REACH

JOURNAL OF INCLUSIVE EDUCATION IN IRELAND

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working together effectively

- Assessing the Efficacy of Morphological Analysis Intervention (MAI) with 4th class EAL Pupils Experiencing Language and Reading Difficulties
- Experiencing Dyslexia Through the Prism of Difference
- Supporting the Parents of Students with Irish Literacy Difficulties in Gaeltacht Schools
- Exploring Levels of School Belonging for Traveller and Non-Traveller Students Through a Bespoke Music Intervention in a Post-Primary School
- The Influence of a Sensorimotor Handwriting Programme on the Emergent Handwriting Development and Motor Proficiency of Junior Infant Children

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Colum, M., & McIntyre, K. (2019) Exploring Social Inclusion as a Factor for the Academic Achievement of Students Presenting with Special Educational Needs (SEN) in Schools: A Literature Review. *REACH: Journal of Special Needs Education in Ireland*, *32*(1), 21–32. https://reachjournal.ie/index.php/reach/article/view/14/14

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Contents

Editorial

REACH Journal of Inclusive Education in Ireland aims to act as a resource for teachers and other professionals working with learners with a diverse range of abilities along a continuum of need. It is notable also that volume *36.* 2 features articles that report research relating to inclusive education across the education continuum in primary and post primary schools and in higher education. The broad theme of literacy also features strongly in this issue with three articles (Hannify & Raftery; McIntyre Coyle & Nic Aindriú; McCauley Lambe, Ni Bhroin & Flynn) reporting on teacher-designed interventions to support diverse aspects of inclusive teaching and learning of literacy in primary schools while a fourth (Murphy) provides insights into how students with dyslexia experience higher education.

Hannify and Raftery utilised a morphological analysis intervention (MAI) with young learners of English as an additional language and report positive impacts on pupil performance on norm-referenced and researcher-designed assessments of vocabulary, reading accuracy, comprehension and spelling, and on pupils' motivation and engagement during guided reading. McIntyre Coyle and Nic Aindriú investigated strategies used in Gaeltacht schools to support the parents of students with early Irish literacy difficulties. Drawing on data from interviews with teachers, the authors identify the challenges presented for teachers when pupils' home languages differ from the language of communication and instruction of the school and offer recommendations to support parents and parental involvement in education. McCauley Lambe, Ní Bhroin and Flynn explored the design and implementation of a sensorimotor handwriting programme in DEIS and non-DEIS schools reporting positive impacts on children's motor skills, and developments in teachers' knowledge, understanding and classroom practice of sensorimotor development.

Focusing on inclusion within higher education, and reporting data from an ethnographic study of the experience of 17 higher education students with dyslexia, Murphy uses the metaphor of a prism to explore and reflect the individuality and complexity of the learners' experiences and the social and academic impacts of contrasting understandings of dyslexia as deficit and difference. Finally, focusing on inclusive education at post-primary level , Starr and Tierney report the findings from a study which explored the impact of a music intervention which included Traveller community culture and traditional music on school belonging for members of the Traveller community and their non-Traveller peers.

In late August we learned with great sadness of the passing after a brief illness of Dr. Margaret O'Donnell RIP and we extend our sympathies to her family, friends and many colleagues. All who knew and worked with Margaret from her time as a teacher in the CRC School Clontarf, within the NCCA, and latterly in teacher education at the former St. Patrick's College, Drumcondra, and at Dublin City University Institute of Education can attest to her immense energy, commitment and passion. Ar dheis Dé go raibh a hanam. REACH Volume 37 will feature a tribute to Margaret in recognition of her immense contribution to inclusive and special education in Ireland

ANNA LOGAN
Editor

REACH: Journal of Inclusive Education in Ireland, Vol. 36.2 (2023), 86-111.

Assessing the Efficacy of Morphological Analysis Intervention (MAI) with 4th Class EAL Pupils Experiencing Language and Reading Difficulties

This study investigated the efficacy of a morphological analysis intervention (MAI) as a pedagogical approach for pupils learning English as an additional language (EAL) who were also experiencing language and reading difficulties. Participants were 4th class EAL pupils (n=12), age range 9y 7m - 11y 3m, attending a large, urban, DEIS Band 2 school. Participants, equal in terms of the number of boys and girls involved, were randomly assigned to either the intervention (n=8) or comparison condition (n=4). The intervention group received MAI over a six-week period, while the comparison group received their typical guided reading instruction. Performance gains on measures of language and literacy were compared between intervention and comparison groups to evaluate the impact of MAI. Analysis of findings suggest that MAI has a positive impact on pupils' motivation and engagement during guided reading. Although academic gains on norm-referenced assessments were not found to be statistically significant, intervention participants performed better overall on norm-referenced and researcher-designed measures of vocabulary, word-level reading accuracy, reading comprehension and spelling than comparison-group participants.

Keywords: *Morphology, morphological analysis, EAL (English as an additional language), LMY (language minority youth), ELL (English language learners), affixes, root words, cognates*

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INTRODUCTION

According to Singleton, Smyth and Debaene (2009), "Ireland is probably the most dramatic example of how rapidly a society can become multicultural and plurilingual" (p. 197). The 2017 Irish census revealed 612,018 residents (twelve and a half per cent of the population) speak a language at home that is not one of the country's two official national languages (Central Statistics Office [CSO], 2017). These societal changes are now reflected in the composition of most primary and post-primary schools. English as an additional language, the term adopted by the National Council for Curriculum and Assessment (DES, 2011, 2012), describes pupils who speak and/or are learning more than one language outside of school and for whom their knowledge of the language of the classroom, English, is, over varying timeframes, limited. On arrival at school, such pupils may present a complex profile in terms of their levels of linguistic knowledge/functioning in the different language(s) they speak, as well as in English. Data has revealed that many EAL pupils have less-successful learning experiences in key subjects such as literacy, mathematics and science than their monolingual peers (Organisation for Economic Cooperation and Development [OECD], 2006).

While most native English speakers come to the task of reading with substantial oral language skills, EAL pupils are faced with the dual challenge of learning a new language while simultaneously learning to read (Reed, 2008). Despite the cognitive advantage associated with bilingualism (Bialystok, 2009), a gap in achievement is evident between native English-speaking pupils and EAL learners (Smyth, Darmody, McGinnity, & Byrne, 2009; OECD, 2006). Within the Primary Language Curriculum (NCCA, 2015; 2018), an explicit focus on cross-curricular integration between languages promotes the use of "existing language skills and knowledge to decipher text in other languages" (p. 26), indicating a potential response to addressing linguistic diversity in the classroom.

In the mixed DEIS mainstream primary school in which this study took place, English is spoken as an additional language by approximately 95% of the pupils. In total, 56 different heritage languages are spoken in this school; 12 heritage languages appear among the 12 participants in this study.

Morphology

There are two strands to English grammar: morphology and syntax. Morphology concerns the analysis of the internal structure of words. Words are divided into major categories called 'closed category words' and 'open category words.' Closed category words include articles, prepositions, conjunctions and pronouns. Open

category words, on the other hand, include nouns, verbs, adjectives and adverbs; newly coined words and borrowings into English are included in this category. Morphology is concerned with this latter category. Open category words can be simple or complex. The branch of linguistics concerned with the application of grammatical morphemes, be those free morphemes or bound morphemes, relates to complex words. In this paper, the focus is bound morphemes, that is, those morphological markers described by Brown (1973) as semantic modulators. Bound morphemes constitute such markers as plurals and tense endings, known as inflectional morphemes. These can be used to signify person, number, case, tense, gender and voice (O'Grady, Dobrovolsky and Arnoff, 1989). Of significance also to this study are derivational affixes – prefixes and suffixes as well as compounding. The application of morphological markers can result in the formation of new words as well as in changes to word meaning. There are strict rules applying to the application of such morphological markers in terms of the position of an affix and the lexical category to which it may be applied. The application of these morphological rules whether written or oral, result in the deepening of our knowledge about root words, word stems, word categories, word formation and the influence of changes to and within word structure in terms of word stress, and syllabification. The application of morphological rules and the transformation of words and word categories forms the core of this study.

Why Morphological Analysis?

Morphological analysis requires pupils to identify and analyse units of meaning (roots and affixes) within words to support literacy endeavours. Academic texts are characterised by a significant prevalence (60-80%) of morphologically-complex words (Nagy and Anderson, 1984) with a substantial increase of such from 3rd class onwards (White, Power and White, 1989; Kieffer and Lesaux, 2008; Orosco and O'Connor, 2011). As an orthographically deep language, lack of grapheme consistency is a distinctive feature in English words, yet morphology can help to explain phonetic inconsistencies where relations between written and spoken words are less transparent (Reed, 2008). As children progress through primary school, understanding academic vocabulary is crucial for scholastic success (Nagy and Townsend, 2012) and morphological instruction provides pupils with a strategy to extrapolate meaning from unfamiliar words. For every word a child learns, Nagy and Anderson (1984) estimate "an average of one to three additional related words that should be understandable to the child", depending on the child's ability to utilise "morphology to induce meaning" (p. 304). Since the same morphemes recur in a large number of words (Bratlie, Brinchmann, Melby-Lervåg, and Torkildsen, 2022) morphological instruction holds potential to expand a pupil's lexicon, while also increasing their capacity to deduce meaning

from complex words not previously encountered (Goodwin and Ahn, 2013; Nagy, Carlisle and Goodwin , 2014).

Extensive studies with typically-developing pupils have found morphological awareness to make a unique and predictive contribution to decoding, encoding and reading comprehension, over and above robust predictors, such as phonological awareness, vocabulary, and nonverbal ability (Deacon, Benere and Pasquarella, 2013; Deacon, Kieffer, and Laroche, 2014; Diamanti, Mouzaki, Ralli, Antoniou, Papaioannou and Protopapas, 2017; Kruk and Bergman, 2013; Levesque, Deacon, 2017). While morphological instruction has been shown to benefit all learners (Bowers and Kirby, 2010), extensive research indicates that targeting morphology may be especially effective for those experiencing language, literacy and learning difficulties (Goodwin and Ahn, 2010), suggesting that morphology is not only an important element of effective literacy instruction in mainstream education, but a critical component of intervention for low-achieving pupils.

Morphological Instruction for EAL learners

EAL pupils frequently encounter difficulty acquiring the nuanced knowledge and awareness of English word structure (August and Shanahan, 2010). For EAL pupils, their development of morphological awareness is heavily dependent upon explicit instruction or exposure to printed words in textbooks (Zhang and Koda, 2013). Since morphemes are the building blocks of academic words, instruction in the application of morphological analysis provides EAL learners with a strategy to infer the pronunciation, spelling and meaning of unfamiliar words. Recent studies have revealed a bilingual advantage in the domain of morphology for bilingual and trilingual children (Krenca, Hipfner-Boucher and Chen, 2020; Vender et al., 2018).

Where cross-linguistic units of meaning or cognates are present, knowledge of morphemes in one language can assist with "meaning-making" in the other (Kelley and Kohnert, 2012). Considering cognates are easier to detect in print versus oral modality, cognate awareness offers a potential scaffold for EAL learners in accessing reading material (Kelley and Kohnert, 2012) as well as a mechanism to leverage the learner's L1 in deciphering meaning from unfamiliar English words (Garcia, 1995). Lack of knowledge transfer is a challenge for many vocabulary interventions (Elleman, Lindo, Morphy and Compton, 2009; Marulis and Neuman, 2010; Rogde, Hagen, Melby-Lervåg and Lervåg, 2019). Morphological instruction may capitalize on the metalinguistic skills of EAL learners to a larger degree than item-by-item vocabulary teaching (Bratlie et al., 2022). The generalisation power of morpheme knowledge and its potential to offer a bridge between a pupil's

L1 and English suggest that morphological analysis offers substantial gains by comparison to traditional vocabulary interventions, compensating for EAL pupils' more limited vocabulary in the instructional language.

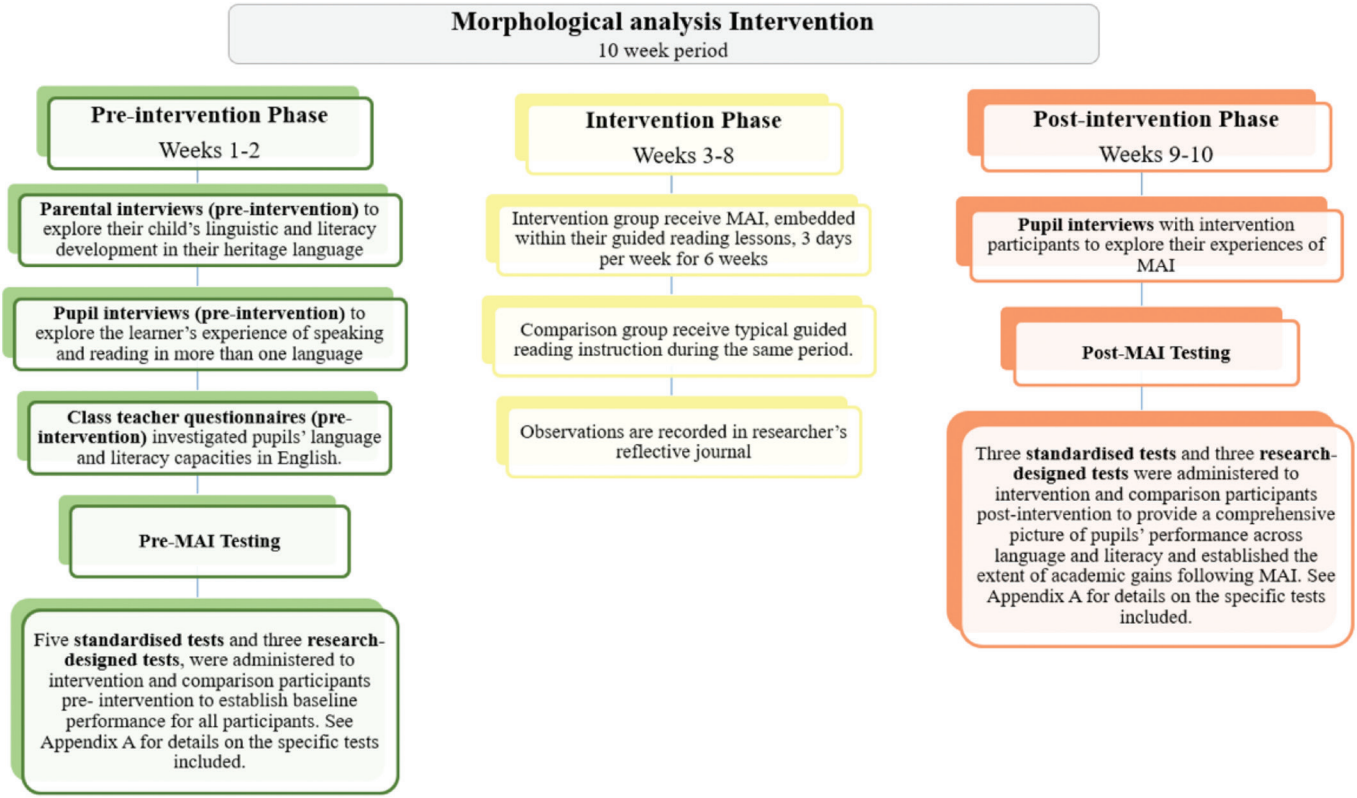
Bilingual children who have dyslexia have been shown to perform consistently better on morphological tasks than their monolingual peers who have dyslexia, and, in some cases, even better than monolingual children without reading difficulties (Vender et al., 2018). Interventions have been found to be most effective when contextualised within language and literacy-related instruction and as part of a multiple-linguistic approach (Goodwin & Ahn, 2010; Goodwin & Ahn, 2013; Reed, 2008). Considering the absence of any morphological intervention research from an Irish context, a discrepancy remains as to how morphological instruction can be integrated within the Irish Primary Curriculum as an approach to support literacy achievement in EAL pupils experiencing language and reading difficulties.

METHODOLOGY

Research Design

This research set out to investigate the impact of MAI on the academic development and motivation of 4th class EAL pupils experiencing language and reading difficulties. A mixed-method design which integrated action research was used to implement and assess the impact of MAI. Mixed-methods enabled the integration of qualitative stakeholder engagement with quantitative outcomes to inform intervention planning, implementation, evaluation and monitoring (Carr and Kemmis, 1986). Qualitative approaches facilitated the exploration of different participant perspectives (pupils and researcher-teacher), while quantitative methods provided numerical data to facilitate "triangulation, complementarity and expansion" (Johnstone, 2004, p. 264), enhancing the overall interpretation of findings (Greene, Caracelli and Graham, 1989; Sechrest and Sidana, 1995). Action research provided the appropriate vehicle to implement, evaluate and enhance the efficacy of MAI, bridging "the gap between research and practice" in relation to efficient literacy instruction for EAL learners (Somekh, 1995, p. 340). Findings were translated into directional changes, providing the means to devise sustainable improvements in guided reading practice (Stringer, 2007). An overview of the phases of the action research is provided in Figure 1.

Figure 1: The Phases of the Action Research



Participants

Given the small-scale, time-bound and predominantly qualitative nature of this study, participants were selected using homogenous purposive sampling (Patton, 1990). Selection criteria required that participants were enrolled in one of the 4th classes in the school; were learning EAL and had performed at or below the 12th percentile in their most recent Drumcondra Primary Reading Assessment – the 12th percentile was identified as the cut-off point for participant selection as this corresponds with school policy for delivering additional support to pupils. Twelve pupils were recruited and randomly assigned to either an intervention group (n=8) comprising four girls and four boys receiving MAI over a six-week period, or to a comparison group (n=4), two girls and two boys, where they received typical reading instruction. The age of participants across both groups ranged from 9y 7m - 11y 3m. While it was also initially intended to balance groups in terms of their linguistic backgrounds, the range of languages represented among participants was too diverse to achieve this goal. With twelve different heritage languages spoken among participants, participants represent a combination of bilingual and multilingual communicators. From the sample, four pupils had less than two years of English language exposure and are hence described in this study as English Language Learners (ELLs) (Goodwin, 2015). The other eight pupils had varying levels of language exposure greater than two years and are therefore described as Language Minority Youth (LMY) (Goodwin, 2015). Understanding the heterogeneity within the sample helps to interpret the differential responses of participants to MAI (Abbott and Berninger, 1993; Goodwin and Ahn, 2010; Wolter and Apel, 2010). A synopsis of the individual language profiles of the participants is presented in Appendix A, including the languages spoken at home, their level of exposure to English and their educational backgrounds.

Ethical Considerations

The research was conducted in accordance with the ethical approval obtained prior to data collection from the Faculty Ethics Review Panel of the Dublin City University Institute of Education. Following ethical approval, informed written consent was sought from the school's Board of Management and from the families of potential participating children. To address possible language difficulties, the research was explained orally and in writing for parents, who were invited to bring another person to serve as a translator. Pupil-friendly versions of plain language statements and informed assent forms were also completed by pupils. Pseudonyms were used in reporting research findings in order to protect the identities of the participants.

Pre- and post-MAI testing

The intervention and comparison group participants were administered a battery of assessments pre- and post-MAI. In total, five norm-referenced assessments

were administered to participants focusing on discrete areas of language and literacy. Baseline measures of pupils' receptive vocabulary and grammar were documented using the British Picture Vocabulary Scale- 3rd Edition (BPVS-III) and the syntactic formulations component of the Assessment of Comprehension and Expression (ACE). Parallel forms of three literacy assessments were employed at the pre- and post-testing phases in order to assess pupil progress over the course of the intervention period. The Single Word Reading Test (SWRT) and the York Assessment of Reading Comprehension (YARC) were administered individually to participants and yielded a standard measure of pupils' word-reading accuracy and reading comprehension respectively. Consistent with test manual guidelines, the Diagnostic Spelling Test (DST) was administered pre- and post-MAI to groups of four participants at a time.

Researcher-Designed Assessments

Parallel forms of three researcher-designed tests were developed for the purpose of assessing participants' progress over the course of the intervention period. These included the Transfer Words Receptive Vocabulary Test (TWRVT), Transfer Words Reading Test (TWRT) and Transfer Words Spelling Test (TWST). The researcher-designed tests focused on vocabulary, word-reading accuracy and spelling but test items were aligned to the instructional content of MAI. Based on the design of Baumann et al. (2002) Morphemic Recognition Assessment, the TWRVT examined participants' ability to infer the meaning of a word based on taught word parts, i.e. using morphological analysis. The TWRT measured participants' decoding accuracy for morphologically complex words, while the TWST assessed participants' progress in spelling transfer words, containing affixes and roots taught during MAI. The combined use of norm-referenced and researcher-designed tests provided a comprehensive picture of pupils' performance across the areas of language and literacy.

Data Analysis

Inductive thematic analysis was used to analyse qualitative data derived from interviews and reflective journal accounts (Braun and Clarke, 2006). Emergent patterns and themes were identified rather than pre-determined. Member checking of interview transcripts by participants and the involvement of an independent peer-debriefer to review and evaluate themes and codes served to optimise the rigour, validity and reliability of qualitative data (King, 2004; Mills, 2011). Quantitative data derived from questionnaires and assessments were coded and analysed using descriptive statistics in SPSS-25. An inter-rater, independent of the study, marked pre- and post-intervention tests, enhancing the validity of these results (Creswell, 2014). Confidence intervals on pre- and post-standardised assessments

were examined to determine if performance gains were statistically significant. Quantitative and qualitative methods were used separately, independently and concurrently, and results were compared to assess convergence (Robson, 2011). Triangulation of qualitative and quantitative data facilitated robust analysis of emerging themes. Corroboration between data enabled examination of data consistency, enhanced the validity of findings (Robson, 2011) and presented "more comprehensive responses to research questions" (Sugrue, 1997, p. 18).

The Intervention

MAI drew on previous research in the design of the intervention programme (Baumann, Edwards, Boland, Olejnik and Kame'enui, 2003; Goodwin, 2015; Zhang, 2016). The intervention was known to the pupils as *Word Detectives.* This took a problem-solving approach to morphological analysis and involved modelling, scaffolding and ongoing practice throughout reading activities. Active, collaborative and inquiry-based learning opportunities were provided with the view to developing generative word-structure knowledge, fostering pupil engagement and enhancing motivation to attend closely to words (Bowers and Kirby, 2010; Baumann et al., 2003; Berninger et al., 2003).

The intervention was implemented as part of guided reading lessons, three times per week, each of forty-minute duration, over a six-week period. Two intervention groups were formed with four participants in each group, which was the typical size of reading groups within the school. A group of four pupils formed the comparison group, who continued to receive typical guided reading instruction with another teacher during this period. The main difference between the intervention group and typical guided reading instruction was the inclusion of morphological instruction and morphological analysis as an additional comprehension strategy.

In line with previous research, MAI focused not only on the explicit identification of root words and affixes but also strategies to apply target affixes/root words in literacy-related activities (Carlisle, 2010; Zhang, 2016). Morphological analysis skills were developed and refined through guided reading of instructional-level texts. Development of students' vocabulary, encoding and decoding skills and reading comprehension were the focus of these lessons. Three revision lessons were included in the intervention to allow for re-teaching, re-learning and practice of instructional content.

Tasks used for instruction in MAI

Tasks were created to teach pupils that: (a) many words can be broken into two or more meaningful parts, including a root and one or more affixes; (b) the root

carries the core meaning of the word which may be modified by the addition or removal of affixes; (c) adding suffixes may alter the pronunciation and/or spelling of the base word; (d) suffixes have the power to alter the grammatical category of the base word (e.g. sing – singer). Pupils were explicitly taught the phonological, orthographic and semantic features of target affixes and roots in order to build and deepen their morphophonemic knowledge. Pupils were taught to apply morphological problem solving when decoding words in isolation and also in the context of instructional level texts. Specific learning activities included breaking words apart, building words from morphemes, linking morphemic meanings to connected instructional level texts as part of guided reading, and examining how morphologically complex words are manipulated to fit into academic phrases as tools to convey meaning. Appendix B provides an outline of the structure of MAI lessons and Appendix C provides an overview of the specific roots and affixes taught throughout the intervention.

The intervention drew on colourful and fun activities, games and teaching approaches designed to reinforce learning and enhance pupil engagement. A vocabulary notebook was maintained by pupils to record the intervention affixes and roots taught. A colour-coded system supported the identification of prefixes, suffixes and root words as well as the placement of such affixes within word structures. Pupils practised breaking up words and building words using morphemes. Additional resources included root and affix jigsaws, Lego morphemes, word webbing as well as morphological 'Cloze' procedures.

FINDINGS AND DISCUSSION

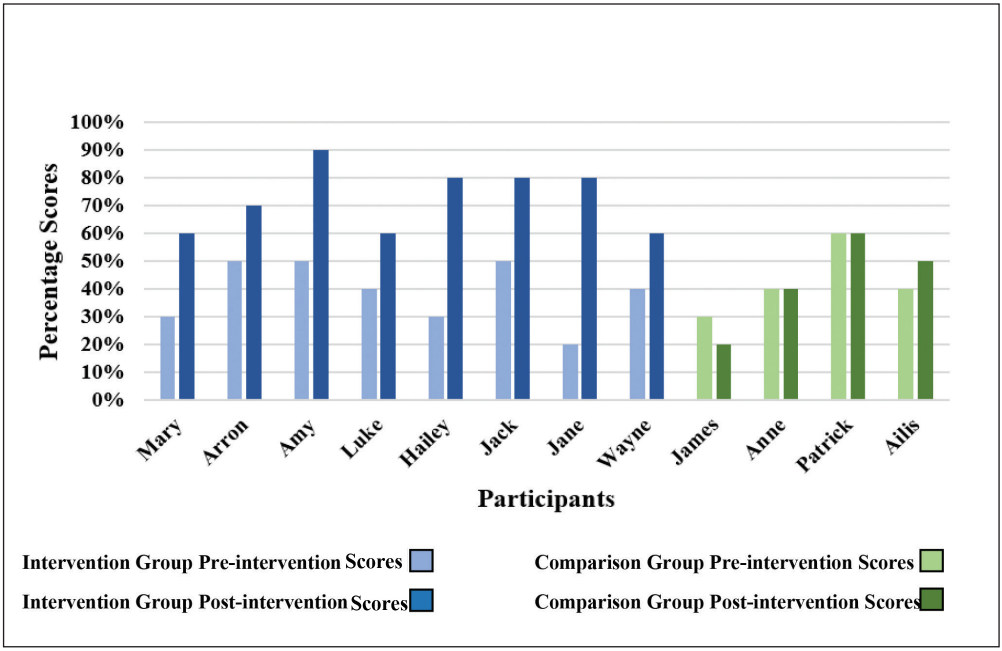
Overview of Findings

Quantitative and qualitative data derived from pre- and post-MAI testing revealed that the intervention group performed better overall on standardised and researcher-designed measures of vocabulary, word-level reading accuracy, reading comprehension and spelling, although academic gains on standardised measures were not found to be statistically significant. As expected, performance gains for intervention participants were greatest on researcher-designed measures which were more closely aligned to the instructional focus of the intervention. Quantitative and qualitative findings are discussed concurrently in terms of the impact of MAI on participants' vocabulary, word level reading accuracy, reading comprehension, spelling, and motivation and engagement.

Vocabulary

Although the language levels of both groups were closely matched on baseline assessments, considerable gains for the intervention group on TWRVT (Figure 2) are consistent with the literature which highlights the contribution of morphological awareness to vocabulary knowledge (Anglin, 1993; Baumann et al, 2002; Baumann et al, 2003; Carlisle and Fleming, 2003; Nagy, Berninger and Abbott, 2006). The potential of MAI to alter the rate of pupils' vocabulary acquisition relates to the morphological generalisation hypothesis (Wysocki and Jenkins, 1987) in which learners "draw upon knowledge of familiar words to aid them in deriving the meaning of an unfamiliar but related word" (p. 69). As suggested by Pacheco and Goodwin (2013), instruction in root words and affixes may reduce the word learning demands for these pupils by teaching them to consider the semantic information contained within morphemes instead of that contained within a whole word. The problem-solving approach reinforced through MAI may have facilitated deeper processing of language, strengthening pupils' lexical representations of new vocabulary.

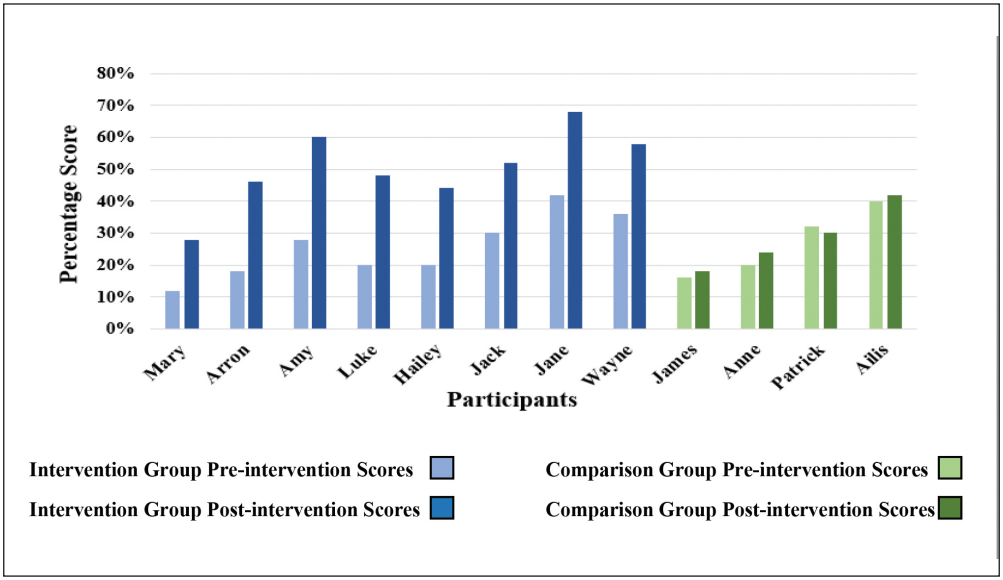
Figure 2: Transfer Words Receptive Vocabulary Test (TWRVT) Pre-test and Post-test Scores for Intervention and Comparison Groups



Word Reading Accuracy

It is likely that increased knowledge of the orthographic and phonological patterns of affixes combined with enhanced morphological analysis skills facilitated the performance gains on measures of word-reading accuracy for intervention participants (Figure 3). Processing of morphemes over letter-by-letter decoding allows words to be recognised more efficiently (Carlisle and Stone, 2005), supports more accurate pronunciation (Kirby et al., 2012) and reduces demands on working memory (Apel and Lawrence, 2011). The most sizeable gains were demonstrated by Amy, an ELL with strong literacy skills in her L1. This outcome may be attributable to the transfer of linguistic skills from her L1 (Urdu) to English. Urdu is a recipient language of English and demonstrates linguistic features including loan affixes (Saddiqa, 2018), which may explain why Amy demonstrated the most substantial improvement following MAI. Previous research corroborates that many bilingual pupils possess skills in their first language that can support their reading development in English (Cheung and Slavin, 2013). In the case of EAL pupils who are introduced to English in the middle to late years of primary school, morphological instruction may leverage the linguistic skills of the pupil's L1 and support the transfer of these skills for word reading in English.

Figure 3: Transfer Words Reading Test (TWRT): Pre- and Post-test Percentage Scores for Intervention and Comparison groups



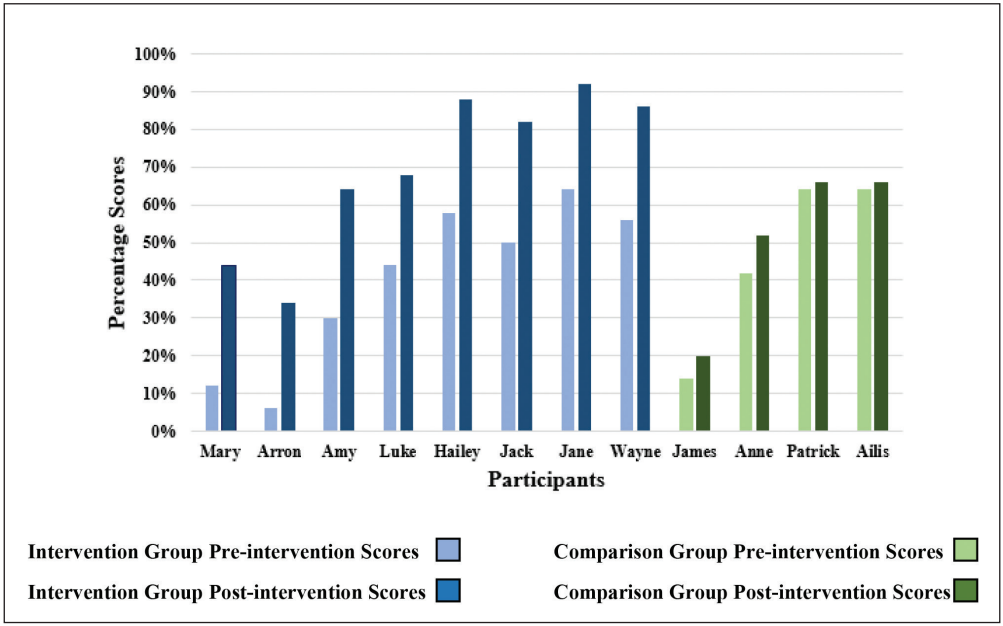
Reading Comprehension

While participants in both groups received targeted reading comprehension instruction, the additional component of morphological analysis for intervention participants may account for greater gains in reading comprehension ages for this group (Appendix D). Repeated practice in applying the morphological analysis strategy by actively reflecting on the meaning of words, may have provided an added bridge for intervention participants in evaluating the meaning of text, while heightened awareness of morphemes may have assisted in sentence parsing, subsequently leading to enhanced textual comprehension (Nagy, 2007; Zhang and Koda, 2013). This finding is consistent with previous research highlighting the critical role of morphological awareness in reading comprehension (Deacon and Kirby, 2004; Tong, Deacon, Kirby, Cain and Parrila, 2011) and substantiates that word-learning strategies such as morphological analysis constitute an essential component of a balanced reading comprehension programme (Graves, 2000).

Spelling

Intervention participants showed greater performance gains post-MAI on the TWST, which focused on transfer words containing affixes taught during the intervention (Figure 4). The multi-linguistic word-study approach adopted during MAI promoted pupils' phonological and orthographic awareness of common morphemes. Explicit instruction that spelling preserves the semantic relationships across derivationally-related words (Frisson and Sandra, 2002) further connected the various components of MAI including decoding, encoding and understanding morphologically-complex words. Performance gains in spelling for intervention participants are consistent with previous research (Birgisdottir et al. 2006; Kelman and Apel, 2004; Wolter and Dilworth, 2013) and demonstrate the value of morphological instruction in facilitating spelling success. Analysis of participants' individual test items indicated that intervention participants were more successful in using their morphological knowledge to spell words which were phonologically/orthographically regular, but less able to transfer this skill onto irregular test items which underwent phonological/orthographic changes. Analysis of test responses indicated a shift in strategy from a phonological to a morphological approach for some intervention participants. Although participants may require more extensive practice in applying spelling principles of irregular suffix endings, findings corroborate the positive impact of morphological analysis as a word study strategy to promote spelling success.

Figure 4: Transfer Words Spelling Test (TWST): Pre- and Post-test Percentage Scores for Intervention and Comparison groups



Enhanced motivation and engagement for MAI participants

Literature emphasises the importance of vocabulary instruction which develops generative interest and engagement in word study (Beck, McKeown and Kucan, 2013; NCCA, 2015; National Reading Panel, 2000). Qualitative analysis of diary entries and pupil interviews provided evidence that pupils were engaged during lessons, motivated by activities and valued morphological analysis as an effective reading strategy. In a post-intervention interview, one MAI participant reported:

> I love working like a detective when I'm reading. Before em… like I would stop when there was a long word or… or if I didn't know it, it would put me off. Now I think I can figure it out myself, if I break it up in my head or em… write it on paper and break it up that way. It's fun if I get it right. (Jack, Post-MAI Interview)

While another, Mary, questioned

> ...the meaning of 'dormant' as in a dormant volcano. She said that she heard the word on a TV programme and knows that "addormentato" means sleepy in Italian. When questioned as to what she thinks dormant volcano might mean,

she suggested a sleepy volcano. This was not a root word which this child had come across previously. (Reflective Journal)

This demonstrates how one pupil was able to apply her morphological analysis skills to infer the meaning of a complex academic word. It further illustrates cross-linguistic transfer of skills as the pupil analogised a familiar root from her heritage language (Italian) to an English word that contained a similar root. Learning outcomes from the Primary Language Curriculum include using "existing language skills and knowledge to decipher text in other languages" (NCCA, 2015, p. 26), an outcome which was effectively achieved by the participant in question.

CONCLUSION

While this is a small-scale research study, results showed MAI to optimise learning and achievement for participants, demonstrating that multiple linguistic and literacy skills can be effectively targeted within reading lessons, without assuming additional instructional time. While word-specific instruction is common practice in classrooms, MAI endeavours to "develop pupils' abilities to be independent word learners" (Blachowicz and Fisher 2002. p. 270). While referred to, but not elaborated on in this paper, questionnaires completed by class teachers in the school in question, evidenced the challenges faced by them in teaching reading instruction in classes with such high numbers of EAL learners. The key challenges identified by these teachers when it comes to planning and intervention include: students' comprehension, poor word attack skills, limited knowledge of grammar, limited vocabulary and the diversity of the learners. Faced with this scenario, MAI is potentially a comprehensive and integrated approach that could address many of their concerns.

While the merits of this research have been highlighted, it is important to address its limitations. Given the small-scale, predominantly qualitative nature of this research, the potential to generalise findings beyond the present context is limited (Cohen, Manion and Morrison, 2011; Robson, 2011). Additionally, the short time frame to conduct the research did not allow for the long-term effectiveness of MAI to be assessed. While findings are specific to the local context, it was intended that this small-scale study would develop deeper understanding of the pupil sample and gain new perspectives to enhance teaching and learning with this population of children. Future replication of MAI with a larger sample, using a quantitative approach would enhance the generalisability of findings to other settings. Further research could address the issue of whether intervention effects on pupils' language and literacy performance hold over time.

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Appendix A: Overview of Participant Profiles

Participant Pseudonym	Languages Spoken	Length of English Exposure	Educational Background	Baseline Language Assessments	Literacy Skills in the L1
Mary (I.G.)	Polish, Italian, English Multilingual	6 ½ years LMY	Has attended preschool and primary school in Ireland for 6 ½ years. Also attends Polish school at weekend.	**BPVS:** SS: <70, AE: 4 years 10 months **ACE:** SS: 3	Literacy skills in Polish & Italian.
Arron (I.G.)	Romanian, Hungarian, English Multilingual	3 ½ years LMY	Arrived to Ireland and joined school in 1st class. Did not attend school in Romania prior to coming to Ireland.	**BPVS:** SS: 70, AE: 5 years 1 month **ACE:** SS: 3	No literacy skills in L1
Amy (I.G.)	Urdu, English Bilingual	6 months ELL	Arrived to Ireland 6 months previous. Completed prior schooling in Pakistan.	**BPVS:** SS: <70, AE: 5 years **ACE:** SS: 3	Literacy skills in Urdu
Luke (I.G.)	Romanian, English Bilingual	4 years LMY	Arrived to Ireland 4 years previous. Completes prior schooling in Romania.	**BPVS:** SS: 81, AE: 7 years 9 months **ACE:** SS: 7	No literacy skills in L1
Hailey (I.G.)	Arabic, English Bilingual	1 ½ years ELL	Arrived to Ireland 1 ½ years previous. Completed prior schooling in Morocco.	**BPVS:** SS: 72, AE: 6 years 1 month **ACE:** SS: 7	Literacy skills in Arabic.
Jack (I.G.)	Bosnian, English Bilingual	6 ½ years LMY	Has attended preschool and primary school in Ireland for 6 ½ years.	**BPVS:** SS: 77, AE: 6 years 6 months **ACE:** SS: 6	No literacy skills in L1
Jane (I.G.)	Chinese, English Bilingual	1 ½ years ELL	Arrived to Ireland 1 ½ years previous. Completed prior schooling in China.	**BPVS:** SS: <70, AE: 4 years 11 months **ACE: SS: 3**	Literacy skills in Chinese.
Wayne (I.G.)	Swahili, English, Arabic Multilingual	5 ½ years LMY	Has attended primary school in Ireland for 6 ½ years. Attends Arabic school at weekends. Arabic is being learned as an additional language.	**BPVS:** SS: 70, AE: 6 years **ACE:** SS: 5	No literacy skills in L1
James (C.G.)	Nigerian, English Bilingual	6 ½ years LMY	Has attended preschool and primary school in Ireland for 6 ½ years.	**BPVS:** SS: <70, AE: 5 years 1 month **ACE:** SS: 3	No literacy skills in L1
Anne (C.G.)	Polish, French, English Multilingual	1 year ELL	Arrived to Ireland 1 ½ years previous. Completed prior schooling in Poland.	**BPVS:** SS: 71, AE: 6 years **ACE:** SS: 7	Literacy skills in Polish & French.
Patrick (C.G.)	Lingala, English Bilingual	6 ½ years LMY	Has attended preschool and primary school in Ireland for 6 ½ years.	**BPVS:** SS: 83, AE: 8 years 2 months **ACE:** SS: 3	No literacy skills in L1
Ailis (C.G.)	Romanian, English Bilingual	6 ½ years LMY	Has attended preschool and primary school in Ireland for 6 ½ years.	**BPVS:** SS: <70, AE: 5 years 11 months **ACE:** SS: 7	No literacy skills in L1

Intervention Group **Comparison Group**

I.G.: Intervention Group **C.G.: Comparison Group**

ELL: English Language Learner (n=5) **LMY: Language Minority Youth (n=7)**

BPVS: British Picture Vocabulary Scale- 3rd Edition **ACE: Assessment of Comprehension and Expression 6-11: Syntactic Formulations**

SS: Standardised Score **AE: Age Equivalent**

Appendix B: The Structure of MAI Lessons

Structure of MAI Lesson	
Procedure	**Example of an activity**
1. Daily recap on previously covered affixes and roots.	Using vocabulary wall and/or flashcards, pupils identify the affix/ root, explain its meaning, provide an example and put it into a sentence.
2. Sharing learning intentions and success criteria for the lesson	WALT and WILF posters: We Are Learning To and What I'm Looking For
3. New affixes and roots are introduced	Use of posters, flipchart or vocabulary notebook
4. Morphological analysis is modelled and practised using new root/affixes	Identify the affixes and root in words. Infer the meaning of the word based on knowledge of word parts.
5. Reading integration- use of morphological analysis in combination with other reading strategies	Using purposefully selected texts at the pupils' instructional reading level
6. Collaborative activities focusing new and previously covered affixes/roots	Word sorts, word building activities, decoding practice

Appendix C: The Content of MAI Lessons

Week	Content introduced	Lesson overview
Week 1	Prefixes: mis-, pre-, re-, un- Root word: tele	Lesson 1: mis-, pre- Lesson 2: re-, un- Lesson 3: tele-
Week 2	Suffixes -able, -en, -er, -est	Lesson 1: -en, -er Lesson 2: -able, --est Lesson 3: Revision
Week 3	Prefixes: dis-, in-, non-, de- Root word: Phone	Lesson 1: dis-, in- Lesson 2: non-, de- Lesson 3: phone-
Week 4	Suffixes: -ful, -less, -ly, -y	Lesson 1: -ful, -less Lesson 2: -ly, -y Lesson 3: Revision
Week 5	Prefixes: uni-, bi-, sub-, im- Root word: cycle	Lesson 1: uni-, bi- Lesson 2: sub-, im- Lesson 3: cycle
Week 6	Suffixes: -er, -or, -ness, -able	Lesson 1: -er, -or Lesson 2: -ness, -able Lesson 3: Revision

Appendix D: YARC Reading Comprehension Ages Pre- & Post-test

Participant Pseudonym	Pretest 13/01/2020 - 17/01/2020			Posttest 09/03/2020 - 12/01/2020			Change in R.C.A.
	C.A.	R.C.A.	Difference between C.A. and R.C.A.	C.A.	R.C.A.	Difference between C.A. and R.C.A.	
Mary (I.G.)	9 years 7 months	8 years 0 months (8.00)	1 year 7 months	9 years 9 months	8 years 2 months (8.16)	1 year 7 months	**+ 2 months**
Arron (I.G.)	11 years 3 months	6 years 7 months (6.58)	4 years 8 months	11 years 5 months	6 years 10 months (6.83)	4 years 7 months	**+ 3 months**
Amy (I.G.)	9 years 10 months	8 years 5 months (8.41)	1 year 5 months	10 years 0 months	8 years 7 months (8.58)	1 year 5 months	**+ 2 months**
Luke (I.G.)	10 years 5 months	8 years 0 months (8.16)	2 years 5 months	10 years 7 months	8 years 2 months (8.25)	2 years 5 months	**+ 2 months**
Hailey (I.G.)	9 years 11 months	7 years 3 months (7.25)	2 years 8 months	10 years 1 month	7 years 8 months (7.66)	2 years 5 months	**+ 5 months**
Jack (I.G.)	9 years 10 months	8 years 5 months (8.41)	1 year 5 months	10 years 0 months	8 years 7 months (8.58)	1 year 5 months	**+ 2 months**
Jane (I.G.)	9 years 11 months	7 years 6 months (7.50)	2 years 5 months	10 years 1 month	7 years 10 months (7.83)	2 years 3 months	**+ 4 months**
Wayne (I.G.)	10 years 2 months	6 years 10 months (6.83)	3 years 4 months	10 years 4 months	7 years 4 months (7.33)	3 years	**+ 6 months**
James (C.G.)	10 years 2 months	6 years 10 months (6.83)	3 years 4 months	10 years 4 months	6 years 10 months (6.83)	3 years 6 months	**+/- 0 months**
Anne (C.G.)	9 years 8 month	6 years 4 months (6.33)	3 years 4 months	9 years 10 months	6 years 7 months (6.58)	3 years 3 months	**+ 3 months**
Patrick (C.G.)	10 years 5 months	7 years 3 months (7.25)	3 years 2 months	10 years 7 months	7 years 4 months (7.33)	3 years 3 month	**+ 1 month**
Ailis (C.G.)	10 years 8 months	8 years 5 months (8.41)	2 years 3 months	10 years 10 months	8 years 7 months (8.58)	2 years 3 months	**+ 2 months**

Intervention Group ☐ **Comparison Group** ☐

I.G.: Intervention Group **C.G.: Comparison Group**

C.A.: Chronological Age **RCA: Reading Comprehension Age**

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Experiencing Dyslexia Through The Prism of Difference

According to research by AHEAD (2021), students with specific learning difficulties (SLD) are accessing third level education in greater numbers than ever before. Within the body of research conducted few studies have focused on the overall experiences of students with dyslexia studying in third level education. The current study addresses this gap in knowledge as it provides an insight into how students with dyslexia, as an SLD, navigate third level education. Ethnography was used as the principal method of research in this project, and 17 participants, ranging in age from 20 years old to mid-40 years old, took part. The research found that when students identify dyslexia as a limitation, it becomes a barrier to successful learning and has a negative effect on their identity, which impacts them socially and academically. When viewing dyslexia as a difference and studying through a neurodiverse approach, participants in this study achieved academic success, not despite their dyslexia but in partnership with it.

Keywords*: Dyslexia, higher education, difference, inclusion.*

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INTRODUCTION

Dyslexia is a specific learning difficulty (SLD), under the umbrella term of neurodiversity and according to both the Dyslexia Association of Ireland (DAI) and the European Dyslexia Association (EDA) a person with dyslexia is viewed as having a disability (DAI, 2018**;** EDA, 2019). Exploring dyslexia as a difference rather than identifying it as a deficit helps to unravel what society can often perceive as the complications surrounding dyslexia and how identifying with a diagnosis of dyslexia can carry cultural and societal expectations. Identifying dyslexia as a difference and viewing dyslexia through a neurodiverse approach does not lessen

dyslexia and/or its affects, it helps to conjure up very different societal perceptions and expectations.

This new idea positions dyslexia in the realm of difference and encourages people with dyslexia in higher education (HE) to use a growth mindset, build resilience, make use of the supports that are available and develop strategies that work for them. Having dyslexia and being in HE is an experience that is very individual, experienced in many ways and influenced by many internal and external factors, therefore, using the metaphor of a prism is a perfect way to imagine the complexity of the experiences. This 'prism' also became a tool in the hands of the research participants, who, after years of struggle, learned to analyse their own experience as multifaceted and many-shaded, involving not just ordeals and shame, however, empowerment and self-discovery also.

This article thus shows how students experience dyslexia through multiple 'selves' and identities, in terms of other aspects of difference. It highlights the experience of dyslexia from the inside out and challenges the notion that difference is a binary system comprising rigidly dichotomous entities, arguing instead that it is 'multifaceted, complex, always changing, and infinitely sociocultural' (Slesaransky-Poe and García, 2009, p. 204).

LITERATURE REVIEW

Following some consideration of the term dyslexia and of the nature and prevalence of dyslexia, below is a brief review of the literature relating to viewing dyslexia beyond ableism, dyslexia and culture and the importance of growth mindset theory foregrounding a brief consideration of dyslexia in HE.

Dyslexia Through Time

Dyslexia falls under the umbrella term, Neurodiversity which was coined by Judy Singer in 1998 and is a range of different neurological challenges (Clouder, Karakas, Cinotti, Ferreyra, Fierros and Rojo, 2020). It is recognised that like a person's fingerprints, no two brains, not even those of identical twins, are exactly the same (DeMello and Gabrieli, 2018), indicating there is no normal standard brain that exists to which all other brains can be compared to. The word 'Dyslexia' originates from the Greek word (dɪsˈlɛksɪə) meaning 'difficulty with words' (Cambridge Dictionary, 2023). However, dyslexia's appearance in society is by no means a recent phenomenon. Dyslexia was identified as early as the 19th century

(Kussmaul, 1878), as word blindness, which was first replaced with the word 'dyslexia' a decade later (Berlin, 1887).

Dyslexia is also regarded as a neurological condition that is genetic in origin, and a child with an affected parent has a risk of 40–60% of developing dyslexia (Hudson, High and Otaiba, 2011). Dyslexia affects approximately 1 in 10 people and occurs on a spectrum with some people mildly affected and others more severely (Dyslexia Ireland, n. d). Therefore, Dyslexia is not an illness or disease that can be treated medically, nor is it something that comes and goes. Everyone with dyslexia is different but there is a commonality of difficulties with reading, spelling, writing, related cognitive/processing difficulties, memory retention and articulating information verbally or in writing.

Viewing Dyslexia Beyond Ableism

Dyslexia is often viewed through an ableist lens and ablism is a perspective on disability which assumes that disability is inherently abnormal; it is a perspective which leads to and naturalises various forms of discrimination based on ability (Bottema-Beutel, Kapp, Lester, Sasson and Hand, 2020). It operates from a belief system revering 'a particular kind of self and body, which is portrayed as the perfect, species-typical, and therefore essential and fully human' (Campbell, 2009, p.5) and this concept can portray disability as a diminished state of what it means to be a 'human being'. This article advocates for a framework that avoids ableism and encourages us to look at dyslexia without internalised and externalised ableism. This then takes the view that all brain differences are normal, not deficits and that everyone experiences and interprets the world in unique ways. It also acknowledges that in some environments, dyslexia may manifest as a disability as opposed to highlighting talents, however, this paper calls for an alternative view of 'human being' to conceptualise disability and ability as part of the human condition (Ellis, Garland-Thomson, Kent and Robertson, 2018).

Dyslexia and Culture

Macdonald (2019) suggests research in the field of dyslexia has begun to use a range of models to interpret the social experiences of people living with this condition. In some countries, 'conditions such as dyslexia are not recognised as disabling, whilst in others, they are considered to be a mental disability suggesting that disability is culturally determined' (Clouder et al., 2020, p. 759). This highlights how dyslexia can be culturally embedded within thought and language and is an example of the intersection between language as an evolved behaviour and literacy as a cultural invention (Pennington and Olsen, 2005). Dyslexia as a social construct depends on socially generated interpretations as 'society through

language and its use continues to construct people, especially those perceived to have a lack or disability' (Leshota and Sefotho, 2020, p. 6). This is mediated by sociocultural factors and how 'various social actors interpret and then define their academic abilities' (Kabuto, 2016, p. 301). Dyslexia is not obvious to society, as it is a hidden disability, however, the difference between someone who has dyslexia, and its characteristics are exposed within the cultural settings of HE and its assessing methods. Some of the difficulties for students with dyslexia can be around pronunciation, memory retention, certain attributes around language, reading, writing, and articulating skills, both written and verbally.

Growth Mindset Theory

One strategy being advocated for is leaving behind the concept of a fixed mindset and engaging with the concept of a growth mindset. Dweck (2012) and Daeun (2015) state that students with fixed mindsets adopt the idea that intelligence is fixed, feedback is criticism and understand intelligence and ability as static whereby success can only come from talent. If a student thinks they have a perceived low ability and chance of success, this can evoke 'learned helplessness' (Daeun, 2015), which is a fixed mindset. However, the opposite happens when a student perceives they have a good proficiency in the task and they have a high chance of success when completing that task, this is known as a growth mindset.

Dyslexia in HE

In HE, students with a SLD such as dyslexia, may suffer from difficulties with their academic work leading to anxieties, and internalised ableism according to research by Couzens, Poed, Kataoka, Brandon, Hartley & Keen (2015). Disabling and disablist attitudinal barriers can be the societal and cultural attitudes towards people with dyslexia (Byrne, 2018). These, and similar perceptions, can be held by someone within university admissions, and/or academic staff. Cameron (2016) states that prior to a potential student with dyslexia even thinking about HE, barriers are often unwittingly created by teachers, parents, careers advisers and others who assume that certain professions and/or HE is not for them (Cameron, 2016).

METHODOLOGY

This article is based on ethnographic research which was carried out in four different HE institutions during the academic semesters in 2018. This method was chosen as it is concerned with 'learning about people' (Jones and Smith, 2017, p. 98). This project had a total of 17 participants, of which 14 identified as female

and three as male. The gender ratio is obvious to the researcher however, gender is not the focus of this study. There were four participants from the 40+ age range, three from the 30-40 age group and the rest, ten, were in the 19- to 30-year-old age range. The researcher sent out an expression of interest in this project via four HE institutions access offices. The disability services officers sent out an email about the research project to all their students who were registered with them as having a diagnosis of dyslexia. This email contained an introduction, a brief overview of the research project, and what their role as a participant would entail for them. No specific variable arose, or no rationale was discovered for the very low participation in the project by the male student population, as the only inclusion or exclusion to participation was having a diagnosis of dyslexia and being registered with the access office in the institution.

Meetings were arranged with the students who had self-selected to be participants on an individual basis to gain a small insight into their educational journeys. They were informed of the nature and the purpose of the research and their right to withdraw before a specified date. It was agreed that they would be sent a copy of their transcript to allow them to confirm what was said and gain their consensual participation and to protect their identities and that real names would not be used or any material which could identify them. The research study was approved by the ethics committee at the institute of the researcher.

The methodological tool employed was participant observation and interviews, which are the distinguishing features of ethnographic research, as it aims to describe life as it is lived, 'by a people, somewhere, sometime' (Ingold, 2017, p. 21). Ethnographic methods are diverse and that enabled the researcher to utilise a range of approaches which are based on participation and observation, in-depth interviews, and detailed writing analysis. The participants were informed that the researcher would be a passive observer in their lectures and tutorials and no brief was given before the participant observation took place. During the interviews, the lectures, tutorials, and group work sessions arose as often there was relational incident to one of the findings. Chiseri-Strater and Sunstein (1997) developed a theory on taking, analysising and writing up field notes from participant observation. This includes documenting dates, times, places, facts, participants, smells, and sounds. The researcher followed these guidelines 'it is the detail and completeness of these records that provides the richness and texture of the written product (DeWalt and DeWalt 2002, p. 148). Each participant was shadowed for at least one two-hour lecture and/or an hour tutorial at least once a week, over two semesters, as well as their bi-weekly group work sessions, field notes were taken, and these were used later during the writing-up process. Interviews were

also conducted which took place in 'natural settings' (Creswell, 2013) chosen by the participants. A recording device (LiveScribe pen) was used to ensure all data was saved and documented and these were transcribed later. This enabled me to read and re-read the transcripts several times to tell the stories of the participants.

The questions asked were around family history of dyslexia, brief experiences of formal school and how they experienced HE with dyslexia, in relation to teaching, learning, assessment and supports. They were also asked about how they understood their dyslexia and how they thought others understood it, what the disclosure process was like, the discourse and identity experienced, and the cultural perceptions and prejudices surrounding dyslexia. A limitation of this project is that the data collected represents a small snapshot of the population with dyslexia studying in HE.

Research Questions

The research study sought to answer the following research questions:

- How did the participants experience and navigate HE education in Ireland?
- How did they understand their dyslexia in the context of an environment so heavily reliant on text-based learning and assessment?

By answering these questions, the study provided a deeper knowledge, insights and understanding into how learning is experienced by those operating within an environment and culture that champions the very issues that hinder people with dyslexia such as reading, writing, short-term memory retrieval both in an oral capacity and in final written examinations. The findings discussed below are drawn from the wider study and relay participants' experiences of having dyslexia while studying in HE. The aim is to give an insight into participants' experiences of the barriers encountered with having dyslexia in HE. Nonetheless, this paper highlights, in spite of all these barriers, when the right inclusive learning environment is enabled and provided, students with dyslexia can achieve success on a par with their peers. The findings presented and discussed relate to three themes namely i) awareness of dyslexia, ii) voice suppression and iii) the 'self'.

DISCUSSION

Awareness of Dyslexia

The medical model of disability can focus on the person's disability and what a person cannot do as opposed to how we can support a person better in that task. In HE in Ireland a student with dyslexia needs a psychological diagnosis. This

perpetuates the nature of the medical model and associated negative connotations and pre-conceptions.

One of the main issues identified by participants was the lack of knowledge around dyslexia and how it affects their learning. The deficit view and discourse (Rappolt-Schlichtmann, Boucher, and Evans, 2018) they encountered around dyslexia was described as loaded and confusing and centred around constructions of able-bodiedness (Bone, 2017).

> 'I think people's perception on dyslexia is so different. People don't know how to handle it' (Kitty Kat).
>
> 'If anyone has got dyslexia [in school], they kind of look at them as if they are stupid, they look at them like they can't think' (Joy).
>
> 'I always just thought like I was the class clown and stuff, because that's what they [teachers] told me' (Smithwick's).

This allows for dyslexia to be then viewed as a deficit or 'something wrong with someone' as opposed to, nothing is wrong, it is just a difference. The deficit view can then create a certain perspective or allow a particular attitude to develop and thus, a barrier is created. This enables the creation of institutional and attitudinal barriers and ableism. Currently, there is very little research on 'lecturers' awareness of dyslexia and of their attitudes towards and opinions about dyslexic students' (Ryder and Norwich, 2019:162). Students with dyslexia pose a particular challenge to academic staff because their difficulties are hidden, according to Pino and Mortari (2014). These findings also highlight the need to provide adequate training for HE education staff around dyslexia as the research highlighted how some teaching staff 'identified major problems in recognizing dyslexia, estimating the severity of the disability, and uncertainty about what would be the best form of support' (Schabmann, Hans-Christoph, Schmidt, Hennes and Ramacher-Faasen, 2020, p. 275).

> 'Yeah, I think there are intolerant lecturers that I've found very difficult, I was a stranger to them, and they didn't know I was trying or things like that' (The General).

The knowledge lecturers had on dyslexia, and its impacts appeared to come from personal experience of family, friends, or students with dyslexia. When teaching staff had any awareness of dyslexia, with this awareness it usually connected to a more positive experience for students with dyslexia and created a learning environment more willing to accommodate them.

'I don't know if they had a good knowledge, but they really went out of their way to make my learning, my life a little bit easier' (Heffo).

'Most the [good] lecturers, they seem to know about it [dyslexia] already like' (Ali).

This further highlights the need for training to help raise awareness of dyslexia for all HE staff and in particular what dyslexia is and what dyslexia is not.

Voice Suppression

For my research participants, internalising doubts about their academic ability manifested as a fear when in a lecture hall or tutorial class, notably around when they were asked a question or encouraged to articulate their thoughts on a particular topic. This developed into a fear of appearing a bad academic or unintelligent, or 'looking stupid' (General) in front of one's peers and lecturers. This becomes what Carrithers (2009) describes as vicissitude, which is an unfavourable event or situation that occurs by chance, usually beyond one's control. This ordeal becomes a moment, unanticipated and beyond routine, and invokes what Basso (2009) terms as voice suppression. To be, or to imagine oneself as being under surveillance, triggers mechanisms of self-suppression and silencing (Meek and Rogers, 2014) and this can then create 'self'-oppression through fear, shame, and experience, arising out of a moment and thus, initiate what I term as academic imprisonment. For participants, this moment occurs as a 'performance' in an educational setting and/or involving peers and educators:

'Whenever I was asked a question in class, I just froze, I wouldn't answer questions in class, I think I'm just slow' (Smithwicks).

'No, no [shaking her head, nervous laugh and making a funny face] I wouldn't really answer questions in class, after school, no way' (Calloway).

'I overthink it and then I panic like I know the answer and then I just sit there' (Turbo).

Voice suppression (Basso, 2009) inhibits the learning experience and initiates internal conflict between the individual in their private realms and public realms (Carrithers, 2009) through lecture halls. Conflict can then occur between one's own thoughts, feelings, emotions, and subjectivity in the lecture halls and tutorial rooms and this brings shame and introduces a humiliating relationship between the student and their dyslexia.

'Even though I know I want to say it I just cannot say it, even if I have the right answer, I just don't say it and I just sit [in lecture hall/tutorial room] there awkwardly while everyone stares at me' (Ali).

> ‘I’m just like oh my god, oh no, I don’t know anything and when they do ask me a question I just sit there and don’t say anything’ (Anne).

This will then lead to a rise in emotions and the negative development of ideals about the ‘self’, which are developed from false perceptions by the self of ‘the self’.

The ‘Self’

A host of emotions were used by participants to describe their educational experiences with dyslexia including disappointment, frustration, embarrassment, shame, sadness, depression, anger, and low self-esteem.

> So, I don’t know if I have this ingrown thing that I think being dyslexic is awful, to be honest with you I think em you’re a dyslexic person is very degrading (Summertime).

> I could be also afraid to tell people that I am dyslexic because the horror of being [identified] thought of as stupid (Winehouse).

> You lose your self-esteem; your self-esteem becomes so low because you lose interest (Joy).

Participants views and construct of the self were often not based on actual performance but upon perceived performance and these can influence their construct of self and impact on their experiences in HE. When students developed a negative association with their dyslexia (Gee, 2014) the challenge was then to dis-identify with the developed limited sense of self. This can in turn affect confidence on every level, which leads to students with dyslexia often using this persona of their ‘self-esteem’ for judgements of their self and self-worth. When participants identified and made a connection between a positive view of dyslexia and a positive identity with self-esteem, it helped to improve their cognition about their dyslexia which led to improved perceptions of self. One strategy developed by participants was leaving behind the concept of a fixed mindset and engagement with the concept of a growth mindset (Dweck, 2012). When participants recognised the concept of a fixed mindset and understood that intelligence is not fixed, they were able to embrace all the positive outcomes from using a growth mindset.

CONCLUSION

This research has highlighted how students with dyslexia experience HE as individuals with what is termed as a disability. It has also examined what are some-

times negative societal connotations, cultural perceptions and how education can sometimes view and 'deal' with dyslexia. The limited awareness and understanding of dyslexia were highlighted, thus, the need for the implementation of a statewide awareness and educational campaign around dyslexia is recommended. A vital part of this research is that it demonstrated how people with dyslexia can and will succeed in HE, regardless of encountering the barriers identified. Analysing the data and participants' personal experiences of studying in HE shows how one can succeed with dyslexia, not despite dyslexia or the systemic barriers in place, but in partnership with their dyslexia. The research has shown how studying with dyslexia is not all bad and by moving out of a pre-existing fixed mindset to a more growth mindset will allow one to view dyslexia and studying in a new light and to do things in a different way. This will then increase the opportunities for people with dyslexia and enable them to achieve on par with their peers.

One of the challenges for students with dyslexia is to dis-identify with a fixed mindset which promotes a limited sense of 'self'. This can be created by the destructive emotions associated with dyslexia and how it impacts on the educational experience. It is also imperative to work alongside disability advocates, disability study academics and disability activists to maintain awareness and to embrace the belief that there is nothing wrong with having a disability.

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Supporting the Parents of Students with Irish Literacy Difficulties in Gaeltacht Schools

International research states that parental involvement in education can impact positively on a child's academic, social, and emotional development. This study investigated the strategies used in Gaeltacht schools to support the parents of students with early Irish literacy difficulties. This is particularly important as students in Gaeltacht schools are fully immersed in the Irish language for the first two years of their primary education (age 4-6). They do not undertake formal English literacy until first class (approximately age 7-8). Semi-structured interviews were undertaken with four special education teachers from Gaeltacht primary schools in the province of Ulster, in the Republic of Ireland. The findings suggest that if the home language of the student, is different to that of the language of instruction and communication of the school, this can pose difficulties for parents in relation to involvement in their child's education. The strategies schools and teachers implement to address the challenges that they face in this area are discussed in this paper. Following this, recommendations are made as to how parents in these schools can be supported further.

Keywords: *parents, literacy difficulties, challenges, Irish, Gaeltacht*

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INTRODUCTION

The focus of this study is to investigate the strategies used in Gaeltacht schools to support the parents of students with early Irish literacy difficulties. For the purpose of this study early literacy difficulties are defined as, having difficulties with speaking, and listening, knowing letters, pronouncing letter sounds, and sounding out words (National Council for Special Education (NCSE), 2013). There are 105 primary schools in Gaeltacht areas in the Republic of Ireland, with approximately

7,360 students enrolled (Gaeloideachas, 2023). In these schools, all subjects are taught through the medium of Irish, except for English literacy (Department of Education and Skills (DES), 2016). Students start formal literacy instruction in first class (age 7-8) after two years full immersion in the Irish language (DES, 2016). Traditionally, Irish was the first language of most residents in Gaeltacht areas (Údarás na Gaeltachta, 2023). However, over the last few decades, there has been much cultural and linguistic diversity in these areas, with more families living in the Gaeltacht coming from homes where a language other than Irish is their first language (Central Statistics Office (CSO), 2023). For example, statistics from the 2016 census state that 63,664 (66.3%) of those living in the Gaeltacht indicated that they could speak Irish. (CSO, 2023). Maintaining and securing the vitality of the Gaeltacht and Irish language is of enormous social, linguistic, educational, cultural, and economic importance (DES, 2016). Schools play an essential role in this maintenance. Gaeltacht schools are being supported by the *Scéim Aitheantais Scoileanna Gaeltachta* (Gaeltacht schools recognition scheme), which aims to improve language outcomes for children in these schools (DES, 2016).

As mentioned previously, with the implementation of the early Irish immersion education model in these schools, the teaching of English language and literacy cannot be commenced until first class (age 7-8). Due to this, early intervention in literacy now happens only through Irish. This means that the identification of students with early literacy difficulties, literacy interventions, teaching strategies, and resources must be undertaken through Irish literacy first. Unfortunately, research has shown that there are limited resources in these areas, and this can pose as a challenge for teachers and schools. This study investigated the role of special education teachers (SET, N=4) in supporting parents who have children with early Irish literacy difficulties enrolled in Gaeltacht schools. In this way, the researcher was enabled to produce evidence-based research that presents a picture of current issues in this area more than five years on from the introduction of the Gaeltacht Education policy (DES, 2016).

Parental Involvement and Support

Parental involvement in education is crucial for the overall academic success and well-being of students (Castro et al., 2015; Fan & Chen, 2001; Kim, 2022). Research consistently shows that when parents are actively engaged in their children's education, students tend to perform better academically, have improved behaviour, and develop better social skills (Castro et al., 2015; Kim, 2022). Parents who are involved in their child's education can provide additional support at home, helping with homework, reading, and other learning activities (Castro et al., 2015; Fan & Chen, 2001, Kim, 2022). This reinforcement of learning outside of school

can lead to improved academic performance. When parents show an interest in their child's education, it demonstrates that education is important and valued. This can foster a positive attitude towards learning and motivate students to reach their potential (Castro et al., 2015; Fan & Chen, 2001, Kim, 2022). Effective communication between parents and teachers allows for a better understanding of a child's strengths, weaknesses, and learning style (Castro et al., 2015; Fan & Chen, 2001, Kim, 2022). This collaboration enables teachers to tailor their instruction to better meet the child's needs. For students from diverse backgrounds, parental involvement can bridge cultural and linguistic gaps between the home and school. Parents can contribute valuable insights into their child's background, helping teachers create a more inclusive learning environment (MacPhee et al., 2017; Peterson & Heyward, 2007). Engaged parents are more likely to advocate for their child's needs and educational rights (Goldman & Burke, 2017). This can be particularly important for students with learning difficulties or special educational needs (SEN) (Goldman & Burke, 2017; Lasky & Karge, 2011).

Research on parental involvement in immersion education programmes, identified that low parental proficiency in the school's language of instruction is a barrier to their participation (Ee, 2017; Kavanagh & Hickey, 2013a, 2013b; Turney & Kao, 2009; Wesley & Baig, 2012). In the Republic of Ireland and Northern Ireland it was also found that some parents find it difficult to be involved in their child's Irish immersion education due to lack of proficiency in Irish (Kavanagh & Hickey, 2013a, 2013b; Ní Chinnéide, 2009; Ó Duibhir et al., 2015). This was referenced by parents of children with SEN, who felt that they were unable to help their child academically and this in turn caused them anxiety and concern (Kavanagh, 2013a, 2013b; Ó Duibhir et al., 2015). Other barriers identified to parental involvement in Irish immersion education include: children's resistance to parental involvement, practical issues (e.g. time constraints), lack of awareness around resources and supports, dissatisfaction with the supports offered, and a perceived lack of invitations/opportunities for involvement (Kavanagh & Hickey, 2013a, 2013b).

METHODOLOGY

Semi-structured interviews with four practising SET teachers in Gaeltacht schools were conducted. The purpose of these interviews was to investigate the attitudes and perspectives of these teachers around providing support to parents of children with early Irish literacy difficulties (Powney & Watts, 2018). The research questions addressed within this study were (a) what practices are in place to support the parents of students with early literacy difficulties in Gaeltacht schools? and (b)

what are the challenges faced by Gaeltacht schools when supporting parents in this area? Each teacher was asked what practices were in place in their school to support parents of struggling readers.

Interview questions were piloted with two primary Gaeltacht teachers and adaptions were made to the interview questions as required in terms of terminology afterwards (Majid et al., 2017). The question themes are outlined in Table 1 below, and the research that influenced the development of the questions is outlined. This study received ethical approval from the Research Ethics Committee, Dublin City University.

Table 1: The Design and Nature of Interview Questions with Reference to Literature

Interview themes	Literature that influenced interview questions developed
The teachers working in SEN in Gaeltacht schools	DES, 2016 Ní Chinnéide, 2009
The perceived advantages of Irish Immersion education for students with Irish literacy difficulties	Ó Giollagain, 2007 Ó Laoire & Harris, 2006
The challenges experienced by teachers when supporting students with early Irish literacy difficulties	Barnes, 2017 Ní Chiarúain, 2009
Strategies and resources used by teachers to support students with literacy difficulties	Andrews, 2020 National Educational Psychological Service (NEPS), 2019
Strategies used to support parents of students experiencing Irish literacy difficulties	Kavanagh & Hickey 2013a, 2013b

Data Analysis

Data from the interviews were analysed using thematic analysis (Braun and Clarke, 2006). The first step, familiarisation, involved the researcher transcribing each interview and reflecting on the answers to the related questions. This allowed the researcher to familiarise themselves with the data. The process of reading and rereading the interview answers aided the process of familiarisation. Notes were made highlighting data that would be pertinent to the study. Subsequently, the data were coded using shorthand labels to describe the content. The researcher was concerned with addressing specific research questions and analysed the data with this in mind. Then the researcher reviewed the created codes, identified patterns, and generated broad themes. A theme is defined here as a pattern that captures something significant or interesting about the data or research question. These

themes were then reviewed and named. The review involved reflecting on whether the data supported these themes, whether themes overlapped, whether some themes needed to be dealt with separately, or whether new themes had emerged that were not reflected in the research question. The final stage of the process in the thematic analysis is the final findings and discussion.

Participant Profiles

All the SET teachers (N=4) interviewed taught in rural Gaeltacht schools in Ulster. As shown in Table 2, three teachers were full-time SETs. These were based in only one school, while one teacher was a shared SET between several schools (number of schools shared with omitted for anonymity purposes). All teachers had at least ten years of experience in the classroom before starting work as a SET. Numbers are assigned to the participants for clarity and anonymity as per the ethical approval application. Further information on the profiles of the teachers is outlined in Table 2 below. A limitation of this study is the small number of interviewees; however, this study was undertaken during the Covid-19 pandemic and teachers were under additional pressure at this time due to restrictions (Minihan et al., 2022). The interviews for this study were conducted via Zoom due to travel restrictions. This may have negatively impacted on the participant rates as there were no opportunities for face-to-face meetings.

Table 2: Participant Profile

	Shared SET position	No. of years of teaching experience	School Size
T1	Yes	13	Shared between several schools
T2	No	33	Enrolment 100
T3	No	20	Enrolment 79
T4	No	15	Enrolment 25

FINDINGS

The findings presented relate to the home languages of the students enrolled in Gaeltacht schools and the challenges that this presents in relation to supporting students and parents. Following this, the supports provided by schools to parents of students with early Irish literacy difficulties in Gaeltacht schools are discussed. The key findings of the study are, that when Irish is not spoken as a language in the home, this can pose as a challenge for parental involvement, particularly in relation to completing homework. Providing parents with opportunities to gain

language fluency in Irish is helpful and may help them overcome this barrier, and there is a value in relation to providing specific supports to parents in Irish literacy (e.g. access to appropriate resources).

The Home Languages of Students

Every teacher interviewed (N=4) mentioned the challenge that Irish not being spoken as a home language poses for parental involvement (CSO, 2023). This can be a challenge for parents when supporting their child with homework. It also means that exposure to the Irish language is confined to the school setting (Kavanagh & Hickey, 2013a, 2013b; Ó Duibhir et al., 2015). *"The challenge of not having the language in the home is certainly one" (T4).* Another teacher discussed how this lack of Irish at home was challenging for them in terms of children undertaking their homework. *"Parents find it challenging if they don't have Irish at home, with homework especially" (T2).* Another teacher reported that if the child's parents are fluent, that is an advantage. *"If there is Irish in the home things are a lot easier. And if they don't have Irish, it makes things more difficult" (T3).* This teacher also discussed how this lack of exposure to the Irish language at home may lead to a teacher questioning whether students have a language/learning difficulty or whether the delay in their development of proficiency in using the Irish language is due to their lack of exposure to the Irish language at home (Andrews, 2020; Barnes, 2017). *"If you observe a child that has a difficulty that you cannot define as yet, you are left with the question is it a language issue or is there something else going on" (T3).*

It is therefore clear that the findings of this study support previous research evidence that more students in Gaeltacht schools are now coming from homes where Irish is not their first language (Ó Giollagáin, 2007). This would align with previous research which states that this linguistic diversity and complexity, coupled with the increased use of English in Gaeltacht communities, presents severe and significant challenges for the Gaeltacht education system (Ó Ceallaigh & Ní Dhonnabháin, 2015). The perennial challenge persists in transferring competence in a minority language acquired in school to the home and community (Ní Thuairisg & Ó Duibhir, 2016).

Strategies Used to Support Parents of Students Experiencing Irish Literacy Difficulties

In the interviews, all the teachers (N=4) quoted regular communication with the home as the method used the most to support parents (Castro et al., 2015; Fan & Chen, 2001; Kim, 2022). *"Regular communication with parents is very important and we do that here. We survey the parents to find out what kind of help they*

might need to see if we can meet that need" (T3). Irish classes for parents were also reported by all interviewees as a positive means to support parents in their endeavours to help their children (Kavanagh & Hickey, 2013a, 2013b). In the interviews, the use of the Seesaw app that gained popularity during the school closures remained popular with parents and teachers discussed its use as a method for supporting parents. *"Sending recordings home of Irish reading is also done. During the lockdowns, we used Seesaw to communicate with the children and to communicate with the children and their parents, and that proved to be effective" (T4).* One teacher also discussed how they devised booklets with themes and vocabulary that were covered in classes each month. These booklets were disseminated to the homes in advance.

> *"A booklet is sent home that covers the different themes in the Irish curriculum as the themes come up... In that booklet there are translations of the words that the children will be coming across, with English translations. So that's some help to them. At the beginning of the year also we sent home a booklet of phrases that can be used daily and weekly in the home" (T1).*

It is clear from the findings that there is a keen awareness of the need to support parents in their efforts and that schools are doing a lot in this regard (Kavanagh, 2013). Communication with the home is central to supporting parents, and the schools of participants in this study, were proactive in this (Kavanagh, 2013; Ó Duibhir et al., 2015).

IMPLICATIONS OF THE FINDINGS FOR FUTURE PRACTICE

Much research has been conducted relating to how to support parents in the education of their child learning through the majority language of the community (Castro et al., 2015; Fan & Chen, 2001; Kim, 2022). Some limited research exists around supporting parents of students in minority language/immersion education (Ee, 2017; Kavanagh & Hickey, 2013a, 2013b; Ó Duibhir et al., 2015; Turney & Kao, 2009; Wesley & Baig, 2012). The implications of this study may be important for future policy and practice (DES, 2016). Supporting parents of students with early literacy difficulties in immersion education requires a collaborative and multifaceted approach (Kavanagh & Hickey, 2013a, 2013b; Wesley & Baig, 2012). It is important for teachers in all forms of education, not alone immersion education, to maintain open lines of regular communication with parents (Castro et al., 2015; Fan & Chen, 2001; Kim, 2022). Within this communication, it is recommended that teachers provide updates to parents on their child's progress, challenges, and the strategies being implemented to meet their educational needs

(NEPS, 2019). This enables parents to stay informed and involved in their child's education.

It would be beneficial for schools and teachers to organise workshops or seminars for parents to understand the immersion education approach, Irish literacy development, and strategies that they can implement to support their child's learning at home (Kavanagh, 2013, Kavanagh & Hickey, 2013a, 2013b). These workshops can provide practical tips for parents to reinforce literacy skills (Barnes, 2017; Kavanagh, 2013). Parents may benefit from being provided with resources, such as reading lists, websites, and apps that can support literacy development (Kavanagh, 2013a, 2013b). These resources and lists can be tailored to the immersion education context and the child's specific needs. Collaboration with parents to create individualised learning plans for students with literacy difficulties is of paramount importance (NCSE, 2006). Parents should be involved in the development of these plans to outline specific goals, strategies, and benchmarks for progress. It is important to schedule regular meetings with parents to discuss their child's progress, strengths, and areas needing improvement (NCSE, 2006). This creates a platform for parents to share their observations and concerns as well. Involving parents in problem-solving discussions regarding their child's literacy difficulties is also recommended to collaboratively explore strategies to address challenges both in the classroom and at home (NCSE, 2006, NEPS, 2019).

It may be beneficial for teachers and schools to suggest activities that parents can do with their child at home to enhance Irish literacy skills, such as reading aloud, storytelling, and engaging in language-rich conversations (Andrews, 2020; Barnes, 2017, Kavanagh & Hickey, 2013a, 2013b). Schools could create a support group or online forum for parents of students with literacy difficulties. This platform would facilitate information sharing, idea exchange, and emotional support (Andrews, 2020; Kavanagh, 2013). With recent research suggesting the linguistic and cultural changes in the Gaeltacht areas over the last few decades, it is recommended that schools implement a multilingual approach (Cenoz & Gorter, 2011). This involves providing guidance to parents on how to support their child's literacy development in the immersion language while also nurturing skills in the child's native language (Cenoz & Gorter, 2011).

CONCLUSION

It is clear from the findings of research in this area that the linguistic integrity of Gaeltacht areas has changed (CS0, 2013). The fact that students are enrolling in

Gaeltacht schools from more homes where Irish is not their first language may pose a challenge for teachers and parents. Gaeltacht schools are implementing many positive strategies to support parents, particularly those of children with literacy difficulties. Nevertheless, with the increased diversity in these areas it is important for teachers and schools to consider implementing some of the recommendations in terms of further supporting parents outlined above.

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Exploring Levels of School Belonging for Traveller and Non-Traveller Students through a Bespoke Music Intervention in an Irish Post-Primary School

This project, which took place in an Irish post-primary school was an intervention which involved a class of Music students. The project explored how a music intervention which included Traveller community culture and traditional music impacted on scores on measures of school belonging for members of the Traveller community and their non-Traveller community peers.

The music intervention was developed by the post-primary school's assigned educational psychologist and the school's Music teacher and was funded by the school. The intervention was delivered over a ten-week period. During the ten weeks, six specialised musical experiences were delivered during regular timetabled Music classes. The participants, a class of twenty-six students which included nine Traveller students, attended a rural DEIS co-educational post-primary school in the South East of Ireland and attended music lessons as part of their school curriculum. The school facilitated participating students to complete questionnaires pre and post intervention. Data was collected using The Psychological Sense of School Membership Scale (PSSM) (Goodenow, 1993) and The Belonging Scale (Frederickson & Baxter, 2009). Full data for nineteen of the twenty-six students was collected and analysed.

Results of this intervention found a positive increase in the scores on both the PSSM and The Belonging Scale for the Traveller and non-Traveller students indicating a higher sense of school belonging after the intervention. Discussion of the findings and issues arising as well as implications for further work in this area are presented.

Keywords: *School sense of belonging, post primary school, music, intervention, Traveller students*

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INTRODUCTION

The aim of the study described here was to explore how a music intervention in a post primary school would impact on scores on measures of school belonging for members of the Traveller community and their non-Traveller community peers. The music intervention was developed by an educational psychologist and a Music teacher and took place with a Second year Music class. The music intervention included Traveller community culture and traditional music. Pre and post data was collected.

Schools, as well as being venues for formal education, play a vital role in the promotion of positive mental health in young people and can also provide a safe and supportive environment for building life skills and resilience. School belonging is defined as: 'the extent to which students feel personally accepted, respected, included and supported by others in the school social environment' (Goodenow & Grady, 1993). Sense of school belonging is now considered one of the key variables in resilience and school achievement and a key construct in exploring the experiences of children in schools. A focus on a sense of belonging in schools can be an effective way of monitoring social inclusion of students with SEN (Cullinane, 2020). The importance of school belonging is acknowledged in the Department of Education and Skills' Wellbeing Policy Statement and Framework for Practice (DES, 2019), which references how a sense of belonging acts as a protective factor for wellbeing in the school setting.

The importance placed on school belonging as an indicator of school functioning has led to the development of a number of measures of school belonging/ connectedness. Two of these, the *Psychological Sense of School Membership Scale (PSSM)* (Goodenow, 1993) and *The Belonging Scale* (Frederickson & Baxter, 2009) are self-report measures of school belonging used extensively in research. These measures are used on this study and were identified through a literature review on appropriate measures that were standardised and published.

The Equal Status Act (Government of Ireland, 2000) acknowledges and defines the term 'Traveller community' as a group of people who have a shared history, culture and traditions and, in many cases, a historically nomadic way of life on the island of Ireland. There are nearly 31,000 members of the Irish Traveller community resident in Ireland, 18,000 of whom are school-aged (Central Statistics Office, 2016). Poor educational outcomes for students from the Traveller community in Ireland are unfortunately well documented. The Department of Justice and Equality published the National Traveller Roma Inclusion (NTRIS) Strategy in June 2017.

The strategy takes a whole of Government approach to improving the lives of Travellers and Roma in Ireland in ways with a number of actions involving a range of government departments. The Department of Education and Skills participated in the development of the strategy and is a member of the Steering Group which was established to oversee the implementation of the new strategy. Findings from the report stated that learners from the Traveller community leave school earlier than other groups and also demonstrate high dropout rate from secondary school (Department of Justice, 2017). This report further states that '13% of Traveller children complete second level education compared to 92% in the settled community. Of those Travellers who drop out of second level education, 55% have left by the age of 15' The Report further notes 'The majority of Travellers (70%) have only primary or lower levels of education' (p.11). A key education aim in the NTRIS (2017) report is improved outcomes for Traveller and Roma learners in education, bringing their achievement to equivalent outcomes achieved by the majority population. Foster and Norton (2012, p. 108) call on schools to play their role in ensuring Traveller (and Roma) equity and advocate for a lack of rigidity in this regard, stating 'It still remains for schools, institutions and society to deal with racism and inequality in a way that can be tangible for these communities. Flexibility is so often the key to moving things forward in a gradualist approach.'

The National Council for Curriculum and Assessment (NCCA, 2017) in Ireland undertook an audit of Traveller culture and history in the curriculum, which included consideration of the resource provided by the NCCA's Intercultural Guidelines, which had been in place since 2006 (NCCA, 2006). The audit considered a number of issues including: the place of Traveller culture and history in the existing curriculum across the age ranges, the intercultural education guidelines and other resources for schools in relation to Travellers, the opportunities for teaching about Traveller culture and history and how this is included across the curriculum.

The NCCA audit report when completed (NCCA, 2017) highlighted a number of key factors. These included a recommendation for a whole school/setting approach, an awareness of the individual school/setting culture and the 'hidden curriculum', the need for active promotion and inclusion of cultural diversity approaches as well as respect for rights and responsibilities. They also recommended exploring possible opportunities to promote and validate minority cultures.

In Ireland, Music can be taken as a subject at Junior and Senior Cycle. The NCCA Junior Cycle Music Draft Curriculum Specification (NCCA, 2017) contains a rationale for studying music in regard to cultural diversity. It advocates that Music can help students in understanding the history of a country as well as enabling

them to reflect on the social and cultural context in which they live. Music education is described as allowing the development of a young person's awareness and appreciation of their own unique cultural environment. The NCCA document includes the text below which is relevant to Traveller music culture as it clearly links music education and cultural connection:

> Music is important as a catalyst for building cultural capital within the individual student and the class collective. Through encountering and engaging with an array of music activities, we can ensure that we continue to develop future citizens that are culturally engaged, culturally aware and culturally connected. Being culturally aware heightens student understanding of both national and international cultural identities. With an increasingly diverse and pluralist population, this understanding of others through a cultural lens will encourage students to develop as responsible and ethical citizens (NCCA, 2017, p. 7)

For many years, writers on music education have shared their theories on the benefits of including music in the curriculum (Pitts, 2000). In The Power of Music (Hallam, 2014), the impact of musical activities on intellectual, social and personal development is discussed and evidence supports the case for music enhancing psychological well-being, school engagement, creativity, empathy, language and literacy, spatial awareness and numerous other skills and qualities. In a recent study, the benefits of music workshop participation for pupils' wellbeing were explored and findings suggested that playing live music together fosters a sense of belonging amongst participants (Ward et al. 2023). The marriage of traditional music and Traveller communities is highlighted in the NCCA Traveller curriculum document which notes that, 'Travellers have a strong tradition of cultural expression through traditional music and have made a distinctly recognised cultural contribution to Irish music heritage' and 'Many of the early last century musicians are collected in the national archives and folklore collections and in these there are extensive references in Irish literature to Traveller music, songs and art'(NCCA, 2017, p. 13).

LITERATURE REVIEW

Three key areas informed this research: the importance of school belonging, the positive impact of music, and the impact of school experience on Traveller students' sense of belonging.

An ESRI research paper found that negative school experiences was one factor that Traveller children cited as a reason for early leaving school (Watson, D.,

Kenny, O. and McGinnity, F., 2017). Traveller children (along with immigrant children and those with a disability) are significantly more likely to report being bullied at school (Department of Children and Youth Affairs, 2016). As noted by Nugent (2010) there is little research on this community; however, in her work on literacy, Nugent found that students from the Traveller community made significant progress when given evidence-based literacy interventions. Frehill and Dunsmir (2015) investigated the relationship between school variables, background variables, sense of belonging and absenteeism in Traveller students in Irish secondary education aged 12 to 15 years. In their sample of 78 Traveller (N=37) and non-Traveller (N=41) students, which included first, second and third year groupings (12 to 15-years-old) in three secondary schools within the western region of Ireland in areas of highest Traveller population, Frehill and Dunsmirs' statistical analysis found significant group differences between the Sense of School Community and Sense of School Connectedness, with non-Traveller students having higher scores on both measures. The authors advocated the need for adjustments to be made to the systems in post primary schools to enable inclusion of and improve Traveller students' engagement with school. One of their conclusions was 'the need for secondary schools to develop organisational structures and systems to target the promotion of sense of belonging in schools' (Frehill and Dunsmir, 2017, p. 19).

Boyle, Flynn and Hanafin (2020) report on their work on Irish Traveller parents' experiences of their own schooling and their views on education. They reported three main themes, of which, two related to culture; the importance of pride in Traveller culture and identity, and secondly, the awareness of others' poor opinion of Traveller culture. The third theme related to feelings and referenced the negative feelings when Irish Traveller parents reflected on their own education experiences. They recalled racism and a curriculum which they did not experience as challenging. The authors however reported that even though the participants had negative experiences they were optimistic regarding the opportunities of education for their children.

While not Traveller-specific, an Australian study that explored the role of school engagement within music programs tailored to promote wellbeing and connectedness in schools (McFerran et al.), found that some music programmes promoted a sense of connectedness and relationships between peers. This study, which employed students from four different schools, including a special school catering for students aged 4-18 years, a girls' post-primary school, a primary school and a culturally diverse, inner suburban school for children aged 4-15 years, also reported on the findings that tailored music programmes could help

nurture relationships between students and staff, and also help foster new forms of relationships between different members of the school community, for example, teachers discovering new talents in students.

METHODOLOGY

In collaboration with the School Principal, a musical intervention which included representation from Traveller culture was developed by the school's educational psychologist and the school's Music teacher. The project design was co-developed by the educational psychologist and her colleague referred to hereafter as the 'researcher'. The methodology involved a ten-week intervention with pre- and post-data collection using standardised measure the *Psychological Sense of School Membership Scale (PSSM)* (Goodenow, 1993) and *The Belonging Scale* (Frederickson & Baxter, 2009)

The classes were timetabled to take place in the school hall, so that there would be enough space for students, musical instruments, teachers and other necessary equipment. It was decided that school rules would be in place as in a regular Music class. This was done to minimse any potential stress about the sessions. If a student did not want to be involved in a particular session, they were advised on procedures for leaving or taking time out. There were regular verbal 'check ins' from adults in the room with students throughout the sessions to ensure that they were comfortable and happy to take part. A detailed account of the content of the lesson is shown in Appendix A

Participants

A group of 2nd Year students were identified by the school's music teacher. This intervention group consisted of 26 students (9 Traveller students and 17 non-Traveller students). In order to minimise any potential conflict with state exams and maximize the participation of students from the Travelling Community it was decided to target a Second Year group with a high incidence of students from the Travelling Community. All Second Year students from the school were offered the opportunity to take part in the study.

Full pre- and post-intervention data sets were available for 19 of the 26 participants. For some students there was incomplete data (N=7) . Of the full data set 19 students there were 9 girls and 10 boys, 7 were identified as being members of the Traveller Community (3 girls and 4 boys).

Data Collection

The *Psychological Sense of School Membership Scale (PSSM)* (Goodenow, 1993) and *The Belonging Scale* (Frederickson & Baxter, 2009) were used in data collection.

The *Psychological Sense of School Membership (PSSM) Scale* is a self-reported instrument developed to assess the sense of school belonging. It consists of 18 items covering student perceptions of liking, personal acceptance, inclusion, respect, encouragement for participation and response from peers and adults in school. Students are required to respond to each item using a five-point scale ranging from 'Not at all true' to 'completely true.' The *Belonging Scale,* developed by Fredrickson is an adapted version of the *PSSM Scale*, reduced from 18 to 12 items. In this measure, students are asked to rate statements such as 'I feel really happy at my school' on a three-point response scale: 'No not true', 'Not sure' and 'Yes true.' These two scales were chosen to establish if the intervention had positive outcomes in terms of school belonging and connectedness. The midpoint of 3.0 can be regarded as the 'tipping point', below which a student is more negative than positive in their responses regarding school belonging. Goodenow (1993) suggests that students scoring below this point may be regarded as 'potentially at risk in terms of their social inclusion or commitment to education.'

The educational psychologist who co-designed the intervention maintained a log of conversations and observations throughout the intervention. This was reviewed by the researcher and findings from this qualitative data are also presented in the findings section below.

Ethical Considerations

The educational psychologist (who is also a musician) and the researcher who undertook this project developed consent procedures. The school's Music teacher and Principal's consent were also built into the project design through discussion in the planning, delivery and evaluation phases. Students and parents gave their written consent. Letters of consent for both students and parents were sent home with students so as to minimize the chance of peer pressure. To allow for any potential literacy issues the Home School Liaison teacher was available to meet with parents to discuss the project and helped with obtaining written consent, where needed. There were no incidents of parents not wishing to provide consent or not wanting their children to take part in the study.

FINDINGS

Student responses to both measures were collated pre- and post-intervention and revealed the following:

Table 1. Scores from the Psychological Sense of School Membership (PSSM) Scale

Ethnic Group	Average PSSM-Pre intervention	Average PSSM-Post Intervention	Difference
Traveller (n =7)	3.11	3.29	+.18
Non Traveller (n=12)	3.29	3.34	+.05
Both Groups (n=19)	3.23	3.32	+.09

Table 2. Scores reported from the Belonging Scale

Ethnic Group	Average Belonging-Pre Intervention	Average Belonging-Post Intervention	Difference
Traveller (n =7)	2.39	2.64	+.25
Non Traveller (n=12)	2.45	2.75	+.3
Both Groups (n=19)	2.43	2.71	+.28

As can be seen in Tables 1 and 2 above the Traveller PSSM and Belonging average pre intervention score were lower than non-Traveller. Both groups' scores were higher post intervention on the PSSM and the Belonging. The increase in PSSM was greater in the Traveller group than in the non-Traveller group. The increase on the Belonging scale was higher for non- Travellers than for Travellers.

Qualitative Findings

Many of the students expressed their enjoyment of the musical intervention and talked to the psychologist about the parts they enjoyed the most. All of the classes were enjoyed by the students and they also commented on how different the classes were, compared to their usual music classes. Many of the students talked about their enjoyment of hearing a '*famous musician who is on You Tube*' perform (referring to one of the professional musicians) and enjoyed being able to ask questions following his performance. One student reported that '*it all started with him learning to play the tin whistle. I'm learning the ukulele.*'

The students from the Traveller Community expressed a strong positive reaction to the visit from the professional musician who was a member of the Traveller

Community and commented that he was '*a Traveller himself and was able talk to us and he knows our families*.' This musician invited students who played a traditional instrument to join in with him as he played and he was also joined by a 6th Year student from an adjoining school who played the bodhrán. During his performance with the students, the musician spoke to the students from the Traveller Community with honesty and sincerity, with comments such as '*I am like you'*, '*it is great to have this work in school',* and '*Education is very important and without it, you can't get on in life so stay in school and do your work and do what your teachers ask you to do*.'

The students also expressed their enjoyment of having cakes and buns at the end of some classes and commented '*we don't get this every day'*. Some members of the school staff were available to attend the 'live concerts' and commented that they had noticed student school attendance was better on the days when a music class was taking place.

DISCUSSION AND CONCLUSIONS

The results of this intervention found that the use of a musical intervention resulted in higher post-intervention scores on two measures of school belonging for Traveller students and their non-Traveller peers. Given the literature which links sense of school belonging with improved educational outcomes and resilience, this finding gives cause for optimism and suggests that interventions that included music and a Traveller culture focus benefitted all students in the class. The findings that both Traveller and non-Traveller students' sense of school belonging improved is an interesting outcome and may go some way to addressing the issues identified by Watson et al. (2017) in their report written for the Economic and Social Research Institute (ESRI) which highlighted the tensions between the mainstreaming approach and more targeted intervention, and the risks inherent in both approaches. This study exemplifies how flexible delivery of a curriculum in a mainstream school can enable the inclusion of all students and positive outcomes in relation to sense of school belonging for all students in a class group.

With the exception of Nugent's (2010) work on literacy there is little research on '*what works'* for Traveller students in Irish schools. Much of the literature focuses on problems rather than practical school-based low-cost interventions. In addition, very little research on this population uses measures of wellbeing or school belonging. Replication of this study and additional research which includes creative approaches may well go some way to enabling our education system

to become a place where Traveller students want to be and where they can see themselves represented in the curriculum. This positive sense of belonging may lead to improved experiences and better retention rates and successful education outcomes for this community. Consideration by school systems of how to adapt so that Traveller students' sense of belonging is equal to their non-Traveller peers has the possibility of far-reaching consequences in terms of educational achievement.

In terms of future methodology the use of a control group, inclusion of parents, gathering of the teachers' perspectives and the gathering of attendance data are suggested. It would also be interesting to explore the possible impact of more 'nurture' practices such as preparation of meals and eating together. In addition, observation information indicates that students valued the intervention so increasing the student voice in data gathering could yield important insights. Given the dearth of research in this area and the increased focus on student wellbeing in schools, even with its methodological constraints, the authors feel that research such as this, which incorporates Traveller based music into the Music curriculum and measures school sense of belonging is valuable. Research such as this could lead to increased knowledge and improvement in Traveller students' experience of school and in turn their overall wellbeing and educational outcomes.

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APPENDIX A: CONTENT OF LESSONS

Activities and workshops were provided during the 10-week intervention. Activities and workshops were scheduled for a double period on the school timetable. It was not possible to provide refreshments after every workshop as students were required to attend their usual classes, however food was provided on four separate occasions, including following workshops given by the two professional musicians.

Sessions included a combination of the following;

- Samba drumming. This was chosen as it is an exciting form of music to play using djembe drums. The students enjoyed this aspect of the project, they developed an awareness of playing as an ensemble and enjoyed the opportunity to play an instrument that they had not seen before. An unforeseen positive outcome was the School Principal inviting the participants to perform a piece of rhythmic music for the school's 6th Year Graduation Ceremony.
- Choreography. A dance instructor was invited to attend one of the workshops and some of the participants took part in a dance class where they were also encouraged to develop their own ideas for a dance routine. Some of the participants chose to create a dance to accompany a samba drumming segment and were encouraged to consider concepts such as the changing dynamics of movement and the implications of moving in relation to another person.
- Vocal workshops and choral development. The music teacher based in the school chose songs for the students to learn and also considered their personal preferences for songs, so as to get some 'buy in' from them. Therefore, songs chosen by the teacher and students tended to be songs from a 'pop-music' genre. A future study would possibly include songs from the repertoire of members of the Travelling Community, local to the school.
- Song writing and recording. In this workshop, the participants were encouraged to experiment, take risks, explore new and challenging opportunities and reflect on the creative process. Engaging in a song writing activity together, allowed participants to develop their own ideas and record something unique and original.
- Guitar and ukulele workshop. These are very popular musical instruments to learn within many school contexts, developed through schools' involvement in the Music Generation Programme. The Music Generation programme has allowed ukulele orchestras to be developed. These instruments were chosen given their accessibility in that students can often play and accompany themselves singing a song, after one lesson.
- Bespoke traditional Irish music ensemble and workshops given by two professional musicians one of whom was a member of the Traveller Community. During these workshops a key learning outcome for the sessions were that the class would understand the contribution of the Traveller community to Irish traditional music. The students were made aware of Pecker Dunne, his connection to Co. Wexford, and his contribution to music. One of the musicians invited to take part in the project was a close relative of Pecker Dunne who told his life story, in particular the role of music and his traveller identity. The songs of Maggie Barry were also referred to during the course of this project.

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The Influence of a Sensorimotor Handwriting Programme on the Emergent Handwriting Development and Motor Proficiency of Junior Infant Children

The focus of this paper is on the influence of a sensorimotor handwriting programme on the emergent handwriting skills and motor proficiency of junior infant children attending DEIS and non-DEIS schools, and on the practice, knowledge and perceptions of their teachers in relation to sensorimotor development.

The study incorporated a mixed methods approach with two phases of data collection. The first phase involved assessment of fine and gross motor skills of 178 children from three DEIS schools and three non-DEIS schools, using the standardised BOT-2 test (Bruininks & Bruininks, 2005). Assessment results provided the rationale for, and informed the adaptation and implementation of, a sensorimotor handwriting programme across the six participating schools. During phase two, the class teachers participated in a professional development initiative, following which they implemented the sensorimotor handwriting programme with the participating children over a 16-week period. Post-implementation of the programme, children were retested using the BOT-2, and semi-structured interviews were employed to gather information relating to changes in teachers' perceptions, knowledge and practice in relation to sensorimotor development and the sensorimotor handwriting programme.

The key findings of this study revealed that children in the DEIS schools entered junior infants with lower motor proficiency than the children in non-DEIS schools, while post-implementation of the sensorimotor handwriting programme, there was no longer a statistically significant difference. What is clear from the participating teachers' responses is that they gained new knowledge and understanding in relation to sensorimotor development and emergent handwriting skills, and that the sensorimotor handwriting programme was positively received and regarded. All ten of the participating teachers reported that children's enjoyment and motivation in relation to handwriting increased.

Keywords: *Handwriting development, motor development, emergent handwriting, Handwriting Programme, infant education*

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RELEVANCE AND CONTEXT

The national prioritisation of literacy development is reflected by the recent revision and implementation of the Primary Language Curriculum (PLC) by the National Council for Curriculum and Assessment (NCCA, 2019). The PLC emphasises the key role that communication, including verbal, non-verbal and print-based communication plays in the lives of young children. Proficient literacy skills, including oral language, reading and writing provide opportunities for children "to engage emotionally, socially, cognitively, imaginatively and aesthetically in relationships and cultural experiences" (NCCA, 2019, p.6). For children to be able to acquire skills of thinking, expression, reflection, critique and empathy, and to develop their own identity and to experience full participation in society, they must become literate (NCCA, 2019).

Despite the evidence in relation to policy and curricular commitment to improving literacy skills at a national level, research in an Irish context relating to the decline of children's motor skills (O'Mahony, Dempsey, & Killeen, 2008) indicates that teachers, particularly those in DEIS settings, are faced with a number of challenges in the junior infant classroom. These challenges include the readiness of children to begin literacy development, in particular in the area of emergent handwriting which is dependent on children's motor proficiency upon entry into school. Findings from a recent research study in Ireland (O'Brien et al., 2015) indicate that the motor proficiency of young people is in decline, with only 11% of early adolescents assessed achieving mastery or near mastery on nine fundamental movement skills including hopping, kicking and throwing by age six. Anecdotally, many teachers note children's poor motor skill competency and a lack of school readiness in relation to the development of emergent handwriting skills upon entry into school.

The Contribution of Handwriting to School Success

Problems with the mechanical aspects of handwriting can negatively influence the writing and academic performance of students in a numbers of ways in the classroom. Firstly, poor motor control will affect a child's ability to write legibly and result in incorrect size or placement of letters, inadequate pencil grip and slow handwriting speed (McGlashan, Blanchard, Sycamore, Blandine-French & Holmes, 2017). Research indicates that as a consequence of poor legibility, readers may be biased in their evaluation about the ideas and quality of a text (Santangelo & Graham, 2016) and written text may be less accessible to others (Graham, 1999). Good handwriting is still regarded by teachers as a sign of academic prowess (Santangelo & Graham, 2016) and a less legible version of a paper will be scored lower than a more legible one, according to research (Graham, 1999).

Secondly, poor motor skills and handwriting skills may impede children's writing efforts by interfering with other writing processes (Graham et al., 2008). Santangelo and Graham (2016, p.226) refer to the *Writer Effect,* which describes how handwriting "consumes an inordinate amount of cognitive resources" until it becomes a fluent and automatic skill. Graham (1992) points out that until children can produce letters with reasonable speed, they are at risk of losing their ideas as a result of their handwriting speed not being 'fast enough to keep up with their thoughts' (p.3). Children experiencing fine motor difficulties are often fatigued by handwritten tasks in school and often take longer to complete their work (May-Benson et al., 2002). This means that they are likely to lose some writing ideas, as their handwriting is often not fast enough for them to record all of their ideas (Graham, 1999).

Finally, the effect of poor fine motor and handwriting skills on academic achievement is highlighted by the significant proportion of the day allocated to fine motor and written tasks in early years' settings (Cameron et al., 2012). Most learning activities in the classroom involve motor as well as cognitive components. Children's self-perception, self-esteem, and motivation are likely to be negatively impacted as a result (Piek, Bradbury et al., 2008; Gaul & Issartel, 2016). Children with strong fine motor skills, on the other hand, have been found to demonstrate higher academic achievement, mathematical achievement and earlier development of reading (Van der Fels et al., 2015; Roebers et al., 2014; Cameron et al., 2012; Grissmer et al., 2010). Research indicates that because handwriting tasks demand integration of the motor and visual processing systems, handwriting fosters children's early literacy skills (Neumann et al., 2012). Children showing competency in handwriting skills have more sophisticated letter knowledge, phonological awareness and spelling competence (Oberer et al., 2018)

while children's word writing skills at the end of kindergarten have been used to predict children's literacy skills, including spelling, reading comprehension and oral reading, by the end of first grade (Oberer et al., 2018).

THE DESIGN OF THE SENSORIMOTOR PROGRAMME

The Sensorimotor Handwriting Programme (Figure 1) is based on the format of the Handwriting Club programme by Melissa Keller (2001). The programme was adapted in relation to the content, the format, the implementation and the accompanying resources. The adaptations to the programme were based on relevant literature in the area (Dinehart, 2014), and the theoretical framework that underpins the research. The key theory that supports an understanding of the multiple and reciprocal influences on children's motor development is Bronfenbrenner's biological theory (Bronfenbrenner, 1979, 1988, 1992; Bronfenbrenner & Evans, 2000; Bronfenbrenner & Morris, 2006). Supporting this framework and offering a lens through which children's sensorimotor development could be considered are Piaget's (1974) cognitivist approach to sensorimotor development and Ayres's (1964, 1972a, 1972b, 1974) information processing approach. Both these theories consider the interaction between the child and the environment as key to development, as well as the biological features of the child. In addition to the theoretical framework, the quantitative data collected during phase one using the BOT-2 standardised test of motor proficiency was used to inform the design of the programme. Incidental conversations with teachers and principals and observational field notes from the testing period during the initial data collection phase also informed the design of the programme.

Dinehart's (2014) review of current research in the area of handwriting in early childhood education informed the design of the Sensorimotor Handwriting Programme in four major ways:

(1) The programme should include explicit handwriting instruction relating to letter form rather than take a purely sensorimotor approach;

(2) The programme should be delivered as early on as possible in the school year to respond to the need to develop 'handwriting readiness' skills for the development of handwriting later in the year;

(3) Individual and specific planning of instruction to meet individual needs and consistent reviewing of student's progress is key to the success of the programme. Therefore, observations of the programme being implemented took place over the 16-week implementation period;

(4) An intervention that was easy to implement and deliver by teachers was noted as a benefit. Therefore, professional development days were facilitated for teacher participants and a user-friendly resource pack were key elements of this programme.

Based on those four key findings from Dinehart's (2014) review of the current research and, on observations and incidental conversations with teachers and principals during the initial data collection phase, the following guiding principles for the Sensorimotor Handwriting Programme were developed.

The programme should:

- be delivered in a mainstream class setting, by non-specialists (teachers) and without the use of expensive equipment
- include a Sensorimotor Handwriting Programme manual and a PowerPoint presentation for the programme to be easily implemented and replicable
- include activities that incorporate the sensorimotor skills that are prerequisites of handwriting: proprioception, visual perception and fine motor skills
- include sensory-based strategies that can be facilitated by non-specialists
- include explicit teaching strategies in relation to letter formation
- be high in intensity and duration
- be evaluative - children to be tested pre- and post-programme using a standardised measure, teacher interviews and parent questionnaires
- take place in an Irish / European context
- be informed by the curriculum (NCCA, 1999), teacher guidelines, and the Primary Language Curriculum support materials for writing (NCCA, 2019)

Figure 1: The Sensorimotor Handwriting Programme

Sensorimotor Handwriting Session Format

1. **Gross Motor Warm-Up Activities (5 minutes)**

   Choose 1 or 2 activities from a selection of activity cards (e.g. crab walk, jumping jacks, balance on one leg, cross crawls)

   - Weeks 1-4: Proprioception
   - Weeks 4-8: Balance & stability
   - Weeks 12-16: Bi-lateral coordination and crossing the midline

2. **Fine-Motor Warm up- Activities (5-10 minutes inclusive of distributing materials)**

   Choose an activity per group / per child each day making sure that all activities are covered over the course of the 16 weeks.

   - 4 weeks: Clay, therapy putty, silly putty, play-doh
   - 4 weeks: Clothespin games, tongs, tweezers, chop sticks
   - 4 weeks: Interlocking construction games, mega blocks, lego, links
   - 4 weeks: Squeezy toys and materials, foam balls, rubber balls , popping bubble wrap

3. **Visual Perception Work (5 minutes)**

   Complete one worksheet per session. Worksheets cover the following skills

   - Form and constancy
   - Visual discrimination
   - Visual Closure
   - Visual Sequencing

Figure 1: The Sensorimotor Handwriting Programme (continued)

4. **Letter Introduction (2-3 minutes)**

   - Teacher models writing the letter on the board and describes the steps (can use Jolly Phonics here)
   - If not introducing letters yet, explicit modelling of pre-writing patterns
   - Students imitate by writing in the air using large arm movements and repeating the steps aloud
   - Students the continue to say the steps while writing on the table with pointer finger

5. **Guided Practice (10 minutes)**
   - Write on board
   - Write on another students back and have him or her guess the letter
   - Write on large sheets using a range of materials : colour change markers, scented markers, battery operated pens, paint, chalk, finger paint, shaving foam.
   - Write in sand, rice, lentils, glitter bags

6. **Semi-independent practice (5-10 minutes)**

   - Write in handwriting copy or sheet with teacher monitoring

7. **Independent Practice Homework**

METHODOLOGY

A mixed methods approach, often aligned to the pragmatist paradigm, appeared to be the most suitable methodology in terms of this research study. Pragmatism is focused on framing or answering the research question or problem (Clarke & Visser, 2019; Biesta & Burbules, 2003). It uses a variety of methods because they are fit for purpose. This study therefore employed a mixed methods approach, drawing on both qualitative and quantitative methods of data collection. Mixed methods are effective in addressing multiple research questions that cannot be satisfactorily answered by a singular approach.

Phase one of this research study employed a largely quantitative approach. This phase of the study sought to identify a baseline measure of motor proficiency of 178 junior infant children across six schools, three DEIS schools and three non-DEIS schools in the Dublin area, using a standardised test of motor proficiency - the Bruininks-Oseretsky Test of Motor Proficiency (BOT-2), (Bruininks & Bruininks, 2005). Once a baseline measure across all schools was identified, the researcher sought to compare measures of motor proficiency across DEIS schools and non-DEIS schools. Throughout this initial data collection phase, the researcher also made qualitative field notes based on observations of the children in each school, and based on incidental conversations with teachers and principals in each school.

Phase two of this research study employed a mixed methods approach, whereby both qualitative and quantitative approaches were used. Phase two involved the adaptation of, and the implementation of, a sensorimotor handwriting programme (Keller, 2001). The sensorimotor handwriting programme, described in more detail later, was informed by the data gathered in phase one, and supported by the relevant literature.

The sensorimotor handwriting programme was implemented by 10 junior infant class teachers in all six schools of the 178 participating children from phase one. The programme was implemented over a 16-week period (October 2018 - March 2019). During this phase, the necessary supporting resources for the implementation of the sensorimotor handwriting programme were planned and produced. The teachers of the participating children from phase one attended two professional learning days (October 2018, January, 2019), in relation to delivering the sensorimotor handwriting programme during this second phase of the study. The initial training day (October, 2018), happened prior to implementation of the programme and the second training day (January, 2019), took place at the halfway point, 8-weeks into implementation of the programme. Throughout the 16-week

implementation period, the researcher visited each site on one occasion to observe the research participants (teachers and children), engaging with the sensorimotor handwriting programme.

Post-implementation of the programme, a quantitative approach was employed for the second time, whereby all of the participating children were retested using the same standardised test of motor proficiency – the BOT-2. This second testing period took place throughout May and June 2019. Post-implementation of the programme, a qualitative exploratory approach was also taken, whereby semi-structured interviews were conducted (June 2019), to explore the knowledge and understanding of the participating teachers of the participating children, in relation to motor development and emergent handwriting skills. The semi-structured interviews were used also to determine the perceived efficacy by teachers of the sensorimotor handwriting programme. Ethical considerations were addressed carefully throughout each phase of this research study. The researcher was guided and informed by the DCU Ethical Guidelines and received ethical approval from DCU's ethical governing body in May, 2018. Figure 2 overleaf illustrates the overall research design for this study.

Figure 2: Research Design of the Study

Figure: Research Design of the Study

FINDINGS AND DISCUSSION

The quantitative findings for this research study show that the mean standard score for motor proficiency of all of the participating children across the six schools improved post-implementation of the programme. The mean standard score for all participating children across all six schools increased from 45.1718 pre-implementation of the programme to 47.7178 post-implementation of the programme. Qualitative findings support the statistical data, with all ten of the participating teachers reporting that children's motor skills and emergent handwriting skills had improved post-implementation of the programme.

All of the participating teachers in the study reported that children's motivation, enjoyment and confidence significantly improved as a result of engagement with the sensorimotor handwriting programme. Research in the area of motivation and writing largely focuses on motivating children to engage in the cognitive processes of writing (Boscolo & Gelati, 2019; Bruning & Kauffmann, 2016; Kaplan & Patrick, 2016), rather than on the mechanical process of handwriting. This research study adds to current research in that it highlights specific elements of the sensorimotor handwriting programme detailed below, that teachers believed improved children's motivation to engage in handwriting tasks and subsequently their enjoyment and their confidence in relation to handwriting.

Resources and Materials

In particular, teachers referred to the variety of materials and the types of activities, believing that these were influencing factors on children's motivation, enjoyment and confidence. Participating teachers (Isla and Hannah, School E) reported that children "cheered" when it was time for the handwriting session and that handwriting was "now their favourite thing".It emerged from the qualitative data that using a variety of new and novel writing tools was a contributing factor to children's motivation and enjoyment in relation to handwriting sessions. Making handwriting time a 'discreet time' with 'discreet materials' appeared to have added to children's enjoyment of the sessions. During the professional development days, teachers were issued with a box of handwriting materials and asked to use the box only during the handwriting sessions, rather than making it available to children throughout the day or for free play time. This appeared to be an additional contributing factor in children's enjoyment of the sessions, with one teacher reporting that "they are always asking when they are using (researcher's name) stuff".

A further significant finding in relation to children's improved confidence was the inclusion of blank pages for practice writing as part of the programme. All

of the participating teachers reported that the children loved using blank pages to mark make. Teachers stated that they had not previously used blank pages, rather they had used copybooks from the beginning of the year and throughout the year. The 'Guided Practice' step of the programme encouraged children to explore blank space using a variety of materials, before moving to the next step (Semi-independent Practice), which was to write the letters into their copies using their pencils. The purpose of the Guided Practice step was to provide an opportunity for children to explore and play with mark making, in a manner which was free from expectation. Research supports the idea of invitation versus expectation and allowing children some freedom to create. The blank page "presents children with an invitation to make meaning" as opposed to an expectation (Trehearne, 2011, p. 26) All of the participating teachers reported that they would continue to use blank pages for those children who were not developmentally ready to move to copybooks, and that this was helpful in providing those children with opportunities to succeed rather than fail.

Play-based versus instructional teaching and learning

The participating teachers also referred to the range and type of activities as a contributing factor to children's enjoyment and motivation. One teacher stated that "I *definitely* don't think the interest would have been as high…without all the different activities". The programme activities and tasks were largely play-based activities that included an instructional element. It appeared from an analysis of the qualitative data that the activities being both play-based and instructional was a key contributing factor to the success of the programme. One teacher noted how her perceptions of play-based learning had changed. She suggested that she would feel "almost like a guilt" in allowing children to play with playdough for a prolonged period of time. The programme however added focus and structure to what she would have regarded as 'free-play' with the playdough. She gained a new awareness of how to integrate direct instruction into play-based activities, and how to scaffold development by being more aware of the specific components of motor development while observing children playing with the playdough. She noted which children were able to roll and to pinch the playdough and how they were seated during the activity and was enabled to extend and develop learning by providing feedback and offering prompts. This finding is significant in that it illustrates a potential misconception about play-based learning and the role of the teacher during play.

IMPLICATIONS FOR PRACTICE

1. *Video clips of programme in action:* The addition of video clips illustrating each stage of the programme would be beneficial to teachers in implementing the programme. Video clips would clearly outline the teaching points for each stage, and help to draw teachers' attention to the specific motor skills that the programme aims to develop. The researcher aims to develop these video clips over the next year as part of the sensorimotor handwriting programme, and they will be made available to teachers on a CD Rom as part of the whole programme package.

2. *Sensorimotor Handwriting Programme:* Teachers benefited from having a discreet list of activities and resources that promote motor development. Handwriting programmes should describe specific activities and resources that are easily replicable for teachers to implement in the classroom. Handwriting programmes should include a teachers' manual that shows an image of the activity and that outlines the key teaching points associated with the activity.

3. *A Balanced Approach:* An approach to teaching handwriting that incorporates playful pedagogy and explicit instruction is effective. A handwriting programme should address children's fine and gross motor skills and visual integration in a fun, enjoyable and playful manner. Children should be provided with opportunities to explore and to develop confidence in relation to emergent handwriting skills. The use of blank pages instead of copies is effective in motivating children in the early stages of mark-making. Children should also be provided with opportunities for formal writing in copybooks, with explicit instruction and feedback in relation to letter formation.

4. *Wider Implementation of the Programme Across Schools:* Informed by the findings of this research study, it is recommended that the final iteration of the sensorimotor handwriting programme should be implemented in the infant classroom in all schools. For this to happen, the programme would be finalised to include a Teachers' manual, a CD Rom with video clips to demonstrate the fine motor and gross motor activities and a pupil Visual Perceptual Skills workbook. The researcher would carry out a number of webinars relating to the implementation of the programme through the Education Centres across the country. There is potential also to build a network of teachers whereby those who were involved in this research study could work with a cluster of teachers in their own geographical areas. To date, the researcher has revisited two of the participating research schools to work with the participating teacher to upskill other teachers in the schools in relation to the implementation of the programme going forward.

FURTHER RESEARCH AND CONCLUSIONS

This study sought to explore the interplay between young children's sensorimotor development and their emergent handwriting skills. In particular, it focused on how teachers employed a sensorimotor handwriting programme in the junior infant classroom to address the emergent handwriting needs of young children. Stemming from this research, a number of areas for further research were identified:

1. Children entering junior infants in DEIS schools have lower levels of motor proficiency than children in non-DEIS schools. The sample for this study was relatively small, however, involving six schools confined to the Dublin area and 178 children. It would be beneficial for this study to be replicated with a larger sample of students across a range of contexts on a national level.

2. Findings from the research suggest that the sensorimotor programme was impactful in relation to children's enjoyment, motivation and confidence in relation to handwriting. The evidence for these findings was based on the participating teacher's perceptions of children's enjoyment, motivation and confidence. Further research focusing on the child's voice could be conducted in relation to the efficacy of the programme.

3. This research indicates that the role of preschools is critical in relation to children's motor development and handwriting development. Participating teachers suggested that early childhood education teachers might benefit from further training or upskilling in these areas. Further research would be beneficial in establishing the need for motor skills and handwriting development with early childhood educators. Further research could also explore the current knowledge, perceptions and practice of early childhood education teachers in relation to motor development and handwriting development.

4. Findings from the research suggest that the sensorimotor handwriting programme was effective in improving children's proficiency in the areas of motor development and handwriting development. While the BOT-2 was employed to support the qualitative findings in relation to children's motor proficiency, the BOT-2 did not provide evidence for improvements relating to children's handwriting. Further research examining the efficacy of the sensorimotor handwriting programme on handwriting using more scientific methods of data collection would be beneficial.

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CONTENTS

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CONTENTS VOL. 36. 2 2023

Journal of the Irish Association of Teachers in Special Education