirit of the Irish nation are against the separation of education and religion ...
>
> (Butt, 1875, p. 3)

The Problem of Irish Education contains the tactless (from Butt's point of view) admission that "The great majority of ... Presbyterian and Roman Catholic schools are in reality denominational"(Butt, 1875, p. 18), a truth which had been recognised by Archbishop Murray of Dublin as early as 1839 (Bowen, 1983, p. 50) and acknowledged in evidence offered before the *Royal Commission of Inquiry into Primary Education* in 1868 by Bishop Dorian of Down and Connor, and Monsignor Forde, Vicar General of Dublin (Powis, 1870, Vol. III, p. 348 Q. 8756; p. 354, Q. 8895; p. 357, Q. 8947; Vol. IV, p. 1001, Q. 22954). Butt's candour on this point inadvertently exposed the Achilles heel of his entire polemic i.e. the inconvenient truth that most National Schools were 'de facto' denominational; that most people found this arrangement satisfactory, and that his political advocacy of denominational education was therefore moot. In seeking to replace the successfully functioning national school system with an anachronistic denominational model such as that of Kildare Place (which it had superseded), Butt was engaged in a futile campaign. Indeed in 1848, Michael Blake, Catholic Bishop of Dromore, had lauded the mixed national system as "the only one which has been yet devised ... acceptable to persons of all denominations in Ireland", calling it "a liberal system" to which he gave "his most unqualified support" (*NELA*. 26 January 1848). In 1868 the former Limerick MP, Stephen De Vere, told the Powis Commission that the country was "very pleased" with "united education" praising its "popularity" and "efficiency". (Powis, 1870, Vol. IV, p. 879, Q. 20263). In effect, Butt had placed himself in the politically indelicate position of requesting from the government that which it was not disposed to concede and that which it knew the

electorate, by and large, did not desire. A review of *The Problem of Irish Education* in the nationalist *Irishman* drew attention to this salient fact, observing that for most poorer Irish people, the primary education question was considered to have been satisfactorily resolved and that Butt ought henceforth to focus politically on the more pressing need for intermediate and university education for the burgeoning Catholic middle and upper classes:

> 'The question of the primary school might rest for a little', to give way to a more urgent one- the question of higher education. As a matter of fact, there exists education for the humbler classes which they can make use of without danger to faith or morals. 'The National Schools have not been condemned'; 'if they are, as stated, practically Denominational, that should suffice for those who prefer this system' ... These schools, supplemented by the schools of the Christian Brothers and of the various conventual orders, supply the humbler classes with large educational resources, unknown to the middle and higher class of Catholics in Ireland.
>
> (*Irishman*, 6 February 1875. My emphasis)

Butt forwarded a copy of his book to the INTO (*ITJ*, 23 March 1875, p. 188) but the Union, whose rules precluded involvement in matters of political or religious controversy (Puirséil, 2017, p. 8), shied from an explicit endorsement. Vere Foster, INTO's first president (1868-1872), was personally supportive of non-denominational education and the subject was considered contentious (Puirséil, 2017. p. 9 & p. 317) with the 1869 Congress having "prudently abstain[ed] from entering the vexed question of National (sic) versus mixed Education" (*ITJ*, 1 January 1870. p. 4). Foster's submission to the Powis Commission had declared that "the greater number [of teachers] approve of the Mixed System" and that opposition was "confined to clergymen, members of Parliament, landlords and others who have no occasion to use the common schools" (*Evidence*, 1869, p. viii). Butt was not amenable to change course however and when in 1877, the issue of compulsory school attendance was broached in parliament, he could not resist linking it, somewhat improbably, with the religious question. Butt complained that "religious zeal … was shut out under the present [school] system" and that until religion had been "enlisted in the cause of education" the time was not ripe for compulsory attendance. Butt appeared to suggest that if schools were less hostile to religious influence, compulsion would not be necessary, telling parliament:

> … to interest the people in … education was … the best possible preparation for any system of compulsory education … everything had been done to exclude the influence of religious zeal both from Catholic and Protestant schools, and especially to discourage the Christian Brothers' and convent schools, to which the people were especially attached. The Protestants had protested against this course even more than the Catholics. He hoped that steps would even yet be taken to enlist the voluntary zeal of the people in the cause of education, and that by this means it might … be … unnecessary to adopt any form of compulsion.
>
> (HC Deb, 16 March 1877, Vol. 233 cc17-5117)

Teaching conditions

Under Butt's stewardship, Home Rule MPs worked with the INTO to demand improved remuneration, pension entitlements and working conditions for national teachers. In 1874 an INTO deputation attended Westminster to hear MPs Charles Meldon and Richard Smyth press union claims for teacher residences and pay equality with English teachers. Despite statements by the Chief Secretary Sir Michael Hicks Beach "that the discontent of the national teachers was not so widespread as had been stated" and "that Irish teachers, owing to the shortness of their training were not entitled to the same remuneration as their English brethren" Irish MPs united in support of the teachers' claims, and at the union's Congress the following August, thanks were extended to "the Irish members for their advocacy in the House of Commons." (HC Deb, 9 June 1874, Vol. 219, cc1282-98; *Nation*, 22 August 1874).

Butt's Home Rule party delivered on its commitments with the passage of the National School Teachers (Ireland) Act (1875), and the National School Teachers Residences (Ireland) Act (1875). The former provided salary increases while the latter afforded "facilities for the erection, enlargement, improvement, and purchase of dwelling-houses for residences for Teachers of certain National Schools in Ireland" (www.irishstatutebook.ie). While this ameliorated the conditions of teachers, further work remained before they would attain full parity with their English colleagues. In March 1876 Carlow MP Owen Lewis complained that Irish MPs' requests "for better pay for … National School teachers, who were starving on half the stipend of English masters" had not been met (HC Deb, 28 March 1876, Vol. 228, cc703-66). The relationship between INTO and the Home Rule Party under Butt's leadership peaked with the passage of the National School Teachers (Ireland) Act (1879) (www.irishstatutebook.ie), which addressed the issue of pension entitlements.

Irish identity and culture

Butt was one of the earliest voices within mainstream political opinion to criticise the anti-national tone which prevailed within the National School system. A moderate cultural nationalist 'avant la lettre', he viewed Government-controlled education as a Trojan horse for a broader policy of political and cultural assimilation. As an antidote, Butt proposed a locally managed denominational system, more closely aligned with Irish ideals and ideas. For Butt, the contentious issue of 'mixed versus denominational' education was inextricably bound up with broader metaphysical questions of autarky 'versus' democracy, centralism 'versus' subsidiarity, and Irish 'versus' British identity. In 1865 he declared "the Irish national system, as now constituted, is one gigantic contrivance for bringing the whole education of Ireland under government control' and appealed directly to Gladstone to vitiate "the attempt to 'Anglicise' the education of the Irish people" (Butt, 1865, p. xi). Butt labelled the National School system 'an anti-Irish system … subject to influences that are not Irish, and administered in a spirit of distrust of the whole Irish people, their national prejudices, and their religion," (Butt, 1865, pp. xi-xii) and questioned "whether any advantage … could possibly accrue to England from 'Anglicising' the education of the Irish people" which would not be purchased at too great a cost (Butt, 1865, p. 161). In 1871 he warned:

> Exactly as Government gains control over our educational institutions, there will be the constant struggle to denationalise our education- to give to all instruction the tone of anti-Irish thought – at all events to exclude anything that could keep alive and strengthen our national sentiment and pride.
>
> (*ME*, 20 May 1871)

Butt noticed that the reading books prescribed for use in National Schools were ideologically loaded to dampen patriotic ardour and indoctrinate pupils with questionable ideas:

> Those anxious to cherish a national feeling and an independent spirit in Ireland, may naturally feel some uneasiness in reflecting that the class books, in which the rising generation are taught, are written to order for the express purpose of indoctrinating them in particular notions'.
>
> (Butt, 1865, p. 11)

Dismissing these books as "got up at a Government depot to discipline the nation to a certain school of thought" (*ME*, 20 May 1871) he highlighted the irony of Irish primary school textbooks having been written exclusively by non-Irish authors, and the complete absence of Irish history from the curriculum:

> ... from the lessons of history there was carefully excluded all that would remind Irishmen of their distinctive nationality- ... the whole tone and tendency of the literature were English- ... in drawing up the lesson books in which Irish children are to be taught, Englishmen and Scotchmen were the only persons worthy of the confidence of the Irish National Board.
>
> (Butt, 1865, p. 87)

Butt conceived the education question as "a national question", arguing that proscribing the study of Ireland's past could only prove inimical to the securing of her future. In 1871 he told a public meeting that "Sullivan's *History of Ireland*" could not be read in National Schools, "though English histories" were permitted, concluding that "The present system of education tended to denationalise the country" (*Nation*, 9 September 1871). While Butt was not a political separatist, he did believe that the strength of the Imperial project depended upon the vigour with which regional identities were maintained and cultivated (Butt, 1865, p. 87).

Irish language

Contrary to popular perception, no express prohibition on the teaching of Irish in National Schools ever existed (Akenson, 1970. p. 381), although certainly the language did not form any part of the official teaching programme, and the culture of the system was doubtless unfavourably disposed towards its use or propagation. The 1871 Census revealed that there were 103,562 monoglot and 714,313 bilingual Irish speakers in Ireland (Akenson, 1970. p. 379) leading to calls for enhanced efforts to preserve the language. In 1876 the Society for the Preservation of the Irish Language (SPIL) was founded at a meeting held in the "Isaac

Butt Testimonial Rooms" on Bachelor's Walk (Ní Mhuiríosa, 1978, p. 2). The *SPIL* declared as one of its objectives "To procure that the Irish Language shall be taught in the Schools of Ireland, especially in the Irish speaking districts" (*SPIL Annual Report 1878-79*, p. 2). Butt was introduced into the Society by the young John Dillon, to whom he wrote on March 31, 1877, that to do something for "the grand old language" had always been "one of my dreams" (Lyons, 1968, p. 20). From the outset, senior Home Rule MPs ranked amongst the leadership of the new Society. In its first year Lord Francis Conyngham MP was elected President; Butt and the O'Conor Don MP Vice-Presidents; and the MPs George Errington, John O'Connor Power and Edward Sheils members of the Executive Council (*SPIL Annual Report 1878-79* pp. 1-15).

In April 1878, Butt attended a conference at the Westminster Palace Hotel organised by the SPIL "to consider the best means to be taken for the preservation and promotion of the study of the Irish and other kindred Celtic tongues." Conyngham, O'Connor Power and Errington were also present in addition to the Home Rule MPs Keyes O'Clery and Richard O'Shaughnessy (*IT*, 19 April 1878). In his address Butt decried the "folly" of seeking to unite nations "by the destruction' of their languages and identities" and bemoaned the fact that "Ireland had to suffer the practical destruction of her language". Invoking the historical precedent of the eighteenth-century Irish politician, Henry Flood, who "left a bequest of £5,000 for the teaching of the Irish language", Butt urged that:

> ... Something should be done to found Irish Scholarships, and he hoped the Government would not be so unwise as to refuse the concession asked of 'introducing the study of Irish into the national system' on the principle of results.
>
> (*IT*, 19 April 1878, my emphasis)

In May 1879, O'Connor Power proposed moving a resolution at Westminster on "the question of the teaching of the Irish language in Irish schools" (*FJ*, 1 June 1878) and in June, the SPIL, using a template which had been unanimously adopted by the INTO at its 1874 Congress (*ITJ*, February 6, 1875; Ní Mhuiríosa, 1978, p. 14.), presented a memorial to the Commissioners for National Education, requesting that Irish be placed on the Results Programme of National Schools. The *SPIL* memorial contained 1,300 signatures including those of senior ecclesiastics, national teachers, school managers, 40 Irish MPs (including Butt) and the INTO. Central Committee "on behalf of the teachers of Ireland" (*SPIL Annual Report 1878-79*, p. 29; *FJ*, 19 June 1878). The Commissioners yielded to the proposal, agreeing on 4 July 1878 "to grant Results Fees for proficiency in the Irish language on the same basis as applicable to Greek, Latin and French." For the first time Irish was formally permitted to be taught in National Schools, albeit under restrictive conditions, and only to children in the fifth and sixth classes (*SPIL Annual Report 1878-79*, p. 39; *IT*, 28 June 1878; *FJ*, 28 & 29 June 1878).

Butt's role in this endeavour reflected his sincere interest in promoting the study of Irish culture and heritage within the education system more generally. In July 1878, during the passage of the Intermediate Education Bill (which placed Irish second-level education on a statutory footing), he told the House "that the Irish language ought to be taught" in secondary schools (HC Deb 15 July 1878 Vol. 241 cc1482-5361482).

Parental rights

Butt was an eloquent promoter of parental rights in education, seeing in these a necessary counterbalance to the overreaching central authority of the National Board. In May 1871 he wrote of the need to "respect the principle of parental responsibility and recognise parental authority" which would allow "every parent select for himself the school to which he will send his child." Butt genuinely believed that if parents were given a choice between mixed and religious schools "the great majority of Irish parents would select for their children schools that are managed on the principle that is called denominational" (*ME*, 20 May 1871).

In a speech the following September, he connected religious equality with civil liberty and parental entitlements:

> Religious equality was the principle of parental right to choose, to what school they would send their children to be educated. The Protestant should send his child to the Bible School and the Catholic to the Christian Brothers.
>
> (*Nation*, 9 September 1871).

In 1875 Butt argued for the management and ethos of schools to be delegated to local communities and based upon parental consensus rather than government paternalism. Under his reforms:

> All these things would be regulated by local wants and local feelings ... every parent would be free to follow the convictions of his own conscience in selecting the education which he wished his child to receive ...
>
> (Butt, 1875, p. 21).

For Butt, the ultimate decision regarding whether a school should be denominational, or secular, should be a matter for "the conscience of each parent" (Butt, 1875. p .25).

Conclusions

In September 1852 Butt reminded a public meeting that the recently deceased Duke of Wellington "was an Irishman educated and trained ... and that until he won the battle of Waterloo he did not receive one year of English education" (*MC*, 28 September 1852). In the years that followed, while Butt was amongst the most persistent and ardent critics of the Irish education system, he never failed to acknowledge the benefits which an Irish education conferred, or to acknowledge the valuable contribution of National Schools in particular. Butt paid tribute to the "very useful secular education" (*BN*, 30 October 1854) and "immensity of good" (Butt, 1865, p. 12) provided by National Schools; conceded that they had "diffused education and intelligence among the people" (Butt, 1866, p. 9) and that "No one can deny that the national system of education has achieved great good" (Butt, 1875, p. 17). However, in his relentless opposition to mixed education, Butt had made an idée fixe of a bête noire. His myopic fixation with denominational education long after the success of Stanley's system had rendered the question moot, lent his tireless campaigning

a quixotic patina. Stanley's scheme fructified where its predecessors had failed because of its versatility in judiciously balancing the competing rights of Church and State in a zone of historically contested allegiance. The 1870 Report of the Powis Commission, while recommending a minor concession on the denominational principle, (Powis, Vol. I, p. 371), broadly endorsed the secular status quo of National Schools. Butt's inability to appreciate this and his endless special pleading in favour of denominationalism came increasingly to be seen as obsessive, repetitive and redundant.

The tragic irony of Butt's position was that the "Mixed Education" which he so strenuously opposed and which the Board so stoutly defended, was always more chimaera than reality. Although mixed education was a core legal and philosophical value of the National School system, it remained an elusive, aspirational ideal which failed to materialise in practice (Akenson, 1970, pp. 222-223). By 1901, some twenty years after Butt's death, there were still 368,835 Catholic and 114,311 Protestant children attending National Schools of one denomination only, leading the English educationalist Graham Balfour to observe caustically that it was "clear that the Irish, whether Catholics of Protestants, simply will not have combined education" (Balfour, 1903, pp. 109-110). Regrettably, Butt had spent a lifetime in public service tilting at an illusory windmill which had distracted him from more pressing educational concerns.

Butt's political career ended in failure. His vaguely defined vision of Federal Home Rule within the British Empire, combined with his ineffectual and timorous leadership, culminated in peremptory dismissal by his party in early 1879. He died the following May, a broken man, bequeathing an ambiguous political legacy to history. Opinions on his contribution to educational discourse are divided along traditional lines. A Unionist obituary suggested that if Butt had focused as much on land reform as on "Home Rule and denominational education his latter days would not have been so embittered by disappointments" (*CC*, 10 May 1879). Nationalist opinion was kinder, recognising "an instalment of justice in the matter of education" among his accomplishments (*DJ*, 7 May 1879). The SPIL mourned his death as "a loss not only felt by this Society but by all Ireland" for his "services in connexion with the history and literature of the country" (*SPIL Annual Report*, 1879. p. 45).

An impartial examination of Butt's contribution to Irish educational interests suggests an element of rehabilitation is merited. In his support for parental rights; education of the underprivileged; improved conditions of work and remuneration for teachers, and a curriculum more reflective of Irish values and ideals, this brilliant Donegal polymath pioneered policies whose relevance has remained unchanged by the passage of time.

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Teachers' perceptions of climate change education in Irish primary schools

Bronagh Dillon

Abstract

This article is based on research completed as part of an MSc in Education dissertation during which eight teachers from six Dublin schools were selected by purposive sampling to participate in a focus group and semi-structured interviews to collect qualitative data. This data was thematically analysed and elicited four key findings; the vital role of engaged teachers, the fear factor in climate change education (CCE), children's voice, and the role of curriculum in CCE. The research suggests the integration of CCE with other curriculum subjects while recommending curriculum reform with an emphasis on a skills-based teaching and learning approach. The research concluded that teachers should teach CCE but need curriculum support.

Keywords: **climate change education, climate change, teachers, children's voices, curriculum**

Introduction

This article outlines teachers' perceptions about climate change education (CCE) in Irish primary schools and is underpinned by three key research questions namely, what teachers know about CCE, how they feel about CCE and how the teaching of CCE can be improved in Irish primary schools. Our planet is changing in dramatic ways at unprecedented speed, with extreme weather events (EWEs) disrupting lives and destroying habitats in every corner of our planet. Scientists attribute these EWEs to climate change (NASA, 2020) with millions of people globally experiencing the effects of climate change (United Nations Framework Convention on Climate Change [UNFCCC]). Autumn 2021 was the warmest on record in Ireland (Met Éireann, 2021) with the World Meteorological Organization's 2019 report stating that 2010 – 2019 was the warmest decade on record. Greenhouse gases (GHGs), ocean temperatures, rising sea levels and melting ice caps continue to break all previous records (International Plant Protection Convention [IPCC], 2019). The stark reality for humanity is, we are facing a very uncertain future as the planet suffers through the climate crisis. Yet amidst this doom and gloom of the climate crisis there is a glimmer of hope, hope in the form of education. Education that enlightens, and changes attitudes, dispositions, and behaviours of not just the children in our classes but the wider school community and beyond. Education that motivates, thrives on school and community participation, encourages critical thinking, ownership and responsibility towards positive pro-environmentally sustainable behaviours and actions. The United Nations (UN) says education is a critical agent in addressing the issue of climate change (UN, 2019). Children and young people are concerned about the planet as was evidenced in 2019 when 1.4

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million children and young people in 130 countries worldwide walked out of classes to strike for climate action (Fridays for Future, 2020). CCE is recognised as a pathway to a more sustainable future (Trott, 2021). The focus of CCE is on capacity building and critical thinking that allows citizens to understand what is currently going on in society and importantly ask critical questions to determine for themselves what needs to be done in response to the climate crisis (Trott, 2021).

Rationale for research

The motivation for this research stemmed from concern about the climate crisis twinned with the knowledge that education is a pathway for a more sustainable future for all. As a passionate environmentalist, experienced teacher, and green schools coordinator of 14 years, this researcher experienced first-hand how empowering and rewarding environmental education is, not only for children but the whole school and the wider community. Building on this personal environmental interest, teaching experience and knowledge led to the quest for a deeper understanding and exploration of how other teachers perceive CCE in Irish primary schools. The research questions underpinning this small-scale research in terms of a literature review, data collection and analysis of data are,

1. What do teachers know about CCE in Irish primary schools?
2. How do teachers feel about CCE in Irish primary schools?
3. How can the teaching of CCE be improved in Irish primary schools?

CCE is a nascent and under-theorised area of research as Rousell and Cutter-Mackenzie-Knowles (2020) suggest and where the educational response to climate change is described as highly uneven by Drewes et al. (2018). The research aimed to explore this uneven educational response by examining Irish primary school teachers' perceptions of CCE.

The literature review provided a succinct overview of the current understanding of teachers' perceptions of CCE and was guided by the three research questions. The literature review was influenced by Fink's (2010) seven-step research approach using a desktop research method and Dublin City University's (DCU) database – *Academic Search Complete* (EBSCO). Using the key terms, 'climate change education' produced 1,060 results while 'teachers' perceptions of climate change education' yielded three results. Steps four and five applied practical and methodological screening criteria resulting in no Irish-based research studies or articles being discovered. To bridge this literature gap, articles from Europe, Asia, Australia, and America were selected for systematic review and to inform current best practices worldwide. Steps six and seven of Fink's (2010) systematic research approach entailed a review and synthesis of these search results. Consequently, 11 relevant and insightful articles were selected for in-depth analysis, and critical evaluation.

Understanding CCE

A key finding of the reviewed literature is the absence of an authoritative definition of CCE, and too much emphasis and discussion are centred on the skills for the teaching and learning of CCE. Skills such as critical thinking, problem-solving, understanding, knowledge and values were identified by Stevenson et al. (2017) and Nicholls (2017). Cantell et al. (2019)

emphasise identity, worldview, action, motivation, participation, future orientation, hope, and other emotions as well as thinking skills, values and knowledge for CCE. These researchers suggest that CCE should be taught to help learners "(i) think critically, systematically and appropriately, (ii) tolerate uncertainty, (iii) assess values and behavioural habits of the students and their surrounding society, (iv) create and reflect on alternative future scenarios and (v) affect their own and society's future" (Cantell et al., 2019 p. 719). In addition to these skills, Cutter-Mackenzie and Rousell (2019) recommend CCE as a platform for children's voices blended with active participation in authentic inquiry-based learning, together with the activation of children's political agency in schools. Engagement in active citizenship at school and/or in the community adds to the children's political awareness which the worldwide student strikes of 2019 demonstrated. This according to Kunkle and Monroe (2019) is a student-centred bottom-up approach to CCE. Students are active participants in meaningful dialogue for complex problem-solving, building critical skills, thinking and data inference opportunities. Stevenson et al. (2017), Nicholls (2017) and Holdsworth (2019) support a bottom-up approach to CCE to promote and empower students to learn in the face of the climate crisis. Hannah and Rhubart (2019) propose that teachers occupy the role of street-level bureaucrats for a bottom-up approach to control classroom and school-wide curricula. This approach envisages the pro-active participation of children as co-researchers academically and even politically. This empowers children to become active citizens, working with the local community, dealing with climate mitigation/adaptation programmes best suited to their specific area and importantly in direct response to local climate change issues. CCE presents the opportunity to move away from traditional instructional teaching of curriculum subjects to a transdisciplinary and participatory approach for the school community and beyond. Ho and Seow (2017) suggest that CCE should include the acquisition of climate science and civic knowledge as well as climate change and civic competencies. In other words, researchers are suggesting that skills-based CCE leads to the agency and empowerment of students as politically active, socially responsible, active researchers and develops awareness of sustainable living (Cutter-Mackenzie & Rousell, 2019; Holdsworth, 2019).

Curriculum subject choices for climate change education globally

Another finding in the literature is the lack of consensus on the positioning of CCE within the curriculum with much debate around the naming and framing of CCE within a particular subject(s). Some researchers argue CCE sits within the natural sciences such as the physical sciences and geography, while others argue CCE is transdisciplinary and should be integrated with other curriculum subjects across the entire curriculum. This brings openings for different perspectives, understandings, knowledge, skills and ways of learning about the topic in different subjects. Nicholls's (2017) viewpoint is that CCE should not be a standalone subject based on the sciences. She suggests CCE is a complex multidimensional issue and advises a cross-curricular approach. In Finland environmental education (EE) was first integrated into the national curriculum in 1985. In 2014 EE together with environmental responsibility and sustainability lessons were embedded even deeper into the core curriculum (Aarnio-Linnanvuori, 2019). Ho and Seow (2017) found that in

Singapore, CCE is taught as a single subject in the discipline of geography, whereas in the Philippines it is linked to the geography curriculum with a strong interdisciplinary social studies input. Chang and Pascua's (2017) research of CCE from a selection of worldwide studies highlights CCE as being transdisciplinary. Wise's (2010) research featuring Colorado science teachers also contends that CCE is best taught with a transdisciplinary approach, suggesting CCE be distributed across the physical sciences, social sciences, and the humanities.

In Ireland, *The National Strategy for Sustainable Education (2014 – 2020)* frames how CCE is taught in pre-schools up to higher level education. This strategy states aspects of education for sustainable development (ESD) are reflected in individual subjects in the primary school curriculum such as social personal and health education (SPHE), history, geography and science. The National Council for Curriculum Assessment (NCCA) has been instructed by the Department of Education (DE) to embed ESD principles into the curriculum during the ongoing review of the *1999 Primary Curriculum*.

Irish policy perspective on climate change education

Article 6 of the UNFCCC urges all countries to promote "the development and implementation of educational and public awareness programmes on climate change and its effects" (UN, 1992 p. 10). In July 2014, the DE launched *Education for Sustainability the National Strategy on Education for Sustainable Development in Ireland, 2014 – 2020* with an interim report published in November 2018. In these reports recommendations for the teaching of ESD were outlined for educational settings from preschool to second level. One of the three-fold purposes of this strategy was 'to lay the groundwork for the achievement of the Sustainable Development Goals (SDGs) across the education system by 2030 (DE 2018, p. 6) (Appendix A, SDGs). Eight key areas of focus were identified in this report and include curriculum, leadership and coordination, further education and training, and sustainability in action. There is also a recommendation that the voice of the child is heard and actively considered in ESD programmes in primary schools. Awareness and need for reform of ESD within the education system in Ireland are acknowledged and stated by the DE's declaration that "the lack of system-wide awareness of the strategy must be rectified and further action must be taken to communicate, raise awareness of and embed ESD" (DE, 2018, p. 44). The interim review report of 2018 acknowledges the need for an increased pace of change within our education system to address critical global issues of our time. There is also a call for clearer definitions of what ESD represents within the education setting in Ireland. The findings of this report echo the issues uncovered in the literature review, specifically the need for a clear definition of CCE and a determination of what curriculum subject(s) best fits CCE.

The latest consultation paper published in April 2021, titled *Ireland's Education for Sustainable Development Strategy to 2030 Consultation Paper* (Government of Ireland, 2021) acknowledges the need for cooperation and interdisciplinary approaches between learning institutions, community-based local leaders, families, non-governmental and private sector actors for action for sustainability (p. 11). Policy, education and training, educators, youth and communities are key priority areas identified for ESD in Ireland to 2030 and were informed by UNESCO's global framework (ESD for 2030, 2020).

Teachers' perceptions of climate change education internationally and in Ireland

This research highlighted the dearth of literature on Irish teachers' perceptions of CCE. However, the literature revealed international teachers' perceptions of CCE are influenced by personal viewpoints, worldviews, knowledge, personal interest, experience, and culture. In Australia, few teachers in Queensland felt adequately supported to include CCE formally in their classes (Nicholls, 2017). It has been suggested that teachers have diverse understandings and beliefs of CCE influenced by location, cultural upbringing, wealth, gender, and worldview (Stevenson et al., 2017). Further research identified Finnish teachers' perceptions of EE under the main theme of responsibility, highlighting teachers' environmental responsibility as a moral and value-related issue to develop civic mindedness and environmental responsibility in students (Aarnio-Linnanvuori, 2019). In the Philippines and Singapore, Chang and Pascua (2017) uncovered the teaching of climate change is influenced by teachers' knowledge and attitudes.

In Ireland, the NCCA's 2008 primary curriculum review report found time factors, methods of teaching and learning, and assessment were the significant challenges identified by teachers while teaching the environmental care and awareness strand in the science curriculum. Time was further identified as having two dimensions, 1) curriculum overload and 2) class size. This issue of time and curriculum overload is a concern for not only Irish teachers but Australian teachers too, as Stevenson et al. (2017) reported. Hannah and Rhubart's (2019) research suggests teachers' ideology is an important predictor of time spent on CCE as well as the pedagogy they use in their classrooms.

Research approach

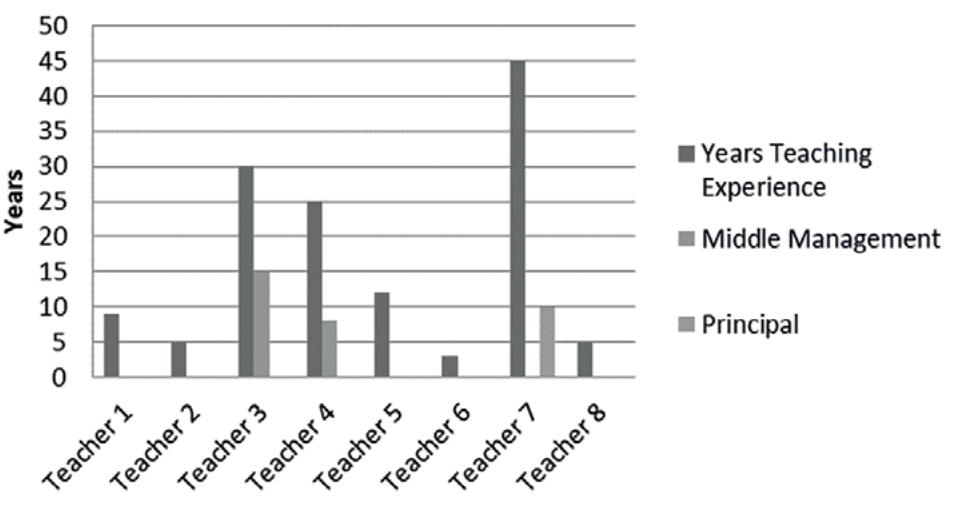
A case study design was chosen as the most suitable research design for this research. As the research aimed to explore the perceptions, attitudes, and feelings of participants the most appropriate way to collect this data was from an interpretive viewpoint using narrative and qualitative data collection methods of a focus group and semi-structured interviews. The qualitative methods employed presented participants' multiple perspectives and meanings which yielded rich and insightful data for analysis. Data were collected from eight teachers from six primary schools in the greater Dublin region over two months in spring 2020. Eight participants were invited to participate in a focus group to discuss their perceptions of CCE in Irish primary schools using pre-set questions devised by the researcher. Five participants attended the focus group which lasted 55 minutes. Participants' prior permission was obtained for an audio recording of the discussion. The audio recordings were used to transcribe the data, which resulted in 10,176 words over 32 typed pages. The responses from the open-ended questions and the natural flow of the discussion took considerable time to transcribe but provided rich data with valuable insights for interpretation and thematic analysis. It has been argued that focus groups are the best way for the researcher to get the data that best address the research question (Merriam, 2009). The other method of qualitative data collection employed in this research was semi-structured interviews. The interviews were used to add to the rich and deep insights obtained from the focus group and facilitated triangulation between the two methods of data collection. Three semi-structured interviews were carried out over three

months in spring 2020. Each interview lasted approximately 30 minutes and was audio recorded with the prior permission of the participant. In the semi-structured interviews, a specific set of predetermined questions were asked in the same order during the three interviews. Transcriptions of the audio recordings were made to collate the data which took approximately six hours each and resulted in 14,572 words over 25 typed pages. In total 24,748 words in 57 typed pages of data were collected and formed the basis of the data analysis.

Research population and sampling method

The sampling method chosen for this research was non-random purposive sampling using the professional network of this researcher. Due to time and size constraints purposeful sampling was deemed an effective, quick, yet reliable method of selecting a population sample to represent the target population of primary school teachers. However, as Walliman (2011) suggests, this type of non-random selection "provides weak generalisation opportunities but is useful in certain studies" (Walliman, 2011, p. 186). Stewart and Shamdasani (2015, p. 51) suggest that focus groups sampling population need only be a "good approximation" of the population being researched. The Central Statistics Office (2019) reported that in 2015 the percentage of female teachers in Irish primary schools was 87 per cent and the percentage of male teachers was 13 per cent. In this research population, the female representation of participants was 87.5 per cent and the male research population was 12.5 per cent. The participants ranged in age from 25 to 65 years which again is representative of the target population. Fifty per cent of the sample population had between three- and ten years of teaching experience and the other 50 per cent have between 12- and 45 years of teaching experience. Figure 2 shows the number of years of teaching experience of participants.

Figure 2: Number of years of teaching experience of participants (by the researcher)

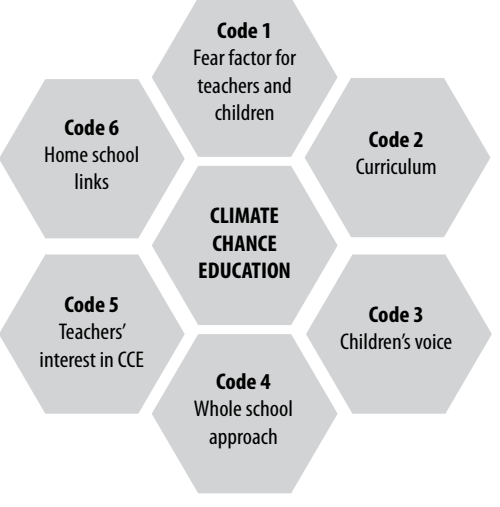


In addition to the teaching experience of the participants, 100 per cent of the participants had taught in several schools in the greater Dublin area. One participant had experience in rural schools in two counties and another participant had international teaching experience. The five teachers who participated in the focus group had a collective teaching experience of 80 years in Irish primary schools. These 80 years of teaching experience brought a wealth of knowledge, understanding and appreciation of the complexities of teaching and learning in Irish primary schools. The collective teaching experience of the interviewees is 53 years, giving a combined 133 years of teaching experience for all participants, a vast wealth of knowledge and learnings to draw upon. Two of the teachers in the focus group held positions of responsibility and one participant had ten years of experience as a principal. The teaching experience, worldview and personalities of the teachers participating led to the collection of rich and insightful data.

Data analysis

The methodology for analysing the data collected was manual thematic coding (Krueger, 1997). In manual thematic coding, the transcripts were read, and the participants' own words were highlighted in the margins to identify themes. This led to NVivo coding where the themes identified were used to produce codes to reflect the key themes emerging from the data. On completion of the first cycle analysis, the data were manually coded. Figure 1 is a summary of the codes from the first cycle of NVivo thematic coding.

Figure 1: Codes elicited from the first cycle coding (by the researcher).



The second cycle of data analysis involved assigning categories and subcategories to the coded data. Meticulous attention was paid to the language used by the participants with 'deep reflection' of the emergent categories and subcategories (Saldaña 2009, p. 10). The reduction of the data to smaller analytical units was based on relevance, concepts, ideas, views and experiences related to the initial codes elicited from first cycle analysis (Buckler & Williams, 2016). The process of analysing the data continued until the saturation point was reached and no new categories or subcategories emerged from the data.

Four key findings

The data collected in this research gave a detailed and close look at the thinking, perceptions, attitudes, and knowledge of the teacher participants on the topic of CCE. Four key findings emerged from the analysis of the data.

1. The vital role of engaged teachers in climate change education

The research revealed teacher interest and engagement was the most influential factor for teaching CCE. It was discovered unless a teacher is interested in CCE they will not engage with this topic in their class. This finding was evidenced in both the focus group and the three semi-structured interviews. It has been argued that for students to become climate-literate adults, comprehensive formal instruction is required (Wise, 2010). As Teacher 3 stated, "I think it still depends on the teacher's own personal interest in the subject. It often comes in with the person who has the interest." This finding is echoed in Hannah and Rhubart's (2019) research which found teachers who have a personal interest or preference for the topic will invest time and energy to teach and engage with it. As Teacher 8 said, "Some teachers would do a lot of work on it and some teachers would focus on other areas. I suppose that comes down to some extent personal preference".

One participant reported on average ten per cent of staff in her school were not interested in CCE and required additional time and effort to motivate and engage in climate action initiatives. The data found teachers' worldviews and life experiences influenced CCE in classrooms. This finding is substantiated in the research undertaken by Kunkle and Monroe (2018) who argue cultural cognition and personal worldview are motivating factors for CCE. Similarly, Stevenson et al. (2017) and Chang and Pascua's (2017) research found cultural upbringing, wealth, gender, teaching experience, and worldview challenge teachers' interest, understanding and belief in climate change within educational settings. The data revealed that school leadership, the board of management and the ethos of schools all play a part in supporting teachers and children to engage in climate change activities. The role teachers play in CCE in the classroom is extremely important, however, this research discovered teachers have concerns associated with teaching CCE in schools. One of the concerns is fear. Fear of climate change, climate science and CCE itself.

2. The fear factor in climate change education

According to this research fear and anxiousness around CCE are experienced by both teachers and children. The findings suggest teachers fear the topic itself, fear climate science, fear that they will upset or frighten children and fear the eco-anxiety issues experienced by children. When the focus group were asked about the challenges of CCE there was overwhelming agreement in their responses, summarised in a one-word answer – 'fear' (focus group). The focus group discussed fear from both the perspective of the teacher and that of the children. One participant described her initial experience of dealing with CCE in her classroom as "quite daunting and a daunting task" (Teacher 1). This finding emerged in Aarnio-Linnanvuori's (2019) research with Finnish teachers describing CCE as a daunting task which demands much of teachers personally and emotionally. Fear is regarded by the participants as justifiable when teachers do not feel they know enough about the topic or

are unfamiliar with or confused by climate science. This research discovered not only are teachers anxious and fearful of CCE but teachers are confused about the climate science surrounding CCE. Teacher confusion regarding climate science is highlighted in Monroe et al's (2019) research.

Teachers in this research acknowledged and recognised the need to balance sensitively the facts about climate change and climate science for young learners. CCE needs an age and stage-appropriate approach so as not to overwhelm, frighten or cause upset, eco-anxiety or disillusion in children. This finding is strongly substantiated in Nicholls and Whitehouse's (2013) research suggesting CCE is a complex task requiring great effort and requires teachers to find a balance between a sense of urgency and optimism. These researchers (as did the teachers in this research) revealed teachers have serious concerns about causing distress, fear or despair to their students when teaching about climate change. As well as balancing how CCE is taught in classrooms, there is a need to listen to the voice of the child. Listening to the voice of the children is central to CCE a finding discovered in this research and validated in the literature reviewed.

3. Children's voice in climate change education

The research discovered children's voice and awareness of climate change is critical in CCE. This research finding suggests children's voices must be listened to and heard in CCE. The voices of children in one participant's school were not only heard but influenced the teachers as children took the initiative and acted as researchers and planners in CCE incentives. "Children are the ones who are leading the teachers, that's the way it went in our school" (Teacher 8). This finding is supported by Cutter-Mackenzie and Rousell's (2019) research as they suggest that children be enabled to be co-researchers and legitimate practitioners in CCE programmes with a bottom-up approach adopted to CCE. Participants suggested children's voices are heard through their participation in case studies, detailed project work and surveys on climate change activities. Participants considered children's voices needed to be heard in climate action activities if CCE is to be realistic and not "tokenistic" (Teacher 1). Participants believed that the voice of older children is influential in a school setting when 3rd – 6th class children participated in action-oriented activities rather than traditional top-down teacher-led lessons and approaches. The teachers' perspectives on pupil involvement were corroborated in the research literature which advocated having children's voice at the forefront of innovative child-centred participatory initiatives and action-orientated learning in CCE (Nicholls & Whitehouse, 2013; Holdsworth, 2019; Stevenson et al., 2017; Cutter-Mackenzie & Rousell, 2019). As much as children's voices are considered important in CCE so too is children's awareness of climate change. Participants in the research felt children should be given information about what is happening around them. They felt they had a responsibility to impart information to children about the climate crisis in an age-appropriate way without causing anxiousness or adding to feelings of eco-anxiety that children may be experiencing. As Teacher 5 stated, "children need to be aware of problems, need to be engaged and need to know where to look for problem-solving materials. That's all skills we need to teach, the main thing still would be making them aware."

Children's climate change awareness can come from many different sources such as media, social media, home, families, and peers as well as from the educational setting. Wise (2010) cautions that the media cannot adequately convey the complexity of climate change or climate science. In all cases, participants mentioned the influence of Greta Thunberg on children in their schools, showing the extent of the influence of the media. Participants talked about the impact and empowering effect participating in protest marches and Friday school strikes had on children in their senior classes. These proactive actions made children's voices and awareness of climate change very real to the whole school through the actions of the senior students in 5th and 6th classes. This finding is echoed in Holdsworth's (2019) and Cutter-Mackenzie and Rousell's (2019) research referring to the student strikes of 2019 which raised student awareness and demonstrated student political advocacy and voice forcefully.

The findings of this research discovered participants placed an emphasis on empowering children through good CCE practices, a finding strongly substantiated in the literature. Participants suggested that all children from Junior Infants to 6th class be actively empowered to engage in climate change projects ranging from green schools programmes, school gardens, recycling projects to whole school SDGs lessons, engaging with local community environmental groups and participatory research projects. This empowerment of children exercises their agency through active participation and decision making about their future. Starting small and keeping it simple as Teacher 6 said, "you have to start small, think local, think more widespread and then think global" encourages children to engage actively in their home and local environments. This finding – when schools support the involvement of the local community which encourages active citizenship – is described by Stevenson et al. (2017) as collective transformative practice with a multiplier effect. Active citizenship is summed up succinctly by this participant's comments, "Citizenship is basically taking care of your neighbour, your planet, yourself and that's what it's all about" (Teacher 7).

Children's voices in CCE can be supported by the innovative use of technology. Findings from the research suggest technology be used to support the teaching and learning of CCE and provide children with a platform to create their own CCE resources for empowerment and advocacy. However, ensuring children have access to good quality CCE is underpinned by the curriculum.

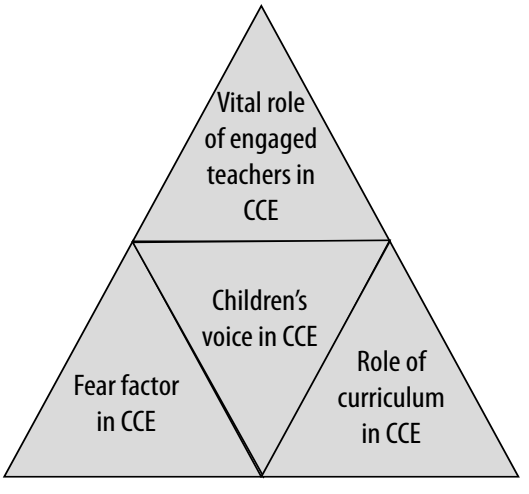
4. The role of the curriculum in climate change education

This finding revealed curriculum plays a significant role in CCE. Participants felt strongly that CCE must be part of the curriculum taught in Irish primary schools for all children from junior infants to 6th class. The finding highlighted space and allocation of a specific time for CCE to be found within the existing curricula subjects of geography, science and SPHE. As Teacher 4 puts it, "We really do need to make a space to teach climate change explicitly." As Teacher 6 said, "I don't think it should be standalone subject because there are so many opportunities for integration. But I think it has to be more prevalent throughout the curriculum." Review of the literature recommends the integration of CCE using a multidisciplinary, interdisciplinary, or transdisciplinary approach (Chang &

Pascua, 2017; Wise, 2010) who contend best practice in CCE is when the different silos of curriculum subjects come together and exchange ideas. Yet as Monroe et al. (2019), Wise (2010) and Cutter-Mackenzie and Rousell (2019) found there are very few existing curricula where CCE is spread across the physical sciences, social sciences, and humanities subjects in the curriculum. Participants mentioned outside school support from climate change experts and green schools helped them to plan and develop their school-based climate change curriculum. Nicholls and Whitehouse (2013) take up this point in their research explaining teachers cannot be expected to have expert knowledge of every aspect of the climate change problem. Allotting time in an already packed curriculum caused concern for participants in this research. There was overwhelming agreement that the current curriculum is overloaded. A review of the literature concurs with this research finding (Nicholls, 2017; Stevenson et al., 2017).

In summary, this research revealed and focused on four central findings elicited from the rich and insightful data collected from teacher participants on their perceptions of CCE in Irish primary schools. The four findings are represented in Figure 3.

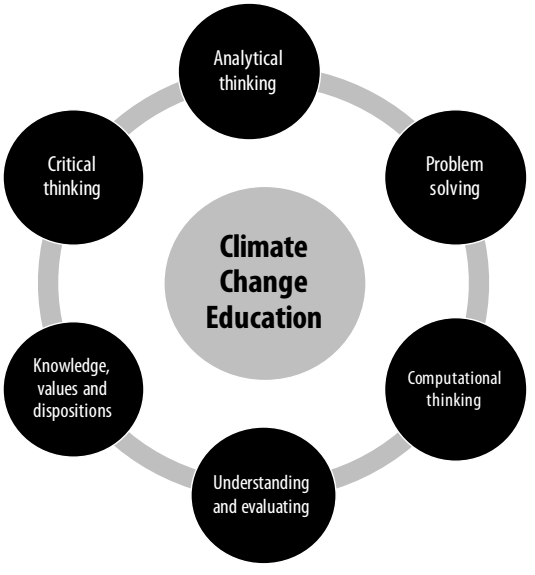
Figure 3: Central findings of the research elicited from the data (by the researcher)



Recommendations

There is no quick fix for climate change, yet education and in particular CCE offers hope for our school communities. Children of today are the future custodians of the planet. If we, as educators, can encourage participatory whole school and community-based pro-environmental behaviours and sustainable actions for the development of citizenship from an early age, there is hope. A skills-based CCE which includes the whole school and wider community is to be recommended. Skills-based CCE where children are taught to think critically, analytically, and computationally, problem solve and evaluate by investigation while also developing pro-environmentally sustainable values and dispositions are also recommended. These skills enable children to tackle the climate science behind climate change in an age and stage appropriate manner. Figure 4 outlines the recommended key skills of CCE.

Figure 4: Key skills for climate change education (by the researcher)



Integrating these key skills in a transdisciplinary approach across all curriculum subjects empowers whole school communities in best practice CCE pedagogy. CCE lessons which focus on practices and skills acquisition lead to a child-led teaching approach. This gives children an opportunity to become co-researchers in CCE lessons leading to a deeper and more meaningful learning experience (Cutter-Mackenzie & Rousell, 2019). The SDGs can be used as the frame or scaffold for children's learning and skills acquisitions from junior infants to 6th class and can be used as an entry point to embed CCE within the core curriculum and whole school teaching of CCE.

Teachers in this research noted curriculum overload as a barrier to effective CCE lessons. A key recommendation from this research is curriculum reform where instead of developing a standalone curriculum subject CCE could be integrated with other curriculum subjects. This research has shown curriculum reform, redesign and implementation can cause stress for teachers. Cognizant of this issue the recommendation for curriculum integration for CCE is a stage and phased approach (Appendix C, Staged approach to curriculum reform for CCE). The essence of a staged and phased approach is a transdisciplinary approach to the teaching of CCE within the curriculum subjects rather than the introduction of a new standalone CCE curriculum subject. In the short term, the drawing up of preliminary guidelines from the existing 1999 geography, science, SPHE and history revised curricula by a panel of climate experts in partnership with teachers, children and wider school communities, is recommended. These guidelines would complement current curriculum requirements yet provide teachers with a simple checklist of cross-curricular lessons/skills/ideas for CCE lessons. Meanwhile in the medium-term plan, the panel of experts with teachers, the NCCA/DE could discuss the integration of CCE within the core curriculum based on the Finnish model (Aarnio-Linnanvuori, 2019). Long-term recommendations envisage teachers up-skilled in embedding CCE in all curriculum subjects using the recommended CCE key skills.

Conclusion

The aim of the research investigated teachers' knowledge, feelings and ways to improve CCE in our primary schools. The small scale of this research limits the conclusions that can be drawn beyond the research setting. However, the research yielded significant and valid findings which were substantiated by other researchers reviewed in the literature. Teachers in this research agree that CCE should be taught in primary schools. Underpinning CCE in Irish primary schools currently is teacher interest and engagement. Empowerment of children in CCE is possible by engaging children in climate action activities in their local environments and community. Activities such as school strikes, protest marches, campaigns/project work, case studies, SDGs, school gardens, green flags and community clean up, all empower school communities and children to take responsibility and develop environmental active citizenship.

Regarding how teachers feel about CCE the overwhelming conclusion drawn from the research is that the overloaded curriculum is a barrier to CCE in schools. Participants revealed teachers do not want more subjects to teach, they want integration and joined up thinking in the curriculum for CCE. To address both time pressures and fear of climate science, teachers want clear guidelines on how and what to teach in their classrooms. Participants stressed the need to keep these guidelines short, precise and simple using the existing revised 1999 geography, SHPE, history and science curricula. In this research, teachers believe participation in climate change actions in schools has an intergenerational impact and influence (Green Flags, school gardens and protest marches for example).

It is clear from the results uncovered through this study that CCE has an important role to play in our education system. The research suggested that teachers should teach CCE, with children from junior infants to 6th class included in age-appropriate climate change conversations and participatory skills based lessons in our primary schools. Irish primary teachers in this research contend that a whole school approach to CCE with enhanced home-school links should be nurtured. The research found that even if climate change actions and pro-environmental behavioural changes are small or seem insignificant, children are learning that they can – and do – make a difference for today and the future.

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Appendices

Appendix A: Sustainable development goals

The 17 Goals – United Nations

1. No Poverty: End poverty in all its forms everywhere
2. Zero Hunger: End hunger, achieve food security and improved nutrition, and promote sustainable agriculture.
3. Good Health and Well-being: Ensure healthy lives and promote wellbeing for all at all ages.
4. Quality Education: Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.
5. Gender Equality: Achieve gender equality and empower all women and girls.
6. Clean Water and Sanitation: Ensure availability and sustainable management of water and sanitation for all.
7. Affordable and Clean Energy: Ensure access to affordable, reliable, sustainable and modern energy for all.
8. Decent Work and Economic Growth: Promote sustained, inclusive and sustainable economic growth, full and productive employment, and decent work for all.
9. Industry, Innovation and Infrastructure: Build resilient infrastructure, promote inclusive and sustainable industrialisation, and foster innovation.
10. Reduced Inequalities: Reduce inequality within and among countries.
11. Sustainable Cities and Communities: Make cities and human settlements inclusive, safe, resilient and sustainable.
12. Responsible Consumption and Production: Ensure sustainable consumption and production patterns.
13. Climate Action: Take urgent action to combat climate change and its impacts.
14. Life below Water: Conserve and sustainably use the oceans, seas and marine resources for sustainable development.
15. Life on Land: Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification and halt and reverse land degradation, and halt biodiversity loss.
16. Peace and Justice, Strong Institutions: Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels.
17. Partnership for the Goals: Strengthen the means of implementation and revitalise the global partnership for sustainable development.

Appendix B: Staged approach to curriculum reform for climate change education

Short term	Medium term	Long term
Highlight to the DE the urgency of mandating the teaching of climate change education in Irish primary schools.	Courses, materials, and resources developed by the PDST, DE, Teaching Council, INTO, Teacher Education Centres and other agencies for the teaching of CCE using preliminary curriculum guidelines.	New CCE within the curriculum finalised, and approval process undertaken. DE/NCCA ratification and implementation of a new strategy for embedding CCE within the curriculum.
The DE and NCCA advised to draw up a panel of climate change experts and teachers to advise on producing simple preliminary CCE guidelines.	Continuation of a campaign to mandate teaching of CCE as part of the curriculum.	Webinars and teacher training days to be provided for upskilling of teachers in CCE.
Preliminary guidelines drawn up and extracted from geography, science, SPHE and history 1999 curricula.	A Panel of experts, teachers and the NCCA/DE advisors set up to discuss innovative ways to teach CCE within the core curriculum.	Teacher Training Universities develop modules on CCE pedagogy.
Preliminary guidelines distributed to primary schools by a DE circular.	Planning stage of how CCE is to be embedded within the core curriculum. Panel to produce guidelines/directives.	Feedback, review and reform of CCE.
Preliminary guidelines published online.	The process of writing CCE into the core curriculum begins.	Ongoing revision, review and development of CCE within the curriculum (pedagogy, skills, resources).

Extra Personal Vacation: The long evolution of a professional development incentive for Irish primary teachers

Donald Herron

Abstract

Extra personal vacation (EPV), a primary teacher study-leave entitlement for attendance at short teacher training courses during the school year, dates from the 1880s. EPV was popularised in the decades before and after independence by the Gaelic League's Irish language summer college courses. The new state exercised flexibility in applying EPV to reflect the changes in policy, purpose and conditions. Further regulatory change in 1940 enhanced EPV's compensatory function for teachers' forfeited personal time, enabled the delegation of course organisation to external institutions and, by the 1960s, a significant expansion of approved summer courses. The erosion of the state's professional development funding in the mid-1970s transferred most summer course costs onto teachers heralding for many an 'earned' identification with EPV. Recent investment in professional development has generally neglected summer course programming allowing EPV to continue as a significant incentive for primary teacher participation.

Keywords: **primary education, history of education, continuous professional development, education policy, incentives**

Introduction

The origins of Irish primary teachers' 'extra personal vacation' (EPV) was dated to 1908 in the *Report of the Committee on In-service Education* (Department of Education [DoE], 1984, pp. 3-4). The report's brief historical note on professional development also noted that EPV leave was "the only form of compensation" for primary teachers' attendance at summer courses. The view reflected a contemporary understanding of EPV which was based on corporate memories, submissions and primary teachers' experience. Two sets of questions about EPV arise. The first set is historic:

- What was the provenance of EPV?
- What change has occurred over the century of its existence? and
- What influenced EPV policy changes?

The second is administrative:

- How was EPV regulatory discretion exercised by the authorities?
- Were there other parties involved in the decision-making? and
- Why was 1908 a memorable date?

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Originally, EPV comprised short-term study leave associated with teacher education. It was an abbreviated version of a teacher education study leave arrangement. A year-long study leave career choice was designed to permit serving teachers complete the final year of formal teacher training and formed part of the teacher education revisions and the establishment of denominational training colleges in 1883 (Coolahan, 2017, p. 21). The teacher education revisions lengthened the duration and improved the quality of the courses, increased the quantity of places available and resulted in the formalisation of study-leave administration, eligibility, leave and substitution conditions. The EPV revisions enabled serving teachers attend short training courses as curriculum change occurred. EPV was associated with four curriculum initiatives in the 20th century, two prior to Independence and two following Independence. Its utilisation in pursuit of upgrading teachers' professional education and qualifications in the early part of the century set down the foundations of later EPV administration and current practice.

Conditions for upgrading qualifications varied over time and were influenced by state policy, socio-cultural factors and material benefits. The pre-Independence Irish language qualification was optional, required EPV-based study-leave, was driven by teachers' cultural-national motivations and taken up by a minority of primary teachers. At the other end of the spectrum the Irish Teastas qualification was a mandatory policy of the new state from the 1920s, was implemented with enthusiasm but with a minority of teachers remaining unqualified into the 1930s (Kelly, 2002, p. 80). For the Teastas, whole scale school closures, nationwide training venues and grants towards expenses enabled universal participation.

Personal expense was a major factor when considering study leave. Expenses, including substitution costs, were factors in teachers' cost-benefit calculations and were balanced against increases in salary, promotion or allowances. However, the tuition cost of the Irish language upgrading courses was borne by the Commissioners for National Education [hereafter the Commissioners] and, after Independence, the Department of Education. Expense considerations applied equally to long and short study leave situations. By the end of the 1930s, the importance of upgrading qualifications declined as the changes in teacher education and the implications of the teacher surplus took effect and possibilities of elective professional development activities emerged as a motivator of teachers' participation in courses and professional activities.

The process of changing the rules and regulations for national schools eased after Independence (Coolahan, 1982, p. 9). Pre-Independence changes of rule were a politically sensitive issue, particularly the system's fundamental rules and those with financial implications (Coolahan, 1982, p. 8; McDowell, 1964, pp. 246-247). This had entrenched caution, reliance on precedent and gradualism in the National Education Office's operation. Administrative changes were open to public scrutiny since they were submitted for approval to the Administration in Dublin Castle and subsequently published in the Commissioners' annual reports. The procedure gave the National Education Office some discretion regarding administrative regulations and, publication of the changes provided for the historian, a public record. While broadly similar regulations continued after Independence the friction with the main political and denominational protagonists was reduced and external scrutiny was eroded which resulted in increased administrative

latitude, a dilution of public scrutiny and a limited record of regulatory changes (Coolahan, 1982, p 9). EPV, an emanation of an existing leave-of-absence regulation, had, with appropriate adjustments, accommodated both the Commissioners' and the new state's Irish language training policies.

The post-Independence EPV adjustments were investigated as part of a wider study of primary teachers' professional development policies through an examination of the Department of Education files on the Irish language summer courses in the National Archives and annual reports (Herron, 2020). The later EPV modifications were by means of circulars and the inclusion of EPV as a stand-alone rule in the various editions of the *Rules for National Schools.* Currently, EPV entitlement is regulated by circular.

Mapping the changes in the conditions and regulations governing EPV involves examining the intersection between the political and educational contexts promoting teachers' further education and professional development and the administrative and bureaucratic capacity to plan and deliver. Mahoney and Thelen (2009, p. 15) provide an analytic framework to examine regulatory change using both the political/policy and the administrative axes. Exogenous forces, particularly denominational, political and cultural, were important influences on regulatory change in Irish primary education (Akenson, 1970). Equally important were the administrative foundations of the bureaucracy managing primary education (Coolahan & O'Donovan, 2009). Mahoney and Thelen's lenses will provide the backdrop to this chronological examination of the evolution of EPV.

Extra personal vacation's 19th century roots

The structure of the national or primary teacher education system provided the antecedents for extra personal leave. Teacher education in late-19th century Ireland comprised three elements: the teacher training colleges, monitor and pupil-teacher schemes and a system of graded in-service examinations (Harford, 2009, p. 48; Parkes, 2016, p. 46; Walsh, 2022, p. 331). Through serving time in schools, progressing through the National Board's graded in-service examinations and satisfactory inspector reports pupil-teachers advanced through the national system's schools to certificated teacher grade and on to the training colleges. A one-year training college course from 1883 was the final stage for the pupil-teacher and certificated grade III teacher stages. The rule allowing the leave-of-absence to attend a training college course established the context of what became known as 'extra personal vacation.' The leave-of-absence permitted a serving teacher retain their grade III teaching post and salary and to pay a substitute, appointed by the manager and "pronounced qualified by the District Inspector" (Commissioners for National Education in Ireland [CNEI], 1892: Rule 149[j]). The in-service grade examinations provided a general education, the staged advancement of monitors and pupil-teachers and a classification system for teachers for grade, salary and promotion (CNEI, 1892: Rule 154[b]). An emanation of the study-leave regulation was drafted to accommodate serving teachers attending short agriculture courses in the Board's Albert National Agricultural Training Institution, Glasnevin using 'extra vacation' in the regulation's formulation (CNEI, 1892, p. 87).

The EPV extension to Irish language training courses in 1908

The launch of a revised curriculum in 1900 was the occasion of wider use of the EPV facility. The revised programme introduced radical changes which involved a broadening of the range of subjects, introduced pupil-centred pedagogies and marked the end of the payment-by-results system. The addition of music, manual instruction, needlework, cookery, laundry, object lessons and elementary science to the national school programme emphasised an activity-based environment for pupils and was accompanied by in-service teacher training programmes organised by the National Board's newly appointed organising inspectors (Hyland, 1975; Walsh, 2012). Initial full-time short in-service courses in elementary science, cookery and manual instruction were arranged for selected teachers. These courses of four-to-six weeks duration had an important ancillary purpose of identifying and recruiting assistant organising inspectors for deployment on the national in-service training programmes (Hyland, 1975, pp. 69, 81 & 88). However, cost inhibited a wider use of full-time short courses despite head organisers' recommendations (CNEI, 1902, p. 157; CNEI, 1910, p. 197) and for the majority of primary teachers the 60-hour courses in the new subjects were scheduled for afternoon, evening and Saturday sessions over six-week periods (Walsh, 2012, p. 67).

EPV had provided flexibility in an otherwise highly-regulated school year. EPV touched on rules and regulations related to the length of the school year, closures, teacher absences and continuity of service. The school year and teachers' contracts were framed around three pillars: national schools were open for 44 weeks (220 days) annually from 1 July, for a 'minimum' of 200 days and were permitted a 'maximum' of 40 vacation days, 30 of them over six weeks in July and August (CNEI, 1909, rules 92, 122, 129 & 162). The Christmas, Easter and Summer holidays accounted for the majority of vacation days, leaving a small number of vacation and optional days at the school managers' discretion to allocate throughout the year to meet civic circumstances and religious celebrations, usually local fair and feast days. These regulations remained unchanged until 1952 (DoE, 1952). EPV days were added to teachers' contractual maximum 40 personal vacation days to allow them attend Board approved courses arranged by the organising inspectors or other approved agencies. Instances of approved specialised courses were arranged with the cooperation of the Dublin Metropolitan School of Art and the Department of Agriculture and Technical Instruction [DATI] (Turpin, 1983, p. 54; DATI, 1904, p. 87).

The use of the EPV facility was popularised in 1908 following the establishment and spread of Conradh na Gaeilge's summer college Irish language teacher training certificate courses in 1904 (CENI, 1909: Schedule I). The status of Irish language teaching in national schools rose in 1900 when it was recognised as an extra school subject and following sustained lobbying by Conradh and others the language's position was strengthened in 1904 when a bilingual programme for Gaeltacht or Irish-language speaking areas was introduced (O'Donoghue & O'Doherty, 2019, p. 44). However, the number of teachers qualified and competent to teach the language or work bilingually did not match the rising demand (Walsh, 2012, p. 80) and Conradh's' 1904 training course was established to meet it (O'Donoghue, 2006, p. 85). Conradh members built on the success and effectiveness of the initiative, expanded the number of colleges and obtained in 1907 the Commissioners'

recognition of the training course, funding and use of the EPV regulation (Ó Coigligh, 2014, p. 233). Existing EPV conditions – National Board and manager's approval, inspector-endorsed substitute cover whose cost was not a claim on the Board – were retained. The Conradh's summer college network contributed circa 3,100 of the qualified teachers compared to the approximate 600 who qualified through the training colleges (Ó Buachalla, 1984, p. 83).

A range of additional supports was available to teachers. Local Conradh na Gaeilge's branches and its Dublin, Belfast and Cork winter colleges were important for teachers to reach a satisfactory level of language competence which was a pre-condition for entry to the summer training courses (Ó Coigligh, 2014, p. 194). At National Board level, inspectors and organisers with both professional and supervisory responsibilities were appointed (Ó Buachalla, 1984, p. 83). By 1906 the Commissioners restored the favourable schedule of fees for Irish language and bilingual school teaching reversing the Treasury's direction to abolish these fees as part of its 1904 retrenchment of national education expenditure. The restoration materially augmented the national and cultural motivations of participants and assisted in compensation for the expenses incurred (Ó Buachalla, 1984, p. 83).

The proficiency attained among Conradh college graduates facilitated the major expansion in summer college teacher training in 1922. The programme had demonstrated its efficiency and effectiveness and Conradh's project had fostered a cohort of policy-makers, managers and professionals who would transfer to key senior positions in national education on Independence. Secondly, the summer college regulatory framework, setting out the conditions for the recognition of the colleges, 'a per capita' grant-aid procedure and EPV terms of teachers' release from schools, was politically acceptable (Kelly, 2002, p. 67).

Extra school vacation and the 1920s summer courses

The primary education system played the main role in the revival of the Irish language. A revised curriculum policy, placing teaching the Irish language and culture in the foreground, was agreed by the main nationalist language, education and political interests on the eve of Independence (National Conference, 1921). Conradh na Gaeilge's education and language policies were influential in the revisions recommended by the conference and the proposed programme included a range of strategies to prepare the two-thirds of serving teachers insufficiently equipped to carry out the ambitious language teaching programme (National Conference, 1921, pp. 25-26). Full implementation of government policy presumed the pre-Independence higher-level bilingual or Teastas Dhátheangach qualification as the standard Irish qualification. This implied that only about ten per cent of teachers were suitably qualified on the eve of Independence. A further 25 per cent had the ordinary-level or Teastas qualification (Walsh, 2012, p. 80). The Teastas was adequate for Irish language teaching while the Teastas Dhátheangach was necessary to achieve the national policy objective of immersion – instruction through the medium of Irish. The immediate implementation of the language policy was premised, therefore, on an intensive in-service teacher training programme (O'Donoghue & O'Doherty, 2019, pp. 84-85).

The decision to adopt Conradh's summer college teastas model by the new senior management in the National Education Office maximised departmental control over the terms and conditions of the training programme. It also relied on the EPV provisions. It was one of three strategies considered. A part-time programme comprising winter courses through technical and higher education institutions, supplemented by Conradh, in cities and larger towns was examined and full-time, three-month courses, staged over a number of years in venues such as the recently closed Marlboro' Street training college was contemplated (National Conference, 1921; DoE, 1924, p. 5). The final choice was influenced by the senior management's relationship with Conradh, familiarity with its contribution and the capacity of its personnel to assist in implementing the language policy (Coolahan & O'Donovan, 2009, p. 115). Revoking the EPV substitution requirement added to its efficiency (DoE, 1924, p. 5).

A strategy of 'extra school vacation' temporarily superseded EPV to allow for the closure of schools for the seven, and subsequently for the five and four-week summer courses which took place between 1922 and 1925. The endeavour involved between 12,000-14,000 serving and candidate teachers to proceed through three levels of language and pedagogic training, elementary (in 1922 only), Teastas and Teastas Dá-theangach. An academically oriented Ard Teastas, was introduced in 1923 (and at honours level in 1928) for those who had successfully completed the Teastas Dá-theangach (DoE 1929, pp. 16-17). The setting up of over 100 temporary coláistí optimised course access, reduced expenses and utilised a pre-Independence reservoir of Conradh-trained members and teachers. The Department anticipated a majority of teachers achieving a bilingual level of certification by 1925 and with it, an end to the mandatory phase of attendance at summer college courses. It was an over-optimistic ambition and optional arrangements were put in place until 1928 to allow teachers complete the necessary certification and their summer courses attendance was facilitated through a hybrid system of extra school vacation or EPV where appropriate. Allocating extra vacation to whole schools obviated the substitution issue which arose when EPV applied again in 1926. Its omission had implications for future EPV administration.

EPV as compensation: A policy transition

Irish language policy changes in 1929 modified the relationship between professional development, EPV and teacher in-service training. A departmental review of the summer language training programmes in 1928 identified an ongoing need for refresher and advanced courses in Irish to maintain teachers' language fluency (DoE, 1930a, p. 18; O'Connor, 1949, p. 211). The supportive language and cultural environment provided by Conradh's local branch network had eroded in the early post-Independence years (Brown, 2004, p. 43-44; Ó Fearaíl, 1975, p. 46). As a consequence, many teachers were deprived of an infrastructure to maintain and develop language fluency (DoE, 1929, p. 32). An innovative professional development strategy was adopted to encourage "teachers possessing bilingual or higher qualifications who, with the permission of the Department, resided in the Gaeltacht for at least 20 days for the purpose of improving their knowledge of Irish by private study and association with people of the district" (DoE, 1930a, p. 18). A maximum ten days EPV applied, inclusive of both the time spent in the Gaeltacht and any remaining vacation days provided that together they did not exceed 50 days (DoE, 1930b).

The second modification was a consequence of the reduced departmental budget allocation. The grant towards teacher expenses was abolished though grants towards the colleges' tuition fees continued and the Department's Inspectorate replaced the colleges' ollaimh (lecturers) as the certificate examining body. By way of mitigation for the changed circumstances, EPV entitlement was applied to attendance at *Conradh*'s recognised Dublin and Cork winter college courses and ten-days EPV was awarded for attendance at Gaeltacht summer courses. The changes also affected national teachers who were lecturers on the courses. To encourage them to continue, similar EPV entitlements were applied to them save for a speedily withdrawn hiatus in 1931 when the Department suspended the privilege (National Archives 1931 & 1932). This application of EPV to national teachers who taught on summer courses continued until the 1980s. As above, EPV was now available both for the time spent in the Gaeltacht and the remaining vacation days. Most EPV was reckonable for course attendance or approved Gaeltacht residence and the number of remaining discretionary vacation days were insignificant. However, it represented a modification to previous parsimonious EPV terms and was a response to the increased costs imposed on teachers.

Modifications to EPV regulations were made initially through departmental circular and later incorporated into Rule 55(5) of a new edition of the *Rules and regulations for national schools* (DoE, 1932). The rule was silent on the issue of substitution pointing out that "the vacation, inclusive of the time spent at the course of instruction, may, 'if desired', be extended to a period not exceeding 50 school days" (DoE, 1932, p. 36 emphasis added). Substitution requirements were retained for attendance "at a recognised training college or university course" or "to pursue a special course of study" as approved by the Department (DoE, 1932, p. 64). An imposition of substitution costs in addition to Gaeltacht living and travel expenses could inhibit the Irish language policy objectives. In any case, the sum of discretionary EPV days were few: the number of entitled teachers was limited, it applied to Irish language courses only, there was a 200-day minimum opening and a reluctance to impose on colleagues. Nevertheless, by the end of the 1930s, the principle of non-substituted compensatory leave as an inducement to attend vacation courses was introduced into the system. It would be extended in the 1940s.

EPV and elective courses: the Department's music and Kindergarten summer courses

Changes to the 1930 EPV regulations were required when the Department introduced its music and Kindergarten courses in the 1940s. The important place given to primary school music and Kindergarten programmes was eroded in the revised curriculum agreed in 1921 (Walsh, 2012). Complaints about unintended consequences of the neglect, some emanating from the Department's primary inspectorate (Breen, 1926, p. 558; DoE, 1935, pp. 33-34), resulted in revisions to and upgrading of the music programme in the 1930s (McAuliffe, 2004, p. 104) and the Kindergarten programme in the 1940s (O'Connor, 2010, p. 219). The appointment of teachers with recognised expertise and professional connections in their respective areas as organising inspectors resulted in revised curricula, teacher guidelines, networks of support for school practice and accompanying programmes of in-service

teacher training (Ua Braon, 1952, p. 38; O'Connor, 2010, p. 236). By contrast with the certificated Irish language training in the 1920s and 1930s, teachers' participation in music and Kindergarten training was voluntary. Moreover, the courses were not certification-focused nor was classroom performance reckonable for inspection ratings (INTO 1940, p. 28). However, classroom implementation was supported though organisers' school visits and supplementary activities. The free courses were scheduled during schools' summer vacation and attracted EPV as compensation for teachers' forfeiture of personal vacation days.

The number of teachers electing to participate in the departmental music and Kindergarten courses was significant. The courses rotated regionally and successful applicants could attend conveniently thus minimising personal expense. The respective music and Kindergarten organising inspectors arranged between four to six five-day music courses from 1940 and from 1941 two two-week Kindergarten courses respectively (DoE, *Reports,* 1940-1961). The compensatory EPV awarded represented a departure from previous practice which to date had only applied to Irish language training courses. The music and Kindergarten course EPV entitlements, at four and seven days respectively, were now taken during the school year which highlighted the necessity of revising the 1930 regulation so as to manage and control EPV determination and discretion.

The updated procedures were contained in the 1940 summer course Circular which pointed to the amendments made to Rule 55(5). Included in the modifications was a scale of EPV entitlement and directions with regard to the distribution of EPV throughout the school year. The taking of EPV was now subject to the school manager's approval (DoE, 1940). Control of course attendance procedures was retained by the Department while discretion over EPV was devolved to individual teachers. EPV entitlement was benchmarked against the existing standard of ten vacation days and a sliding scale was established to accommodate the variable duration of courses, especially the Kindergarten courses which included occasional three-week courses. There were restrictions on taking EPV and the entitlement schedule is displayed in Table 1 which points also to the major changes in the schedule which occurred as a result of the INTO-Department of Education negotiations in 1950-52.

Table 1: National teacher Extra Personal Vacation entitlement in days

Course length	**1940-1952**	**1953+**	**Current**
	EPV entitlement	**EPV entitlement**	**EPV entitlement**
15+ days	10 days	5 days	5 days
9 - 14	7	4	4
6 - 8	6	discontinued	
7	5	discontinued	
5 - 6	4	discontinued	
5 - 8		3	3
3 - 4		2	2
Conditions	Manager's approval. In not more than two blocks. Before 30 April.	Separately or in blocks before 31 May. One day in June was conceded from 1960.	Covered by Department of Education *Circulars 0037/1997* and *0035/2009*
Sources	DoE, 1946b, Rule 55(5)	DoE, 1953. INTO,1959	DoE, 1965, Rule 58

An enthusiastic response to the Department's music and Kindergarten courses among national teachers was manifested by the levels of attendance, feedback and the sustained participation. Approximate total teacher participation in music courses for the period 1940-1960 was 10,500 teachers and about 5,750 teachers of infants and junior assistant mistresses (JAMs) attended the Kindergarten courses. The total number of national teachers in these years was between 13,000 and 14,000 (DoE, *Reports,* 1940-1961). The effectiveness of the combination of teachers' interest in professional development, local support networks and the Department's use of EPV as an instrument to encourage participation was not unnoticed (DoE, 1946a, p. 23; INTO, 1947, p. 54; Council of Education, 1954, p. 186).

New purposes and new organisations in post-war EPV application

Political, cultural and church association were advantageous to groups' obtaining short course approval by the Department of Education. Approved summer courses were initiated from 1945 through joint sponsorship efforts of the Catholic Church, interdepartmental initiatives, the Froebel College and Comhdháil Náisiúnta na Gaeilge. EPV was awarded to primary teachers where the Department's conditions were met (Duggan, 2013, p. 45; Hoctor, 2006, p. 30; Lehane, 2019, p. 176-8; Ó Súilleabháin, 1986, pp. 23-24; Rooney, 1952, p. 221). The numbers of teachers involved in these activities, however, remained small because, unlike departmental courses, fees were involved and the organisation of vacation courses was supplementary to the organisations' main objectives. Nevertheless, cumulatively, the number of EPV days occurring within the system during a school year was rising and, in the process, placing a responsibility for teacher-cover during EPV absences on managers, schools and colleagues.

The impact of EPV on a school organisation was ameliorated through the negotiations on the length of the school year. The INTO proposed a lengthening of the summer holiday in 1950 (INTO, 1950, pp. 18-19). The conditions under which teachers attended summer courses, forfeiting up to two weeks of their six-week summer break, was part of the INTO case. Seán Moylan, the new Fianna Fáil Minister for Education, took up the proposal the following year and achieved a successful outcome on this issue during a period of on-going industrial acrimony between the Department and the teachers' unions (Moroney, 2007, pp. 155-6). The improvement to teachers' working conditions was an additional ten days summer holidays from 1952 which was counter-balanced with a 50 per cent reduction in the EPV schedule as illustrated in Table 1 (DoE, 1952; INTO, 1952, pp. 36-7).

An increase in professional development opportunities was anticipated in the Minister for Education's initiative to introduce some curriculum flexibility through his proposed weekly half-day of saor theagasc ['free instruction'] (Ó Buachalla, 1988, p. 277; Dáil Debates, 1953; DoE, 1954). A range of arts, language and physical activities was proposed in a Circular announcing the initiative and there was a presumption that various voluntary institutions would organise summer training courses to enable teachers to avail of the saor theagasc opportunity. EPV was the only incentive available since course costs were largely borne by the organisers and participants. It was also signalled departmental reliance on external bodies' contribution to professional development.

The gradual increase in attendance at approved courses with EPV entitlement rose from about seven per cent of teachers at the start of the 1950s to just over ten per cent by 1960 based on estimates derived from the *Irish School Weekly, An Múinteoir Náisiúnta* and Department of Education *Annual Reports*. The INTO embarked on a series of summer schools, organising EPV-entitled refresher courses in 1955 on issues selected to highlight its Irish language, special education and curriculum policy agenda with an average attendance over circa 400 per season (INTO, 1955, p. 56). However, it was the curriculum changes of the 1960s which led to increased summer in-service course activity and to the main organisers, the Catholic Church, INTO branches and teacher study groups, to avail universally of the EPV entitlement. The 1960s represented another phase in an EPV transformation which had commenced in 1922.

The impact of the 1960s curriculum development

The curriculum changes of the 1960s raised the profile of professional development and intensified the need for in-service education. The curriculum development activities of the Catholic Church and Department of Education led to radical changes of content and pedagogy in religious education and Irish language teaching programmes and, later that decade, a major overhaul of the primary curriculum (King, 1970; Ó Domhnalláin, 1981; Walsh, 2012). The increase in active pupil methodologies emphasised the importance of teachers in implementing the changes and their involvement in a transition from content-focused refresher courses to participative professional development workshops. This was illustrated through serving teacher recruitment to assist with diocesan- and Department-organised training programmes and, through INTO branch and study group programmes, teachers' direct involvement in the design, organisation and delivery of courses. As a consequence, the demand for and provision of teacher in-service professional development opportunities increased participation in short summer courses. Based on estimates of participation drawn from *An Múinteoir Náisiúnta, The Furrow*'s catechetical supplements, the Department of Education's reports and the Dublin Diocesan Archive (DDA), about 20 per cent of primary teachers, over 3,000, attended EPV-approved courses by 1969.

The implementation of the curriculum reforms initiated in the 1960s relied largely on free or minimum-cost courses with EPV as compensation for forfeited time. The Department's one-day courses to accompany the *Nuachúrsaí* Irish language was an exception (Ó Domhnalláin, 1981; Walsh, 2012, p. 228). The religious education courses, organised by Catholic dioceses to prepare teachers, included many week-long summer courses approved by the Department, (INTO 1965, p. 41; McConville, 1965, pp. 291-292). The largest diocesan scheme was that organised by the Dublin archdiocese where, during the 1960s, teacher attendance rose from 400 to 500 in 1960-63 to between 900 and 1,000 from 1964-69 (DDA, 1960-69). Vacation courses organised by the INTO, the Conference of Convent Primary Schools branches and Department-supported college of education initiatives responded locally to demand focused on the imminent curriculum changes.

Primary teacher participation in vacation-based professional development increased annually through the 1960s and by the 1970s about 60 per cent, or 9,000, teachers participated in vacation courses (INTO, 1974, p. 40). Despite the professional development demands, no alternative to short vacation courses was envisaged by the Department

(INTO, 1971, p. 80). The quantity and diversity of external course proposals forced the Department of Education to rationalise its approval procedures in 1970 (INTO, 1971, p. 79). The extent of EPV pressure on school organisation emerged as a serious issue: there were reports of Dublin diocesan school managers resisting EPV permission (DDA, 1960-69, 1963, 1966 & 1957-72) In 1970 the Department temporarily extended three-days EPV to 'all' teachers to mitigate the bottlenecks and clarified emerging confusion with regard to expenses or EPV entitlement (INTO, 1971a, p. 76).

EPV and self-financing courses

The enhanced status of professional development in the late 1960s resulted in its integration into the concept of the continuum of teacher professional education (Coolahan, 1989, pp. 35-36). Discussions envisaged institutional structures for planning, funding and administering continuing professional development in a 1974 report on the establishment of a teaching council which was subsequently elaborated in the 1983 *Report of the Committee on In-service Education* (DoE, 1974; DoE, 1984). However, the recurring economic recession which continued throughout the 1980s curtailed the incipient efforts of the primary-level In-service Steering Committee to coordinate professional development resources and activities in support of the new primary curriculum and remained the main obstacle to implementing professional development policy initiatives (Coolahan, 1989, p. 36).

The budgetary constraints imposed on the Department of Education had consequences for the function which EPV played in subsequent professional development policy and practice. In addition, the retrenchment contributed to the INTO's withdrawal from summer course organisation in 1979 (in protest at the absence of a departmental in-service policy (INTO, 1979, p. 28). That year, before its ban came into effect, INTO-organised courses accounted for 50 per cent of the 7,250 teacher summer course attendances (INTO, 1980, p. 157). When combined with the Department's courses, 70 per cent of courses were financially supported while the remainder were self-financing. The reduction in the number of courses available to teachers as a result of the INTO ban, effective from 1980, was gradually replaced by teacher centres and voluntary organisations whose efforts flourished with the increase in the number of teachers contributing as lecturers and through individual teacher enterprising endeavours.

Self-financing was crucial to the expansion and development of new areas such as computers, sports and specific learning difficulties which emerged to complement the existing range of curriculum-oriented summer courses (McKenna, 1992). In the absence of policy change or new Department initiatives, the short, summer course model flourished and by the mid-1980s, teacher participation in approved summer courses regained its mid-1970s 50 per cent attendance level. There was, however, a significant reversal in funding sources. By now, a majority of courses were self-financing and in 1988, 75 per cent of teachers paid for summer courses thus reversing an earlier situation where most funding was underwritten by the Department, dioceses and INTO branches (Ireland, 1990, p. 25; CHL Consulting, 1991, p. 10).

The changed circumstance affected teachers' perception of EPV entitlement. To EPV as 'compensation', a coinage introduced in 1940 in recompense for the forfeiture of personal time, was added a perception of EPV as "earned" in return for the monetary outlay (CHL Consulting 1991, p. 27). The changing perception was notwithstanding the professional

benefits and advantages of participation. Any mitigation of the pressures resulting from an accumulation of EPV entitlements on school organisation was due "to the credit of many [teachers] that … do not avail of these additional discretionary holidays as the burden of pupil supervision would fall to colleagues in the absence of a [substitute] supply panel" (Sugrue 2002, p. 58). The effect of teachers' payment for professional development courses added a transactional calculus to professional development participation, effectively associating EPV with reward in addition to time-in-lieu compensation (Egan, 2004, pp. 13-14).

The consolidation of EPV in a new era

The review of national education policy in the 1990s had major implications for state investment in teacher professional development. The debate on teacher education and professional development policies took place within a broad discussion on national education policy objectives which was articulated through a deliberative process leading to a statement of government policy in the 1995 *White Paper* and in subsequent legislation (Ireland, 1995). The *White Paper's* proposals on teacher education, which was conceptualised as a lifelong learning continuum inclusive of induction, in-service education and professional development, were interwoven with the proposed reforms in curriculum, school administration and governance policies and practices. Planning for the implementation contributed to the shaping professional development policy, its administrative structures and control, teacher participation and modes of delivery. Funding for the expansion was made possible through harnessing European and government development grants accessible through the national development plans to prepare the economy for the European Union and single market.

The Department of Education's In-career Development Unit (ICDU), set up as part of the *1994-99 National Development Plan*, managed three main professional development schemes. It oversaw an expanded teacher education centre network, and through it, the ICDU provided the administrative structures for the planning and implementation of the professional support services for the National Council for Curriculum and Assessments (NCCA) revised national curriculum programmes. The ICDU retained oversight of the summer course scheme. The significant investment in professional development involved created a variety of professional learning opportunities for all teachers in team, whole-staff and special interest group activities in off- and on-school-site settings. School and subject based-participation motivated teachers towards taking additional short and certificated courses. The recruitment of teachers to temporary secondments to work on national curriculum programmes broadened the pool of expertise within the system.

The summer course programme was coordinated by the ICDU with modifications to the pre-1990s procedures. The EPV entitlement was retained. Course approval was based now on applicants' adherence to prescribed national in-career development priorities. Financial support over the course of the national plan was available to selected applicants, mainly education centre and INTO courses (INTO, 1994, pp 1 & 3). The primary inspectorate ceased organising courses and was redirected to quality assurance monitoring of the courses. Accredited university and college of education courses, which flourished from the 1980s, had limited links to the ICDU (Sugrue & Uí Thuama, 1997, p. 59). However, the ICDU supported course participants through a course fee-rebate scheme.

The level of coordination and coherence of professional development fell short of what was promised in the 1990's policy positions (Sugrue & Uí Thuama, 1997, p. 67). The accredited and summer course strands of professional development were largely unaffected by the significant increase in activity, funding and coordination. They retained levels of autonomy and operated within conditions of competition, responsiveness to teachers' personal preferences and financial viability. Incentives were important whether in the form of qualifications, allowances or EPV for summer course attendance. The continued existence of the summer course scheme has assured the compensatory and earned functions of EPV to the present.

Conclusion

Extra personal vacation has remained an attribute associated with primary teachers' professional development in Ireland for over 135 years. EPV was a modification to a one-year teacher education study-leave regulation which enabled serving teachers participate in short supplementary teacher training courses and to obtain additional optional qualifications. It was flexibly utilised for curriculum and professional development by both the colonial and the independent state administrations. Adaptations in response to education, administrative and national policy developments ensured its utility in professional development arrangements. Significant shifts in EPV administration, purposes, duration and conditions occurred on three occasions: in facilitating serving teachers' Irish language teacher training between 1908 and the 1930s, as compensation for teachers' forfeiting personal vacation from the 1940s and the addition, in the recessionary 1980s, of a transactional calculus with the emergence of a competitive short summer course market-place with tuition fees.

The immediate post-Independence 1920s decade witnessed the widest range of modifications to EPV operations. The new administration for national education, released from the scrutiny which the Commissioners had experienced, used a newly-found administrative discretion creatively while retaining the broad EPV regulatory boundaries. Departmental officials effectually modified EPV regulations to allow for large-scale extra school vacation and the release of teachers as lecturers on courses. They disregarded the pre-Independence substitution requirement and made selective use of EPV as an incentive for Gaeltacht language fluency and enrichment activities. There were legacies to the successful use of EPV and short-study leave. The EPV substitution issue was never resolved and became more complicated when EPV as compensation was introduced in 1940. The one attempt to withdraw EPV from primary teachers lecturing on approved courses in the 1930s was successfully resisted and the concession remained until the 1980s. EPV as a professional development incentive flourished and its use as compensation from 1940 became its defining feature. The *Report of the Committee on In-service Education* could more appropriately have identified 1940 as the initial date of compensatory EPV (DoE, 1984, pp. 3-4).

Adaptation to the purposes of professional development, represented in the Department of Education and other institutions' approved courses from 1940, further modified the conditions and administration of EPV. Specific curriculum programme changes provided

the main rationale for the short courses, teachers' voluntary participation was normalised and the 1920s' emphasis on certification, inspection and performance ratings was absent. The issuing of new regulations to administer EPV entitlement and local approval, duration and uptake highlighted the novel compensatory character. An anticipated outcome resulting from further expansion of the short-course form of professional development – EPV's impact on school organisation – was mitigated by shortening EPV entitlement and controlling teachers' EPV discretion. The delay in major primary curriculum reform until the 1970s meant that the impetus for and provision of free and sponsored short summer courses was limited mainly to the Department, the churches (religious education programmes) and the primary teachers' union, the INTO. However, the reliance of the Dublin Archdiocesan 1960s catechetical reform effort on the compensatory short summer course model to prepare teachers for its implementation pointed up the local EPV challenges which would face large-scale preparatory and professional development courses for serving teachers. The diocesan organisers' reports referred to larger schools' EPV organisation, course 'repeaters' annual attendances, the inadequacy of short courses given the reform's aims and a growing financial burden (DDA, 1957-72 & 1960-69). The Church's adoption of an alternative professional development to short-courses and compensatory EPV passed largely unnoticed by those involved in professional development for the main primary school curriculum reforms.

The scale of the primary curriculum, organisational and professional development requirements in the 1970s surpassed the state resources allocated, a situation which was exacerbated following the series of economic recessions commencing with the 1973 oil crisis. A reliance on short vacation courses was the major strategy relied on until the mid-1990s. It was an efficient though fragmented strategy which recommended itself to other institutions which, on a voluntary and self-financing basis, augmented departmental provision. Teachers increasingly bore the costs of professional development and the outsourced character of the summer course marketplace rhymed with a 1980s economic policy which increasingly promoted devolution, in-service priority identification and personal choice. In these circumstances, compensatory EPV as time 'in-lieu' became identified with time-off 'earned' as part of a monetary transaction (CHL, 1991). The EPV entitlement reinforced the commercialisation of the summer course in-service professional development marketplace.

Additional strategies adopted in the 1990s – professional development programmes in support of national curriculum and organisational developments and the post-graduate fee-recoupment scheme – expanded professional learning access, and served the system and personal professional development aims (Egan, 2004). The summer course structure, serving personal professional learning objectives, has retained its mid-twentieth century features. In this format it represents part of a repertoire or menu of three main professional development options available to teachers with EPV as its specific incentive. EPV is now institutionalised as an entitlement for personal professional development decisions. The current institutionalisation has constrained the flexibility with which EPV was utilised by the Department of Education in support of strategic policy objectives in the early years of the state.

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The use of priming to mitigate the impact of mathematics test anxiety in primary school students

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Abstract

High levels of test anxiety can significantly impede students' performance in mathematics tasks. Previous studies have demonstrated that interventions involving priming activities can notably reduce students' test anxiety. However, the majority of this research has been situated within the context of third-level education and, to a lesser extent, second-level. Acknowledging the dominant focus on third and second-level education, this study examined the use of a simple prime to mitigate the impact of mathematics test anxiety with primary school students. One hundred and fourteen students took part in this study (67 boys, 47 girls), with an age range from eight to 12 years. Participants were randomly assigned to the unprimed (n = 57) or primed (n = 57) groups before proceeding to indicate their level of test anxiety. The primed group were exposed to a visual prime of two mathematicians and asked to describe the characteristics and feelings of these mathematicians before undertaking a mathematics task. The mathematics task required both groups to complete ten mental arithmetic problems within three minutes. The results of this study suggest that a simple prime can be effective in offsetting the negative impact test anxiety can have on mathematics performance.

Keywords: **mathematics, test anxiety, performance, students, primary school**

Introduction

Test anxiety has been shown to undermine student performance across different levels of education and a wide variety of educational tasks (Cassady & Johnson, 2002; Chapell et al., 2005; Ramirez & Beilock, 2011). Research has demonstrated for some time now that test anxiety in students can materialise as early as second grade (typically ages 7-8) and then continues to "increase grade by grade, with consistently higher levels for girls than for boys" (Hembree, 1988, p. 49). Test anxiety relates directly to pressures on students to perform and their fears of negative evaluation (Hembree, 1988; Larson, El Ramahi, Conn, Estes, & Ghibellini, 2010). Within mathematics, links have been made between test anxiety and increased fears of math failure (Ramirez, Gunderson, Levine, & Beilock, 2013), with anxiety shown to impede "performance in simple arithmetic tasks" (Allen & Vallée-Tourangeau, 2016, p. 1553). A meta-analysis by Ergene (2003) found that intervention programmes can be effective at reducing test anxiety but that prior studies done with primary school students produced much smaller effects compared to those conducted with college and

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university students. Ergene (2003, p. 321) proceeds to caution that there "are a limited number of studies … which have been done with primary, middle and high school students". More recently, Devine, Fawcett, Szűcs, and Dowker (2012, p. 7) have called for further research investigating the relationship between anxiety and mathematical performance "from early primary school year onwards". Acknowledging this dearth in the research, the following article aims to examine the use of a priming exercise to mitigate the impact of mathematics test anxiety on primary school students.

Test anxiety and mathematics

Smith (2004, p. 2) acknowledges that mathematics "occupies a rather special position" in the majority of contemporary international primary and post-primary curricula. Lynch and McGarr (2016, p. 722) argue that this prioritisation of mathematics in school curricula is often "predicated on the belief that mathematics education underpins economic development". Given the considerable prominence afforded to mathematics and the resulting pressures to perform, it is perhaps not surprising that math anxiety is recognised as a significant problem affecting student performance and mathematics achievement across several jurisdictions (Furner & Berman, 2003; Soni & Kumari, 2017). However, as highlighted by Newstead (1998, p. 67) "mathematics anxiety is in fact more than (and possibly different to) test anxiety". While acknowledging the almost ubiquitous presence of mathematics anxiety in classrooms worldwide (Hoffman, 2010), the focus of this article is specifically on situational test anxiety amongst primary school mathematics students.

Test anxiety is a condition resulting in feelings of distress in evaluative situations that have been shown to impair student performance (Akinsola & Nwajei, 2013). Test anxiety has been long associated with "self-deprecating ruminations" (Cassady & Johnson, 2002, p. 271), self-criticism and worries about failure (Eum & Rice, 2011). According to Cassady and Johnson (2002, p. 271), it has been widely accepted that "test anxiety is composed of two dimensions" referred to as emotionality and cognitive test anxiety (worry), respectively. The emotional dimension refers to the behavioural or physical reactions to evaluative situations often evident through the physiological responses experienced by the student (Rana & Mahmood, 2010). The dimension of cognitive test anxiety is an expansion on what was traditionally simply labelled as 'worry' (Cassady & Johnson, 2002) and refers to the broad range of cognitive reactions associated with evaluative situations (Cassady, 2004). These reactions often include students being "occupied by worry-related thoughts regarding their competence" (Lang & Lang, 2010, p. 812), possessing low levels of confidence in their performance, feelings of being under prepared and constantly comparing self-performance to that of their peers (Cassady & Johnson, 2002). High levels of worry have been identified as a "primary performance predictor" (Cassady & Johnson, 2002, p. 271), with Goetz, Bieg, Ludtke, Pekrun, and Hall (2013) reporting that lower levels of perceived competence in female students accounted for gender differences in mathematic performance.

Priming as an intervention to reduce test anxiety

A meta-analysis conducted on interventions designed to reduce test anxiety found that skill-focused approaches with behaviour or cognitive treatments are quite successful at reducing test anxiety but that there "is a serious lack of research on test anxiety reduction programs for primary… school students" (Ergene, 2003, p. 313). Within the existing dearth of research at primary school level, few studies have examined the use of priming as a treatment to reduce test anxiety. Some studies have suggested that positive priming can reduce anxiety in primary school students (Devine et al., 2012; Rubinsten & Tannock, 2010) but these studies are extremely limited with the majority of research in this area concentrating on interventions at university level.

Priming involves exposure to one stimulus which may influence a response to a later stimulus (Murphy & Zajonc, 1993). Priming techniques can be effective in altering behaviour as they seek to passively activate mental representations of trait constructs that play an important mediational role in guiding thought and behaviour (Bargh & Williams, 2006). Dijksterhuis and Bargh (2001) found that priming students by getting them to think about college professors and to write down the typical attributes of professors that came to mind resulted in participants answering a greater number of questions correctly in a trivia game. Conversely, Dijksterhuis, Bargh and Miedema (2000) found that the priming of negative stereotypes of elderly people adversely impacted the performance of college students on memory tests with participants recalling fewer objects compared to other students. Lang and Lang (2010) employed a priming task with 219 secondary school students where they asked participants to think of a person who is very successful at solving scientific problems. Participants were then asked to write down at least five abilities this person possessed, five adjectives describing their personality and three sentences to describe how this person felt immediately before attempting to solve complex problems. After completing the priming task students were given a five-minute break. Upon their return, they worked on a verbal-analogies test. Lang and Lang (2010, p. 814) found that "individuals with high cognitive test anxiety performed better, and individuals with low cognitive test anxiety performed worse, in the priming condition relative to the control condition." It is important to note that this test anxiety intervention was brief in nature and may not hold over time or lead to significant amounts of learning. However, these examples from both third and second level educational settings suggest that priming can reduce the negative impact of test anxiety on student performance. Few studies have looked at the impact of priming on test anxiety within mathematics education at primary school level and the authors could not find any within the Irish context. By addressing this dearth in the research, the findings from this study have implications for young students who suffer from excessive test anxiety, as well as all educational stakeholders involved in supporting these children in classrooms. The authors acknowledge that a growing focus on formative assessment exists across the education sphere (Dooley et al., 2014), and by focusing on a timed test (as is the case in this study), maths anxiety could be increased by the use of the time constraint (Boaler, 2014). However, many areas of practical life assessment involve evaluating human performance under time constraints, including the State Examinations at second level.

Method

Design

This experimental study consisted of a 3 × 2 between-subjects design. The first between-subjects factor was the level of test anxiety, which had three levels; low, neutral, and high. The second between-subjects factor was priming which had two levels; the experiment group who were primed and the control group who were unprimed. Groups were tested separately in group sizes of ten. The dependent variable was test performance, which had ten questions with each correct answer getting one mark (maximum ten marks).

Participants

One hundred and sixteen children were invited from one school, to take part in the study. On the day of testing, 114 students (67 boys and 47 girls) were present and all assented to take part. Participants were randomly assigned to the either the control or experiment group. The control group consisted of 57 participants (26 boys and 31 girls), while 57 participants were exposed to the priming intervention (41 boys and 16 girls). The age of the participants ranged from eight to 12 years, ($M = 9.75$ years, $SD = 1.3$ years). All participants were attending the same DEIS primary school in Ireland and all were between 3rd and 6th classes. Independent samples t-tests showed that there was no significant difference in age between boys and girls, $t(112) = .21$, $p = .837$ and that no significant differences in age existed between the primed and unprimed groups, $t(112) < 1$, $p = .947$.

Materials
Consent

Parental consent was sought and provided before any participant engagement. In addition, each student gave their assent on the day the study took place, indicated by circling a happy or sad face.

Anxiety

Self-reported anxiety was measured using a short scale designed by the researchers. This scale contained three items; "I hate tests", "I don't mind tests", and "I like tests". Children who selected "I hate tests" were noted as having high test anxiety; children who selected "I don't mind tests" were noted as having neutral anxiety, and children who selected "I like tests" were noted as having low anxiety. These items were specifically constructed to ensure standardisation of items across four different class groups who would vary considerably in literacy skills. The language used was modelled on OECD and PISA tests where limited response options are offered, in order to be accessible to participants from 3rd to 6th classes, with possible low literacy levels. We decided not to use Likert scales as it has been shown that children have a limited understanding of Likert response formats (Mellor & Moore, 2013).

Prime

The prime involved showing participants two 'stereotypical' constructed images of two mathematicians, one male and one female. The male wore a lab coat, while the female image stood in front of a chalkboard with mathematical equations and wore glasses. The text told participants that both people were mathematicians and both were good at maths. Both images were presented on one page to participants so all participants were exposed to both the male and female prime. Participants were asked to write down three words to describe the two mathematicians and they were then asked to write three sentences to best explain how these mathematicians felt directly before undertaking a maths task.

Procedure

Children were invited to participate in a nearby classroom in groups of ten. At the commencement of the procedure, children were asked to indicate assent to participate, their age in years and gender. Following this, they completed the anxiety scale by ticking one of three possible options. Participants in the experiment group were then primed as above, while those in the control group received no priming. Once the priming was complete, participants were given a class-appropriate maths task containing ten questions. They were given just three minutes to answer the questions, which were measured by using a standard stopwatch timer. At the end of the allocated time, the children stopped writing and the study materials were collected by the experimenter. Each participant was thanked for their participation and a debriefing form was given to each child to give to their parents. The researcher brought the children back to their classroom and the class was debriefed as a whole when everyone had finished participating. The researcher corrected the maths task and awarded marks out of ten, with each correct answer getting one mark.

Results

Preliminary analyses

Examination of the data identified that 49 children identified as highly anxious, 40 as neutral, and 25 as low anxious. Chi-squared test of association confirmed that there was no association between gender and level of test anxiety, χ^2 (2, N = 114) = .05, p = .977, meaning boys and girls experienced similar levels of text anxiety. However, the chi-squared test indicated that there was an association between class group and anxiety level, χ^2 (6, N = 114) = 21.66, p = .001, although one cell had an expected count less than 1, indicating a violation of an assumption of chi-squared. Nevertheless, examination of the cross-tabulation suggested that while 41 per cent of students in 3rd class reported low anxiety, for all other classes, no more than 16 per cent reported low anxiety.

Independent t-test confirmed that boys and girls showed similar levels of maths performance, t(112) = 1.23, p = .211. Likewise, ANOVA confirmed that there were no differences in maths performance across the four class groups, F(3,110) = 1.81, p = .15, which confirmed the validity of using age-appropriate maths tests for each class group. This non-significant difference identifies that the tests were equally challenging across all four class groups. Table 1 shows the mean performance (with *SD*) broken down by experimental group and anxiety level.

Table 1: Maths scores according to priming group and level of test anxiety

	Maths performance			
	Primed		Unprimed	
	M	SD	M	SD
High anxiety ($n = 49$)	9.50	.906	5.96	2.08
Neutral anxiety ($n = 40$)	9.06	.966	9.13	1.14
Low anxiety ($n = 25$)	8.93	.917	9.27	.905

Priming Intervention and class group

A 2 × 4 between-subjects factorial ANOVA was carried out to examine if priming group and class level influenced maths test performance. There was a main effect for priming on maths performance, $F(1, 106) = 18.37$, $p < .001$, partial $\eta^2 = .148$, with participants in the priming group ($M = 9.23$, $SD = 9.45$) achieving significantly higher results than those in the unprimed group ($M = 7.88$, $SD = 2.21$). Unsurprisingly, there was no main effect for class level, $F(3, 106) = 2.08$, $p = .107$, given that age-appropriate tests were used for each class. There was no priming group × class level interaction effect, $F(2, 114) = 6.30$, $p = .081$. This shows that the effect of the priming intervention was equally effective for all class groups.

Priming intervention and anxiety

To investigate the effectiveness of the priming intervention on maths performance, a 2 × 3 between-subjects ANOVA was conducted with priming as the first between-subjects factor (primed and unprimed) and test anxiety as the second between-subjects factor (high, neutral, low). As already reported, there was a main effect for priming, $F(1, 106) = 18.37$, $p < .001$, partial $\eta^2 = .148$, with participants in the priming group scoring higher than the unprimed group. ANOVA also revealed a main effect for anxiety, $F(2, 144) = 15.70$, $p < .001$, partial $\eta^2 = .23$. Post hoc Tukey tests indicated that the high anxious children had significantly lower maths scores ($M = 7.84$, $SD = 2.37$) than both the neutral anxious group ($M = 9.10$, $SD = 1.06$; $p < .001$) and the low anxious group ($M = 9.08$, $SD = .91$; $p < .001$). There was no difference in performance between the low anxious and neutral anxious groups, $p = .998$.

However, this main effect was qualified by a significant priming group × anxiety interaction, $F(2, 114) = 29.10$, $p < .001$, partial $\eta^2 = .35$. As can be seen in Figure 1 (see Appendix), while priming had little or no effect in children who were low or neutrally anxious, for those who were high in text anxiety, being exposed to the prime significantly improved their scores when compared to their high anxiety counterparts in the control group. Simple effects analyses confirmed this effect. Overall, these results indicate that while priming is effective in improving maths performance, it is particularly effective for those children that report high test anxiety.

Discussion

This study highlighted that a simple, easily employed prime in the primary level classroom was effective in offsetting the negative impact test anxiety has on maths performance. For

children who had high test anxiety, maths performance was significantly lower than all other children, unless they had experienced the simple prime. These results show how effective a simple prime in the classroom can be in offsetting the negative impact test anxiety has on maths performance.

In an Irish context, this is particularly important given that this study was conducted in a DEIS Band 1 school. Delivering Equality of Opportunity in Schools (DEIS) is a national programme aimed at addressing the educational needs of children from disadvantaged communities. DEIS schools receive additional support, including lower student: staff ratios, with Band 1 schools receiving the most support. Previous research has shown that children who attend a DEIS school had lower maths scores than those from other schools (Eivers et al., 2010), although no study has investigated if there is a difference in test anxiety in children in DEIS and non-DEIS schools. Nevertheless, for those that have high test anxiety, this study shows the effectiveness of a simple prime in negating the negative impact anxiety has on performance in primary school children.

No difference in maths scores or anxiety levels was evidenced between boys and girls. This departs from previous research that suggests sex differences in mathematical ability between boys and girls (e.g., Doris, O'Neill, & Sweetman, 2013). However, other research shows the belief that maths as a more male-orientated subject is declining in more gender-equal countries, (Devine et al., 2012), which may explain why both boys and girls performed equally in this Irish primary school. With regards to anxiety, while Flessati and Jamieson (1991) claimed that females are more likely to admit openly to weaknesses in their abilities to others, in the present study, both boys and girls self-reported their levels of test anxiety anonymously, thereby limiting the impact of this potential confound.

The results of this study align with previous findings from both third level (Dijksterhuis & Bargh, 2001) and second level (Lang & Lang, 2010) educational settings, highlighting that simple priming tasks can mitigate significantly the influence of test anxiety on students' maths performance across multiple age groups. While further research is required at both second and primary school levels, these findings suggest that mathematics test anxiety can affect student performance negatively across all academic levels, from primary school through to college years, and that simple priming tasks hold the potential to ameliorate such affects. This aligns with the findings of a meta-analysis of the research on instruction conducted by Marzano (1998, p. 82), which found no statistical difference in the effect of instructional techniques across different grade levels of students. In other words, Marzano (1998, p. 68) suggests that "an instructional technique that produces positive effects for students at the high school level [can also] produce the same effects with students at the elementary school level".

While previous research has suggested that the priming of a concept related to intelligence such as stereotypes of a professor can help advance individuals' performance in a general knowledge test (Dijksterhuis & Bargh, 2001; Dijksterhuis & Van Knippenberg, 1998), more recent studies have questioned the generalisability and circumstances in which this phenomenon can be replicated (Shanks et al., 2013). Acknowledging the disputed benefits of intelligence priming within the literature (Shanks et al., 2013), this present study found that for primary school children with self-reported high levels of test anxiety, a simple prime supported enhanced maths performance compared to those not exposed to the prime. No statistical difference was identified across either of the other two cohorts

who reported low and neutral anxiety levels, respectively. The concentration of a positive priming effect within this present study to those participants who reported high maths anxiety may help explain why some researchers have reported a narrow generalisability of priming effects (Pratte & Rouder, 2009). Further research is required to examine if the influence of the priming activity on those with high maths anxiety observed within this study is short-lived or can be sustained over time. Equally, a subject-specific scale to interpret levels of mathematics test anxiety, as opposed to test anxiety in general could be used in further studies.

One strength of the present study is the use of a simple tool to measure test anxiety in a sample of primary school children from four different class groups. Most measures of test anxiety are downward extensions of adult measures of anxiety and assume that anxiety in children closely resembles the presenting features of anxiety in adults. While there is overlap between the presentation of anxiety problems among children and adults, there are developmental differences in anxiety symptoms that need to be considered. We considered using other anxiety measures, such as the *Children's Anxiety Scale* (Spence, 1998). However, we wished to design and test a short, easily implemented prime in the classroom. Therefore, we adopted to design of a single-item indicator of test anxiety that could be incorporated across a range of ages in primary school level. We avoided use of a 'Likert' scale given potential issues with the use of Likert scales in children of this age (Mellor & Moore, 2013).

A further strength of the present study was the standardised presentation and use of materials for all class groups. Testing took place in the one week, using the same materials and presentation on all occasions. This is important as it controlled potential confounding variables such as class tests or other all-school events, and had the testing period altered significantly for each class. Of course, the data showed equal levels of anxiety and performance across all class groups which is further evidence of the validity of the presentation and timing period, ensuring all groups were equivalent before the implementation of the intervention.

The findings are limited as the data were collected in just one school, with a relatively narrow age range of participants. This runs the risk of the findings not generalising to all schools. The anxiety tool employed, while easily administered and designed to ensure all age groups understood its instructions, could not capture information on anxiety symptoms. Rather, this measure identified students who perceived themselves as being high, moderate, or low in test anxiety, measured by assessing their like or dislike for tests. Future research could employ a more valid assessment tool to capture the broad range of behavioural and emotional indicators of anxiety. Equally, the use of stereotypical images of mathematicians is worthy of discussion as many facets of society often encourage children to challenge stereotypes. However, it was found that while young people are aware of stereotypes of mathematicians existing, they were "… not passively absorbing these and they were simultaneously aware of the clichéd nature of popular cultural images…" (Moreau, Mendrick & Epstein, 2010, p. 25)

Overall, the present study highlights a simple, easily employed intervention that is effective in negating the negative impact high test anxiety has on maths performance. Such an intervention, even if short would take little time to implement on a whole-class level and may improve performance for a subset of the class.

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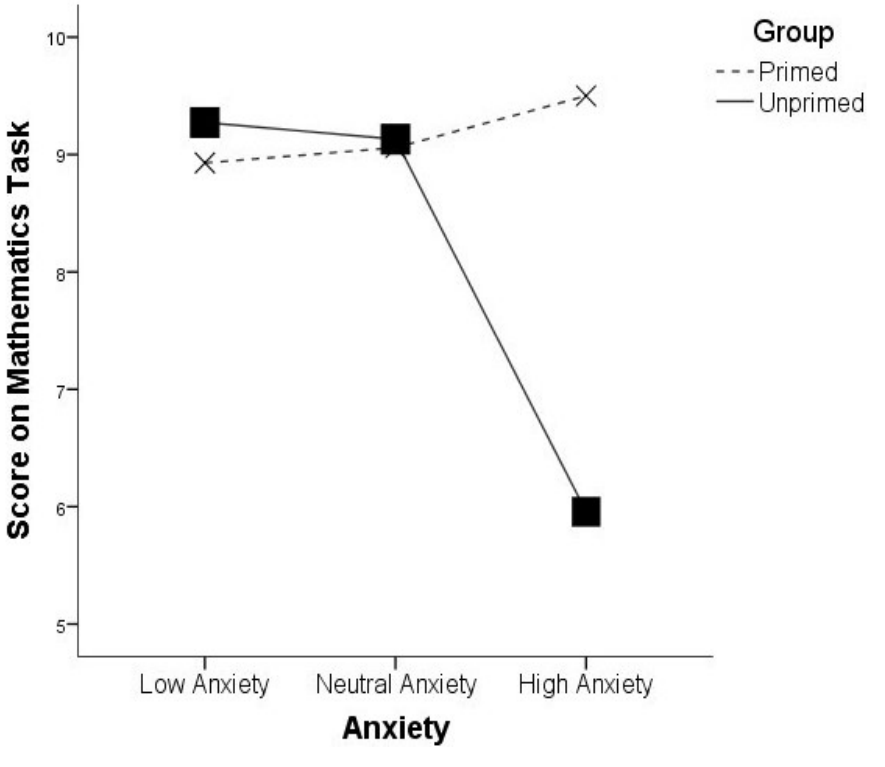
Appendix

Figure 1: Significant anxiety by priming interaction on scores on maths task



An exploration of teachers' perspectives of factors affecting academic outcomes for Newcomer pupils in Northern Ireland

Maria Stewart

Abstract

Since the signing of the *Good Friday Agreement* (1998) and the ensuing peace process, Northern Ireland has become a more desirable place to live. The last two decades have experienced significant growth in the number of immigrants wishing to make it their home. This has resulted in major changes in classroom demographics with assessment data indicating a significant attainment gap between Newcomer and non-Newcomer pupils. This project investigates teachers' perspectives on factors that contribute to the underachievement of Newcomer pupils. It also identifies effective class-level strategies and school-wide approaches to support pupils' academic development and wider social inclusion. The study follows a mixed methods explanatory design with research conducted across three primary schools in inner city Belfast. Findings indicate that English-language learning support is considered the most effective strategy in improving academic outcomes for Newcomer pupils and that closer cooperation is required across schools and between schools and Newcomer parents.

Keywords: **Newcomer, English as an additional language (EAL), Northern Ireland, underachievement**

Introduction

In Northern Ireland (NI) the Department of Education (2009) uses the term 'Newcomer' to define those pupils who are enrolled in schools without the prerequisite English-language skills to enable them to participate fully in the classroom. Kernaghan (2015) states that year on year there has been rapid demographic growth in the number of pupils who have English as an additional language (EAL) at all stages of education in NI. Currently, there are 17,664 pupils registered as Newcomers with 12,888 attending primary schools (DENI, 2021). This has had a profound impact on the composition of classrooms and presented many challenges for teachers, such as low school readiness, bullying from the host population and inhibited home-school communication (Robertson, 2020; Kernaghan, 2015; Purdy & Ferguson, 2012). McMullen et al., (2020) posit that for the majority of these pupils and their families, education is deeply valued. Nonetheless there exists a substantial attainment gap between Newcomer and non-Newcomer pupils in the region. Just under 42 per cent of non-Newcomer pupils achieved three grades A-C at A-level in 2018/19. However, this percentage drops to 6.1 per cent for current Newcomer pupils (DENI, 2020a). Similar trends are evident at GCSE level.

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This paper presents the findings of a small-scale mixed-methods study conducted across three primary schools in inner-city Belfast. This study aimed to gain practitioners' perspectives on factors that contribute to underachievement for Newcomer pupils and to identify effective class-level strategies and school-wide approaches. A brief synopsis of the historical policy context in NI is also presented, before discussing the methods employed in this study.

The NI context

Newcomer policy

As part of the Department of Education's (DENI) *Every School a Good School* programme, the *Supporting Newcomers Pupils Policy* was published in April 2009. This policy was to support schools in welcoming Newcomer pupils, to enable them to access the curriculum and fully integrate into every aspect of school life. It was at this time too, that the term Newcomer came to the fore. Before 2009, pupils were referred to as Additional Language or EAL learners, but it was felt that this term was too generic and did not indicate the "unique language support needs" that these pupils may have (Ibid., p. 3). Nonetheless, it could be argued that both terms, EAL and Newcomer, stem from a deficit perspective, labelling pupils solely based on their relationship with the English language, and 'othering' them in relation to their peers (Kalantsiz, Cope, Noble & Poynting 2012; Baker & Hornberger, 2011). In addition, the challenges faced by these pupils extend beyond language, encompassing the challenges of developing a sense of belonging (Sharples, 2016) and social integration (Manzoni & Rolfe, 2019). However, in a recent review of the 2009 policy it was proposed that there should be recognition of three sub-categories of Newcomer pupil as opposed to a reassessment of the term itself (DENI, 2019). To support the implementation of the policy, The DENI also issued guidance for schools in 2010. This guidance includes criteria for designating a pupil as a Newcomer for the first three years of their education in NI, or beyond if continuing to be assessed at level B1 or below using the *Common European Framework of Reference for Languages* (CEFR), and recommendations for usage of additional funding to support the academic development and integration of Newcomer pupils. Support as outlined in the policy is two-fold. It provides for the establishment of a regional support service, the Intercultural Education Service (IES), and additional funding through the Common Funding Formula at approximately £1000 per pupil per year (DENI, 2020b).

Intercultural Education Service

The Intercultural Education Service (IES), previously known as the Inclusion and Diversity Service, is an Education Authority (EA) body which offers six types of support to schools. There is a helpdesk for immediate enquiries and emergency support for those schools welcoming Newcomer pupils for the first time. Furthermore, ongoing school-based support is provided, incorporating professional development on intercultural awareness, assessment and planning. Limited interpretation services are available to schools and the IES website provides a range of translated resources such as generic school policies and home-school communication templates.

In collaboration with Integrate Ireland Language and Training, the service has also developed then subsequently revised *Toolkits for Diversity* for primary, post-primary and special schools in 2018. The primary toolkit comprises five sections. The first, 'Planning for Inclusion and Diversity', provides ideas to help schools examine and audit current practices. The second, 'Getting Ready', is concerned with the prerequisites for an inclusive climate. The third, 'Early Days', contains suggestions for initial social integration and the development of early English language skills. The fourth, 'Moving On', looks at how to develop these language skills, alongside assessment and planning. The final section, 'Intercultural Awareness', considers the development of intercultural skills at a whole-school and classroom level (IES, 2018). The toolkit itself along with the templates and graphics within it are fully photocopiable to teachers throughout Ireland.

Policy review

In 2017 a review of the *Supporting Newcomers Pupils Policy* was launched to assess its effectiveness and ensure its capability in meeting future needs. A range of schools, non-governmental organisations and a selection of Newcomer pupils and their parents from various ethnic backgrounds were consulted before this policy review. Proposed amendments include a requirement for schools to account for how Newcomer funding is spent, a cap on the minimum and maximum level of funding per school and an extension of the automatic funding term from three to five years. As mentioned previously, the terminology utilised will not be modified. Public consultation on the policy review closed on 15 October 2019 and publication of the review is pending. Nonetheless, an evaluation of best practice has been conducted and published by the Education and Training Inspectorate (ETI) in the interim.

Assessment of Newcomer premium

In 2018, the ETI assessed several schools across NI to ascertain the impact of Newcomer funding. This report indicated that supporting Newcomer pupils was a priority area for investment and that schools were creative in their provision. Newcomer pupils and parents also reported overwhelmingly positive experiences of schools in NI. However, it must be acknowledged that schools selected the families that participated in the focus groups and therefore may have selected those more likely to contribute positive responses. Conclusions were drawn that no single approach could be recommended as each school needed to be responsive to its particular demographic and that there ought to be greater dissemination of good practices between schools (ETI, 2020). Additionally, a requirement was identified for the DENI to support schools in meeting the needs of Newcomer pupils who arrive in key transition years and to provide mechanisms for schools to access Newcomer funding throughout the academic year, post-census (ibid., 2020).

Methods

This study was conducted across three primary schools in inner-city Belfast. The sample for the research included teachers, Newcomer coordinators and school managers from the three participating schools. Purposive sampling was employed so that the sample population possessed relevant attributes to generate sufficient data by which to answer the research questions (Taber, 2013). Schools with higher-than-average proportions of Newcomer pupils were identified, with the NI average at the time being 5.6 per cent (DENI, 2016-17). Some schools were identified in the Belfast region and approaches were made to relevant school principals. Three schools agreed to participate in the study. School A had 16.7 per cent of pupils registered as Newcomer; school B had 47 per cent of pupils registered as Newcomer and school C had 23.7 per cent (DENI, 2016).

A pragmatic approach was adopted. The rationale underpinning this, was to adhere to the principle of fitness for purpose (Cohen et al., 2018), and to maintain a "pluralistic stance" through the use of both quantitative and qualitative research instruments (Dawadi, Shrestha & Giri, 2021 p. 26). An explanatory mixed methods design was utilised with questionnaires distributed to all teachers in the three participating schools, followed up by a focus group, two joint interviews and three one-to-one semi-structured interviews with members of school management. The research questions underpinning this study were:

- What do teachers view as factors contributing to underachievement in pupils with English as an additional language?
- What effective strategies can be implemented at a class and whole-school level to support Newcomer pupils?

Quantitative data

Questionnaires were utilised to enable access to a larger number of participants in a time-efficient and cost-effective way (Rowley, 2014). They were designed to gather information on teachers' backgrounds and experiences, factors that they felt inhibited/influenced academic progress, along with strategies and support services they felt helped integrate Newcomer pupils. Closed questions were asked regarding background and experience to establish if teachers' ages or stage of career development were factors influencing their understanding of Newcomer pupils. A dichotomous question was also posed asking if teachers had experienced relevant training as either part of their initial teacher education (ITE) or continued professional development (CPD). Teachers were also asked to rate a number of barriers to learning and effective strategies on a rating scale of 1-5. To allow participants the opportunity to expand on or raise issues not addressed in the questionnaire, some open-ended questions were also employed and space was provided for additional comments. Questionnaires yielded a return of 65 per cent (n=35). The initial analysis resulted in the inclusion of additional questions regarding parental involvement, induction procedures and special educational needs (SEN) in final interview protocols. Participants selected for focus groups and interviews were those who indicated a willingness on questionnaire consent forms.

Qualitative data

Focus groups and joint interviews

While quantitative data sheds light on reliable commonalities and outliers, qualitative methods were subsequently adopted to illuminate the beliefs underpinning participants' responses and to explore hitherto unidentified areas for focus, such as parental involvement. Focus group interviews were selected as a suitable method to use in conjunction with questionnaires to ascertain teachers' views. As well as being considered an efficient method by which to gather information from multiple participants simultaneously, King and Horrocks (2010) propose that data produced in focus group interviews can reveal the social and cultural context of people's understandings and so may encourage recall or stimulate elaboration. It was envisaged that three focus groups would take place. However, it was not possible to recruit participants for three focus groups. Therefore, one focus group took place together with two joint interviews. Questions asked related to the benefits and challenges arising from the presence of Newcomer pupils, the current funding format, the experience of CPD and the policies and procedures in each school setting.

The focus group comprised six participants and took place in school A. It opened with a general question regarding teachers' history and experience of teaching Newcomer pupils and proceeded to five further questions relating to relevant themes identified in literature and questionnaire data. As previously stated, it was only possible to recruit focus group participants in one school. Therefore, the research approach was amended to incorporate joint interviews in the remaining research sites. The schedule followed was the same as that for the focus group, although the order of questions asked and the nature of probes and prompts differed dependent on the flow of the conversation (Magnusson & Merecek, 2015).

Semi-structured interviews

Semi-structured interviews were carried out with a current Newcomer co-ordinator, a former Newcomer co-ordinator and a school leader. To validate data from a variety of sources (Cohen et al., 2018), it was necessary to gather information from a range of participants. It was decided that an interview with a high stakeholder, such as a school principal, would be best carried out on a one-to-one basis given the "privileged information" they may be able to provide (Denscombe, 2010, p.174).

Data analysis

Data were analysed at each stage of collection and 'a priori' themes from the literature were explored alongside themes that arose from the data itself. This was an iterative process with data being analysed as it was collected with further analysis taking place as and when required (Wilson, 2009). Statistical analysis of questionnaire data focused on frequencies of responses and comparisons across groups. Interviews and focus groups were transcribed immediately and listened to repeatedly. Initial stages of analysis involved searching for common links or recurring statements (Cohen et al., 2018). Having identified these commonalities, codes were applied. Later coding sought to integrate data into higher-order patterns and themes (Punch & Oancea, 2014). This process necessitated alternating

between research questions and data many times, reviewing themes and indeed any outliers which emerged (Miles & Hubermann, 1994). As such, Braun and Clarke's (2014) six phase process of thematic analysis was followed, including becoming acquainted with data, applying codes, arranging potential patterns, developing a thematic map, redefining themes and extrapolating descriptive extracts pertinent to the research questions posed.

Findings

Teachers' views were ascertained, on factors that they felt contributed to engagement in education and the academic progress of Newcomer pupils. Themes relating to each of the research questions will now be discussed, considering the totality of evidence gathered across all research tools. Analysis of data uncovered several themes relating to factors which can contribute both negatively and positively towards the academic development of Newcomer pupils. These factors are: language as a barrier to learning, inadequate home-school communication, lack of teacher confidence, induction, language support, access to the *Toolkit for Diversity* and funding and resourcing.

Factors that contribute to underachievement

Theme one: Language as a barrier to learning

Gibbons (2006) asserts that it is unsurprising that Newcomer pupils experience educational disadvantages given that while learning a new language they are expected to simultaneously make use of that language to acquire new curricular concepts and skills. All participants concurred that they found pupils' lack of English-language acquisition as a barrier to learning. Teacher F stated that "Language has to be the biggest challenge we face. When children arrive with no English at all it can be very difficult. You have to work twice as hard to establish routines."

In addition to problems in familiarising pupils with routines, teacher D alluded to the obstacles that Newcomer pupils have to overcome in becoming acquainted with the methods used in NI schools to teach reading, stating, "When pupils arrived later you could tell those who hadn't learned reading phonologically. Having come from a different education system this was a real barrier as they missed the way we teach reading."

There was also an assertion that the level of English spoken and understood by Newcomer pupils fluctuated greatly, even among those coming from the same country. Additionally, in more recent years with increasing numbers of asylum seekers gaining refugee status in NI (Potter, 2014), the level of English-language acquisition of Newcomer pupils is significantly poorer. Moreover, respondents commented that the standard of English-language procurement within the family impacted directly on the degree of support for education that a child had at home. While all respondents agreed that English-language support was essential for academic success, there was some dispute regarding how this should be managed.

Schools 2 and 3 both provided small group withdrawal support lessons for Newcomer pupils while school 1 did for some time, but due to budget constraints, this facility had been discontinued. Withdrawal support, if provided, should be for a short period only as Newcomer pupils learn new languages more effectively from their peer group (Leung, 2019; Cunningham, 2012). In line with this, withdrawal group support in schools 2 and 3 was reviewed each term.

In total, 57 per cent (n=20) of questionnaire respondents indicated that the most effective tool in overcoming the language barrier would be the employment of dual-language classroom assistants. In reality, however, only one of the sample schools had done so. A school leader interviewed (teacher A) also suggested that a stumbling block in this approach would be the languages that were targeted when recruiting, noting that, "So you get a classroom assistant from Poland they help the pupils who are Polish, which is great if all your Newcomers are Polish but they're not."

School two had attempted to overcome this difficulty by funding a classroom assistant to gain a Teaching English as a Second Language (TESOL) qualification, as the skills and techniques developed would be appropriate to all languages.

Overall, there was consensus that any English language support offered to pupils needed to be supplemented by language support for parents also. The level of English appropriation within the family impacts directly on the degree of support for education that a child has at home in addition to the level and standard of home-school communication (Sime, Fassetta & Clung, 2018; Berkule-Johnson, Arevalo, Brockmeyer Cates, Weisleder, Dreyer & Mendelsohn, 2016).

Theme two: Inadequate home-school communication

Another consideration of the language issue is the impact it has on effective home-school communication. When schools fail to communicate with parents effectively, they are failing to utilise the skills and contacts of parents as partners in education (Dunn-Shiffman, 2019; Haneda & Alexander, 2015). The inability to communicate effectively with parents has severe ramifications in terms of school expectations, homework, planning for pupils with SEN as well as reporting on behaviour and progress. It is recognised by teachers that parents of Newcomer pupils often experience anxiety on a par with that of their child. Teacher D stated, "It's almost as though you don't just have to get the child used to the routine, but the parents need help there too". Parents may be unclear regarding the structure of our education system and have unrealistic demands or, on the other hand, may not support their child adequately (Hajiosterio & Angelides, 2016; Hamilton, 2013).

While schools have access to translation services, it is not adequate, and teachers were concerned that this meant that parents were receiving limited information regarding their child's progress and attainment. Teacher C recalled, "I had an EAL parent sign their child's IEP (Individual Education Plan). They hadn't a clue what it was or what it was about. They just signed their name. It's unethical".

Problems too were attributed to the process of translation itself. A school leader pointed out that the act of employing a translator often formalised what he would have preferred to remain 'unofficial' discussions. Teachers also felt they struggled to establish the type of friendly relationships they had with local parents as the dialogue was so stilted and to the point to make use of the translator's allotted time. Nonetheless, all three schools expressed a real desire to keep home-school communication as open, accessible and visual as possible. Two schools referred to their use of external agencies to help establish links with parents while another employs a parent liaison Newcomer co-ordinator who supports parents by registering them with doctors and dentists, familiarising them with their locality

and signposting them towards relevant support services. While it was acknowledged that external agencies provide vital support, school leaders expressed concern that when these agencies were not operating effectively it became a management problem for the school and, in effect, the school 'got the blame'. Additionally, there was the worry that parents would come to rely on these services and concern was expressed that schools would struggle to provide the same level of expertise or support when programmes came to an end.

Theme three: Lack of teacher confidence

Whilst the haste with which Newcomer pupils are initiated into classes was a significant concern for classroom teachers, school leaders acknowledged that the rapidly increasing numbers of Newcomers were a challenge for all. Teacher I noted that "Sometimes in the space of a couple of months, let alone a year, you may have three new children in a class. Even if they arrive at the same time, they may be at different stages of development … The sign behind my desk with class numbers changes on a weekly basis."

Two teachers also raised concerns that strategies recommended by the IES were practical in classes with only a small number of Newcomer pupils and that in many instances this was no longer relevant. Teacher F stated, "the strategies they suggest are very much one to one and we don't have the capacity or staffing to do that. Some new thinking is needed."

Teacher G asserted that with "Classes nearing 50 per cent EAL their [IES] training needs updated". Overall, despite much experience, teachers lacked confidence and stated that they were under-prepared for teaching in multicultural classrooms. Having cross-referenced the ages of questionnaire respondents with their experience of EAL in ITE and CPD, it was evident that this lack of confidence was universal. One focus group respondent who had recently graduated intimated that no modules on the topic had been available on her bachelor of education degree - indeed, not a single questionnaire respondent indicated that they had received ITE regarding Newcomer pupils. Similar findings were reported by Skinner (2010) and Collen (2020). However, it must be acknowledged that in the academic year 2020/21 St Mary's University College Belfast started offering an optional specialist module in year four and incorporated a half module as part of education studies in year two. A very experienced teacher interviewed also declared that while she had benefited from training, she felt this needed to be revisited regularly; "Training from the IES was really useful but I think it's one of those things you need constantly. A one-off is not enough, especially with numbers increasing, you need more. I don't feel confident. We need more in-depth CPD" (teacher B).

One Newcomer coordinator was concerned that newly qualified teachers were poorly equipped in introducing basic language skills and additionally failed to recognise the importance of using visual resources/aids as recommended by the IES (2018). They found this more alarming than any lack of EAL-specific training, stating, "I don't think they [NQTs] need any specific or unique qualities but the skills and qualities conducive to being a good teacher – full stop. What they do need though is knowledge. They need to be aware of ways to promote language development" (teacher B).

This is in contrast to much research and evidence from academics that indicates Newcomer specific ITE is required (Collen, 2020; Murtagh & Francis, 2012).

Factors that have a positive impact

Theme four: Induction procedures

Much good practice was evidenced through the implementation of induction procedures recommended in the *Toolkit for Diversity* (IES, 2018). Teacher G clearly outlines the procedure implemented in school 3:

> When families arrive the principal meets them, takes them on a tour of the school, then they carry out an induction interview with an interpreter if necessary. There's a welcome book available then they're signposted from there where to find uniforms etc. In the welcome book there are pictures of key areas of the school, pictures of their teacher, the routines, the clubs available and so on.

However, in one setting teachers expressed concerns that even if induction for Newcomer pupils was being conducted correctly, information obtained from that process was not being passed onto them., 'As teachers the information we get is scant. Pupils are started in classes and teachers given very little basic background information. It's unsettling for everybody concerned' (teacher F).

Some were frustrated that Newcomer pupils were started in their classes with little warning, worrying about the impact this was having on the children themselves and the rest of the class. Others suggested that pupils should be phased in, as traditionally happens with primary one pupils who begin on reduced timetables which slowly increase to encompass the full school day, arguing that this would lessen anxiety for the Newcomer pupil and allow the teacher the opportunity to learn some simple greetings in the child's first-language and prepare suitable resources. Skinner (2010) stated that problems experienced by Newcomer pupils and their teachers were exacerbated when pupils started school mid-year. School leaders remarked they experienced moral conflict regarding school induction as many Newcomer pupils were keen to start immediately and for those who were refugees, may have been denied access to education for a significant period of time already.

Overwhelmingly, all focus group and interview participants agreed that support should be targeted to pupils in their early days. Time spent establishing a clear baseline of the level of English-language acquisition and learning in a pupil's first language was deemed beneficial as the appropriateness of standardised tests was questioned. This was because teachers felt some pupils did not have the requisite information and communication technology (ICT) skills for assessments such as *Progress Tests in English* (PTE), a computer-based standardised assessment package commonly used in NI. One language-support teacher described the process she follows in establishing Newcomer pupils' baselines:

> I've been working closely with our diversity coordinator and following the recommended Toolkit. I use it basically as a bible. I work closely with class teachers regarding *CEFR*s. After a settling-in period I then benchmark the children to see where they are at the time. I do it again in June to see the progression. (Teacher G)

Respondents also indicated that they found assessment for learning an effective classroom strategy for Newcomer pupils in that it focused on what pupils know and what they would like to learn as a starting point for teaching and learning. Teacher B indicated her surprise when during a KWL session (what I know, what I'd like to know, what I've learnt) at the beginning of a world around us topic on the Titanic, a Newcomer pupil demonstrated extensive knowledge of the subject, given she considered it to be a topic of 'local interest'. Assessment for learning is also a much-used strategy in which all teachers were proficient and confident.

Theme five: Language support

While language support is certainly a consideration for whole-school planning, teachers were aware that they had a responsibility to support language learning at a class level too. Half (50 per cent, n=18) of questionnaire respondents rated one-to-one support in English-language instruction as the strategy they valued most effective in assisting Newcomer pupils to access the curriculum. In the focus group, teacher E asserted that she considered small group support was more effective as it provided security and pupils felt "less overwhelmed". Two school settings provided such small group sessions for limited periods. Teachers also spoke of using a home-school journal to teach topic vocabulary and recognised there is a wealth of vocabulary resources available from the IES. It was felt that these approaches were useful for parents too in that it gave them an opportunity to extend their vocabulary and assist their children in their learning in a meaningful way.

Concurring with substantial research literature (Slaughter & Cross, 2021; Menken & Sánchez, 2019), teachers acknowledged that pupils should be encouraged to maintain their home language. Through professional development from the IES, there was recognition of the cognitive benefits of bilingualism. The Newcomer coordinator in school 3 had invited a language expert from Ulster University to speak at a Newcomer parents' event regarding the importance of home language. Two-thirds of questionnaire respondents (n=23) stated that their settings required more dual-language resources and books. All three school websites employed a translation tool to make them more accessible to Newcomer families and teacher A translated her class timetable into different languages. However, teachers struggled to suggest other methods of supporting home language usage within the confines of the curriculum and their already busy timetables. It was encouraging nonetheless, that they were open to ideas for developing strategies to maintain their home language.

Theme six: The Toolkit for Diversity

As previously stated, one teacher referred to *The Toolkit for Diversity* (IES, 2018) as her "bible". She clearly outlined how she follows the toolkit in her role as Newcomer coordinator. Indeed, all focus group participants acknowledged that they considered the toolkit an invaluable resource. Visuals were being implemented to aid in familiarisation with vocabulary and routine as well as behaviour management. Additionally, teachers availed of ICT to engage better with Newcomer pupils, "ICT and interactive games really stimulate these children and open doors for discussion" (teacher E). Many foundation stage and key stage one teachers in particular spoke of the benefits of role play and drama. Cognisance

was also paid to the vital procedure of establishing a solid baseline of previous learning from which to plan work. Teacher H suggested that it was vital to carry out baselines according to the toolkit. Teacher A reiterated that by adding, "Subsequently I've used it as a framework to scaffold work for EAL pupils". Concurring with Conteh (2019), and Dobinson and Buchori (2017), scaffolding/high context support and effective differentiation were cited by all focus group participants as essential techniques for meeting individual needs.

Another highly utilised strategy from the toolkit was the assignment of buddies to newly arrived pupils (Kernaghan, 2015; Arnot, Schneider, Evans, Liu, Welply & Davies-Tutt, 2014). When Newcomer pupils arrive, all three schools assign them a buddy. This role includes accompanying the child in class and during non-class contact time for the first few weeks. The majority of pupils selected as buddies thrived from the responsibility of the role, and teachers reported positive outcomes for both the buddy and the Newcomer pupil. A few teachers however expressed concern that the strategy was not appropriate for all, "I buddied up one pupil, but he used to stand and hide in the line - just pretend he wasn't there" (teacher F).

A dilemma faced was the debate regarding whether to assign a same-language buddy. Some felt it was advantageous in relation to translating instructions and cues while others argued that it limited the capacity for interaction with native-language peers. In addition, Conteh (2019) and Kernaghan (2015) suggest that cross-ethnic buddies can provide a buffer against racism and bullying.

Theme seven: Funding and resources

All three school settings contributing to these findings had assigned positions of responsibility concerning Newcomer pupils. Two schools had Newcomer coordinators, one a community relations equality and diversity (CRED) coordinator, school 2 also employs a parent-teacher Newcomer coordinator full-time and school 3 a full-time language-support teacher. Focus group participants voiced great support for appointing a parent-teacher Newcomer coordinator asserting that having a relevant point of contact would assist in stronger home-school communication and establish better relationships. It was also suggested that such a person could carry out initial baseline assessments and assist in the transition. Overwhelmingly, there was consensus that additional funding was best used in appropriating human rather than physical resources. The Common Funding Format (DENI, 2020b) which is assigned annually is the primary source of additional funding for Newcomer pupils. One Newcomer coordinator explained how her school made use of this additional income, "One of the primary ways we use funding is for staffing. We keep class sizes down as this funds more teachers. We use it to fund withdrawal teachers" (teacher G).

A school leader interviewed advocated a similar approach, saying, "The way we've utilised it is by keeping our class sizes small. We've 310 children which is an 11 class school but we've 14 classes. That's the advantage" (teacher I).

There was a level of disagreement about whether or not this money should, as recommended by the ETI (2020), be ring-fenced. Some class teachers questioned if funding was being used for the purpose for which it was being allocated while school leaders felt that showing how it was being managed would only add to time-consuming administration while being of little benefit. Frustration too was expressed regarding the fact that applications for financial assistance through this formula were restricted to once a year. Geraghty et al. (2010) identified this as a difficulty ten years ago. A recent study by the ETI (2020) also highlighted difficulties associated with funding following mid-year enrolments and suggested that this be examined as a matter of urgency. Consultation of a review of the current Newcomer policy by the DENI (2019) recommends too that schools should be required to account annually for the expenditure of the Newcomer funding formula. Certainly, embedding such requirements in policy may serve to focus attention on methods of supporting Newcomer pupils in mainstream schools.

Limitations

As a small-scale research study, claims cannot be made regarding generalisability. Nonetheless it is hoped that through the descriptions provided, readers may be able to make their own judgements regarding transferability to their school settings/jurisdictions (Guba, 1981). However, the most obvious limitation has been the decision not to engage with Newcomer pupils or their parents as they could have added considerably to the research. Resources did not allow for this, as there would have been a requirement to employ translators to engage fully the voices of those with low levels of English-language acquisition. This is an obvious recommendation for potential future research.

Discussion and conclusion

The social and demographic changes in NI over recent years have had a substantial impact on our education system (Meredith, 2016). This study has identified that the promotion of engagement in learning and academic progress for Newcomer pupils is complex with many contributory societal and structural factors. While many studies contend that improved professional development may deliver a 'golden bullet', Bekerman (2016) argues that raising achievement for Newcomer pupils is the result of a dynamic web of interactions and that it is too simplistic to propose that if teachers are better-trained standards will improve. Moreover, despite expressing a lack of confidence, respondents' comments in this study indicated a high level of professional knowledge and expertise. School leaders too demonstrated flexibility and high regard for the 'human element' involved with one Newcomer coordinator stating "… pupils don't learn language from a resource. They learn from a good language role-model" (teacher G). There was also openness to closer cooperation and collaboration with Newcomer parents and other schools, to share good practice and streamline resources. However, schools need support and guidance from DENI in envisioning such an approach, alongside widespread community involvement. Moreover, it must be acknowledged that neither Newcomer pupils nor their parents are a homogeneous group. Thus, educators must become familiar with the skills, resources and backgrounds of individual pupils to avoid making stereotypical assumptions (Antony-Newman, 2019; Matthiesen, 2017; Hancock, 2012).

A child-centred focus from a human rights perspective is required if schools are to affect engagement and academic progress for Newcomer pupils, because when pupils' cultural capital is devalued, and they experience a disconnect between their lives inside and outside the classroom there is an inherent danger that they will become disengaged from education (Knowles & Lander, 2011). Harvey and Mallman (2019, p. 658) define cultural capital as "legitimised sets of knowledge and social dispositions." Schooling as a middle-class habitus often undervalues the skills, resources and experiences of ethnic minority groups, whose cultural capital may be considered 'illegitimate'. Perhaps future professional development for both initial and continuing teachers ought to focus on building teachers' confidence in implementing a culturally responsive pedagogy to create authentic opportunities for connection with pupils' cultures, languages and life experiences.

While as teachers we cannot solve global social issues, we can seek to redress inequalities within our classrooms and supply Newcomer pupils with the tools for academic success, which are, engagement in learning, language and connection in the form of meaningful relationships. These are strategies within the grasp of every teacher. When we create learning environments where pupils feel validated this will raise the level of academic rigour, not just for Newcomer pupils, but for all learners.

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A critical policy analysis of special class provision in Irish primary schools

Aidan Raftery

Abstract

Ireland's education system has undergone significant changes in the past three decades. Special education provision has been at the forefront of policy development within this system as Ireland attempts to meet its obligations under the United Nations Convention on the Rights of Persons with Disabilities (UNCRPD). This paper examines the provision of special classes attached to mainstream schools in relation to their compatibility with the inclusive vision set out in the UNCRPD. Carol Bacchi's, *What's the Problem represented to be?* (WPR) policy analysis framework is utilised to interrogate the issue through focused questioning. Following this analysis, the paper considers the future direction for policymakers in inclusive and special education.

Keywords: **special classes, special education, inclusive education, special education policy, policy analysis**

"All learners matter, and matter equally" (Ainscow, 2020).

Introduction

In Ireland, children with special educational needs (SEN) are served by a continuum of provisions which ranges from full-time placement in a mainstream school to full-time enrolment in a special class or school (Rose & Shevlin, 2020). This multi-track system of provision (Tisdall & Riddell, 2006) has been in place since the 1970s (Banks & McCoy, 2017) and remains popular amongst our neighbouring countries such as the UK, Denmark, France, Finland and Austria (Meijer, 2003). In contrast, Meijer (2003) identifies countries such as Sweden, Italy, Spain, Portugal and Greece as being inclusive of all learners with SEN in a mainstream setting.

The option of a special class attached to a mainstream school appears to be a hybrid model which involves the additional support levels of a special school, with more potential for inclusion opportunities given its location within a mainstream environment. Despite the major policy shifts in Ireland and internationally towards a more inclusive system, there remains the ongoing expansion of the provision of special classes at primary and post-primary level (Banks & McCoy, 2017). In 2020 alone, there were 126 new special classes established at primary level (McCoy, 2021). This policy option of placement for students in a special class attached to a mainstream school is the focus of this paper and is analysed using the *What's the problem represented to be?* (WPR) framework for critical analysis (Bacchi & Goodwin, 2016).

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The complexities of policy and policy development are evident in their many definitions and theories (Ball, 1993 & 2015; Bacchi, 2009; Bacchi & Goodwin, 2016). With no agreed definition, the researcher will adopt a definition that is most relevant to this particular landscape. The policy can be understood in this context as a "realization of contested meanings" which is a 'messy process in which at any point in the policy cycle, participants negotiate over future trajectories, outcomes and implementation' (Bell & Stevenson, 2015, p. 147). Inclusion is a central theme of this paper, a term that the researcher defines broadly in an educational setting whereby participation, presence and achievement are the focus for all pupils (Ainscow, Booth & Dyson, 2006).

Special and inclusive education has been part of the patchwork quilt of educational policy-making in Ireland in the past three decades. This paper aims to identify the 'problem', scrutinise the policy journey and present a discussion on the future direction of special classes for children with more complex SENs. To do this, the paper is presented in three sections. Firstly, the context of the policy is described, followed by the justification for the use of the *WPR framework* for analysis. Next, this analytical tool will be applied to the policy under discussion. Finally, the future of special classes is discussed with reference to the researcher's experience and the analysis of the policy.

Context: Rationale for policy and justification for the analytical framework

This section puts forward the rationale for analysing special class provisions in Ireland by situating the researcher as a policy actor and describing the policy landscape. Similarly, the rationale for the use of the WPR analytical lens is justified for use in this context.

Researcher's professional context: Rationale for opening a special class

As Taylor et al., (1997) note, the principal plays a central role in the implementation process of educational policy. The researcher is a school principal of a large rural all-boys school with a particular interest in special and inclusive education. This positioning of the researcher offers a unique insight into the enactment of educational policy, notwithstanding the challenges of being an insider researcher (Breen, 2007). Whilst policies that are enacted in schools are often written by government departments (Ball, Maguire & Braun, 2012) and then mandated, opening a special class was initially an 'opt-in' policy, based on an identified need in the area. The Minister for Education, under the guidance of the National Council for Special Education (NCSE), could only compel a school to open a special class since 2018 under the Education Act (Government of Ireland, 2018).

The opening of a special class was part of an inclusive vision for the school, however, the researcher still battles with the argument that this may be just an illusion of inclusion, as described in the literature around special class provision (McLeskey et al., 2004; Stevens & O'Moore, 2009; Banks & McCoy, 2017). Also, the level of inclusion with mainstream peers varies from school to school with research findings noting that half of the pupils in special classes remain in that setting for the full school day (Ware et al., 2009).

Stainback and Stainback (1990, p. 3) define an inclusive school as "a place where everyone belongs, is accepted, supports and is supported by his/her peers and other members of the school community in the course of having his/her educational needs

met". Others may argue that inclusive schools share certain characteristics, such as having enrolled several students with diagnosed SEN, their presence being accepted by teachers and there was a welcoming and supportive culture (Farrell et al., 2007; McLeskey, Waldron & Redd, 2014). The degree of 'inclusiveness' is largely dependent on the educational system within which it operates, with the necessary resourcing and timely access to such, deemed essential (Drudy & Kinsella, 2009). Ireland's educational system has undergone many changes in recent decades (Meegan & MacPhail, 2006; Shevlin, Kenny & Loxley, 2008; Kenny, McCoy & Mihut, 2020), the context of which is discussed next.

Policy context

Much of the policy changes in SEN provision share the common goal of developing a more inclusive system. The international discourse of inclusion became more prominent in Ireland in the early 1990s after many landmark reports and litigation. When Ireland adopted and ratified the United Nations Convention on the Rights of the Child (UNCRC), it firmly placed a legal imperative on the provision of education in mainstream settings for students with SEN (Kenny et al., 2020). Subsequently, the report of the Special Education Review Committee (SERC) recommended the provision of education for children with SEN as more appropriate in the mainstream, although it accepted that there were situations "where individual circumstances make this impracticable" (Government of Ireland, 1993, p. 20). In such circumstances, there are alternative options available in the form of special schools and special classes attached to mainstream schools which have been available since the 1970s (Shevlin & Banks, 2021).

The Education of Persons with Special Educational Needs (EPSEN) Act (Government of Ireland, 2004) was a major milestone in enabling legislation and in establishing the NCSE to support and oversee the education of children with SEN (Rose & Shevlin, 2020). The Act explicitly states children with SEN "shall be educated in an inclusive environment unless ... the nature or degree of those needs would be contrary to the best interests of the child or the 'effective provision of education' to other children in the class" (Government of Ireland, 2004, p. 7).

In 2007, Ireland signed up to the UNCRPD which placed an onus on signatories to ensure that persons with all types of disabilities enjoy all human rights and fundamental freedoms. This was not formally ratified until 2018 and interestingly, in the same year, the Education Act (Government of Ireland, 2018) reinforced the provision of segregated education. Herein lies the inspiration for this paper: two policy decisions which reflected the long-standing debate of special versus inclusive education.

Despite the policy shifts towards a more inclusive system, the number of special classes in Irish primary schools continues to rise (Banks & McCoy, 2017). This mirrors the traditional policy shifts internationally in SEN where, despite fundamental policy changes, practices remain consistent and unchanged (Fulcher, 2015). Policy in education is made at all levels and similarly, inclusion is not simply something that can be addressed by technical or organisational change (Ainscow, Slee & Best, 2019). This description of the context goes some way in painting the complex picture in which policymakers in special and inclusive education find themselves.

Justification for the WPR approach

Bacchi (2012a, p. 4) describes policy as prescriptive texts which set out a plan of action to address the "problem representation" in a specific field of a political arena. This problem representation is set out within the Education Act (2018) which addresses the issue of inadequate SEN provision in schools. As a solution, the Act gives power to the Minister for Education, in collaboration with the NCSE to open a special class in a mainstream school. This policy direction could be deemed as confusing in the context of the other policy provisions which share the common goal of increasing inclusion (DES, 2014 & 2017).

The adoption of a problematisation approach to policy analysis in this paper offers a more "significant role in shaping or framing the problem to be addressed" (Van Aswegen, Hyatt & Goodley, 2019, p. 188). As Bacchi (2009) notes, problematising policy involves a process of challenging assumptions of the policy and the way the problems are presented to be framed or solved. She also acknowledges the importance of questioning the researcher's own beliefs and assumptions through the analysis (Torrance et al., 2020).

The WPR approach is rooted in Foucault's (1977) theory of the importance of how and why things become problems in policy (Torrance et al., 2020). This Foucauldian inspired analysis examines how issues "have been problematised in governmental practices in order to draw attention to possible gaps or silences in problematisations and to the ways in which 'subjects' 'objects' and 'problems' are constituted within them" (Bacchi, 2015, p. 5). When this analysis is applied to the policy under discussion here, the issue of inclusion has been problematised by organisations, such as the United Nations Educational, Scientific and Cultural Organisation (UNESCO) and adopted by governments worldwide. The issue of special classes presents itself as a 'problem' constituted within the wider problematisation.

Poststructuralism provides a broad scope when analysing policy and also offers a "refreshing scepticism toward the full range of things commonly associated with policy" (Bacchi & Goodwin, 2016, p. 8). To understand the Foucault-inspired post-structural approach to policy analysis, it is best illustrated in comparison with the interpretivist approach. Both attempt to analyse policy through how they are presented and constituted as problems. The interpretivist seeks to find a 'doable' problem that can inform a political agenda, whereas the post-structural approach shifts the lens of analysis towards 'continuous critiques' (Bacchi, 2015, p. 9). Herein lies the justification for Bacchi and Goodwin's (2016) approach as it is applied to a 'continuous' debate such as inclusion. As Ainscow, Booth and Dyson (2006, p. 25) note, inclusion is a 'never-ending' process that requires constant review and critique. Applying an interpretivist approach to analysis, in this case, could undermine this process, thus justifying the preferred analytical approach in this paper.

Through the exploration of examples, Bacchi and Goodwin (2016) demonstrate the application of the approach in a clear and relatable manner. One such example is the issue of gender inequality, one which has a long-standing historical and institutional context. The *WPR framework* enables the analysts to explore how the problem is identified or how it presents in a particular context (Bacchi & Goodwin, 2016). Similarly, the concept of inclusion has a complex history and the 'problem' of how best to educate children with SEN has been contested. The WPR approach has proved its worth as an analytical tool for policymakers and researchers (Bacchi, 2009; Chan, 2018; Torrance et al., 2020) and is particularly applicable to the nuances of SEN policy in Ireland.

As a researcher and practising school leader, it is imperative that we challenge our assumptions and critically examine our practice (Torrance et al., 2020), something that this framework enables and actively encourages. In essence, the WPR approach is grounded in the idea that "what we say we want to do about something indicates what we think needs to change and hence how we constitute the problem" (Bacchi, 2012b, p. 4). This leads us to the thought-provoking questions which have been adapted (Table 1) to give focus and clarity to both the researcher and the reader. By applying the six questions, there is also a commitment to including the researcher's own context and thinking as part of the material to be analysed (Bacchi, 2012b).

Table 1: Questions for critical analysis (adapted from Bacchi and Goodwin, 2016).

Bacchi's questions	**Adapted questions for this paper**
What's the 'problem' represented to be in a specific policy?	What is the problem with special class policy in a climate of inclusion?
What presuppositions or assumptions underlie this representation of the 'problem'?	What presuppositions or assumptions underlie this representation of the conflict between special classes and inclusion?
How has this representation of the 'problem' come about?	What are the issues/movements that have led to an increased number of special classes?
What is left unproblematic in this problem representation? Where are the silences? Can the 'problem' be thought about differently?	Is there actually a 'problem'? Can special classes co-exist in an inclusive environment? Can they be inclusive?
What effects are produced by this representation of the 'problem'?	Have other problems been created through this representation of the problem?
How/where has this representation of the 'problem' been produced, disseminated and defended? How could it be questioned, disrupted and replaced?	Where are we now? What needs further research and what adjustments need to be made?

Application of the analytical tool: What's the problem represented to be (WPR)?

The *WPR framework* is a structured and systematic analytical tool that provides cohesion in its six-question approach. Each question draws from the policy-making process at the macro, meso and micro levels. In this case, the macro-level concerns the government department or agencies, such as the Department of Education and the NCSE. The meso refers to the school principals and boards of management responsible for implementing the policy, while the micro represents the parents, teacher and pupils directly receiving the policy.

The next sub-sections will detail the analysis of the policy by addressing each of Bacchi's adapted questions (Table 1) in sequence. It is not intended to simply answer each question posed, but rather open the discussion on where the policy of special classes lies in the current discourse of inclusion. This analytical lens draws from the Foucauldian approach which emphasises the importance of not taking sides in an argument and focusing on the terms of reference in which the problem is 'problematised' (Bacchi, 2012a, p. 1). Underpinning this commentary with Bacchi's framework enables a critical analysis of what the issue is, how we got here and consider where we are going.

Q. 1 What is the problem with special class policy in a climate of inclusion?

This question locates the specific problem that the policy chooses to address (Bacchi, 2012b). The Education (Admission to Schools) Act (Government of Ireland, 2018) identifies the problem of SEN provision being inadequate in mainstream schools and provides legislative power to the Minister for Education to compel schools to open special classes if the NCSE has identified a need. The NCSE (2016, p. 2) describe special classes as part of "a continuum of educational provision" specifically for those pupils with more complex needs who may be unable to access the curriculum through mainstream classes. The choice around educational placement ultimately rests with the parents, supported by professionals such as psychologists and teachers.

The current solution to this 'problem' may be an 'administrative convenience' to place a child in a special class and hope it works, instead of providing resources to build on teacher efficacy for inclusive practice (Shevlin & Banks, 2021, p. 10). This also suggests an admission that the other policies, such as the special education teacher (SET) allocation model (DES, 2017) and the special needs assistant (SNA) scheme (DES, 2014), have failed to meet the needs of a cohort of students with more complex needs. Comparatively, each policy of provision shares a common concept of special education as something different which needs a solution. Florian (2019) describes this as a hallmark of special needs education, with a focus on adapting pedagogies or providing additional resources to meet the needs arising from a SEN. Inclusive education, on the other hand, is contested in its definition and practice (Winter & O'Raw, 2010). It can be summarised as all children receiving their education in their local school (Ainscow, et al., 2006). However, this is a very simplistic view, as Slee (2013) cautions policymakers on their inclusive policies and questions if they are creating more exclusionary practices. For example, the special class attached to the mainstream school may be promoted as part of an inclusive policy vision, but in reality may just be a form of "internal segregation" (Banks & McCoy, 2017, p. 443).

Developing a whole school or system-based approach to cater for a wide range of needs is an ongoing challenge for school principals (Ainscow & Sandill, 2010; Travers et al., 2010; MacRuairc, 2013). Developing an inclusive culture is key to this, which Ainscow and Sandill (2010, p. 407) describe as "a matter of thinking and talking, reviewing and refining practice, and making attempts to develop a more inclusive culture". This causes a conflict for those principals in their endeavours to make an inclusive school and where the special class sits in this inclusive vision. To illustrate this conflict, the researcher considers his school which is involved in a building project to cater for two special classes for children with autism. The board of management have made a clear request to have the special classes integrated into the main building and not an extension where the classes are added on as a separate 'unit'. The design team have presented three options, advising the board that it is very unlikely the more integrated option, with the special classes at the heart of the school building, will be approved by the department due to cost. The guidance document (DES Planning and Building Unit, 2012, p. 5) specifically references the EPSEN Act (Government of Ireland, 2004) and the obligations for educating children in an inclusive environment. However, it remains to be seen if the school's inclusive vision will be considered 'cost-effective' by the Department of Education building unit responsible for the final design decision.

Q. 2 What presuppositions or assumptions underlie this representation of the conflict between special classes and inclusion?

Question 2 encourages us to reflect on the underlying representation of the problem. This question prompts the researcher to consider the implications of the existence of special classes as part of an inclusive school setting. This specialised form of provision of special classes nesting in what purports to be an inclusive system is arguably a result of a series of inclusive policies being 'grafted' onto existing policies where a deficit perspective, such as the provision of special classes is dominant (Rose & Shevlin, 2021).

The argument for inclusive education was initially rooted in a rights-based argument (Griffin & Shevlin, 2011) and this right has been backed up by legislation in Ireland (Education Act 1998; EPSEN, 2004; Education Act 2018). It is also backed up by the lack of evidence around specialised placements improving outcomes for pupils with SEN (McCoy et al., 2014; Banks et al., 2016). Furthermore, Ireland signed up to the UNCRPD in 2007 which explicitly states that delivering education in segregated settings is not in keeping with the terms of the agreement (Banks, 2021). What is particularly interesting here is that Ireland did not ratify the agreement until 2018, the same year in which the Education Act (2018) gave increased powers to the Minister for Education to force schools to open special classes.

Initial research into the role of special schools and classes in Ireland (Ware et al., 2009) recommended the continuation of the provision of special classes and special schools. This was mainly due to the absence of evidence that mainstream schools could provide a better educational provision to the special class or school pupils. It may have been previously assumed that special classes offered a specialist education that could not be replicated in a mainstream setting. However, further research on the same topic (NCSE, 2019a, p. 5) argued that the more "methodologically robust studies" indicate that students with SEN in mainstream settings have better short and long-term outcomes compared to those in special class placements.

Kauffmann and Hornby (2020) argue that these special classes provide unique advantages such as reduced class ratio, specialist interventions, and an emphasis on functional skills. They conclude that special schools and classes provide a better option for students with more complex SENs in terms of social and academic outcomes. In the absence of robust empirical data in the field, the debate over what placement is better will likely continue to remain unresolved.

Q. 3 What are the issues/movements that have led to the increased number of special classes?

Here, we consider the pretext to this policy through which the understanding of the problem has formed (Bacchi, 2012b). Kenny et al., (2020) document the resourcing of SEN provision in Ireland and recognise the challenge faced by policymakers, such as creating incentives that prevent exclusion, adapting learning environments and accountability. As discussed earlier, the rapid reform of the Irish system was a responce to the growing international discourse and local legislative changes in special education provision. As a result, Ireland developed a continuum of provision, much like many other European counterparts (Rix et

al., 2013). This gave parents and pupils choices in terms of educational provision. However, this could mean bypassing the local school to attend a special school or class elsewhere. This may have provided a strong rationale for schools to open a special class in aiming to provide an education for all children of their community.

Parents of children with SEN reported largely positive experiences with their schools (Armstrong et al., 2010; Rose et al., 2015). The contributing factors to this satisfaction were positive evaluations of their school's capacity, positive attitudes of personnel, home-school relationships and SNA support (Rose & Shevlin, 2021). More specifically, those parents of children in special schools and classes reported that their children felt a sense of belonging in their special setting, were better minded and had access to more experienced teachers in catering for their needs in comparison to mainstream classes (NCSE, 2019a). Despite many parents having a belief in an inclusive system and a wish for their child to be part of their local school, it was felt the Irish system was not ready for a fully inclusive system. Parents and principals have argued that special classes can provide an 'educational crutch' for children with more complex needs which ensures their participation within a mainstream school (Travers 2009, p. 6).

Q. 4 Is there actually a 'problem'? Can special classes co-exist in an inclusive environment? Can they be inclusive?

This is what Shevlin and Banks (2021, p. 4) describe as the "crux of the of the inclusion debate" or as some policy commentators would describe as a 'wicked problem' (Head and Alford, 2015). Bacchi (2012b) introduces this question as one which probes for alternative thinking emerging from potential gaps in the policy. In another recent policy reform in the area of SEN provision, the DES (2017) introduced a model of allocation aimed at supporting pupils with SEN and other additional needs. An underpinning principle of this model is that all pupils are enabled to attend their local mainstream school. The policy gives autonomy to schools in decisions on where supports should be directed. The importance of decision-making at school level is emerging in education policy, with schools in well-developed education systems showing better student outcomes if they have greater levels of autonomy (Hanushek, Link & Woessmann, 2013; Cheng, Ko & Lee, 2016). Leaving special classes out of this policy is possibly a missed opportunity to develop school autonomy and promote a single all-inclusive policy direction.

Banks and McCoy (2017) question the level of inclusion that takes place in special classes attached to mainstream schools and suggest they may appear to be more of a façade of inclusion. Other academics argue that the notion of full inclusion is too simplistic and mainly based on a human rights perspective, allowing it to be easily promoted and disseminated (Kauffman & Hornby, 2020). Citing the example of Finland, a country hailed as a model for educational excellence and equity (Sahlberg, 2021), Hornby (2020) argues that special education provision and inclusive education should be viewed as equally essential components of effective education systems. Furthermore, he argues that over-reliance on one, to the exclusion of the other, can potentially impact negatively on equity and excellence in education systems.

In summary, the literature surrounding special classes being part of an inclusive school is divided with some arguing they are merely a form of 'internal segregation' (McLeskey et al., 2012) and others saying they are a necessity (Kauffman & Hornby, 2020). From the researcher's context, the whole school structure where these classes operate is the overriding factor in this argument and more attention needs to be placed on this when addressing the inclusivity of these classes. The pivotal role of leadership is potentially the key to the successful inclusion of special classes (Banks et al., 2016). However, concerns have arisen over the lack of professional learning and development (PLD) for school leaders and teachers to cope with the level of autonomy bestowed upon them (Kenny, et al., 2020).

Q. 5 Have other problems been created through this representation of the problem?

The appropriateness of a special class placement for certain children with SEN has come into question in recent reports (McCoy et al., 2014; Banks et al., 2016). This is in contrast to the findings of the Department Inspectorate, which carried out an evaluation of special classes for learners with autism attached to mainstream schools (DES, 2019). They concluded that almost all pupils in primary special classes were deemed to be in the correct educational environment for their needs. They also recommended more regular reviews of these placements, as per the NCSE (2016) guidelines. The inconsistencies in research findings, possibly due to the small case studies and difficulties in measuring outcomes, add to the already complex debate.

The NCSE (2016) states that teachers and SNAs working in special classes should be experienced and hold qualifications in the area of SENs. However, this is not a prerequisite to opening the class and schools must develop capacity and knowledge within their staff. Access to training through the NCSE does not always meet the demand and the criteria to access some courses requires teachers to be teaching in a special class. Some schools requested to open special classes have written to the Department outlining their concerns over access to support from the NCSE (O'Brien, 2020). This is concerning, given the recommendation that pre-service training for teachers, in addition to ongoing professional development would enhance teacher confidence and efficacy greatly (Banks et al., 2016).

Q. 6 Where are we now? What needs further research and what adjustments need to be made?

The issue around research in the area of outcomes for children placed in specialised settings needs to be addressed with agreed measurements to be considered. As Shevlin and Banks (2021) note, the issues surrounding the variation of language used to describe special classes, ethical difficulties in accessing this cohort of students and variations in assessment all contribute to the complexity of this issue. Without an agreed format of measurement to determine which setting is better, the debate will continue. Research in an Irish context has reported that students with SEN do not like school in comparison to their typically developing peers (McCoy & Banks, 2012; Banks, Frawley & McCoy, 2015). The findings in this area are limited in special class settings, although research of a small nature suggests the special classes are perceived negatively by the students attending them and their mainstream peers (Banks et al., 2016). Further research in this area, specifically related to special schools and classes is warranted and possibly overdue.

Shevlin and Banks (2021) raised the issue of the unintended consequences of special class policy, with the increased media presence of advocacy groups for children with autism calling for more special class placements. The DES (2019) Inspectorate has warned this may lead to the expansion of segregated education and go against the principles of the UNCRPD. The NCSE (2019a) have put the idea of 'full inclusion' on the discussion table, which would essentially mean the end of special schools and classes. Many stakeholders are opposed to this move which raises concern over whether Ireland is ready for such a radical change (Shevlin & Banks, 2021). The New Brunswick model of full inclusion, whereby all children attend their local school regardless of their level of need (AuCoin, Porter & Baker-Korotkov, 2020), has been hailed as a system that Ireland could potentially aspire to. Any act of policy borrowing requires caution, with particular consideration given to the contexts in which the borrowed policy is being placed (Phillips & Ochs, 2003). In considering future policy in this area, this final question acts as a reference point for policymakers tasked with designing a more inclusive system in line with the UNCRPD. A potential direction for future policy on SEN provision in Ireland is presented next.

Future developments in policy of special classes

In attempting to predict the future for special classes, the question of special classes co-existing in an inclusive system is re-addressed. In a policy advice paper, the question of Ireland being ready for a 'full inclusion' model was posed (NCSE, 2019a). This coincided with the opening of 166 special classes attached to mainstream primary and post-primary schools in September 2019 (NCSE, 2019b). This suggests that the appetite for special classes remains and schools are willing to open them, but the motivations for opening a special class remain unclear. As a school leader involved in the opening of two special classes, the researcher has an insight into the various 'realities' of leading an inclusive school amidst conflicting policy messages. Shevlin and Banks (2021, p. 1) argue that the only way forward in terms of meeting our obligations under the UNCRPD would require "a root and branch overhaul of existing policies and practices". For a truly inclusive school, inclusion has to be at the centre of every decision, including curriculum design, physical environments and professional learning. If we start with the roots, we need to look at having all available resources, in terms of personnel and physical space on one campus. This could potentially mean the amalgamation of mainstream schools with special schools and combining smaller schools to increase their capacity for inclusion. Enhancing access to expertise, such as behavioural analysts, speech and language therapists and occupational therapists would greatly assist in meeting the more complex needs in schools. Frustrations of parents in accessing such supports have been reported consistently in the research (Rose et al., 2015; Banks et al., 2016). On-site access to such services would alleviate such frustrations and simultaneously improve opportunities for collaboration with teaching staff. A similar model of a school-based therapy service has been piloted by the NCSE (Lynch et al., 2020) and it will be interesting to document its impact on inclusion, should it be fully implemented.

Policy-making in education shapes the environment in which school staff work (Bell & Stevenson, 2015). The challenge, in this case, is to consider if the inclusive policies can operate alongside the separate provisions available in the Irish system. This puts enormous pressure on school leaders, teachers and support staff to ensure an inclusive environment can prevail amidst a 'multi-track' (Tisdall & Riddell, 2006) system of provision. Careful considerations need to be made in this area to avoid the 'inclusion illusion' (McLeskey et al., 2004). The issue of autonomy also needs to be addressed, as forcing a school to open a special class does not suggest a welcoming ethos for the pupils it is opened for. Granting the same level of autonomy to schools over opening special classes, as the Department have done elsewhere (DES, 2017), could be a more palatable solution for all. The researcher calls for an in-depth study into how school leaders are deploying resources since the change in model in 2017 and if their decisions are impacting inclusive education. Finally, shifting the policy focus to developing professional learning and development for leadership and inclusive practices may have a more significant impact in bridging the gap between special and inclusive education.

Conclusion

As a researcher and practitioner in the area of special and inclusive education, the process of policy analysis is empowering. As Bacchi (2012a) notes, the application of the *WPR framework* encourages the researcher or policy-maker to approach questions differently. In doing so, the complex process of policy-making emerges with more clarity. The opening of a special class marked a significant milestone in the researcher's leadership career, yet at the same time, it is regularly questioned and reflected upon through reading the work of scholars in inclusive education.

Drawing from the post-structural approach of Foucault, the analytical tool has revealed the struggle over meaning and the politics of discourse (Taylor et al., 1997) in defining special and inclusive education or the co-existence of both (Kinsella, 2020). Despite these challenges, the focus applied through the *WPR framework* enables the researcher to unpack the issues that have become apparent through analysis of the problem, the context and the researcher's experience as a policy actor.

The final section of this paper proposed a future direction for policy-making in special education provision. Areas of further research have been recommended and may provide further answers to this wicked problem. On a note of optimism, Ireland is committed to the commissioning of research to provide empirical evidence to inform policy in this area (Rose & Shevlin, 2021). A measured, informed and collaborative approach to any decisions around special and inclusive education is imperative as Ireland aims to meet the requirements set out by the UNCRPD. With the wide variations in the way special classes operate (Banks & McCoy, 2017) and the NCSE's (2019a) recent interest in a model of 'full inclusion', it is a timely opportunity to debate the role of special classes and their place in an inclusive system.

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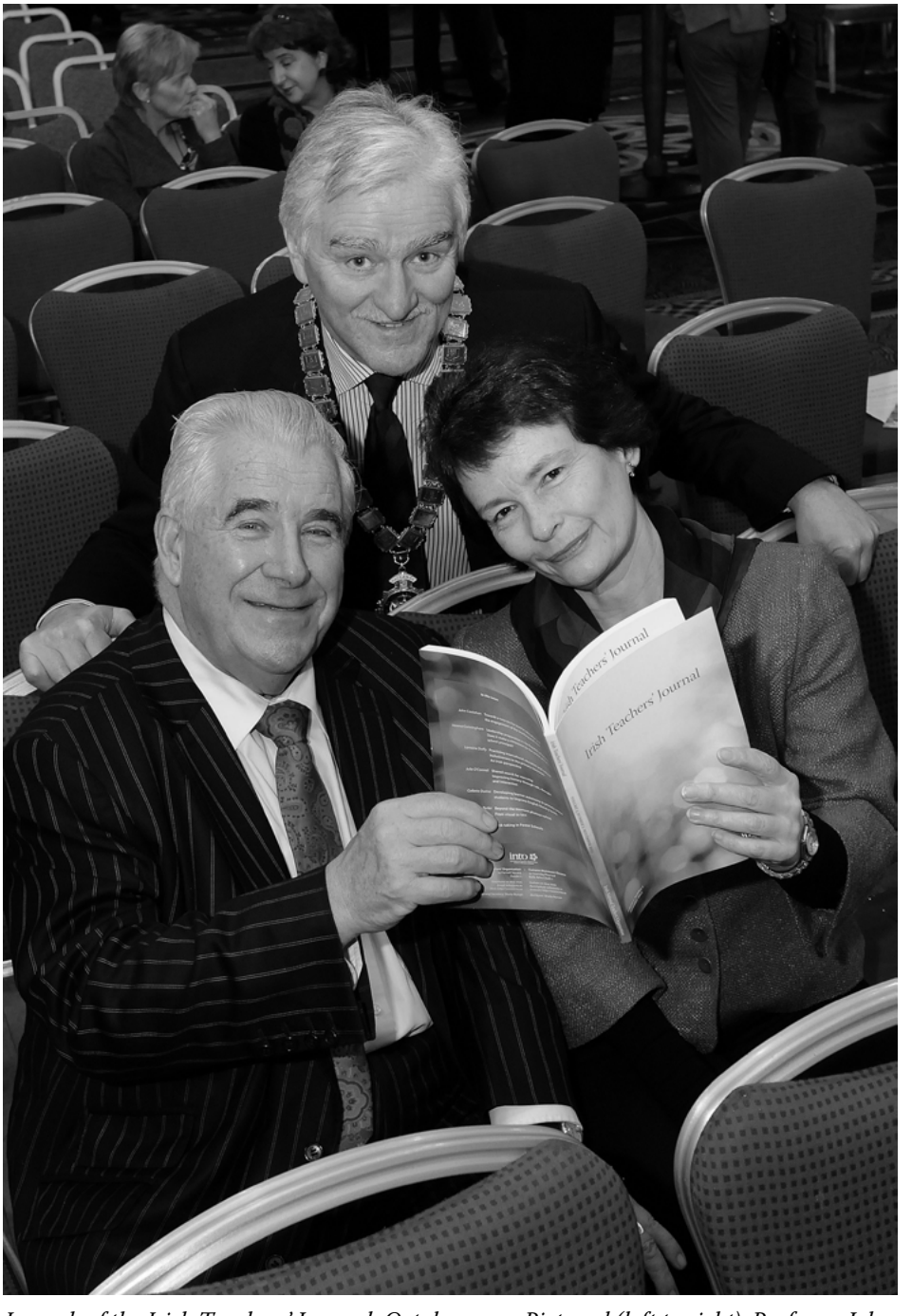

Launch of the Irish Teachers' Journal, October 2013. Pictured (left to right): Professor John Coolahan, Brendan O'Sullivan INTO President 2013/14 and Dr Deirbhile Nic Craith, Director of Education, Research and Learning, INTO.

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