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THE NATIONAL UNIVERSITY OF IRELAND
MAYNOOTH

Froebel Department of Primary and Early Childhood Education

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How Can I Effectively Teach Cursive Handwriting to Junior Infants?

Sinéad Cahill

A Research Dissertation submitted to the Froebel Department of Primary and Early Childhood Education, Maynooth University, in fulfilment of the requirements for the degree of Master of Education (Research in Practice)

Date: 25/9/20

Supervised by:

Niamh Fortune

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ABSTRACT

This thesis aims to find ways in which cursive handwriting can be taught to junior infant pupils in an effective and child-centred manner, reflective of my ontological and epistemological values. Prior to embarking on this study, I was struggling to teach cursive handwriting to my junior infant class, as per our school policy. I felt torn and disoriented by the complexities and intricacies of teaching children in their first year of school how to read in one font, write in another and to make the appropriate connections between both. I found myself teaching in a traditional and rote way, disregarding my Froebelian values of collaborative learning, enjoyment in learning, and all children receiving what they need to succeed to the best of their ability. This led to my research question; how can I effectively teach cursive handwriting to junior infants?

Self-study action research was the most suitable approach for this study, allowing me to investigate my practice as a teacher-researcher, while accounting for my pupils as participants. Eighteen pupils, aged between 4 and 5 years old, participated in the study. The intervention involved examining the effects of various teaching methods for cursive handwriting, reflecting and making observations on their effectiveness, or lack thereof, in my teacher reflective journal and triangulating data with accounts and work samples from my pupils.

The findings suggest that children benefit from an approach to initial handwriting instruction focused on process and effort. The children were of a wide range of abilities and therefore an emphasis on the formation of perfect letters was unfair. Instead, focusing on, and praising the effort the children made in the process of letter formation meant every child could be successful. The children needed regular and varied handwriting practice, including a mix of tracing and blocked practice. Finally, designing a cross-age peer tutoring program for handwriting, which I named Pencil Pals, proved to be a highly effective way to teach

cursive handwriting to junior infants. Pencil Pals provided the children with an audience, a cursive handwriting role-model and brought handwriting into the social setting.

This study has not only evolved my own practice to teaching cursive handwriting, but also my school's. Due to the success of Pencil Pals in my classroom, it was implemented as a school-wide approach. I feel well equipped to teach cursive handwriting effectively to junior infants, in such a way that is reflective of my values. I also feel prepared to continue to engage in informal action research, identifying areas in which I am not teaching to my values, and through reflective practice, continually improving my teaching.

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To my supervisor, Niamh Fortune, thank you for the constant guidance, feedback and support you have provided me throughout this year.

I would like to thank the Board of Management of my school for enabling me to carry out this research. Thank you to the staff of the school, especially those colleagues who acted as critical friends and formed validation groups, your advice and words of encouragement proved invaluable throughout this process.

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"Well, it's, well, if you write you'll, you'll get the hang, you will feel like an adult and you'll think you're ready, a whole book, you can, if you're ready"

"And do you think you will be able to write a book? You think so?"

"Yeah"

Una*, 9/03/2020

*pseudonym

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LIST OF ABBREVIATIONS

AC1	Action cycle one
AC2	Action cycle two
AC3	Action cycle three
AR	Action research
CF	Critical friend
CH	Cursive handwriting
FMC	Fine motor control
GRR	Gradual Release of Responsibility
HLS	Handwriting Legibility Scale
MH	Manuscript handwriting
NCCA	National Council for Curriculum and Assessment
NCSE	National Council for Special Education
PLC	Primary Language Curriculum
PT	Peer tutoring
TRJ	Teacher reflective journal
VMI	Visual motor integration

1 INTRODUCTION

Cursive handwriting (CH) was the primary handwriting script taught in Irish primary schools until the 1960's when it was abandoned in favour of teaching a script more akin to that which children were learning to read (Culligan, 2009). Many schools now favour the initial teaching of manuscript handwriting, introducing CH at a later stage (NCCA, 2012). However, some schools, including that in which I work, teach solely CH from junior infants, a decision supported by the National Council for Curriculum and Assessment (NCCA) (2019a). Initially, teaching older classes, I was not concerned by the school's handwriting policy. This changed last year when I began teaching junior infants. I struggled to teach young children to learn to read in one font, write in another and to make connections between both. As a result, I found myself teaching in such a way that was not reflective of my values. I will now examine my values, and the discrepancy between them and my practice, leading to my research question.

1.1 Research Background, Context and Intervention

"Action research begins with values. As a self-reflective practitioner you need to be aware of what drives your life and work, so you can be clear about what you are doing and why you are doing it" (McNiff, 2002: 13). I began this study by identifying and examining my values. I knew that I wanted to ensure that my classroom was child-centred and one in which all children got what they needed to reach their full potential. I value fun and enjoyment in a classroom and the importance of the community. I reflected on a particularly difficult year earlier in my teaching career, the one I would name as having been the most challenging, yet the most impactful on my identity as a teacher (Kelchtermans, 2009). The children in the class were experiencing a wide range of difficulties, be it struggling emotionally, socially or academically with difficult home situations. During this year my role as their teacher was stretched far beyond teaching the curriculum. The children in this

class required more than just an academic education to succeed. My priority became their wellbeing.

Froebel values the importance of the relationship between the individual and their community, whereby an individual's uniqueness enriches the community and in return "individuals gain a sense of belonging and connection from the community" (Tovey, 2020: 6). It was during this year that my Froebelian-based core values of the importance of community, collaborative learning, enjoyment in learning and each child receiving what he/she/they need to succeed became solidified. Instead of focusing solely on the curriculum and ticking boxes, I focused on ensuring my classroom was a safe, child-centred, collaborative environment, where the children got enjoyment from learning. By doing so, I hoped that each child felt that they belonged, and that their needs were met. I hoped this would have a long-term impact on the children's learning and engagement in education.

Further probing and consideration allowed me to recognise that my ontological values lay in each person being a unique individual with his/her/their own strengths and weaknesses (Arendt, 1998). I see the community as being important to each individual. When people find themselves amongst those who can recognise and celebrate their strengths, they will thrive. My epistemological values are reflective of my Froebelian training, recognising value in the learning community, collaborative learning, the importance of enjoyment in education and that education should meet the child where they are at (Bruce, 2012). I believe that when learners find themselves in a community in which their strengths are celebrated and their weaknesses are supported, they can reach their full potential. Investigating and considering my values highlighted a discrepancy in my practice. While I was proud of and confident in my Froebelian-based epistemological values, they were not apparent in my approach to teaching CH.

1.1.1 *Research Question*

In considering my practice I immediately recognised myself as being a "living contradiction" (Whitehead, 1989: 41). The year prior to this research I began teaching junior infants and became extremely frustrated with the school's CH policy. The young children in my class struggled with the motor movements needed for CH. They did not enjoy handwriting lessons. Despite being instructed in CH exclusively, some children continued to write in manuscript handwriting. CH lessons became something I dreaded every day and as a result, they became no more than a conclusion to phonics lessons. After the letter sound was introduced, I modelled the formation, followed by the children tracing faded forms in their copy repeatedly. This practice was by no means reflective of my values. Lessons were rote and traditional, replicating how I had been taught handwriting, and as such, reflected a fundamentalist approach (Halpin, 2003). Unfortunately, this approach to teaching handwriting was far from collaborative, the children did not enjoy them and each child was not receiving what they needed to succeed in CH.

On reflection, I did not have faith in my school's CH policy at that time. I was unsure of the benefits of CH and felt it was too difficult to teach to young children beginning school. However, my response to this was fatalistic (Halpin, 2003). Instead of being proactive in my teaching, I had decided CH was too difficult and, as a result, did not commit myself to teaching it to the best of my ability. As is well stated by Greene, "once we can see our givens as contingencies, then we may have an opportunity to posit alternative ways of living and valuing and to make choices" (1995: 23). I realised I had an opportunity to consider alternative and more effective ways to teach CH, that were living more to my values. This led me to my research questions:

- How can I teach CH effectively to junior infants?
- How can I teach CH in such a way that is reflective of my values?
- How can I ensure my junior infants feel successful in CH?

Once I had analysed my values and realised I was a living contradiction, I knew I needed to take action. Action research (AR) was the most appropriate paradigm for me as a teacher-researcher. The context in which this research took place will now be outlined.

1.1.2 *Research Context*

This research took place in my junior infant classroom in a junior national school in North County Dublin. Following ethical approval from Maynooth University, I received approval from the Board of Management of my school. I received assent and consent from 18 pupils and their parents to participate in this study. The children participating in this study were 4-5 years old.

1.1.3 *Intervention*

The purpose of this study was to find ways in which I could effectively teach CH to junior infants that was more in line with my values. I designed a research intervention during which I collected both quantitative and qualitative data. The intervention was designed based on literature pertaining to the teaching of handwriting. It involved regular CH practice in my classroom, during which I implemented a number of teaching methods. Throughout the process I kept a teacher reflective journal (TRJ) in which I used Borton's framework (1970, cited in Rolfe, 2014) (see Appendix A). Considering the reflexive thinking in my TRJ, along with qualitative and quantitative data I collected from the children, I analysed the effectiveness of varying approaches to teaching CH in my classroom. As I used the action research (AR) paradigm, my practice was continuously evolving. For the second part of the intervention, my pupils were paired up with a second class tutor in order to enact cross-age peer tutoring for CH. Data collected throughout the intervention will be analysed and presented in Chapter 4.

I will now examine the relevance of handwriting and research into handwriting in today's technologically advanced world.

1.2 The Value of Handwriting

In recent years, the value placed on handwriting as a skill and, as a result, the focus on the teaching of it in schools, is in decline (Cahill, 2009; Horstmeyer, 2015). Research suggests this is due to the emphasis that is being placed on technology (Blazer, 2010; Dinehart, 2014; Jones, 2017). However, handwriting is still of great value to the pupil, not just in school, but as they progress to college and the workplace (Feder & Majnemer, 2007; Ryff, 2018).

Literature suggests that developing good handwriting skills corresponds to later academic achievement. A neurology study by James and Engelhardt (2012) examined the effects of handwriting experience on functional brain development in pre-literate children. They found that handwriting assisted the child with letter processing. When compared to tracing shapes and typing, only handwriting activated the "reading circuit" area of a child's brain (James & Engelhardt, 2012: 32). Similarly, Longcamp et al. (2005) found training older children in handwriting assisted their letter recognition significantly more than keyboard typing. Frangou et al. (2019) found that handwriting leads to better recollection of what is written than keyboarding does. By the same premise, Graham et al. (2020) found that writing to learn enhanced children's learning in science, social studies and maths.

While it is clear that there is still need for handwriting instruction in schools, there is much debate as to which style of handwriting should be taught. The phrase CH can be used to describe a wide range of penmanship. For the purpose of this paper cursive will be used to describe writing whereby the letters are "joined-up" (Roldán et al., 2018: 287). This style of handwriting can also be referred to as script and joined writing. It must be noted that our school policy states that junior and senior infants learn the formation of the letters, with a lead-in and lead-out, but do not join them until first class.

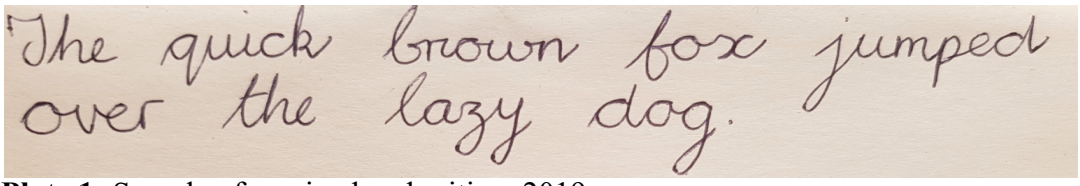


Plate 1: Sample of cursive handwriting, 2019
Source: Cahill, S. (2019)

Manuscript handwriting (MH) will be used to describe the style of handwriting with "individual unlinked or ball and stick letters" (Schwellnus et al., 2012: 248). MH can also be referred to as print.

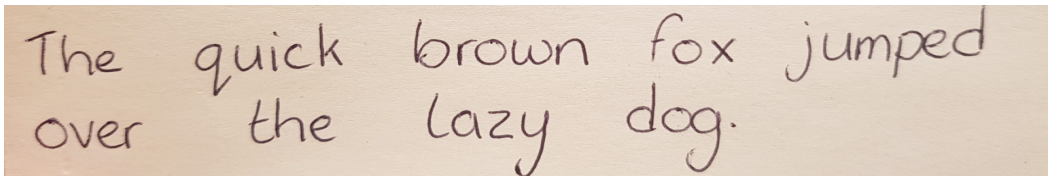


Plate 2: Sample of manuscript handwriting
Source: Cahill, S. (2019)

The arguments both for and against the teaching of CH will be examined throughout this thesis. I will now outline the format of this study.

1.3 Format of this study

This thesis consists of five chapters. In Chapter 2, Literature Review, I will examine relevant literature exploring the advantages of teaching CH. Following this, researchers' opinions of when CH should be introduced will be outlined and discussed. Various international approaches to the teaching of CH will be explored, followed by examining CH in the Irish context. Next, the various skills needed for handwriting will be outlined along with handwriting in the early years' context. To conclude, I will review literature regarding effective methodologies used to teach handwriting.

Chapter 3, Methodology, compares the various educational research paradigms and provides justification for choosing the AR paradigm for this study. I will outline the research design for Action Cycle 1 (AC1) and Action Cycle 2 (AC2) and the literature on which they were founded. I will discuss the use of a TRJ, work samples, accounts and observations as appropriate data collection instruments for this study. Thematic analysis of the qualitative data, as well as the methods of quantitative data analysis employed in this study will be

outlined. To conclude Chapter 3, I will examine the various ethical issues that were considered, particularly when working with such a young study group.

Chapter 4, Data Analysis and Findings, will present and analyse the data collected throughout this AR project. The findings will be presented as the three main themes that emerged through the thematic analysis. Both the qualitative and quantitative data will be presented and analysed through a series of sub-themes. Unfortunately, due to the COVID-19 pandemic, this study was cut short. To conclude Chapter 4 a detailed plan for the final action cycle of the study will be outlined.

Chapter 5 is an Overall Review and Conclusion. In this chapter each of the findings will be discussed in relation to my research question; how can I effectively teach cursive handwriting to junior infants? Limitations of the study will be outlined, along with recommendations and suggestions for future studies. I will reflect on the messiness (Schön, 1983) that arose through engaging in the AR process. Finally, the various implications of this study for myself, my school and the wider education community will be discussed.

1.4 Summary

This chapter introduced my AR study on how can I teach CH effectively to junior infants. The topic of CH was introduced, with a brief overview of its relevance in the educational world today. I introduced my values and how examining my practice led to my choice of research topic. I gave a brief outline of the context in which the study took place and an overview of the intervention. The next chapter will examine the relevant literature pertaining to the benefits of teacher CH.

2 LITERATURE REVIEW

This chapter examines literature pertaining to the teaching of CH in primary school. It will examine the benefits of teaching CH, analyse research regarding when CH instruction should begin, compare approaches from a number of countries and the current approach in the Irish context. Following this, the skills needed for handwriting will be explored along with the development of handwriting in young children. To conclude, various approaches to teaching CH will be discussed.

2.1 The Cursive/Manuscript Debate

There is much debate regarding which script children benefit from most. Researchers opposed to teaching CH argue that MH is simpler, allowing teachers more time to provide support to their class (Blazer, 2010; Oya Taneri & Akduman, 2018). However, advocates for CH believe that there are many benefits to the cursive script.

2.1.1 *The Benefits of Teaching Cursive Handwriting*

One well-documented advantage of CH is that the physically connecting letters allow the writer to memorise the motor sequence that creates the word (NCCA, 2012; Semeraro et al., 2019). CH advocates suggest these connections assist children with their spellings (Blumenfeld, 1994; Culligan, 2009). Findings in a recent study by Alstad et al. (2016) support this, finding that when compared to MH and keyboarding, only CH positively predicted both spelling and composing for children aged 9 to 13. Morin et al. (2012) found children who learned to write solely CH demonstrated better syntax and improved word production than children who learned solely MH, or those who learned both scripts. Interestingly, while these studies shed a positive light on CH, they both found MH was a better predictor of speed (Morin et al., 2012; Alstad et al., 2016).

Blumenfeld (1994) hypothesised that the benefits of CH would extend to assisting the reading process as "knowledge acquired by the hand is transferred to the reading process" (Blumenfeld, 1994: para. 13). Semeraro et al.'s (2019) study supported this, finding that

children who learned solely CH in their first year of school made further progress in reading than those who learned both MH and CH. However, this study did not consider children who had learned solely MH, which may have been a fairer comparison to those who learned solely CH.

The natural movements involved in CH mirror scribbles and patterns made in early writing and the NCCA (2012, 2019a) suggests this assists children with their writing fluency. Conversely, findings by Weiss et al. (2019) indicated that pupils who wrote in CH were more likely to have lower fluency scores. However, the children in the study who wrote in CH initially presented with low fluency scores, meaning it is unclear whether the minimal improvement they made through the study is a reflection of the script or the children's ability.

Unfortunately, many studies examining the benefits of CH, such as that by Alstad et al. (2016) and Weiss et al. (2019), compare pupils who initially learned MH, being introduced to CH later in their schooling, to children who have learned solely MH from school start. Despite this, Alstad et al.'s (2016) study still reflects favourably on CH instruction. There is need for further studies, such as that by Morin et al. (2012), which compares pupils who have learned solely CH to those who have learned solely MH. Interestingly, this fairer comparison by Morin et al. (2012), found that different handwriting scripts (MH and CH, MH exclusively and CH exclusively) had different effects on writing development, but overall found there to be more advantages to learning the cursive style exclusively. Yet, even when there is a fair comparison made, Wolf et al. (2017) highlights that it can be difficult to find groups of children in which the only factor that varies is their handwriting style. There is a clear need for further studies comparing CH and MH, whereby the children compared have only been instructed in one style.

2.1.2 *Cursive Handwriting for Children with Special Educational Needs*

While there is need for further studies regarding the manuscript/cursive debate, researchers suggest CH is particularly valuable to children who have dyslexia, dysgraphia or fine motor difficulties.

The National Council for Special Education (NCSE) (2019) advocate CH for children with dyslexia. This is not only because it aids spelling, but researchers also believe the distinctive letter shapes help children to avoid letter reversals, assisting those with dyslexia to read with more ease (Blumenfeld, 1994; Culligan, 2009; Montgomery, 2012; NCCA, 2012; Klemm, 2013).

The NCCA (2012) suggests that CH places less demand on the child's physical abilities as it minimises the frequency the pencil is lifted from the page. This benefits children encountering fine motor difficulties and those with dysgraphia. The continuous movement also ameliorates difficulty in knowing the direction, orientation and location of each letter (Montgomery, 2012; Brown, 2019). A study by Pagliarini et al. (2015) contradicted this, finding children who demonstrated motor difficulties found CH more difficult. However, these findings were based on independent writing samples, with children who had initially learned manuscript. In contrast, Arfé et al.'s (2020) study found children with dyslexia and handwriting difficulties performed better when copying sentences in CH rather than MH. The copying task eliminated the impact of spelling difficulties affecting the child's CH. Copying tasks, such as this, may also be more suited to younger children, such as junior infants.

2.1.3 *When Should Cursive Handwriting be Introduced?*

According to the NCCA (2012), some schools choose to teach MH from junior infants to assist children in making connections between their reading and writing, waiting to teach CH until the child is older. In support of this approach, Oya Taneri and Akduman

(2018) suggest it would be better to postpone teaching CH until the child can write fluently, legibly and quickly in MH.

Many researchers criticise this approach, finding that it is best practice to teach one style of handwriting from school entry (Morin et al., 2012; Wolf et al., 2017). It has been proven that as children's handwriting becomes more automatic, the cognitive load is lifted allowing them to focus on the content of their writing rather than the actual skill of writing (Culligan, 2009; Montgomery, 2012; Dinehart, 2014; Limpo & Graham, 2020). This would suggest that introducing a new script, just as the child's handwriting is becoming more automatic, could be detrimental for some. Jones (2017) states that introducing children to both styles results in the mastery of neither, as instructional time is divided between both. Blazer (2010) supports this, suggesting that the transition between styles of writing hinders the child's handwriting development. Morin et al.'s (2012) study discovered that children who learned both manuscript and cursive were less successful in spelling than those who had learned one script exclusively.

While it is clear the majority of studies suggest that children benefit from learning just one script, findings in one study contradicted this. Graham et al. (1998) found that children who wrote in a mix of MH and CH performed better in terms of speed. Interestingly, of the children who mixed scripts, the legibility of those who used predominantly CH was superior. In summary, most studies show that learning one style of handwriting benefits the child's handwriting development, spelling and allows them to focus on their content rather than the skill of writing, while learning both may prove beneficial to handwriting speed.

2.2 International Approach to Cursive Handwriting

Internationally, CH is generally taught at some stage of primary school. The approaches to teaching handwriting from a number of predominantly English-speaking countries, along with countries who have taken a noteworthy approach to handwriting, will now be examined.

2.2.1 *United Kingdom*

The United Kingdom's English Curriculum emphasises that initial focus should be on the child forming manuscript letters to the correct size with the diagonal and horizontal strokes needed to join letters, often referred to as precursive writing (Department for Education, 2013). Non-statutory guidance suggests learning a joined style once children can form the letters confidently.

2.2.2 *U.S.A. / Canada*

In the U.S.A. children generally receive manuscript instruction until 2nd or 3rd grade (aged 7 to 10 years) at which point they are introduced to CH (Graham et al., 2008; Yildiz, 2019). In Canada, it is preferred that children are introduced to CH from school entry. However, this is at the school's discretion (Yildiz, 2019), and Morin et al. (2012) note that most schools in Canada favour manuscript instruction initially.

2.2.3 *Finland*

As of 2015, Finland removed CH from their curriculum in favour of keyboarding (Russell, 2015). Children in Finland learn to recognise all letters of the alphabet and write in uppercase in preschool. When they begin primary school, aged 7, they are introduced to lowercase letters in manuscript, with the emphasis placed on the child being able to write efficiently in MH (Mackenzie, 2017).

2.2.4 *France*

Handwriting instruction in France is taught solely in cursive style (Culligan, 2009). The children begin CH preparation from when they enter kindergarten (Vinter & Chartrel, 2010; Yildiz, 2019). In their first year of kindergarten the children begin to practise loops and waves and writing capital letters. In the second year of kindergarten, usually aged 5-6 years, formal cursive training begins (Vinter & Chartrel, 2010; Arslan, 2012).

2.2.5 *Turkey*

In 2005 Turkey attempted to mimic the French approach of teaching solely CH from the first year of primary school (Yildiz, 2019). However, this attempt received much backlash and the majority of teachers, parents and pupils were dissatisfied with it. Teachers and parents felt unprepared, having no experience of CH. It was abandoned when the curriculum was amended in 2017-2018 (Oya Taneri & Akduman, 2018; Yildiz, 2019).

2.2.6 *Summary*

The literature suggests that the majority of international curricula encourage the introduction of cursive at some stage of a child's schooling. However, when left to the school's discretion, the favoured approach is manuscript instruction initially. While France demonstrates that cursive instruction from school entry can be done successfully, it is clear from examining Turkey's approach, that there is need for a number of supports such as sufficient teacher training, parental support and preparation from kindergarten in order for it to be effective (Oya Taneri & Akduman, 2018; Yildiz, 2019).

2.3 The Irish Context

The Primary Language Curriculum (PLC) (NCCA, 2019b) dedicates one of the nine learning outcomes of writing to handwriting and presentation. This is an improvement on the 1999 English Primary School Curriculum which did not make any reference to developing handwriting skills (NCCA, 1999a). Culligan (2009) was critical that the emergent writer was ignored in the curriculum, and also that CH was only mentioned once in the accompanying Teacher Guidelines (NCCA, 1999b). In contrast, the PLC's accompanying support material (NCCA, 2019a) promotes the teaching of CH from junior infants. However, the curriculum itself leaves the choice of script to the school's discretion, until the final progression step, which states the child should be enabled to write in a cursive font. While this suggests that the child should be writing in cursive leaving primary school,

it may result in children who do not reach the progression step receiving little to no cursive instruction.

Despite this, the NCCA has promoted the benefits of CH in many documents. A NCCA (2012) report on literacy encourages schools to teach CH, listing the benefits of the connective nature of the letters and building up word memory. It recognises CH as being beneficial to fluency and therefore important for the child's creation of well-structured compositions. While the PLC (NCCA, 2019b) does not explicitly name a style of writing to be introduced to junior infants, its support material emphasises that introducing CH from the outset will support children to develop in other areas of literacy as they progress.

The skills, early development and teaching methods for handwriting will now be examined.

2.4 Handwriting Skills

Handwriting is a process that demands many skills. It is a perceptual motor skill in that it requires the knowledge of the letter shape and the ability of the hand to form it (Vinter & Chartrel, 2010; Dinehart, 2014). When learning to write, fine motor control (FMC) and visual-motor integration (VMI) are the two main skills that predict handwriting legibility and copying skills (Singpun and Sriphetcharawut, 2019; Taverna et al., 2020). Daly et al. (2003) suggests that it is not until a child is in the second half of their first year of school that they are ready for handwriting instruction. Therefore, Ohl et al. (2013) suggests the first half of the school year should be spent developing handwriting performance skills.

2.4.1 *Fine Motor Control*

FMC involves gaining mastery of the fine muscles in the hand and is an essential skill in preparing children to write legibly (Culligan, 2009; Taverna et al., 2020). It has also proven to be an indication of a child's later reading and mathematics ability (Carlson et al., 2012; Dinehart & Manfra, 2013). A lack of FMC may impact the child's writing speed, fluency and readability (Hellinckx et al., 2012; Taverna et al., 2020). Culligan (1997, 2013)

emphasises that it is only when a child has adequate FMC they are ready to write. In a study by Ratzon et al. (2007), children who received one 45 minute session per week, involving 10 to 15 minutes of playful fine-motor activities followed by pencil-and-paper practice, made significant improvements in their eye-hand coordination, copying and FMC. Rule and Stewart (2002) found that, while many early-years classrooms were equipped with fine motor activities, it was only when fine motor activities were formally planned and taught that the children's pincer grip improved. This suggests that in order to improve a child's FMC regular, constructed and planned intervention must occur. However, as is highlighted by Limpo and Graham (2020), studies have found little evidence that teaching motor skills alone is of any benefit to handwriting, unless it is taught alongside handwriting practice.

2.4.2 *Visual Motor Integration (VMI)*

VMI is "the ability to coordinate visual perception with finger movements" (Beery et al., 2004: 117). Studies suggest it is the strongest predictor of handwriting legibility and the second predictor of writing performance in young children (Daly et al., 2003; Volman et al., 2006; Taverna et al., 2020). There is a correlation between VMI and the child's ability to successfully copy letters legibly (Weil and Amundson, 1993).

Results from a study by Volman et al. (2006) found that poor VMI processors are related to poor quality of handwriting from children with handwriting difficulties, more so than FMC processors. Beery (1997, as cited in Ratzon et al., 2007) created a VMI test with a number of different shapes presented in a developmental sequence for the child to copy with a pencil and paper. It is suggested that the child is not ready to begin handwriting until they can copy the first eight shapes successfully (Dinehart, 2014). The eighth shape, an oblique cross, is usually successfully copied by a child aged 4 years 11 months. However, Beery (1997, cited in Ratzon et al., 2007) encourages teachers not to wait for children to reach this point before providing children with the opportunity to experiment with a pencil and paper.

2.4.3 *Orthographic Skills*

Orthographic knowledge is "the knowledge about legal letter patterns of a writing system" (Zarić et al., 2020: 1). Berninger (2012) describes an orthographic loop that is vital for handwriting. This involves orthographic knowledge working alongside the motor skill of forming the letter on the page (Puranik & AlOtaiba, 2012).

Using the working memory is at the heart of handwriting as it contains all the information about creating the form. However, it can only store a small amount of information for a short amount of time (Wray & Medwell, 2008). Berninger (2012) stresses that we must teach the children to send the picture of the shape that they hold in their mind's eye to their fingers where it is produced on a page. She explains that there is an initial learning stage to this and that eventually it becomes an automatic process for the child. Limpo and Graham (2020) state that until handwriting becomes automatic, it is a major constraint to the child's writing performance.

Interestingly, Zarić et al. (2020) conducted a study on German primary school students and found that orthographic skills were a greater predictor of reading and spelling skills than previously well-established predictors of intelligence and phonological awareness. This suggests it is important teachers encourage children to become familiar with each letter's form and pattern.

2.5 Handwriting Development

Children need to be prepared and present with a certain level of "readiness" in order to begin handwriting instruction (Oya Taneri & Akduman, 2018: 185). Puranik and Lonigan (2011) state that children learn about writing long before they attend school or receive writing instruction.

2.5.1 *Emergent Literacy- Writing*

'Emergent Literacy' is a term first coined by Clay in 1975, referring to the knowledge children gain in terms of reading and writing prior to receiving formal instruction (Dinehart,

2014). Medwell and Wray (2008) describe emergent writing as children communicating their ideas in an environment where they are encouraged to experiment with the skills they have, without the pressure of having to produce perfectly formed letters. This is encouraged by the Aistear framework (NCCA, 2009).

Young children draw, or build letters, using too many lines rather than write them (Graham et al., 2008; Kandel & Perret, 2015). As they get older children's writing attempts become more fluid and refined (Puranik et al., 2014; Guo et al., 2018). Predictors of children's emergent writing ability will now be examined.

2.5.2 *Letter Knowledge*

Researchers have found a strong connection between letter-name knowledge and letter-writing ability (Molfese et al., 2006; Puranik et al., 2014; Guo et al., 2018). Puranik et al. (2014) found that children received a higher score in letter-naming than letter-writing, suggesting letter name knowledge develops prior to letter-writing knowledge. Guo et al. (2018) state that due to the impact of letter-name knowledge on writing, children should learn to recognise and name letters in both uppercase and lowercase in order to enhance emergent writing. This is supported by Abbot and Berninger (1993, as cited in Puranik & AlOtaiba, 2012) who found that often poor fluency in writing is due to a lack of letter knowledge rather than difficulties with the motor movements.

2.5.3 *Child's Own Name*

Research has found that children are often able to write letters in their own names before they have the writing skills to form other letters in the alphabet (Puranik & Lonigan, 2011; Puranik et al., 2014; Zhang et al., 2017; Guo et al., 2018). Puranik and Lonigan (2011) identified that children often demonstrate more advanced writing skills when writing these name-specific letters. Lamme (1979) suggests that children are taught this skill by their parents, who encourage it in scenarios such as signing their names on a card.

2.5.4 *Parental Influence*

Puranik et al. (2018) found that parental teaching was a significant predictor of the child's spelling, letter-writing and spontaneous writing. However, the study focused on uppercase letters meaning there was no ambiguity between the font taught at home and in school. Interestingly, Oya Taneri and Akduman (2018) noted that Turkish parents displayed negative attitudes towards their children's learning of cursive as they felt that they could not provide their children with adequate support in it. Considering the failings of Turkey's CH initiative, parental influence may be a negative predictor of a child's CH development. Further studies need to consider parental influence on a child's CH development.

2.5.5 *Teacher's Influence*

In comparing Irish pupil's handwriting to their French counterparts, Culligan (1997), states that it is not the children's motor ability that is different but rather the attitudes and expectations of teachers. Research into the failings of Turkeys CH initiative outlines a very negative attitude from teachers towards the reform (Oya Taneri & Akduman, 2018; Yildiz, 2019). Erdogan (2012) names teachers' lack of efficacy as one of the reasons for a lack of development in a child's handwriting legibility.

Despite the obvious importance of the teacher's attitude towards handwriting, many researchers have found that there is insufficient training available. In surveying teachers' approach to handwriting, Graham et al. (2008) found teachers felt unprepared to teach it based on their teacher training. Oya Taneri and Akuduman (2018) suggest that student teachers in Turkey were not adequately trained in teaching CH. Interestingly, despite practising Turkish teachers receiving training in CH, they lacked confidence in teaching it (Karataş et al., 2014). It could be surmised that the insufficient teacher preparation impacted on the failure of the initiative.

While the NCCA (2019a) encourages the teaching of CH from junior infants, there is a distinct lack of supports available to schools implementing it. Both the Professional

Development Service for Teachers (PDST) (2020) and NCCA (2020) focus their writing supports on the writing process, with little mention of handwriting. While the advantages of a writing process approach will be discussed later, it is clear there is also a need for more specific supports related to CH skills for it to be effectively taught in schools.

2.6 Teaching Handwriting

Research emphasises the importance of children receiving formal training in handwriting (Vinter & Chartrel, 2010; Arslan, 2012; Culligan, 2013). Arslan (2012) states that children need to learn about the structure of letter forms and how to create them. Similarly, Jones (2017) states that poor handwriting is often due to the child receiving insufficient training and repetition. The research presents a clear message of the importance of children engaging in frequent practice (Culligan, 2009; Graham et al., 2012; Dennis & Votteler, 2013; Malpique, 2017; Semeraro et al., 2019). Hoy et al. (2011) compared a selection of interventions and approaches to handwriting and found that only those involving practice were successful.

2.6.1 *Introduction to Letters*

It is important the classroom is a print-rich environment, even before children begin to write (Cahill, 2009; Bingham et al., 2017; Bonneton-Botté et al., 2018). Children should be exposed to both static and moving models of CH before they begin to receive writing instruction (Culligan, 1997).

Lead researchers on the subject of handwriting instruction agree that handwriting lessons should be short (Culligan, 2009; Graham et al., 2012). Chartrel and Vinter (2008) found that working with spatial constraints (i.e. between two lines) and time limits improved the CH quality of 5-year-old pupils learning to write.

Culligan (1997) emphasises that expectations should be outlined at the beginning of each lesson. Haimovitz and Dweck highlight the importance of encouraging a growth mindset in young children whereby they "believe that they can develop their abilities through

hard work, good strategies, and instruction from others" (2017: 1849). According to Gunderson et al. (2013), focusing on praising effort results in stronger motivation, the belief that intelligence can be developed and a desire to be challenged in their work as the child gets older. However, teachers should be mindful to only praise good effort (Haimovitz & Dweck, 2017).

While tracing faded or dotted versions of the letter allows the child develop eye-hand coordination skills (Taylor, 2020), James & Engelhardt (2012) found that it was only from forming the letter independently, without such supports that the children become familiar with the motor movements involved.

2.6.2 *Blocked and Random Practice*

Blocked practice, whereby the task remains the same, with a limited number of letters is preferred for initial writing instruction (Ste-Marie et al., 2004; Asher, 2006). Maldarelli et al. (2015) found that young children copied letters more efficiently when the cognitive demands of the task were lower, and they were less likely to stop writing mid-letter when they were practising single letters. Once the children have successfully learned a number of letters, they benefit from practising them in random combinations, as it is more akin to writing and results in better retention of letters and transfer of skills (Ste-Marie et al., 2004; Asher, 2006).

2.6.3 *Writing for Purpose*

Writing lessons for emergent writers is often focused on forming letters and beginning to spell words (Puranik & AlOtaibla, 2012). Limpo and Graham (2020) recognise the need for explicit handwriting practice. However, often teachers of young children focus solely on copying and tracing rather than the writing process. In examining the practices of early childhood teachers, Bingham et al. (2017) found children who practised composing stories demonstrated stronger writing skills. While there is a need for explicit handwriting

lessons for children to build these skills, they should be provided with the opportunity to apply them in authentic learning tasks (Graham, 2012).

2.6.4 *Authentic Audience*

Vygotsky (1978) emphasised the ultimate purpose of writing is communication. According to Whitney, "audience is at the heart of a piece of writing. In a piece of writing we don't just say something, we say it to someone" (2017: 19). Despite this, studies show that often the primary audience for pupil's writing is the class teacher (Applebee & Langer, 2011).

Block and Strachan (2019) found young children produced a higher quality of written work when they were aware of an external audience. Similarly, Cahill (2009) found children wrote for a longer time if they were interested, saw value in their writing, were not worried about their work being graded and felt they were writing for an audience and not just to practice the formation of the letter. This highlights the importance of providing the children with an audience for their writing that is not the class teacher.

2.6.5 *Cross-Age Peer Tutoring*

Peer tutoring (PT) involves two pupils, usually of the same age taking the role as a tutor and tutee, while cross-age PT involves an older pupil paired with a younger pupil (Korner and Hopf, 2014). Shenderovich et al. (2016) found that individual tutoring, even with non-professional tutors, is one of the most effective ways to improve educational outcomes. While it can be effective in any subject area (Topping, 2015), research interventions are primarily focused on reading and mathematics (Van Norman & Wood, 2008; Shenderovich et al., 2016; Haynes & Brendle, 2019). While research into cross-age PT in writing is limited, Paquette (2008) successfully implemented it to effectively teach the writing process. Interestingly, a recent study examined the effect of using a robot peer on children's handwriting finding the PT method provided significantly more learning gains than peer learning, where children worked side by side (Chandra et al., 2017).

While Hänze et al. (2018) suggests that cross-age PT is not reciprocal, calling on the knowledge of the older tutor to assist the younger tutee, a meta-analysis by Leung (2019) noted that it has a positive effect on the older tutor's academic achievement. Research has also demonstrated that children at risk of educational challenges can be effective tutors (Van Norman & Wood, 2008).

Reviews on the literature pertaining to PT agree that structured PT in which the tutor has received training is significantly more effective than more casual approaches (Leung, 2014; Topping, 2015; Leung, 2019). It also works best with young children (Rohrbeck et al., 2003; Leung, 2014). Leung's (2014) meta-analysis also found interventions with a shorter duration of PT were more successful. Topping (2015) states that it must be designed in such a way to be within both the tutor and tutee's zone of proximal development (Vygotsky, 1978).

2.6.5.1 Gradual Release of Responsibility

Gradual Release of Responsibility (GRR) (Pearson & Gallagher, 1983) is a scaffolding technique designed to shift the cognitive load from the teacher-as-model, to shared responsibility of the teacher and child, and eventually independent responsibility by the learner. Originally designed with three stages; teacher modelling, guided practice and student application and responsibility, Fisher and Frey (2008) added a fourth stage - collaborative practice.

Webb et al. (2019) describe GRR as being a theoretical model rather than an explicit process. It allows "students move back and forth between each of the components as they master skills, strategies and standards" (Fisher & Frey, 2008: 2). It is recognised as an effective tool to teach the writing process (PDST, 2013; VanNess et al., 2013).

2.7 Conclusion

This chapter examined the research pertaining to CH. The cursive/manuscript debate was outlined and literature regarding when cursive should be introduced was compared.

International approaches to teaching handwriting were examined, followed by an analysis of the Irish context. Following this, skills needed to develop handwriting, early handwriting development and effective ways to teach handwriting were examined. The next chapter will outline the methodologies used for this intervention and discuss the ethical considerations taken.

3 METHODOLOGY

To examine my practice of teaching CH to junior infants in a way that was considerate of my values, it was evident AR was the best approach. This chapter will begin by examining the various research paradigms and provide a rationale for my choice of AR. The research design will be outlined, the types of qualitative and quantitative data that were collected will be discussed and methods to analyse the data will be examined. To conclude, the various ethical considerations taken into account will be addressed.

3.1 Research Paradigms

According to Cohen et al. (2018), a person's ontological and epistemological values influence their choice of research paradigm. My values will be examined along with each of the educational research paradigms, followed by a justification for the choice of an AR approach to this study.

3.1.1 *Values*

Ontological assumptions are "the way we view ourselves, a theory of being" (McNiff, 2013: 27). My ontological assumptions lead me to value the uniqueness of each person, born capable of doing great things (Arendt, 1998). When a person's potential is supported and encouraged by their community, the community benefits and is enhanced by this individual in return. This relates to O'Donohue's Web of Betweenness, whereby "true community is an ideal where the full identities of awakened and realised individuals challenge and complement each other. In this sense individuality and originality enrich self and others" (O'Donohue, 2003: 133). On further reflection, I realise these values are strongly linked to my Froebelian training, as Froebel believed in "allowing uniqueness and individuality to flourish within a strong, supportive community" (Tovey, 2020: 4)

These values led me to my epistemological assumptions. Epistemological assumptions relate to how a person sees knowledge and how it is generated (McDonagh et al., 2020). I value the importance of community for the learner, collaborative learning,

enjoyment of education and that effective education begins where the learner is, which are epistemological values reflective of my Froebelian training (Bruce, 2012). I not only place value on what I, as a teacher, bring to the classroom, but also the contributions and individuality each child brings. I feel it is my responsibility to provide all children with what they need to succeed, helping them to recognise and celebrate their individuality and what this brings to the classroom. I will now outline each of the educational research paradigms.

3.1.2 *Paradigms*

Candy (1989, as cited in Kivunja & Kuyini, 2017) lists three main groupings of educational research paradigms, namely the Positivist, the Interpretivist and the Critical paradigms. The Positivist paradigm, often considered to be the scientific method (Kivunja & Kuyini, 2017), involves experimenting to find verification based on informed predictions (McDonagh et al., 2020). As such, the Positivist approach would not allow for the flexibility and understanding needed in a classroom setting.

The Interpretivist (or Constructivist) paradigm involves the observation of the subjects in order to gain an understanding of their thoughts and actions (Kivunja & Kuyini, 2017). This allows for more flexibility in understanding, and a relationship between the researcher and the subject. However, this paradigm places the researcher as an observer and not a participant (McDonagh et al., 2020).

The Critical paradigm, also called the Transformative paradigm (Kivunja & Kuyini, 2017) or the Action Research paradigm (Sullivan et al., 2016; McDonagh et al., 2020) involves the taking of action to inform and improve social and political situations (Kivunja & Kuyini, 2017). AR will now be examined as an appropriate paradigm for approaching this research.

3.1.3 *Action Research*

AR is a research approach that allows teachers to develop both personally and professionally and, most importantly, build their own theories of practice (McNiff &

Whitehead, 2005). AR calls upon teacher-researchers to become critical of their practice as they establish their values and proceed to examine their practice in order to ascertain whether they are living to these values (McNiff, 2013).

Whitehead (1989) states that a living educational theory is developed when teachers seek ways to improve their practice, implement these in the classroom and reflect on the success of their endeavour. Sullivan et al. (2016) discuss the idea of living theory and AR being interchangeable. The value of AR lies in teachers being given the professional responsibility whereby they themselves can develop new theory within their classroom (Sullivan et al., 2016).

AR is felicitous for teachers as it is practical, with teachers having often engaged with it in an informal manner (McNiff & Whitehead, 2005). According to Whitehead (1989), by engaging in AR and critical reflection, teachers earn the right to make a claim to knowledge based on their findings. It offers the teacher the opportunity to improve learning and as a result, grow both personally and professionally (McNiff, 2013). AR was appropriate for this research project as it allowed me to analyse my teaching of CH and the success of lessons within my classroom, valuing me as a researcher and my pupils as co-participants.

3.1.4 *Qualitative and Quantitative Data*

Sullivan et al. (2016) acknowledge that as teachers, we recognise value in both qualitative and quantitative data. Both forms of data were collected for this AR project.

3.1.4.1 Quantitative Data

Quantitative research methods are those which are "numerically measured" (McDonagh et al., 2020: 104). This was suitable for this AR project as it allowed me to measure and compare children's progress in their handwriting. However, McDonagh et al. (2020) warn teachers that this data does not give a full picture. While it allowed me to track the children's progress, it did not provide me with insight as to where this progress, or lack thereof, was coming from.

3.1.4.2 Qualitative Data

Check and Schutt (2012) discuss that qualitative data prioritises the views of the subject rather than that of the researcher. While AR placed me as the subject, the children's opinions and attitudes towards learning CH were central to the development of my practice. Therefore, it was important their voice was heard throughout. Qualitative data gave insight into the effectiveness of various approaches and allowed for changes and developments to be made to each action cycle as the research progressed. "Qualitative data analysts seek to capture the setting or people who produced this text on their own terms rather than in terms of predefined (by researchers) measures and hypotheses" (Check & Schutt, 2012: 300). Qualitative data collected from my own practice, allowed me to be reflexive in my teaching. It accounted for the children, allowing their experiences to impact the terms and design of the study, appropriate to the transformational nature of AR.

3.2 Research Design

AR is a cyclical process that "involves a continuous process of acting, reflecting on the action and then acting again in new ways in light of what you have found, so that it becomes a cycle of action-reflection" (McNiff & Whitehead, 2010: 95). McNiff and Whitehead (2010) state that even when you have completed a cycle the circle does not close, as any claims to knowledge you have made will transform into new questions, thus continuing to a new cycle. Two cycles were completed in this study which will now be outlined (see Figure 3.1 Action Cycle Plan).

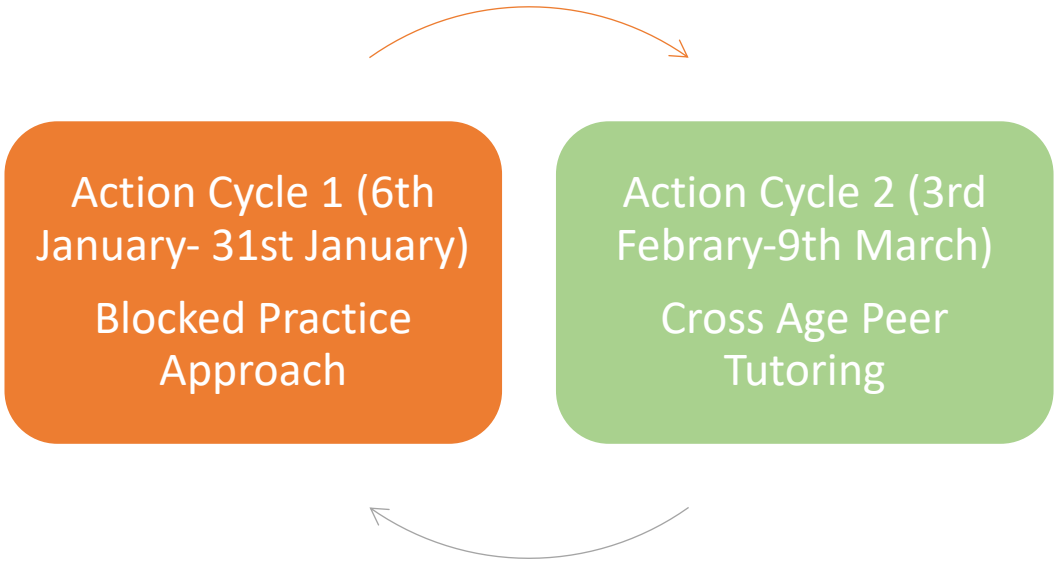


Figure 3.1 Action Cycle Plan

3.2.1 *Action Cycle One*

AC1 took place for the first four weeks of CH instruction. CH lessons were daily, following the recommended regular practice approach (Asher, 2006; Culligan, 2009; Graham et al., 2012; Semeraro et al., 2019). Lessons coincided with phonic lessons to encourage connections to be made between reading and writing (Graham et al., 2018). The children learned to write the letters s, a, t, i, p, n, c and k during AC1.

Two days were spent on each new letter with Friday dedicated to revision. Expectations were outlined at the beginning of each lesson (Culligan, 1997). They focused on the process to encourage a growth mindset whereby the children "believe that they can develop their abilities through hard work, good strategies, and instruction from others" (Haimovitz & Dweck, 2017: 1849). Children were asked to start on the bottom line, keep their pencil on the page and focus on the quality of their writing, rather than quantity. Practice time was short and a timer was set for 7 minutes (Culligan, 2009; Graham et al., 2012).

On day one the children were introduced to the new letter through both static and moving models (Culligan, 2009). The children discussed the verbal pathway, describing the form of the letter to encourage consistent formation (Fitzgerald et al., 2018; NCCA, 2019a). Following this, they engaged in tracing practice of the letter, to become familiar with the motor sequence involved (Taylor, 2020). On day 2 the focus was on independently printing the letter to ensure they were familiar with the movement (James & Engelhardt, 2012). A blocked practice approach was taken. To conclude each lesson the children played with marla (play dough) to continue FMC development (Sutapa et al., 2018) (see Appendix B).

3.2.2 *Action Cycle Two*

Action Cycle 2 (AC2) began on week five. Daily, blocked practice handwriting lessons continued as in AC1. A writing corner was set up in the classroom and integrated into Aistear (Culligan, 2009). As the children had learned eight letters, cross-age PT began. I named this intervention Pencil Pals. Each child in the class was paired with a Pencil Pal in second class. The pairings were randomly selected. The tutors were trained prior to the intervention (Leung, 2014; Hänze et al., 2018; Leung, 2019). They enacted an adapted version of GRR (Pearson & Gallagher, 1983; Webb et al., 2019) (see Figure 3.2). The tutors visited twice a week for a 10 minute writing session with a focus on revision of letters and random practice.

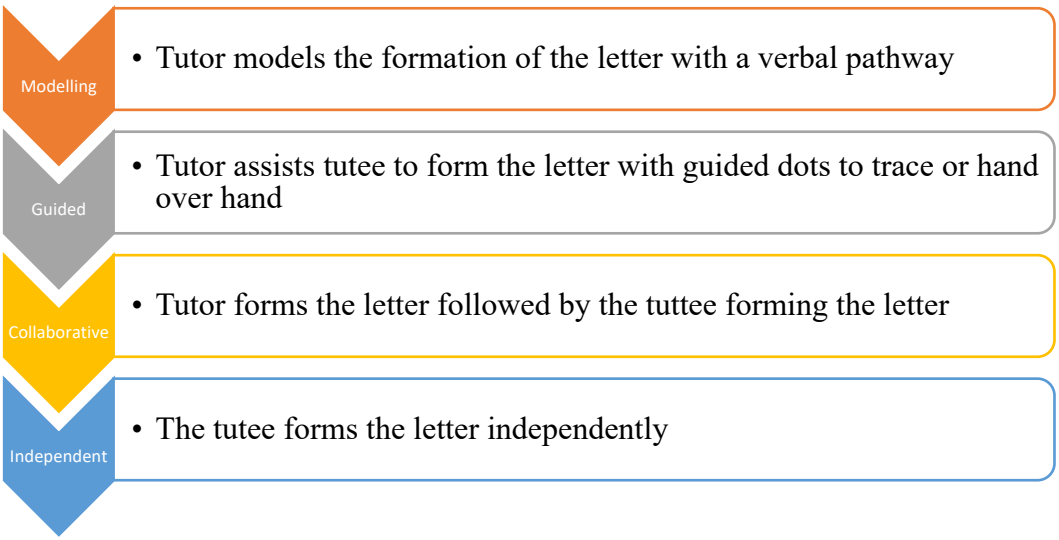


Figure 3.2 Adapted Version of GRR used by Pencil Pals

3.3 Data Collection

The site and context in which the research collection took place as well as the various data collection instruments will now be outlined.

3.3.1 *Research Site and Context*

The research was conducted in a junior national school in a rural area of North County Dublin with a multi-ethnic and diverse socio-economic population. The population of the school is 441 pupils; 220 boys and 221 girls. The class in which the research took place was a junior infant class consisting of 26 four- and five-year-olds. The class consisted of 13 boys and 13 girls. The children were a random sample of the year's junior infant intake. Four children in the class were receiving support for English as an additional language. A total of 18 pupils and their parents consented and assented to participate in the study.

3.3.2 *Data Collection Instruments*

According to Check and Schutt (2012) it is important that teacher-researchers use a variety of data collection techniques in order to give the most accurate picture of what is happening. A TRJ, observations of CH lessons, accounts from the children and samples of the children's work were collected to gain accurate insight into the children's attitudes towards and success in CH lessons, while valuing my own reflexivity as a source of data.

3.3.3 *Reflection Journal*

A TRJ (see Appendix C) was kept "for the purpose of documenting the story of one's learning during the course of the research" (Sullivan et al., 2016: 3). Critical self-reflection is at the heart of AR (McNiff, 2013). Teachers engage in critical reflection with the idea of improving learning and examining the progress of the research (Sullivan et al., 2016).

Borton's framework (1970, as cited in Rolfe, 2014) for critical reflection was employed in the reflection journal, asking what? so what? and now what? (see Appendix A). This was appropriate for the nature of AR as it is a cyclical approach that encourages consideration of the next step following reflection, prompting action. McNiff and Whitehead (2010) discuss how new insights gained throughout the process can influence the next action cycle. Rolfe (2014) highlights the suitability of Borton's framework for reflective practice as it steers "the practitioner through the process of analysing, evaluating and synthesising information and facts (What?) into meaningful and organised knowledge (So What?) and subsequently from knowledge to knowledgeable doing or wise action (Now What?)" (Rolfe, 2013: 489). Through these reflections I was enabled to critically reflect on what was happening and was led to consider what my next step should be.

3.3.3.1 Observations

Cohen et al. suggest observations are beneficial to social situations, such as the classroom, as the researcher is allowed the opportunity to gather "live" data (2018: 542). While some methods of observations place the researcher on the outside, I was both the subject and the researcher (Cohen et al., 2018). McNiff and Whitehead (2010) discuss the benefits of observations in AR in observing oneself in relation to others. They highlight that researchers should not neglect to be honest in their observations of themselves and their teaching. Self-observations were apparent throughout the TRJ and offered opportunities for meta-reflection of my practice.

3.3.4 *Work Samples*

Work samples were collected and used as a data source to analyse the children's progress in CH. They were compared to Stages of Writing Development (Hand & Monighan-Nourot, 1999) and the Handwriting Legibility Scale (HLS) (Barnett et al., 2018) to gain quantitative data and insight into the children's CH progress throughout the intervention. The study group also engaged in self-assessment of their work samples, colouring the letter green if they found the letter easy to form, orange if they found it OK and red if they found it difficult. This gave insight into the children's belief in their own ability and their difficulties forming various letters.

3.3.5 *Accounts*

Sullivan et al. (2016) highlight the importance of the student's voice, as co-participants in AR projects. As my ontological values lie in the importance and value of each individual, it was essential the pupil's voice would be heard throughout this AR project. Accounts allow for the researcher to view situations though the eyes of the participants (Cohen et al., 2007). As a data source they are focused on process rather than product. Morrison (1993, as cited in Cohen et al., 2018) places them at the word-based, qualitative end of his interview continuum. They provided important insight into the children's attitudes towards CH. As this study involved children of a young age, written accounts from the children were not a viable option. Therefore, voice recordings were used to enable the children to give their accounts.

3.3.5.1 Voice recording

Sullivan et al. (2016) and McNiff and Whitehead (2010) advocate the use of multimedia to gather data in AR as it can enhance practice and bring life to the study. Much ethical consideration is needed when voice recording children. Aubrey et al. (2000) emphasises the risks involved in taking voice recordings within private situations. This was mitigated by ensuring recordings were taken in a public domain to minimise private

behaviour (Aubrey et al., 2000). The children were always aware when their voice was being recorded. They were asked prior to and during each recording if they were happy to have their voice recorded, and a microphone was placed in the centre of the circle as a visual reminder.

Aubrey et al. (2000) discusses that the unequal balance of power between the adult and child may result in anxiety on the child's part during voice recordings. The child may feel obliged to participate or wish to please the teacher. The children were informed what was going to be discussed during the voice recording. They were asked if they would like to participate in the voice recording and were reminded they could opt out at any stage. They were also given the option to join the circle without contributing.

Bauer and Gaskell (2000) emphasise the importance of clear recordings in order to allow for successful transcription and note that noisy settings may create difficulties. I ensured the classroom was a quiet and comfortable environment when recording the children.

The procedure of obtaining an account is less structured than that of an interview and as a result some unorganised material emerged (Cohen et al., 2007). Gibbs (2007) outlines varying approaches to transcribing. As this research involved young children, there were some speech and grammatical errors in their accounts. Gibbs notes while it is acceptable to "tidy up" (2007: 17) the speech when transcribing "it clearly loses the feel for how respondents were expressing themselves and if that is significant in your study, you will need to try and capture that in the transcription" (Gibbs, 2007: 12). In order to ensure the pupil's voice was heard, voice recordings were directly transcribed (see Appendix D).

3.4 Data Analysis

The various methods of analysing the qualitative and quantitative data will be examined.

3.4.1 *Thematic Analysis*

Thematic analysis involves the identification of various themes throughout qualitative data that has been collected (Aubrey et al., 2000). As I collected various pieces of qualitative data (transcripts, TRJ and observations) it enabled me to recognise and group themes running throughout the data sets (Gibbs, 2007). According to Braun and Clarke (2006), thematic analysis requires a certain element of continuous reflexive thinking throughout the data gathering process, complementing the reflexive nature of AR. It 'provides a flexible and useful research tool, which can potentially provide a rich and detailed, yet complex, account of data' (Braun and Clarke, 2006: 78).

I followed Braun and Clarke's (2006) 6 phase model when engaging in thematic analysis. I began this process by immersing myself in the data through "repeated reading" (Braun and Clarke, 2006: 87). Following this I coded the raw data and analysed these codes to find themes (see Appendix C). I then reviewed the themes, considering my research question, and through this process defined and named them.

3.4.2 *Quantitative Analysis of Work Samples*

Work samples were collected from the children. The children's self-assessment of letter difficulty by colour was analysed to gain insight into the pupil's attitudes towards individual letters. In order to identify any patterns, a value of 0 was assigned to green (easy), 1 to orange (okay) and 2 to red (tricky). Any absent cells were left blank. Average difficulty was calculated for each pupil, each group of pupils and each letter.

Handwriting samples were compared to the HLS (Barnett et al., 2018) and Handwriting Stages of Development (Hand and Monighan-Nourot, 1999).

3.4.2.1 Handwriting Legibility Scale

In order to gain quantitative insight into the children's handwriting progress throughout the intervention, their work samples were compared to the HLS (Barnett et al., 2018) (see Appendix E). There are few assessment tools suited to emergent writers. Most

assessments, such as the Minnesota Handwriting Assessment (Reisman, 1999), Test of Handwriting Skills Revised (Milone, 2007) and Wold Sentence Copy Test (Maples, 2003) require previous letter knowledge to complete a set task and are designed for a one-to-one setting. In comparison, the HLS was designed to be used with a piece of free writing. This meant it was adaptable to a younger age group, allowing the children to produce a piece of writing reflective of where they were at in their learning. As the HLS is compared to the writing sample, and not their writing behaviours, samples could be collected from a whole class lesson with the added advantage of being able to triangulate the results with my critical friends.

The HLS examines global legibility based on layout on the page, letter formation and alterations to the text, as well as an overall view of legibility and the effort needed to read the handwriting. Each of these areas were marked by myself and three critical friends on a 5 point Likert scale in order to get an overall numeric score for the work sample.

3.4.2.2 Stages of Handwriting Development

Rowe and Wilson (2015) criticise the lack of tools available to measure and describe changes that occur throughout early writing development. In response new tools have been designed. However, Rowe and Wilson's (2015) Write Start tool did not account for my higher ability pupils, while Harmey et al.'s (2017) Early Writing Observation Rubric did not account for my lower ability pupils. Therefore, I called on the Stages of Handwriting Development (Hand & Monighan-Nourot, 1999) (Appendix F), developed based on the works of Graves (1989) and Temple et al. (1992). This describes the various stages of development of emergent writing from scribbling to conventional writing. The vast range it covers meant it was suited to and accounted for every pupil in my class. While the samples given are working with MH, the descriptions of each stage were suitable for comparison of CH. This worked as a tool to track the child's progress as they worked through each step.

3.4.3 *Validity and Credibility*

McNiff and Whitehead (2010) emphasise the importance of claims to knowledge being supported by evidence. It is this evidence that creates the grounds for testing the claims. They emphasise the importance of the collection of a wide range of relevant data to support one's claim. A wide variety of both qualitative and quantitative data was collected and analysed for this research.

McNiff (2013) states that a claim to knowledge should be supported at the methodological level, the social level and the textual level. Sullivan et al. (2016) further break down these criteria, listing a number of ways in which you can validate your claim to knowledge based on your findings. They suggest you should prove validity through: claim, evidence, criteria, standards of judgement and public dissemination (see Appendix G).

McNiff (2013) highlights the importance of inviting peers to comment on and discuss your claims in order to avoid bias and show intellectual and methodological rigour. The data was triangulated with critical friends and a validation group.

3.4.4 *Critical Friend*

Lead researchers in AR promote the concept of inviting a Critical Friend (CF) to discuss and review your work (McNiff & Whitehead, 2010; McNiff, 2013; Sullivan et al., 2016). The role of the CF is to offer advice and criticism of the researcher's work in order to identify flaws that the researcher may miss, being so close to the project. I had four CFs – two colleagues also teaching junior infants, the school's literacy post holder and a second class teacher with an interest in handwriting. These CFs allowed for a range of fresh perspectives, ensuring I was not too close to the project to see the full picture (McNiff, 2013). I called on my CFs to engage in regular, critical discussion. One CF also observed Pencil Pal lessons and provided feedback.

3.4.5 *Validation Group*

Glenn et al. (2017) encourage the formation of a learning community in order to facilitate dialogue and partnership and gain multiple perspectives on the researcher's study. As there are a number of junior infant classes in the context within which this study took place, I formed a validation group with three other junior infant teachers to triangulate findings and gain perspective.

3.4.6 *Triangulation*

Triangulation is another way in which rigour can be added to your claim of validity and credibility. Aubrey et al. (2000) describe triangulation as being appropriate when there is an involved researcher and is "where accounts of participants with different roles are sought, combined with the researcher's own, in order to reach an agreed and negotiated case" (Aubrey et al. 2000: 57). The wide range of data collected was triangulated within my validation group and with CFs in order to ensure there was rigour to the analysis of the data. Three CFs compared the children's work samples to the HLS. These ratings, along with my own, were triangulated to ensure rigour.

3.5 Ethical Considerations

Prior to engaging in this study I received Ethical Approval from Maynooth University. I received permission from the school's Board of Management to conduct the research (see Appendix H). As this research was conducted with minors, there were many ethical considerations to be considered. AR places pupils as co-participants of the study. Through their participation in the study, it was extremely important that the children's rights were valued and respected (Palaiologou, 2012). I will now examine consideration given to informed consent, child assent, data storage, confidentiality and anonymity, and principled sensitivity.

3.5.1 *Informed Consent*

According to Brooks et al. (2014), to gain informed consent, participants should be provided with adequate and accessible knowledge, they should understand that participation is voluntary, that they have the right to withdraw at any stage during the research and finally a decision to participate should only be made by those who choose freely. Consent was received from CFs involved in this study. They were provided with an information letter and I discussed the study with them to ensure they were informed (see Appendix I).

As this study involved minors, consent was given by the child's responsible adult for the child to take part in the study (Palaiologou, 2012). Information and consent letters were provided to each child's responsible adult (see Appendix J). These letters were written in accordance with Maynooth University Ethical Guidelines and were approved by the ethical committee. However, Palaiologou (2012) also states that this is not sufficient, and that the researcher should be confident that the participants themselves also have understanding of the research involved and are not just participating in trusting their responsible adult's consent.

3.5.2 *Child Assent*

Child assent is permission given by the child (Palaiologou, 2012). According to Kellet (2005), regardless of the country's law, standards of ethical practice call for the child to be invited to give consent when involved in a study. Palaiologou (2012) stresses that the child may not have full comprehension of the research they are consenting to be involved in and also may agree in order to please the adults who ask for their participation. As the children involved in this study were of such a young age, research was explained to them in an age appropriate manner in class. The study and their possible involvement were explained and the children understood that they did not have to participate. I explained that if they choose not to be involved, they would still be involved in all in-class activities. Consent

letters encouraged parents to discuss the research with their child. The children were asked to tick to show understanding and sign to give their assent to participate (see Appendix K).

3.5.3 *Data Storage*

Maynooth University guidelines on data storage, as presented in the Ethical Review and Research Integrity General Policy Statement was followed. The research project and its findings will be used for examination module purposes, will be made available for the external examiner and may be published and disseminated at conferences. All manual data was held in securely locked cabinets. Digital data, such as voice recordings, were encrypted and password protected. As per Maynooth University guidelines best practice, all data collected was stored securely.

3.5.4 *Confidentiality and Anonymity*

Check and Schutt (2012) emphasise the necessity for teacher researchers to be vigilant around confidentiality as they have access to school records, their pupil's grades and must be particularly cautious not to abuse power relationships. The children's names were confidential and all voice recordings were transcribed with pseudonyms. The school was not identified through the study.

3.5.5 *Principled Sensitivity*

Beginning this research project the children had not received formal handwriting instruction meaning there was a possibility that some difficulties or needs may have emerged. Should there have been any concerns in this area I would have followed school policy. I would discuss the child's needs with the parents. I reminded children and parents they were welcome to withdraw from research participation at any stage. As the children were of a young age, I ensured they understood the meaning of research, what I was researching and their involvement. I ensured that they understand that they could withdraw project in the research at any time. Some of the children and their parents had English as an

additional language so I offered to orally discuss the research if required. I ensured to follow all school policies throughout this research.

3.6 Conclusion

Several considerations were taken into account throughout this study. I ensured that a wide range of data was collected, that it was valid and reliable and that suitable methods of analysis were chosen. I ensured that all participants were aware of their rights and were respected throughout this study. The data collected allowed me to gain an accurate insight into how I could improve my practice of teaching CH to junior infants, which will be outlined in the next chapter.

4 DATA ANALYSIS AND FINDINGS

This chapter will examine the data collected in themes identified from thematic analysis. The three main findings are broken into further sub-themes which are presented and analysed. To conclude, the plan for Action Cycle 3 (AC3), which was interrupted due to the COVID-19 pandemic will be outlined.

4.1 Previous Instruction

The children received no formal handwriting instruction prior to this intervention. The class engaged in daily structured fine motor stations and practised pre-writing activities (Rule & Stewart, 2002; Daly et al., 2003; Culligan, 2013). When introducing each letter through the school's phonics programme, the children were made aware of both the cursive and manuscript form of the letter. However, they were not instructed in letter formation.

4.2 Baseline

Prior to intervention, a writing sample from each child was taken. The children were given the option of free writing with some words written on the board if they wished to copy. Each sample was rated on the HLS (Barnett et al., 2018). To validate the scores, three CFs and I rated each sample based on global legibility, effort required to read the script, layout on the page, letter formation and alterations to the writing. For each child the average score for each category was calculated and subsequently the average overall score (see Appendix L). Based on average overall scores, the children were divided into three bands of ability. These bands informed my planning and differentiation for handwriting lessons, ensuring the children were receiving what they needed to succeed, which is a core value of mine. The samples indicated that the majority of children in the class were operating within the prephonemic and phonemic stages of emergent writing (Hand & Monighan-Nourot, 1999).

A work sample was taken from each child in the study prior to the intervention, on completion of AC1 and the completion of AC2. A total of eight children were present across all three samples. The average HLS scores from these eight children will be tracked and compared through this chapter (see Appendix M). All names used are pseudonyms.

I will now outline each of the three main findings that emerged from the data, discussed through a number of sub-themes.

4.3 Finding 1: Children benefitted from a process-focused approach to teaching cursive handwriting

From the baseline sample (see Appendix L) it was evident that the children had a variety of abilities and needs. A process-, rather than product-focussed approach meant each child could be successful in their handwriting.

4.3.1 *Varying Ability*

The baseline suggested that the class were weakest in letter formation, legibility and effort, while they were strongest in alterations i.e. they made minimal edits to their letters. It could be surmised that the lack of alterations to the text was due to the minimal letter knowledge the children had prior to the intervention.

Figure 4.1 shows a sample of work from a child in each of the ability groups. Apart from the title and border, all work on the sample is the child's own. Beth represents the lower ability group (Band L), Eoghan represents the middle ability group (Band M), while Melissa represents the higher ability group (Band H). Each of these samples will be discussed using the Scale of Writing Development (Hand and Monighan-Nourot's, 1999) (see Appendix F).

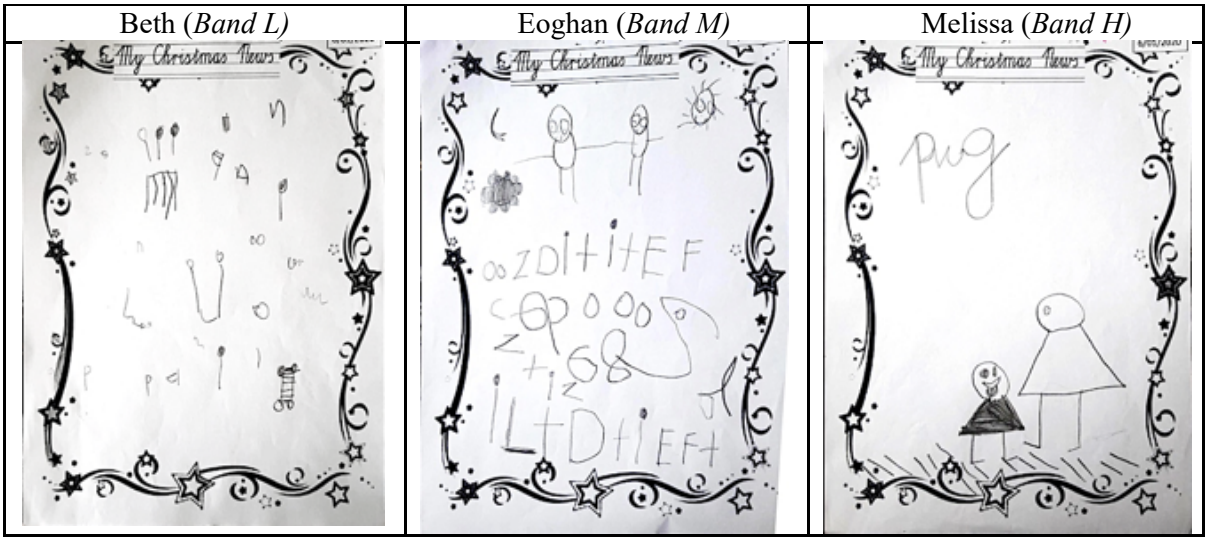


Figure 4.1 Baseline work samples

Beth's sample places her in a prephonemic stage of writing (Hand & Monighan-Nourot, 1999). Her writing is a mix of drawing and creating mock letters. She is exploring manuscript letter shapes through drawings of circles and lines. Eoghan's sample suggests he is also working at a prephonemic stage. However, it demonstrates a more definite understanding of letters and letter strings. He exhibits more pencil control and awareness of the conventions of writing such as moving from left to right and correct layout on the page.

Meanwhile, Melissa is working at a transitional stage (Hand & Monighan-Nourot, 1999). The word *pig* was not demonstrated anywhere in the classroom. Therefore, she has independently sounded out the word's initial, medial and final sounds. She also indicates an awareness of CH demonstrating a lead in and joining the letters together.

4.3.2 *Varying Attitudes*

During conversations pertaining to CH, the children demonstrated a wide range of attitudes regarding the demands of writing in cursive.

> **Me:** Do you find it hard or easy? Or is it sometimes a little bit tricky and sometimes okay?
> **Naomi:** A little bit tricky sometimes, sometimes a little bit okay.
> **Dave:** Easy
> **Ema:** Everyday hard
> **June:** Some days it's not hard
> (Transcript, 24/01/2020)

Once the children had learned five letters, they began to engage in self-assessment to conclude each blocked practice session. They coloured the guide letter green if they found the letter easy, orange if they found the letter average and red if they found it tricky. In order to identify any patterns, a value of 0 was assigned to green, 1 to orange and 2 to tricky. Any absent cells were left blank. Average difficulty was calculated for each pupil, each group of pupils and each letter (see Appendix N).

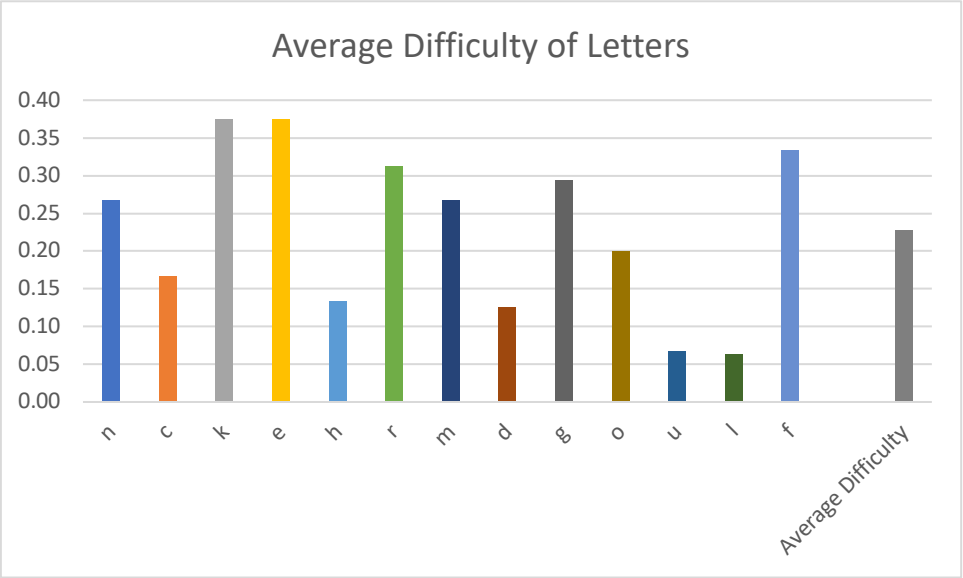


Figure 4.2 Average Rating of Letter Difficulty by Children

The data demonstrates that the letters *k* and *e* were considered to be exceptionally difficult and the letters *u* and *l* exceptionally easy (see Figure 4.2). The formation of the majority of letters considered most difficult included a loop (e.g. *k*, *e*, *g* and *f*). This indicated the children were finding the formation of a loop most difficult. The children's accounts also reflected the varying attitudes to different letters.

> **Jasmine:** I don't like when we have to do the hills (*referring to arch in letters h, n, m etc.)*
> **Sara:** em, when the *n* is, because it feels a little bit tricky
> **Liam:** em, when we're doing the letter *d*
> **Sara:** The *d* and the *l* are easy ones. Both the loop the loop ones are really hard. (Transcript, 9/03/2020)

Interestingly, children's attitudes did not always reflect their band. Beth and Isaac (Band L) scored the lowest values, indicating fewer red and orange letters, while Liam (Band M) and Flora (Band H) scored well above average values (see Figure 4.3). This may indicate a lack of self-awareness of Band L children and a lack of confidence in Liam and Flora. However, overall the average for each group accords with expectations; Band L had the highest score, indicating more red and orange letters, while Band H had the lowest score, indicating more green letters.

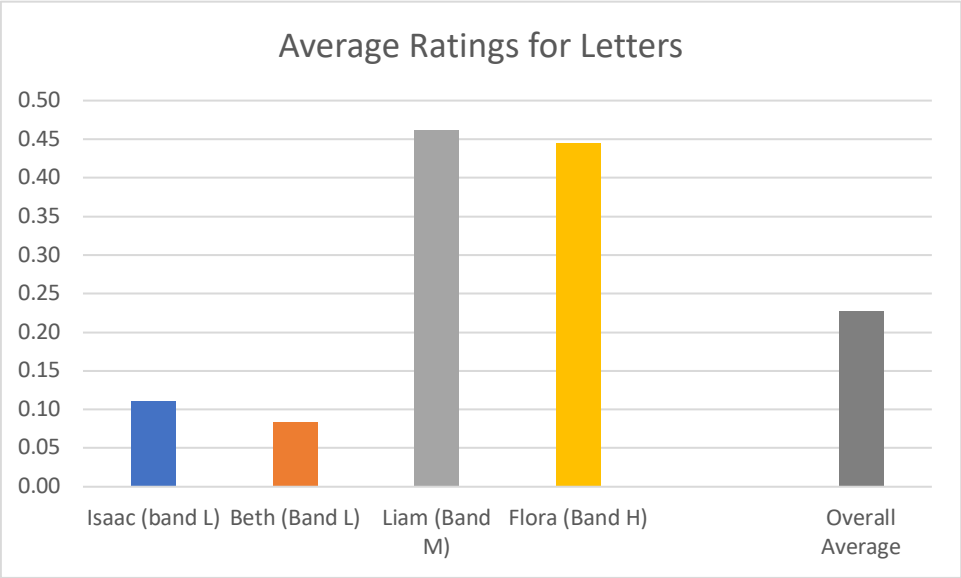


Figure 4.3 Average Rating from Children with Comparison to Overall Average

4.3.3 *Range of Skills*

According to Culligan (1997), it is only when a child has FMC they are ready to write. In my TRJ I regularly remarked on some of the children's weak fine motor skills.

> *"*Overall, their fine motor skills are not ready, yet there are expectations I must as a teacher meet. If the children spend junior infants solely working on fine motor they will only be beginning to write letters in senior infants and this will hold them back from beginning to spell words. I would love to find a solution to the weak fine motor skills we are encountering in our Junior Infant pupils." (TRJ, 13/01/2020)

Weak FMC was also evident in some of the children's work where they did not demonstrate good movement or control of the pencil (see Figure 4.4). While Una has made an attempt at writing letters, she demonstrates difficulty when changing direction. Sara displays good letter shape awareness and awareness of cursive lead-in and lead-outs but indicates difficulty with the continuation of the line. In order to continue to develop this, I continued to incorporate fine motor skill activities in class, alongside pencil practice (Limpo & Graham, 2020).

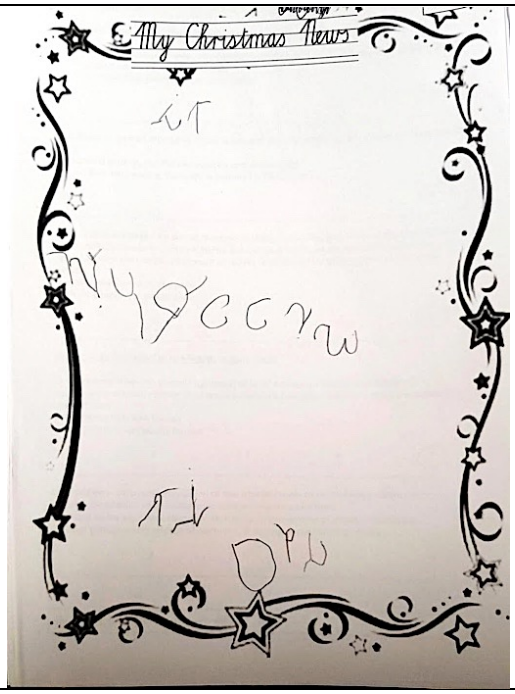
Una *(Band L)*	Sara *(Band M)*
	

Figure 4.4 Baseline sample demonstrating weak fine motor skills

However, FMC was not the only factor hindering handwriting development in the class. Naomi demonstrated good FMC and pencil control in her handwriting (see Figure 4.5).

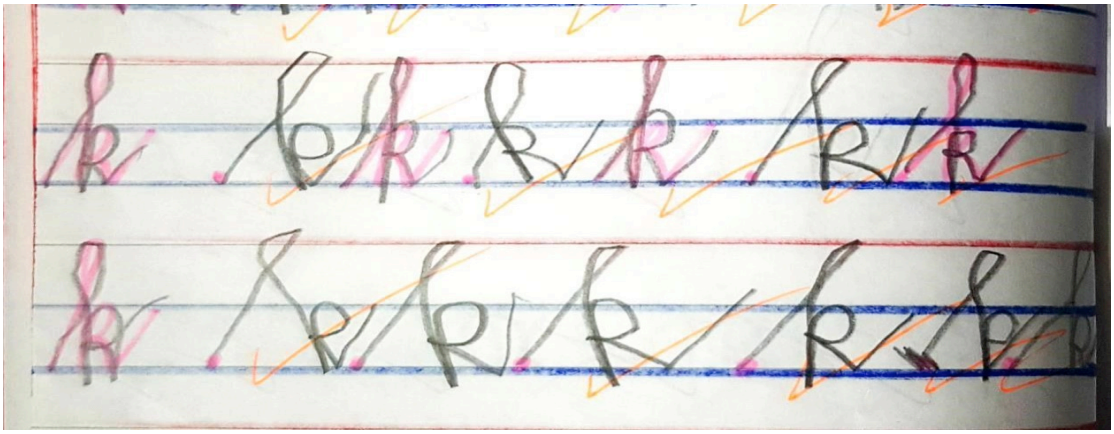


Figure 4.5 Naomi blocked practice of the letter k

While the children considered the letter *k* to be one of the most difficult (see Appendix N) and despite colouring the letter red indicating she found it difficult, Naomi demonstrated good independent formation of the letter. However, she stated, "I can't remember what to do with that *k*, I can't remember anything" (Transcript, 9/03/2020). While she had the ability to successfully form the letter, she lacked the orthographic knowledge needed to recall its shape. According to Berninger (2012), this eventually becomes an automatic process for the child. In my TRJ I noted, "I was disappointed with others who seem to have completely forgotten how to form some of the letters we have already learned" (TRJ, 13/01/2020). However, on further reflection, this may have been indicative of their age. Meanwhile, another child who demonstrated very weak FMC demonstrated excellent orthographic knowledge.

> "I have observed that while one child has very weak fine motor skills, he is working really hard on the formation of the letters and is following the correct pattern in forming them. His writing is shaky and he is finding it difficult to write back on himself, but the shape and formation are there."(TRJ, 10/01/2020)

Forming a cursive letter often requires the child to write back over a line they have already created. This child found this difficult, meaning that although it was clear he knew

the pattern the letter made, his FMC prevented him from accurately forming it and his final product was not always accurate to the letter he was practising. Overall, it was clear the children in my class were of a wide range of abilities, needs and attitudes when it came to CH.

4.3.4 *Clear Expectations*

Due to the wide range of abilities in the class, success criteria based on the successful production of the letter we were learning was unfair. I wished to provide the children with what they needed to succeed in CH lessons, as it is a core value of mine. Compagnoni et al. (2019) found that young children are more inclined to focus on mastery rather than performance. They view success as trying hard and being able to do something, regardless of their peers' performance (Nolen, 2001). However, they can be made to feel incapable if their efforts are not recognised in the classroom context (Nicholls, 1989 cited in Nolen, 2001).

To encourage a growth mind-set clear, process-based expectations were outlined at the beginning of every lesson (Gunderson et al., 2013; Haimovitz & Dweck, 2017). The children were asked to focus their efforts on demonstrating the following skills:

- Start on the bottom blue line
- Keep the pencil on the page until the letter is complete
- Carefully form each letter rather than a large quantity of letters

The children's efforts to follow the success criteria were praised, rather than the product of the final letter they formed.

Lead researchers on the subject of handwriting instruction agree that handwriting lessons should be planned to be short (Culligan, 2009; Graham et al., 2012). To ensure the children did not rush their work, a timer was set for 7 minutes. The children had to spend the full time handwriting and there was no focus on the quantity of work produced.

> *"*For the trace and copy practice I set a timer for 7 minutes. I explained that if everyone worked carefully until the timer went off, once it went off the whole class would receive time with marla. I felt like this resulted in the children being far more focused. They produced excellent work and all of them worked very carefully, not rushing to get the work done*."* (TRJ, 8/01/2020)

The children were provided with success criteria focussed on their commitment and work throughout the lesson. This meant every child in the class could be successful with their handwriting, regardless of FMC, orthographic or VMI skills. The success from this was documented in my TRJ:

> *"*I am very impressed that the children are very aware of beginning the lead in on the bottom blue line. This was something my children last year struggled with. When demonstrating, if I do not start at the correct place, the children will stop me. They are also very aware that the pencil does not leave the page when they are writing*."* (TRJ, 20/01/2020)

4.3.5 *Confidence in Handwriting*

Regardless of their ability or letters they produced, the children displayed confidence in their handwriting. When working, Una (Band L) asked for letters to be demonstrated in her copy, indicating low orthographic knowledge (see Figure 4.6). Similarly, she struggled with the formation of the letters, indicating weak FMC.

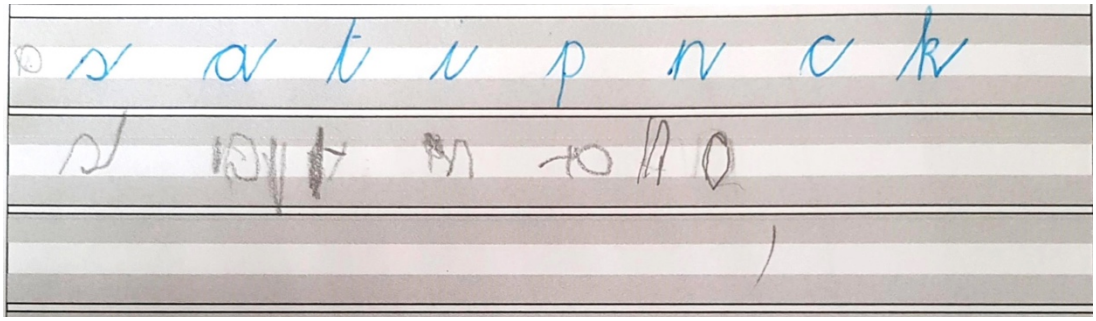


Figure 4.6 Una random practice 2/02/2020

However, when discussing handwriting, Una displayed confidence in her abilities, and was confident that one day she will be able to write a book.

> **Una:** Well, its, well if you write you'll, you'll get the hang, you will feel like an adult and you'll think you're ready
> **Me:** Well done, so when you write…
> **Una:** a whole book, you can, if you're ready
> **Me:** And do you think you will be able to write a book? You think so?
> **Una:** Yeah
> (Transcript, 09/03/2020)

This confident attitude was also reflected in two different accounts from the children. When I asked the group of children if they thought they were good at writing, they all answered that they were, despite having commented on elements of it which they found difficult (Transcript, 24/01/2020). According to Johnston (2004) having a sense of ability is key to pupil achievement. Focusing on a process-based approach, and tracking the children's abilities, meant I could ensure each child was receiving what they needed and had the ability to succeed, enacting one of my core values.

4.4 Finding 2: Children Benefitted from Regular and Varied Cursive Handwriting Practice

The children benefitted from a selection of teaching methods being used for handwriting lessons such as teacher modelling and verbal pathways. They benefitted from regular practice that was a mix of tracing, blocked and random practice. Findings indicated that practice at home influenced their progress.

4.4.1 *Teacher Modelling*

Each handwriting lesson began with whole class practice. I modelled the formation of the letter, followed by the children using their "magic wands" to direct my hand to draw the letter. Providing moving samples proved to be most successful in my classroom as

> "they are able to see the formation. I think when the children are just looking at static examples they will find the simplest way to draw the letter. This often involves making the main shape and adding the lead in and lead out as an afterthought*"* (TRJ, 10/01/2020).

When modelling, I recreated the paper or lines the children were using. When Naomi explained she found it difficult to remember the letters, I asked

> **Me:** And what type of things help you remember how to do your handwriting? How do, what makes it a little bit easier when it's tricky?
> **Naomi:** When, when you see it in the lines (*referring to blue and red lines between which the children write and which I used when modelling on the board)*
> **Me:** Oh when you get to look at it? Does that help you?
> **Sara:** When we see those lines
> (Transcript, 9/03/2020)

Despite recognising the importance of the examples, the children's focus was often low. A "competition" began between the children and me. I attempted to accurately write the letter, taking the opportunity to demonstrate some commonly made mistakes I had observed the children making. I encouraged the children to correct me, and they would use their "magic wands" to guide me in writing the letter with the correct formation. This became known as "the competition" between the children and myself. The children got great enjoyment from this, a core value of mine, and as a result became more engaged in lessons. I noted

> "the children were more engaged in this as there was an element of competition against the teacher, it also allowed for peer corrections without the focus being on a child's work*"* (TRJ, 7/01/2020).

4.4.2 *Verbal Pathways*

The NCCA (2019a) highlight verbal pathways as an important tool to support the acquisition of handwriting. A CF suggested teaching the letter *k* as an airplane taking off. "This really captured the children's attention and I was impressed with their skill with this letter" (TRJ, 29/01/2020). Often when children were struggling, repeating the verbal pathway while they formed the letter was enough to support them to be successful with the letter while writing independently. I observed the improvement Ugo made when I repeated the verbal pathway as he was writing. In Figure 4.7 it is clear, while he was successful with tracing, he struggled writing the first *n* independently. Repeating the verbal pathway for him,

while writing the next independent *n*, made a significant difference, as seen towards the end of the letter string.

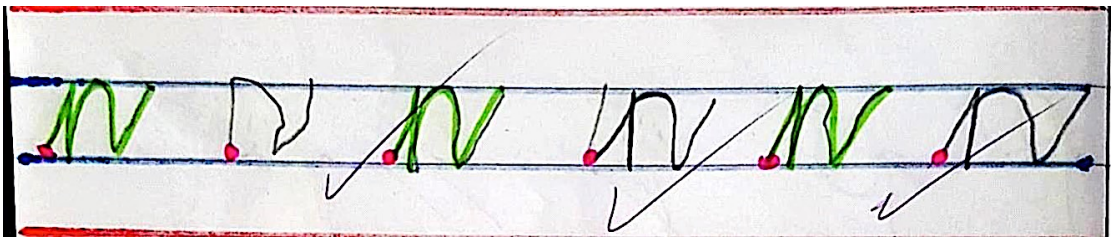


Figure 4.7 Ugo blocked practice letter n 23/01/2020

4.4.3 *Tracing Practice*

Research suggested that it was only when independently printing the letter that children became familiar with the movements involved (James & Engelhardt, 2012). Based on this, and following our school's writing programme, I initially began AC1 with minimal tracing practice. However, I soon realised the children needed this initial support noting "there are still some children who would benefit from continued tracing practice*"* (TRJ, 7/01/2020). Accounts from the children indicated that they gained a sense of confidence from tracing.

> **June:** I like doing the tracing because the letters make you more better (Transcript, 9/03/2020).

When asking the children what elements of handwriting they found difficult, Liam replied "em, the *p*, when we do it by ourselves" (Transcript, 24/01/2020), suggesting he was more confident with the supports when he was tracing than he was with independent writing.

As I value the children receiving what they need to succeed, I incorporated a tracing sheet into lessons.

> "Once the children had learned the formation of the letter they began with a practice sheet, before the trace and copy sheet. This allowed me to check their pencil grip and how they were sitting and immediately identify the children who may need more assistance when we did the trace and copy practice" (TRJ, 8/01/2020).

4.4.4 *Blocked and Random Practice*

AC2 was planned as a random practice approach. This was based on research that promoted it over blocked practice once the children had learned a number of letters (Asher, 2006). However, during AC1, it became apparent the children were not ready for a fully random practice-based approach.

> *"*I had initially planned that after the first day of the letter would be blocked practice and then day 2 would be fully random practice, but I feel the children are not ready for that as of yet, and possibly may not be at this class level." (TRJ, 28/01/2020)

The children's ability in blocked practice was not reflected when they engaged in random practice (see Figure 4.8). As a result, the plan for AC2 was changed, which will be discussed further in Chapter 5.

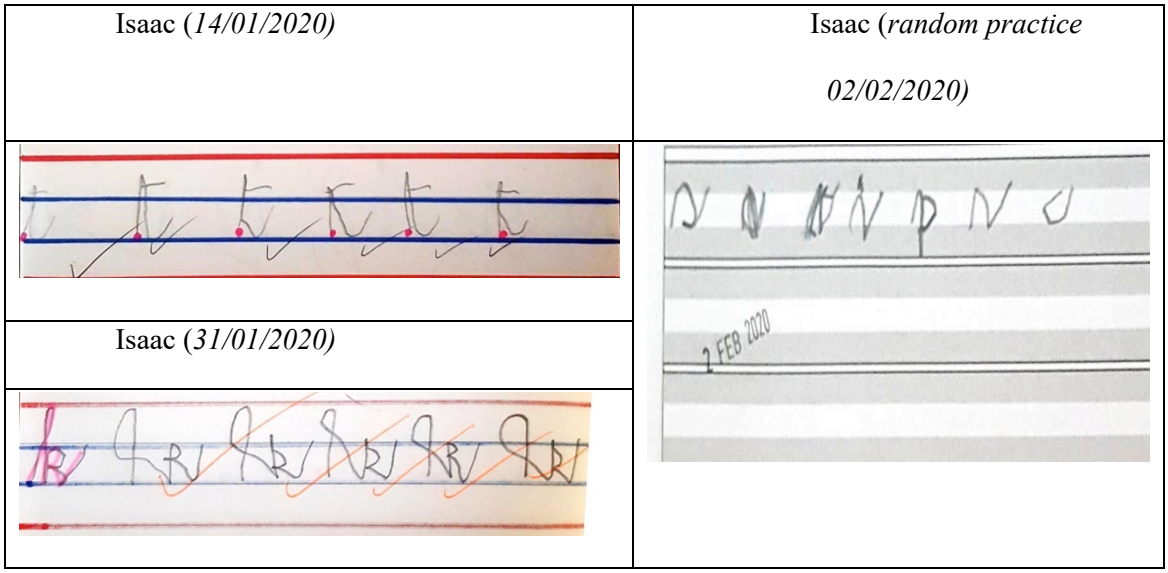


Figure 4.8 Comparison of blocked and random practice from Isaac.

4.4.5 *Practice at Home*

An interesting theme that appeared was the impact of practice at home. Early in my TRJ, I noted that the majority of the children's parents wrote in manuscript. Any of the children who had begun to write prior to school instruction were doing so in manuscript. A theme of practice at home also came through in the children's accounts.

> **Dave:** When, when I am home I do, I still do handwriting.
> **Una:** Handwriting might be tricky but if it doesn't you'll get the hang of it.
> **Me:** You'll get the hang of it? And what helps you get the hang of it?
> **Una:** Because if you keep practising at home.
> (Transcript, 9/03/2020)

I observed "interestingly one child has struggled significantly with the letters s and a, generally just drawing a circle. However, today he was extremely successful in writing the letter t, telling me he had been practising at home" (TRJ, 13/01/2020). This is reflective of a study by Puranik et al. (2018) who found that parental teaching was a significant predictor of the child's spelling, letter writing and spontaneous writing.

4.4.6 *Success from Practice*

After AC1, which focused on a blocked practice approach, the class average improved across four areas of the HLS, with the overall average improving by 0.54 (see Figure 4.9).

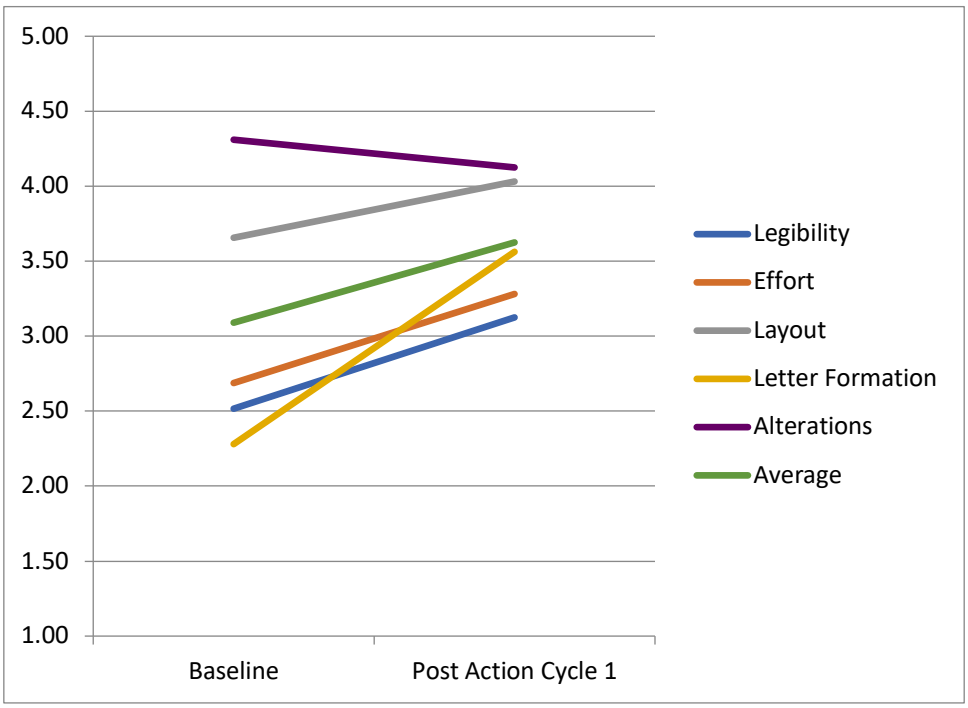


Figure 4.9 Graph depicting change in study group scores from the Baseline to post Action Cycle 1.

The study group's score dropped slightly in terms of alterations. However, this could be due to their awareness of letter shape increasing. The study group made the greatest improvement in the area in which they were initially weakest, letter formation, moving from an average of 2.28 to 3.56, a jump of 1.28 (see Appendix O).

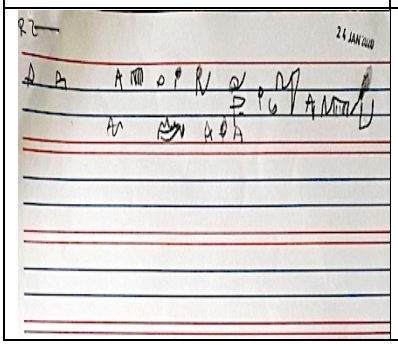
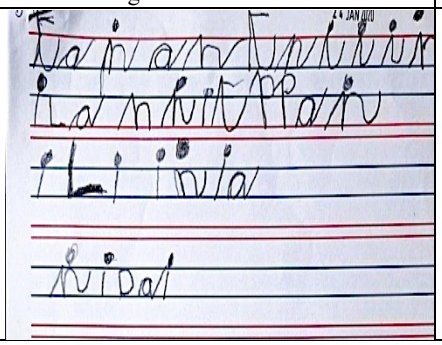
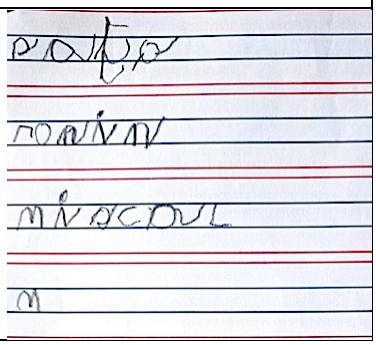
Beth	Eoghan	Melissa
		

Figure 4.10 Work samples post Action Cycle 1

While Beth and Eoghan were still working within a prephonemic stage, Beth had moved towards writing more conventional letter strings (see Figure 4.10). Eoghan demonstrates more awareness of layout and is demonstrating CH knowledge, including lead-ins and lead-outs. Melissa is continuing to work at a transitional stage, sounding out the beginning, medial and end sound. She has independently attempted to sound out "Santa", "Ronin" and "Miss Cahill". While her writing is not as neat as her initial sample, she is showing more awareness of layout, the formation of cursive letters and modelling a wider range of letters.

During accounts, the children demonstrated a growth mind-set, encouraged through the process-focused approach, and recognised the importance of practice.

> **Ugo:** Even, even though handwriting is tricky, if you keep practising it's really good for you
> (Transcript, 9/03/2020)

The data from this study supported the literature in that regular and varied practice was important to the children's CH development. However, while this meant the children were receiving what they needed to succeed, and were enjoying elements such as "the competition", it was not accounting for my values of enjoyment in education and collaborative learning. The final finding, outlining the effectiveness of cross-age PT, will now be examined.

4.5 Finding 3: Children Benefitted from Cross-Age Peer Tutoring in Cursive Handwriting:

The third theme that emerged from the data was the effectiveness of cross-age PT. It provided an authentic audience for the children's work, allowed for appropriate differentiation and brought handwriting lessons into the social context. Handwriting lessons called on the learning community as the children engaged in collaborative learning, resulting in enjoyment of learning and as such, aligning with my values.

4.5.1 *Initial Motivation - New Learning*

The children had a very positive attitude when handwriting instruction began. I reflected, "the children were very enthusiastic to begin formal writing instruction" (TRJ, 6/01/2020). This attitude was mirrored in the children's accounts. When I asked what they liked about learning to write they answered:

> **June:** Because we learn about letters and we get to do new things…emm doing the fun letters because they're really fun
> **Jasmine:** When we are doing the lead in and the lead out
>
> **Sara:** I like doing the letters
>
> **Naomi:** I like writing my letters…when, when we come and we get the page and write the letter.
> (Transcript, 24/01/2020)

When asked what they did not like about learning CH, initially no one answered until June elaborated, "no one doesn't like it" (Transcript, 24/01/2020).

4.5.2 *Teacher Attitude*

Through my TRJ I noted that my own attitude impacted on the success of handwriting lessons.

> *"*The children didn't seem as focused or engaged as they usually are. I felt that I myself was tired today, and perhaps as a result not displaying as much enthusiasm when approaching writing as I usually do" (TRJ, 8/01/2020).

During a discussion with a CF, she explained her junior infants were developing a negative attitude towards CH, resulting in reluctance to write. She reminded me I had experienced a similar attitude last year. In reflecting on this I noted,

> "this is definitely not the case this year. I have noted quite a determined attitude from some of the children who are finding it difficult. I am wondering if maybe my own change in attitude towards teaching cursive handwriting is having an effect on the children*."* (TRJ, 7/01/2020).

4.5.3 *Importance of Audience*

During AC1 I observed a child making a particularly big effort with his handwriting and to foster a sense of pride in his work I asked him to show his work to another teacher.

> *"*The teacher made a fuss of him and when the child returned to class he was beaming from ear to ear. While I have been very enthusiastic about my classes writing attempts, it is apparent that praise from another teacher and class brings another level of pride." (TRJ, 10/01/2020)

During the following lesson I praised another child's work "he asked could he show the teacher next door…he, again, was extremely proud of himself*"* (TRJ, 13/01/2020). According to Cowley, "having a 'real' audience for their work is one way of truly engaging our students in the writing process" (2004, 42).

While, through my TRJ, I recognised the positive influence an audience could have on the children, I also observed a situation in which a child was negatively impacted by comments from a peer. I reflected on an incident in which a child's formation was becoming worse as he continued his work

> *"*I later discovered that the child beside him had been commenting on other people's writing in a negative manner as it was reported from another child*."(* TRJ, 7/01/2020)

4.5.4 *Peer Tutoring*

Realising my original plan for AC2 would not be fulfilling the children's needs, I sought out a CF.

> *"*I explained my main struggle so far in my lessons was ensuring that the children were motivated. I explained that while some children were eager to write, many of them are not at the point of seeing the endgame or realising what writing these letters would enable them to do… she suggested teaming up our classes. Her 2nd class have been involved in buddy reading with a senior school class and she has noticed a dramatic improvement in the effort they have been putting into their reading. *(*TRJ, 23/01/2020)

According to Topping (2015), when effectively planned, PT can result in significant academic achievement in the targeted curricular area. Accounts from the junior infant children indicated that they responded particularly well to Pencil Pals and developed a positive attitude towards CH. It was clear from their accounts that they were enjoying CH, which is one of my core values.

> **Jasmine:** It's like, when we like just, do like letters it's like so fun
> **Una:** They're amazing
> **June:** Because, like, it helps, em, the junior infants…em, they help you with your writing and stuff.
> (Transcript, 9/03/2020)

Pencil Pals created an opportunity for the children to write for an authentic audience. Research shows that young children provide a higher quality of work when aware of an audience (O'Rourke, 2011; Block & Strachan, 2019). However, they can have a weak concept of audience. Therefore, working face-to-face with their audience can encourage awareness (McCutchen, 2006).

Once Pencil Pals began, a visible improvement became apparent in the children's blocked practice, particularly those in Band L (see Figure 4.11).

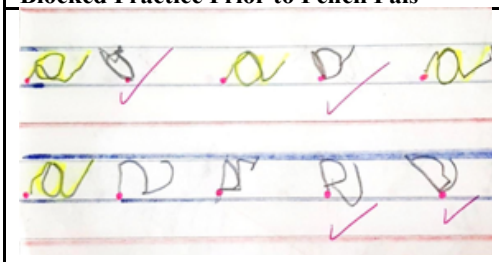
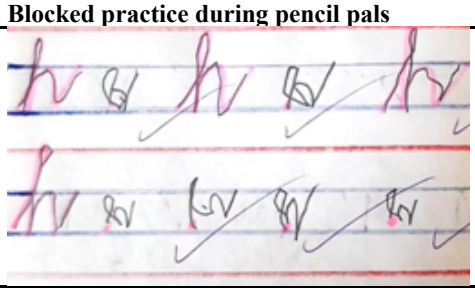
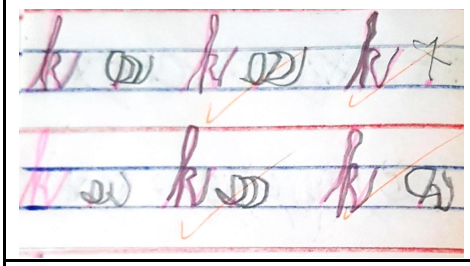
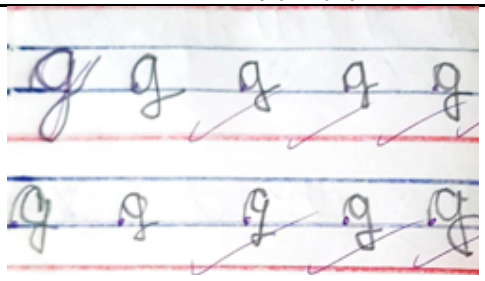
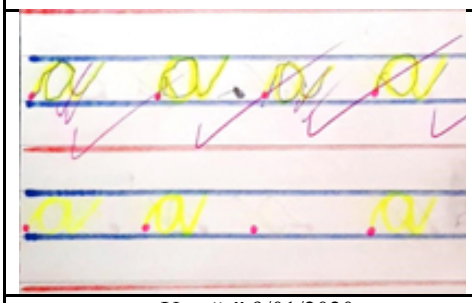
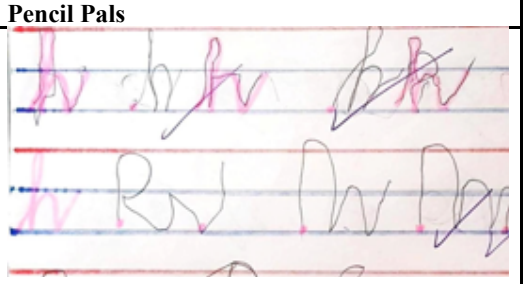
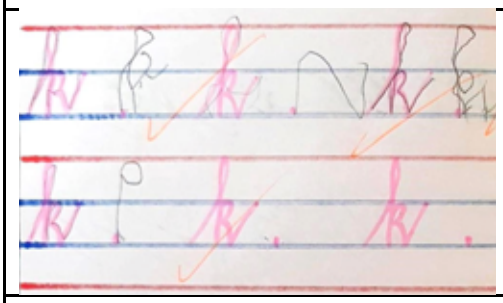
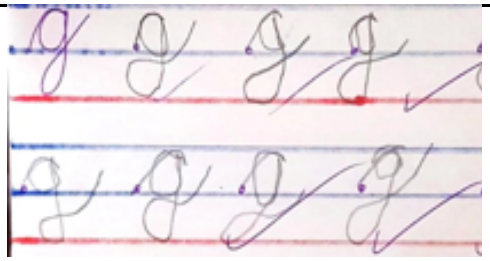
<table>
<tr><th colspan="2">Beth</th></tr>
<tr><td>Blocked Practice Prior to Pencil Pals</td><td>Blocked practice during pencil pals</td></tr>
<tr><td>  </td><td>  </td></tr>
<tr><td>Beth “a” 9/01/2020</td><td>Beth “h” 6/02/2020</td></tr>
<tr><td>  </td><td>  </td></tr>
<tr><td>Beth “k” 9/01/2020</td><td>Beth “g” 27/02/2020</td></tr>
<tr><th colspan="2">Ugo</th></tr>
<tr><td>Blocked Practice Pre- Pencil Pals</td><td>Blocked Practice post the implementation of Pencil Pals</td></tr>
<tr><td>  </td><td>  </td></tr>
<tr><td>Ugo “a” 9/01/2020</td><td>Ugo “h” 6/02/2020</td></tr>
<tr><td>  </td><td>  </td></tr>
<tr><td>Ugo “k” 31/01/2020</td><td>Ugo “g” 27/02/2020</td></tr>
</table>

Figure 4.11 Progression of Band L children's blocked practice

I remarked on the impact the second class was having as cursive role models to the junior infants noting that

> "many of the parents of the children in my class write in print and this is what the children are familiar with as writing. Watching older children whom they look up to write in cursive is having a positive effect. They are motivated to impress the second class but also want to be able to write like them*"* (TRJ, 6/03/2020).

Hänze, et al. found that not only did effective peer tutoring have a motivational effect, but "the encouragement to carry out more self-determined activities resulted in a more elaborated knowledge acquisition" (2018, 923). Accounts from the children indicated they became more motivated and were pushing themselves with their work:

> **Ugo:** When pencil, when they do, when on your own with pencil pals you can do all kinds of letters
> **Jasmine:** Em, it's like, my pencil pal teached me how to do the letters when they're together
> **Una:** Well, they always tell us what to do and that's good because like em you get to learn stuff and they tell you, tell you how to join them, but we're, if we're not ready they don't show us.
> **(**Transcript, 9/03/2020)

I also noted this in my TRJ "in free writing today I noticed two of the children in my class were joining the letters. One explained that her pencil pal had shown her how to do this and was proud in doing so" (06/03/2020). The children began to experiment more with their writing. In Figure 4.12, Eoghan has accurately formed a capital cursive $\mathcal{H}$ that had not been taught in class (see Figure 4.12).

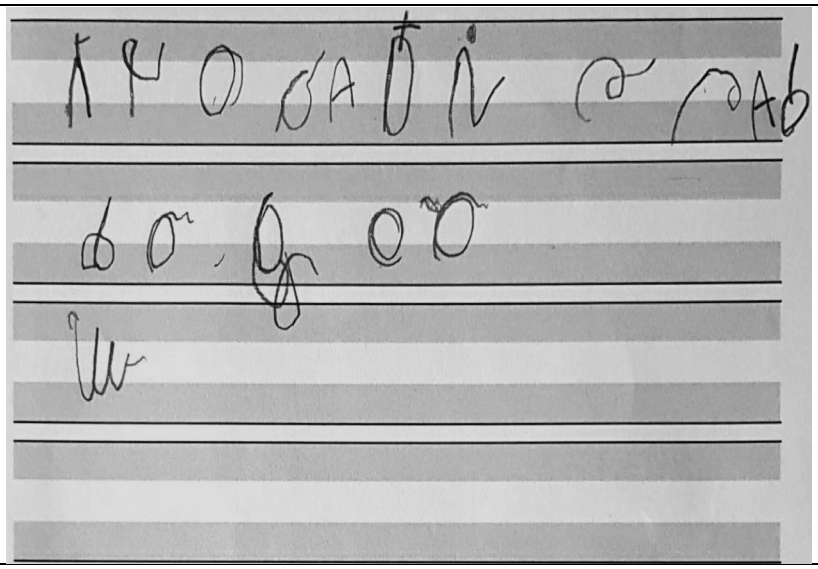
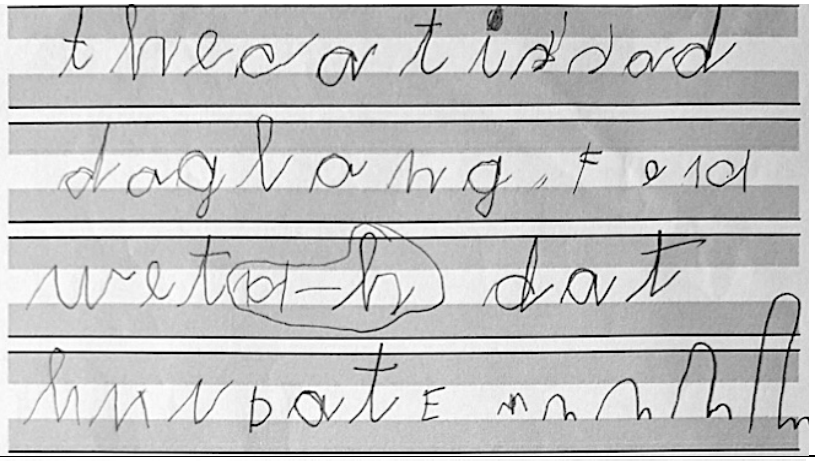
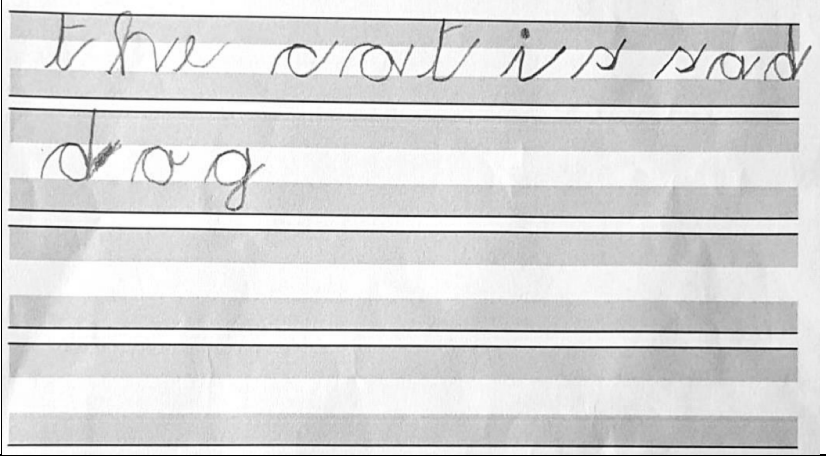
Beth (Band L)	
Eoghan (Band M)	
Melissa (Band H)	

Figure 4.12 Sample of children's work post Action Cycle 2

The sentence “the cat is sad” and the words “long”, “dog” and “wet” were written on the whiteboard for the children to copy as they used the letters the children had learned. An improvement can be seen in children from each of the bands. Beth shows more awareness of the layout and of the elements of CH, accurately forming an *e* and an *i*. She has progressed to an early phonemic stage, modelling an awareness of environmental print. However, she demonstrated a more significant improvement in her blocked practice (see Figure 4.11 Progression of Band L children's blocked practice). Eoghan has progressed to a transitional stage of writing. He has independently sounded out and written the word “bat”. Melissa has just copied the sentence. Her writing demonstrates excellent formation. However, she is not demonstrating her ability to independently write words as she did in previous samples. Gannon (1985) noted that writing competence can vary based on the task.

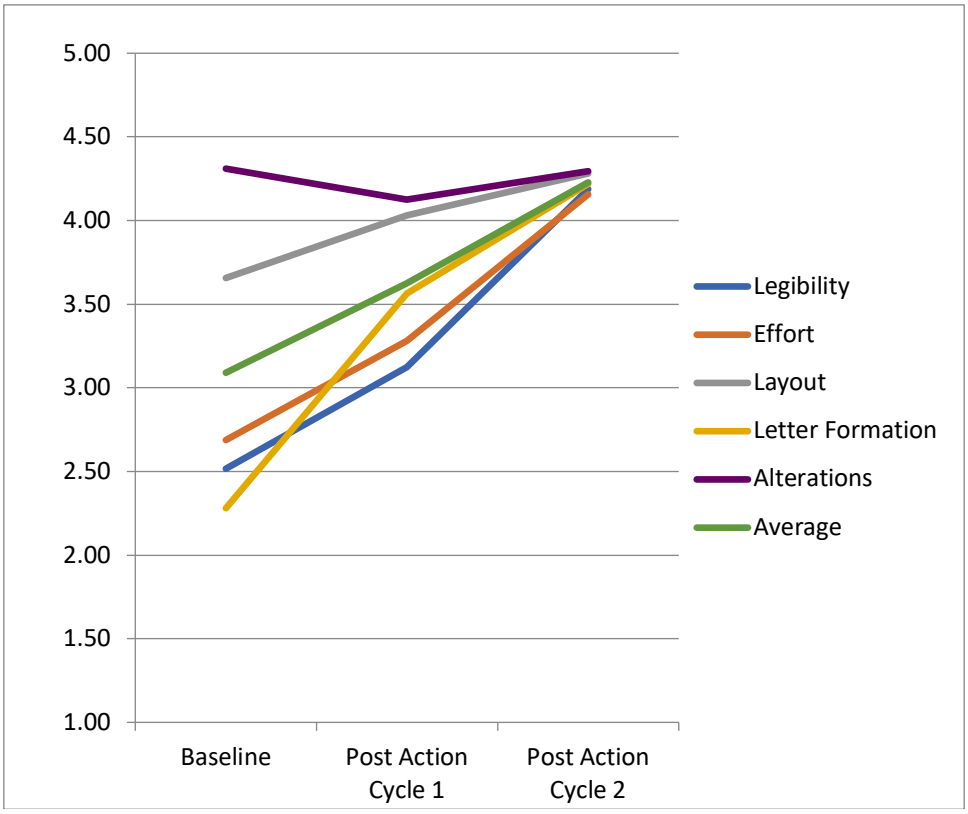


Figure 4.13 Graph showing progression of study group scores on HLS from Baseline to post Action Cycle 2

Through AC2, the study group progressed in five criteria of the HLS (see Figure 4.13) (see Appendix P). The biggest improvement between the post AC1 and post AC2 samples was in legibility, which made an improvement of 1.06 on the scale. The children made a significant overall improvement in legibility, effort, layout and letter formation. Their score for alterations dropped by 0.01 overall, however, this may be due to their heightened awareness of letter formation and demands of cursive.

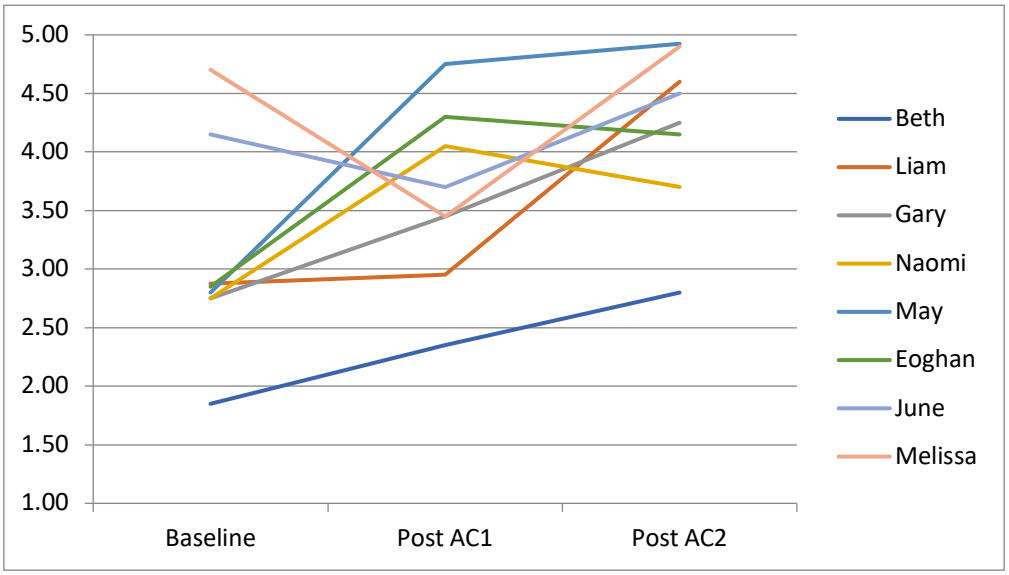


Figure 4.14 Individual progress of study group

The average for each child in the study group improved between the initial sample and post AC2. Interestingly, the score for study group children in Band H (June and Melissa) dropped after AC1. However, this could be due to them becoming more self-aware of the formation after receiving specific instruction. Their scores then increased post AC2. As is evident from the graph, the Band M children's progress was not linear, however, they all improved overall throughout the research. Interestingly, Beth (Band L) made more steady, linear progress throughout the intervention.

4.5.5 *Benefit for Tutor*

Paterson and Elliot (2006) state that tutoring gives students the opportunity to revise and reinforce their learning. During a conversation with the second class teacher, she informed me that

> "one of her children has been making a special effort with his writing since he heard we would be doing pencil pals, and asked the teacher for a chart with each of the letters on it so he could make sure he was forming them correctly" (TRJ, 31/01/2020).

This is reflective of much of the research on cross-age peer tutoring which highlights the many benefits for tutor (Leung, 2019; Haynes & Brendle, 2019).

4.6 Summary

The findings show a wide range of abilities in my junior infant classroom. It is clear children need strong FMC prior to handwriting instruction. Due to this range of abilities and needs, providing process-focussed success criteria was fairer than one based on the letter produced. The expectations were outlined at the beginning of each lesson and findings suggest children of all abilities remained confident in their writing.

Findings also support the need for regular and varied practice. Although research recommends limited tracing practice and a random practice based approach (Asher, 2006; James & Engelhardt, 2012) the children in my class needed the support of tracing and blocked practice for a longer period of time. Engaging in regular, timed practice with an effort-based success criterion, the children improved across all five criteria on the HLS, with the most significant improvement in letter formation.

While the findings indicate the importance of practice, it is apparent that the children also need to recognise purpose in writing that they do not gain from practice alone. Providing the children with an authentic audience, other than the teacher, proved effective in motivating the children. Cross-age peer tutoring in handwriting resulted in writing becoming a more social experience in which the children were reminded of the audience and purpose of writing. During this phase, the sample set of children improved most in legibility.

Engaging in regular and varied practice, with process-focussed criteria, alongside Pencil Pals ensured children received what they needed to succeed, in a collaborative setting, calling on the school community and findings suggest the children enjoyed CH lessons, enacting my core values.

The data indicates that the implementation of Pencil Pals had a positive effect on the children's writing. This would have been built on during AC3, which will now be outlined.

4.7 Action Cycle 3:

Unfortunately, due to the COVID-19 pandemic my research ceased at the beginning of AC3. During at-home learning, the children shared work on an online platform. I was disappointed to see that despite the progress the class had made in CH, many of the children began to write in MH. This reinforced the impact and value of the child's at-home practice and the parent/guardian's influence on the child's CH.

In order to encourage the children to continue CH, I recorded videos for the class' online learning platform, revising letters they had learned and introducing new letters. I relied heavily on teacher-modelling moving examples, verbal pathways and reiterated to the parents the process-based expectations. This proved successful and resulted in some of the children continuing to develop their writing ability (see Figure 4.15).

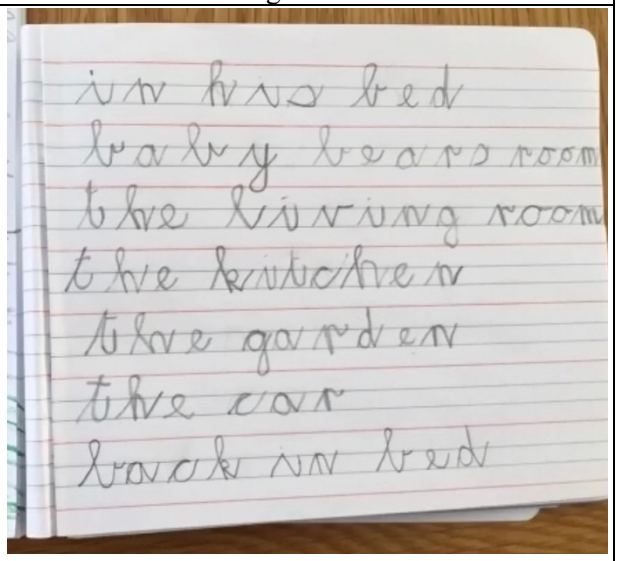
Baseline sample- Eoghan 6/01/2020	Writing completed by Eoghan during at-home learning 27/05/2020
	

Figure 4.15 Progression of work - Eoghan

4.7.1 *The Writing Process/ Writing for Purpose*

International research supports the teaching of writing to emergent writers through a process approach (Bissex, 1980; Calkins, 1986; O'Rourke, 2011). However, many

researchers emphasise the importance of children receiving formal training in handwriting, learning about the structure of the letter and how they should be formed (Culligan, 2009; Vinter & Chartrel, 2010; Arslan, 2012; Limpo & Graham, 2020). Puranik et. al (2017) state that children need to demonstrate lower-level transcription skills before they are ready to begin composing text. After completing the first two cycles the children had learned the correct formation of the majority of letters and were becoming more confident with their writing ability.

When I re-evaluated my plan for AC2, I incorporated Pencil Pals into the writing for purpose plan for AC3. Second class would assist the junior infants in the writing process. "Children tend to learn to write faster, better and more joyfully when they so do for their own purposes, under the guidance and encouragement of a knowledgeable teacher" (Stice, Bertrand & Bertrand, 1995: 251). At the point at which the research cycle ceased the children had begun to plan and draft their stories. I noted:

> *"*Today the children began to plan their stories. I am so impressed with the imagination my junior infants have and their enthusiasm at writing a story. The children have come up with fantastic ideas and are so excited about their characters…I feel that at this age the children have such a fantastic imagination and brilliant stories to tell. This process is allowing them to grow confidence in what they can do. It is also introducing them to the writing process at a young age. I am hoping that my class will begin to write their own stories*" (*TRJ, 9/03/2020)

The children were also beginning to create connections between their writing and reading. This only became apparent in the children's accounts towards the end of AC2, when we had begun to discuss that they would be writing their own books.

> **Me:** Why do you like handwriting?
> **Faith:** Because, because, because I love reading.
> **Me:** Why are we learning to write?
> **Liam:** Em so we can read
> (Transcript, 9/03/2020)

> **Ugo:** Even, even though handwriting is tricky, if you keep practising it's really good for you
> **Me:** Is it? Why do you think handwriting is really good for you?
> **Ugo:** Cuz, cuz you get better at it and you can read and stuff
> (Transcript, 9/03/2020)

For AC3, Pencil Pals would take place four times a week for 20 minutes with the focus on the writing process (see Figure 4.16).

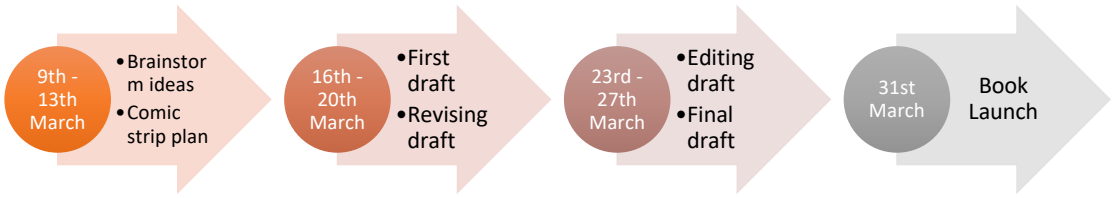


Figure 4.16 Action Cycle 3 Plan for Pencil Pals

4.7.2 *Post Office*

An assumption of social constructivist theories (Vygotsky, 1978) is that literacy should be taught in the social context (Turner, 1995). One of the themes of the Aistear programme is communicating, encouraging teachers to provide a print rich environment with opportunities for exploring mark making (NCCA, 2009). As suggested by Culligan (2009), I created a writing corner in my room. I noted children engaging with it early in the study.

> "Our current Aistear theme is the supermarket and there are pencils and paper for the children to make shopping lists. Some children have begun to engage with the writing utensils. While the children are not writing letters, their scribbles are mimicking a cursive style. I hope that this demonstrates the children beginning to recognise writing as being in cursive." *(*TRJ, 5/02/2020)

For AC3 our Aistear theme was the post office, allowing for the integration of writing across the curriculum and through play. Teachers need to be careful that children do not associate writing with just being schoolwork (Nolen, 2001). A post box had been set up between my classroom and our Pencil Pals' classroom for the children to implement their writing skills by writing letters to their Pencil Pal to encourage an authentic purpose and audience for the children's writing (Graham et al., 2012).

4.7.3 *Differentiation*

As is evident throughout the findings, the children in my class were presenting with a wide range of abilities in handwriting. I found their ability often varied based on tasks (Gannon, 1985). However, by the end of AC2, the children's abilities were becoming more consistent. Children such as Melissa and Eoghan were working at a transitional stage of writing and were ready to write independently. Meanwhile, children such as Beth and Una were still developing their transcribing skills (Puranik et al., 2017).

Pencil Pals allowed for more support for the children (Nolen, 2001). The Aistear programme (NCCA, 2009), encourages teachers to support pupil's in their writing in a way that suits their needs best, which mirrors my core values. In AC3 a GRR (Pearson & Gallagher, 1983) would have been implemented in CH lessons, encouraging some children to work independently, while offering others further guidance with teacher modelling in smaller groups with guided writing.

AC3 would have focused on building handwriting as a social activity, not limited to writing lessons, with the opportunity for the children to write their own books and appropriate differentiation in place for children to progress at a pace suited to them, in such a way that is reflective of my values (see Figure 4.17).

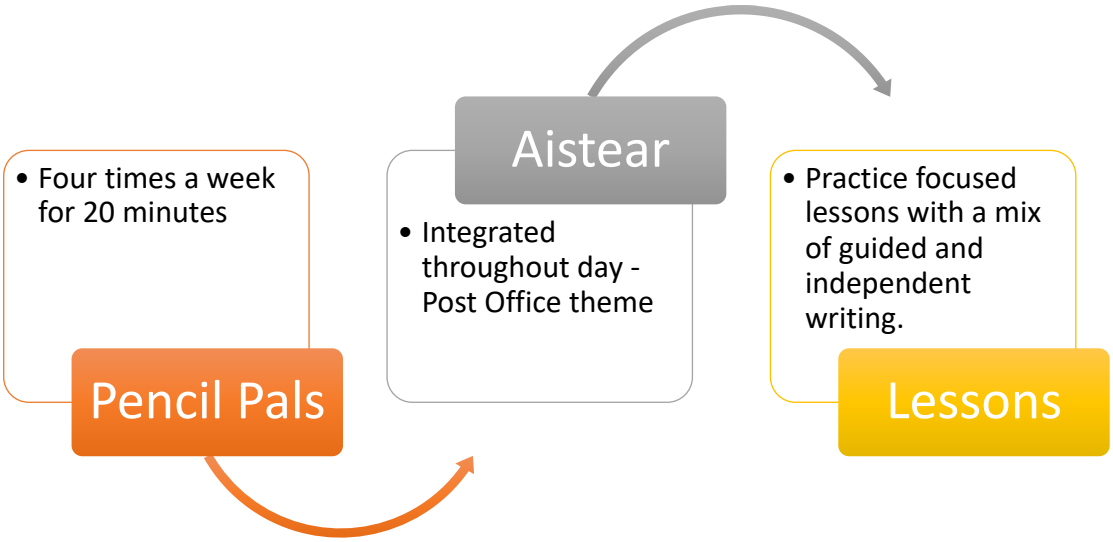


Figure 4.17 Integrated Plan for Action Cycle 3

I would continue the mixed-methods approach of data collection, using the same data collection methods as were used in AC1 and AC2 in order to accurately compare and monitor the children's progress through AC3 (see Figure 4.18).

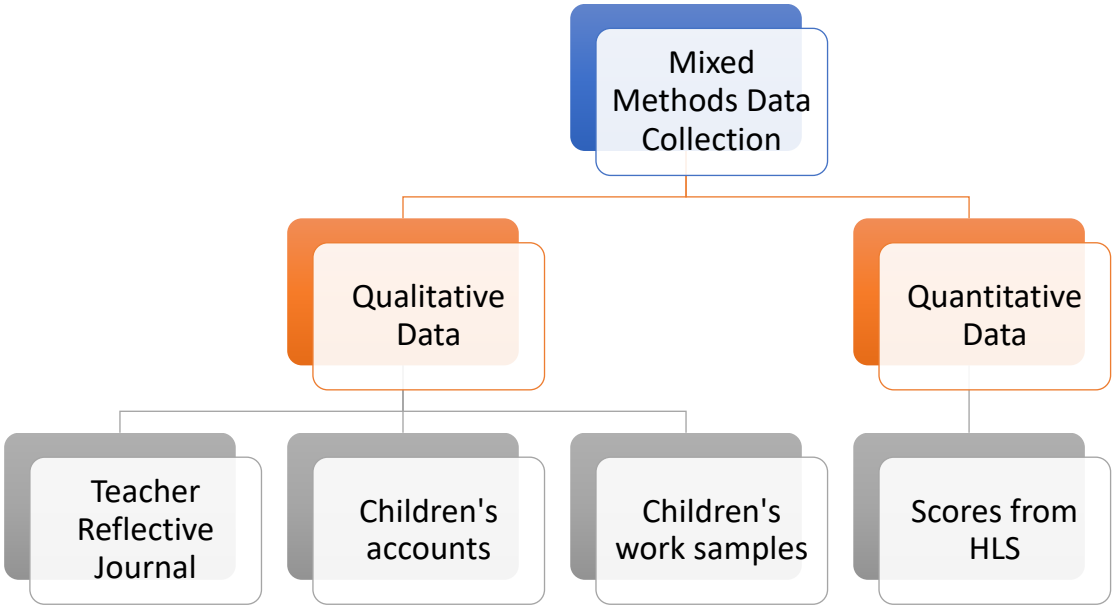


Figure 4.18 Data Collection Methods Action Cycle 3

Following AC3, I hoped to implement a Writers' Workshop approach to encourage the children to continue to build their orthographic skills and engage in the writing process.

4.8 Conclusion

This chapter examined and analysed the data collected throughout AC1 and AC2 of this study. Unfortunately, due to the COVID-19 pandemic, AC3 was not completed. The next chapter will discuss each of the findings, along with outlining limitations, suggestions for future studies and recommendations. Following this, I will critically reflect on the "messiness" involved in AR and discuss the implications of this study.

5 OVERALL REVIEW AND CONCLUSION

To conclude this thesis, I will revisit the research question, exploring each of the findings in relation to it. I will outline the limitations for this study, make suggestions for future research in the area and list recommendations. I will critically reflect on the messiness involved in this AR project, followed by discussing the implications of this study for educational agencies, for schools and for myself. To conclude, I will reflect on the value and importance of AR as I move forward.

5.1 Discussion of Findings

The purpose of this study was to answer my research question, how can I effectively teach junior infants cursive handwriting? From this question I wished to find effective ways I could teach CH in a manner that reflected my core values. This meant finding a way to teach CH that the children enjoyed, calling on the learning community, collaborative learning and whereby all pupils got what they needed to succeed to the best of their ability.

In order to answer my research question, I examined and analysed the literature pertaining to CH and handwriting instruction. Informed by the literature, I designed an action plan which I enacted in my classroom for a duration of two months. Thematic analysis of my TRJ, observations and pupil transcripts, triangulated with quantitative analysis of the children's work samples suggested three main findings:

- the children benefitted from a process-based approach, rather than a product-based approach
- the children needed regular and varied practice
- cross-age peer tutoring proved to be an effective strategy to teach CH to junior infants

I will now summarise and discuss each of the findings.

5.1.1 *A Process- and Effort- focused approach*

This study highlighted the vast range of needs and abilities in my junior infant class. While some children presented with the level of "readiness" (Oya Taneri & Akduman, 2018:

185) needed to begin handwriting instruction, others demonstrated weak FMC or orthographic knowledge (see section 4.3.1). Due to this it would have been unfair to focus praise on the letters the children formed. Therefore, a process-based approach was taken, whereby the focus was on the process the children engaged in and the effort they put into each lesson (see section 4.3.4). This involved asking the children to focus on three main criteria:

- start on the bottom blue line
- keep the pencil on the page until the letter is complete
- carefully form each letter rather than a large quantity of letters

The children wrote for 7 minutes with no emphasis on the quantity of writing. They were praised for their effort to follow the criteria, rather than the formation of the letter they made. Following this the children had marla time. This acted as a reward with the added benefit of developing FMC (Singpun & Sriphetcharawut, 2019).

This process-focused approach encouraged the children to have a growth mindset, where they recognised their success as being how hard they worked, rather than having produced perfect letters. The success criteria were accessible to every child in the class, meaning every child had the potential to succeed to the best of their ability (see section 4.3.5).

5.1.2 *Regular and Varied Practice*

Regular and varied practice improved the children's CH (see section 4.4). This finding was in line with the literature (Asher, 2006; Culligan, 2009; Graham et al., 2012; Semeraro et al., 2019).

Handwriting lessons took place daily. The children initially engaged in blocked practice of the letters, with random practice being introduced as they progressed. The children were not ready for a fully random practice-based approach, and often the quality of

their CH in blocked practice was not replicated in random practice. This may have been due to their young age (see section 4.4.4).

Research suggests it is only from independent formation of the letter that children become familiar with the motor movements needed to form letters (James & Engelhardt, 2012). However, despite initial attempts to minimise tracing practice, the children needed it to become more familiar with the letter and maintain their confidence in handwriting (see section 4.4.3).

The children benefitted from both static and moving models in lessons. Using teacher modelling as an opportunity to make children aware of commonly made mistakes allowed the children to recognise these without being critical of themselves (see section 4.4.1). Verbal pathways proved to be an effective methodology to assist the children in remembering the correct formation of the letter (see section 4.4.2).

A finding of the impact of practice at home arose throughout the research (see section 4.4.5). When naming a reason for their handwriting improving, children often said that they had been practising at home. This correlated with literature that suggests home literacy practices were a significant predictor of a child's ability (Puranik et al., 2018). Considering parents in Turkey had such a negative reaction to the Cursive First movement (Oya Taneri and Akduman, 2018), this is an important finding and highlights the importance of parents being on board with CH initiatives.

5.1.3 *Cross-age peer tutoring*

The final finding was that cross-age PT proved to be an effective teaching method for CH (see section 4.5). The children initially approached CH instruction with a positive, highly motivated attitude as it was new learning. By the end of AC1, which focused on regular and varied practice, some children were losing interest and I realised they were not enjoying handwriting, a core value of mine (see section 4.5.1). This suggests that while regular, varied practice benefits the children's handwriting ability, it is not sufficient in

keeping young children engaged in handwriting. I noted that my own attitude had an impact on the children's engagement with lessons (see section 4.5.2). Research indicates that teacher's had a negative attitude towards the Cursive First movement in Turkey (Karataş et al., 2014). This suggests that teacher attitude is an important factor when introducing CH from school start.

Providing other class teachers as an audience for the children's writing had a very positive response from the children and I observed them become more motivated to produce a better quality of work. The children demonstrated more care in their work when their audience was not limited to just me. This demonstrated the importance of providing the children with an authentic audience for their CH (see section 4.5.3). During AC2 I implemented cross-age PT with a second class in the school, broadening the learning community. Pencil Pals had many advantages for the children. It meant each junior infant received one-to-one assistance with their handwriting, scaffolded using an adapted GRR (Pearson & Gallagher, 1983), so all children were working at a level appropriate to their abilities.

Pencil Pals brought handwriting lessons into the social context. Vygotsky (1978) emphasises the importance of this as writing is a social process. It called on the learning community, valued by Froebel to assist the children through collaborative practice (Tovey, 2020). As a result, the children began to recognise a purpose for their writing. The second class tutors provided an authentic audience for the junior infants who were eager to impress them. As a result, some junior infants began to push themselves beyond what they had learned in CH lessons. My pupils began to demonstrate difficult skills in their writing such as joining the letters and writing capitals, as their Pencil Pal had modelled to them (see section 4.5.4).

Pencil Pals not only benefitted the junior infants but had the added advantage of encouraging the second class tutors to revise their letter formation (see section 4.5.5). Pencil

Pals ensured my core values of each child receiving what they need to succeed, enjoyment in education and the importance of the learning community and collaborative learning.

5.1.4 *Summary of Findings*

Engaging in this AR study allowed me to consider and adjust my practice in order to find effective ways to teach CH to young children, reflective of my core values. The findings suggest a process- based approach is most suitable, the children need regular and varied practice and finally, the children need to learn handwriting in a way that brings writing into a social and meaningful context. Cross-age PT proved to be an effective way to do so with my class.

5.2 Limitations

This study had a number of limitations which will now be outlined. Due to the unpredictability of attendance within the class, only eight of the eighteen pupils in the study were in school for the collection of all three work samples. This meant that only the HLS (Barnett et al., 2018) scores of those eight could be compared in quantitative analysis. This resulted in an uneven representation for each band and there was only one child from the lower ability group (Band L) represented in the comparison. Having more lower ability children represented may have impacted the results.

Another limitation was that the three writing samples compared against the HLS were not completed on the same style of paper. The initial sample was on blank paper, the second sample on red and blue ruled paper and the final sample was on shaded paper. These were in line with the progression of paper style used by the children as they progressed with their handwriting. However, using the same style paper for each sample may have allowed for a fairer comparison.

The lack of recent Irish literature was another limitation in this study. Much of the literature pertaining to CH was written at the time when CH was being abandoned in favour of MH, over 30 years ago. Recent studies rarely compare children who had learned CH

exclusively from their first year of school. As also noted by Limpo and Graham (2020) there are a lack of studies regarding effective teaching of handwriting. Many studies into CH are based in countries where children begin school at an older age than Irish schools.

Finally, a limitation arose in terms of time constraints. Unfortunately, due to the COVID-19 pandemic, the study came to an abrupt end and the final action cycle was not completed. This sudden end to the study denied my pupils the opportunity of writing the stories they had planned for AC3 and denied me the opportunity to assess the impact of writing for purpose. It also meant I could not gain a full picture of the progress the children made in their first year of CH.

5.3 Recommendations:

I will now outline recommendations based on the findings of this study for teachers, schools and the Department of Education.

Recommendations for teachers

- This study showed that regular and varied practice benefits pupils learning to write. Teachers should give due consideration to the audience they are asking their children to write for. This study demonstrated that there are appropriate audiences, other than the class teacher, for children's writing, within the school community.
- Verbal pathways and inviting the child to act as a teacher to correct commonly made mistakes proved to be effective teaching strategies for teaching CH.
- A process-based approach was beneficial for the young children in this study. This is an approach not just specific to handwriting. Young children may benefit from a process-based approach that praises effort rather than product and thus encourages a growth mindset.

- From engaging in this study, I agree with suggestions in the literature that it is only in the second half of children's first year of school they are ready to begin formal handwriting instruction. I recommend that teachers spend the first half of junior infants focusing on the development of FMC, VMI and orthographic knowledge, while experimenting with pencil practice.

Recommendations for Schools:

- The findings of this study indicated not only the importance of practice in school, but the value of practice at home. School's implementing CH from junior infants should consider involving parents and offering supports that will assist them in helping their child develop the skill at home.
- Cross-age PT proved to be an effective way to create a positive in-school culture around CH. Schools should consider it as an intervention for teaching and creating a positive atmosphere, not just around handwriting but for other elements of the curriculum

Recommendations of the Department of Education:

- The literature review indicated that teachers feel underprepared for teaching the skill of handwriting. This study also highlighted the importance of teachers having a positive attitude to CH. There is a clear need for continuous professional development in the teaching of handwriting to be available for teachers. This is particularly important for CH, as many teachers may not have experience in CH themselves.

5.4 Future Research

There is need for further longitudinal studies examining the benefits of CH, comparing groups of children who have learned CH from school start to those who have learned MH from school start. This study suggested parents and practice at home had an influence on children's CH development in class. Future studies into CH interventions should consider

parental inclusion in the study, to find whether this impacts on the child's success and if challenges arise when there is divergence between the script parents use and the script children are learning.

Finally, cross-age PT proved to be an effective way to assist junior infants with their CH. A longitudinal study looking at the long-term implications of a cross-age PT intervention for CH, analysing data from both the tutor and the tutees would give a better indication of how effective this is.

5.5 Reflection on the Messiness of Action Research

According to Whitehead, "messiness" is a part of the process of AR that "includes a feeling of chaos and of not immediately finding order" (2016: 4). During AC1 I found myself in such a mess when I came to realise that my class was not ready for the random practice approach on which I had based my plan for AC2. Brydon-Miller et al. emphasise the "values and personal commitment" (2003: 14) that need to be considered when conducting AR. I had such a personal commitment to my class. Despite research suggesting that once children had learned a number of letters, random practice was the next step (Asher, 2006), I knew that this was not going to work in my particular setting.

As one of my core values is that children should receive what they need to succeed, I knew I had to reconsider my plan for AC2. McDonagh et al. (2020) suggest that at times when the process is not going the direction it had been planned, researchers should engage with literature and speak with a CF. When I reached this point of "being in limbo" (Cook 2009: 284) I sought out a CF. Through articulating what I was experiencing, I was enabled to clarify my thinking (Sullivan et al., 2016) and during this dialogue realised that the children were not enjoying handwriting lessons as much as they initially had. During this discussion I experienced the "punctum point" (Barthes, 1993 as cited in Cook, 1998: 101), a phrase reimagined by Cook which describes a moment that "'punctuates' and 'disturbs'" and "moves the interest from passive to active and intense" (1998: 101). It was during this

dialogue that my CF outlined the impact implementing cross-age PT for reading had on her class.

In reflecting on this conversation, I felt redirected and had a renewed focus and purpose. Brydon-Miller et al. (2003) suggest that often action researchers discover the theory in an effort to justify what they knew was correct. Motivated by the idea of Pencil Pals, my research into cross-age PT allowed me to realise the importance of an audience and of writing being a social activity (McCutchen, 2006). However, while research strongly supported the effectiveness of cross-age PT (Topping, 2015; Haynes & Brendle, 2019; Leung, 2019), it has rarely been documented as being used for handwriting. Mellor speaks about "the risk of re-inventing the wheel" (2001: 467), emphasising that this is often an important part of research. However, I knew it was reflective of my core values and discussing how it would work in my classroom with my CF and validation group allowed me to recognise the potential it had for my class.

Whitehead (2016) highlights that the process of engaging in action-reflection cycles is not often straightforward. Were it not for the messy and reflective nature of AR, I would not have reached this "punctum point" (Cook, 1998: 101) that allowed me to re-evaluate my next cycle. Hopkins criticises models of AR which follow rigid pathways as they "may trap teachers within a framework which they may come to depend on and which will consequently, inhibit independent action." (1993: 54). If I had followed such a model my research would have missed out on the opportunity to evolve to provide the children in my class with what they needed to succeed.

5.6 Implications

I will now examine the implications of this study in terms of educational agencies, my school community and finally examine the implications it has for me and my personal practice.

5.6.1 *NCCA and National Education Agencies*

While the NCCA (2012, 2019a) suggest and support the teaching of CH from junior infants, this research indicates that in order for schools to successfully implement this there is need for further supports to be available to teachers and schools in terms of training and CPD. The study found a lack of supports available online. The NCCA needs to provide further supports to teachers teaching CH.

5.6.2 *School*

Due to the success of Pencil Pals in both my class and our cooperating second class, the school implemented Pencil Pals as a school-wide approach. Each of the junior infant classes in the school were paired up with a second class to implement CH. I have been asked to advise on our CH based school improvement plan and hope to present to my school community on the findings from this AR study.

5.6.3 *Personal*

I embarked on this AR study as I realised I was a "living contradiction" (Whitehead, 1989: 41) in my practice of teaching CH. My core values are underpinned by my Froebelian training, valuing the learning community, collaborative learning, the child's enjoyment of learning and each child receiving what they need to succeed (Bruce, 2012; Tovey, 2020).

In considering my previous practice, I realise that my attitude towards teaching CH was fatalistic (Halpin, 2003). I was teaching in a fundamentalist way, reflective of how I had been taught handwriting (Halpin, 2003). As a result, the children did not enjoy handwriting lessons. As enjoyment of education is one of my core values, I minimised time spent teaching CH. However, I did not consider how living to this core was at the expense of my other values.

In embarking on this AR study, I realise that based on my previous experience, I had assumptions regarding the children's enjoyment of CH lessons. As blocked practice is not collaborative or active, I felt the children would not enjoy it. However, through this AR

project I realised that through implementing a range of teaching methods, the children initially enjoyed blocked practice lessons. The children then implemented the skills developed in blocked practice in Pencil Pals. As a result, writing lessons called on the community and collaborative learning, and the children recognised the purpose and meaning of their writing. The children received what they needed to succeed, enjoyed CH lessons and engaged in collaborative learning, utilising the learning community. I am now confident that my practice of teaching CH is not only reflective of my core values but that I am teaching CH effectively to junior infants.

5.7 Conclusion

Through engaging in this AR study I have learned the importance of critical reflection in my practice. On considering my attitude last year, I realise that as felt CH lessons were not enacting my value of enjoyment of learning, I experienced a sense of hopelessness (Halpin, 2003). Engaging in reflexivity has illuminated for me that as a result, my practice was disregarding my other core values. Through the process of narrating and negotiating my practice, I have solidified my values and "self-understanding" (Kelchtermans, 2018: 229) as a teacher. I have full awareness of, and confidence in my Froebelian-based core values of the community, collaborative learning, enjoyment of learning and each child receiving what they need to succeed.

I realise that moving forward into this new school year of uncertainty, with constantly updating guidelines in light of the COVID-19 pandemic, there will be many moments in which it will be a challenge to live to my core values. Collaborative learning, for example, will be difficult in these times of social distancing. However, armed with the skills I have gained from engaging in this AR study, I feel prepared to navigate these "swampy lowlands" (Schön, 1983: 42).

I feel equipped with the knowledge I have gained from this study to continue my teaching career with a sense of ultimate hope (Halpin, 2003). While I know my values will

be challenged, I feel prepared that by continuing to critically reflect, act upon and revise my practice, I will be empowered to negotiate (Kelchtermans, 2018) these new contingencies, while staying true to my values (Greene, 1995).

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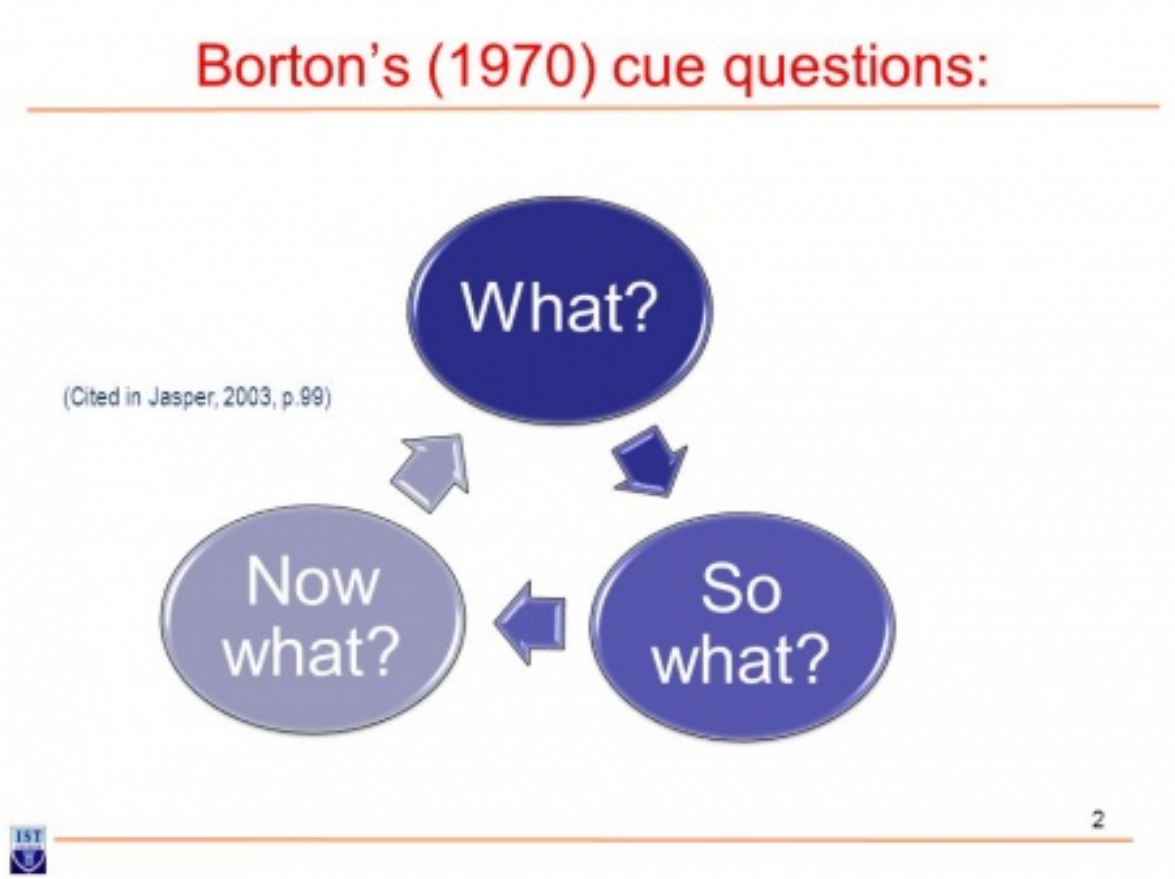
APPENDICES

Appendix A – Borton's Framework for Reflection



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Appendix B – Weekly Plan for Action Cycle 1

	Monday	Tuesday	Wednesday	Thursday	Friday
Week 1: Letters *s* and *a*	• Introduction to letter *s* • Discussion of shape to create a verbal pathway • Following a moving sample with their finger • Independent blocked tracing of the letter • Trace and copy of the letter • Marla time	• Revising static and moving models of the letter s using the verbal pathway • Tracing practice of the letter • Independent blocked practice • Marla time	• Introduction to letter a • Discussion of shape to create a verbal pathway • Following a moving sample with their finger • Independent blocked tracing of the letter • Trace and copy of the letter • Marla time	• Revising static and moving models of the letter a using the verbal pathway • Tracing practice of the letter • Independent blocked practice • Marla time	• Tracing revision of letters s and *a* • Independent blocked practice of letter *s* and *a* • Marla time

Appendix C – Sample Reflective Journal with Coding

6/01/2020

What?

Today was my first time to introduce cursive handwriting to my Junior infant class. It was a difficult day to begin handwriting as the children had just returned from their Christmas holidays. (Holidays/Timing/ motivation)

I began the lesson with whole class practice practice) (methodology) . The children really enjoyed the interactive programme whereby they could watch the letter being formed (IWB) (methodology). I found it difficult to get full engagement when demonstrating the letter formation and asking the class to guide my marker(engagement/interest/participation). I asked the children to use their "magic wands" to guide my hand, explaining that it would only work if everybody used their "pointer" although some got too much enjoyment from this and as a result made incorrect movements in order to get my marker to go astray.(guiding) (Methodology) moving example

My initial plan for action cycle one was that the children would learn to write the letter based on a trace and copy cycle. They would trace the letter and then copy it beside it. The class have previously practised this when doing pre writing activities. (Trace and copy)The children were very enthusiastic to begin formal writing instruction (motivation/interest) self motivated new concept. However, after 3 rounds of guided practice and one trace attempt, I feel the children were not ready to copy independently (copy) (ability/ independence). They were not confident enough or familiar enough with the formation (formation) (confidence/prior knowledge). This may also be due to the lack of pencil practice over the holidays as I feel the children were more successful with trace and copy prewriting activities they completed before Christmas(holiday)(timing/practice). It could also be due to the difficult nature of forming the letter s.(demands of the letter) (letter formation)

The practice sheet the children worked off is designed in such a way that as the children progress to the next line of letter formation the lines become narrower. One observation I made was that some of the children who struggled making the letters were more successful when the lines were narrower(line size/ accuracy)(demands of the task) familiararity. However this could be due to the children becoming more confident with the formation of the letter from practice(practice/demands of the task). I will continue to observe this and note how the children progress.

New and colourful Marla was put in the children's basket after the Christmas break. Some of the children became very distracted by this and as a result rushed their work in order to get to the Marla. (Focus) (Marla/ fine motor) (timing/ rush)

So what?

- I felt the children were out of practice with a pencil from the holidays and hope to observe improvement in their pencil skills over the next week. (Practice/timing)
- I will encourage the children to make the correct formation during guided practice. (Demands of the task/ accuracy)
- The children did not take the time and care needed for correct letter formation. (Motivation/ accuracy/ focus)

Now What?

- From tomorrow the children will be provided with a timer for their writing. Everyone will write for 5 minutes with the focus being on carefully forming each letter rather than completing the work as quickly as possible. I will remind the children to approach the task carefully, take their time and to resist from lifting their pencil from the page.
- Once the children have carefully formed their letters, they will receive three minutes of time with the Marla, as a whole class reward. I hope that this will motivate them to focus during the lesson and prevent them from rushing.

- On day one of the first letter, throughout action cycle one the children will be asked to initially practice tracing the letter a number of times to become familiar with the motor movements and more confident with the letter. Following this the children will progress to tracing and copying.

Appendix D – Sample Transcript with Coding

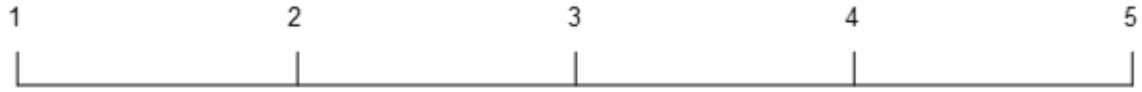
And what do you like about learning to hand write?
Yeah?
May: Play (motivation) (play)
Sara: I like doing the letters. (New learning/ letter formation)
Me: Doing your letters? You like play? Anything else?
Naoimi: I like writing my letters (motivation)
Me: You like writing your letters? Well done, What about you?
Liam: Ehhhm, I don't know yet
Me: You're not sure yet? What about you?
May: emm…write
Me: And do you think you're good at handwriting?
Liam: Yeah (confidence)
Me: And do you think you are? Answer out loud good boy
Dave: emm yeah (confidence)
Do you think your good at handwriting?
Naoimi: Yeah (confidence)
And do you think you're good at handwriting?
Sara: Yeah (confidence)
Me: Do you find it hard or easy? Or is it sometimes a little bit tricky and sometimes ok?
Naoimi: A little bit tricky sometimes, sometimes a little bit ok. (Confidence/ ability)

Me: What parts do you find a little bit tricky?
Naoimi: emmmm….When we, when we have to be quiet (planning) (environment)

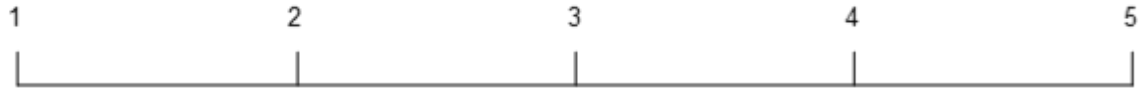
Appendix E – Handwriting Legibility Scale

For the first three components, consider your **overall impression** of the writing:

A. Legibility - An overall impression of global legibility based on your first reading of the text.
1 – On first reading, **all** words are legible
5 – On first reading, **only few** words are legible



B. Effort - An overall impression of the amount of effort required for you to read the script the first time.
1 – On first reading, no effort is required to read the script
5 – On first read reading, the script is extremely effortful to read



C. Layout on the page - An overall impression of the layout of writing on the page. Well organised handwriting is consistent, with elements appropriately positioned in relation to each other (e.g. the position of the margin, placement of letters on the baseline, spaces within and between words).
1 – Very **good** layout on the page.
5 – Very **poor** layout on the page.

Now focus on **individual letters/words** in more detail:

D. Letter formation - An overall impression of letter formation. Well formed letters are appropriately shaped, contain all necessary elements, neat letter closures and are consistent in size and slope.
1 – All letters very well formed
5 – Most letters very **poorly** formed

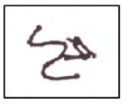
E. Alterations - An overall impression of the attempts made to rectify letters within words. Includes the addition of elements, re-tracing or re-writing of letters.
1 – There are **no** additional elements, re-tracing or over-writing of letters within words.
5 – **Most** words contain additional elements, re-tracing or over-writing of letters.

Sum score (quality of the written product): _____

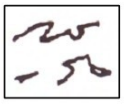
Stages of Writing Development

As children connections between spoken and written language, they extend their understanding to include symbolic forms that are used to capture speech. Preschool-age children typically engage in reading and writing activities in casual and playful ways. Sulzby, Teale, and Kamberelis (1989, p. 77) note that children who have had frequent opportunities to write and read at home are more likely to enter conventional literacy as confident, risk-taking readers and writers.
For almost all children in a literate society, learning to write and read begins early in life. Early writing develops concurrently and interrelatedly with literacy in young children who actively engage in understanding how written language works (Schickedanz 1999).
The following illustrations were developed from the works of Temple, Nathan, Temple and Burris, (1992) and D. H. Graves (1989) and from drawings compiled by Helen Faul of the California Kindergarten Association. They show the broad milestones that children achieve in art, literacy, spelling, and writing. (These stages are interrelated in young children, who make no distinction between these subject areas.)

Prephonemic Stage



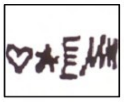
Random scribbling - The starting point is any place on the page.



Controlled scribbling - Progression is from left to right.

Circular scribbling - Circles or ovals flow on the page.

Drawing - Pictures tell a story or convey a message.



Mock letters – These can be personal or conventional symbols, such as a heart, star, or letters with extra lines.

Letter strings - These move from left to right and progress dawn the page of actual letters. They have no separations and no correlation with words or sounds.

Separated words-Groups of letters have space in between to resemble words.

Early Phonemic Stage

Picture labeling - A picture's beginning sound is matched to a letter (*Dog*.)

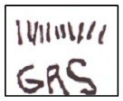
Awareness of environmental print - Environmental print, such as names on cubbies, is copied.

Transitional stage spelling or invented spelling - First letter of a word is used to represent the word (*I went to the nature museum*).

Letter-Name Stage

Beginning and ending letters are used to represent a word (*cat*).

Transitional Stage



Medial sound is a consonant (*grass*).

Medial sound is in correct position, but the vowel is wrong *(grass*).

A child hears beginning, medial, and ending letters *(I like to pick flowers*).

Appendix G – Demonstrating Validity and Credibility

Claim	Evidence	Criteria	Standards of Judgement	Public
•Through changes in my practice: • I should be enabled to teach in such a way that is reflective of my values •children should become more proficient and confident in cursive handwriting	•Data was gathered in the form of a teacher reflective journal, children's work samples, observations and accounts from the pupils.	•A range of qualitative and quantitative data gathering instruments were used for credibility. •Appropriate data analysis tools were chosen. •Data was validated by triangulation with critical friends and validation groups.	• Data collected was gathered, analysed and presented within my own high standards of judgement. •Qualitative data was discussed with critical friends •Three critical friends also rated the children's writing on the HLS.	•A critical friend observed cross-age peer tutoring lessons •Findings were triangulated with cririical friends and my validation group to ensure rigour. •Findings were presented to my school.

Appendix H – Letter to Board of Management

Plain Language Form

Maynooth University Froebel Department of Primary and Early Childhood Education

Roinn Froebel Don Bhun- agus Luath- Oideachas Ollscoil Mhá Nuad.

Dear Chairperson of the Board of Management,

I am currently studying for a Masters of Education in Self-Study Action Research through Maynooth University. As a Junior Infant teacher in Lusk Junior National School, I am looking to research how I can how I can best teach cursive writing to my class. I intend to carry out research in the classroom by implementing and reflecting on various research-based teaching methodologies and approaches used to teach cursive writing.

The data will be collected using a mixed-methods approach, primarily focusing on Self-Study Action Research and keeping my own reflective journal. I will also be collecting data in the form of observations, samples of the children's work, checklists, voice recordings, surveys and accounts.

The children's names and the name of the school will not be included in the thesis that I will write at the end of the research. Before embarking on data collection, I will seek consent from both the children and parents of my class. Children (and parents) will be welcome withdraw from the research process at any stage. The final thesis will be used for examination module purposes and may be published and diseminated at conference.

All information will be confidential and information will be collected, stored and destroyed in a stated timeframe in accordance with the University guidelines. The correct guidelines will be complied with when carrying out this research. This research will not be carried out until approval is granted by the Froebel Department of Primary and Early Childhood Education.

I would like to request permission from the Board of Management to embark on this research. If you have any queries on any part of this research project please feel free to contact me by email at sinead.cahill.2020@mumail.ie.

Yours faithfully,

_____

Sinéad Cahill

Appendix I – Letter and Consent Form for Critical Friend

Plain Language Form

Maynooth University Froebel Department of Primary and Early Childhood Education

Roinn Froebel Don Bhun- agus Luath- Oideachas Ollscoil Mhá Nuad.

Dear Critical Friend,

I am currently studying for a Masters of Education in Self-Study Action Research through Maynooth University. As a Junior Infant teacher in Lusk Junior National School, I am looking to research how I can how I can best teach cursive writing to my class. I intend to carry out research in the classroom by implementing and reflecting on various research-based teaching methodologies and approaches used to teach cursive writing.

I am asking you to help validate my research by acting as a critical friend. This will involve engaging in discussion with me regarding my experiences and my findings. I will be collecting data by writing transcriptions of our discussions relating to this research, reflecting on these discussions and samples of the discussion if in a written format.

The data will be collected using a mixed-methods approach, primarily focusing on Self-Study Action Research and keeping my own reflective journal. I will also be collecting data from the children in the form of observations, samples of the children's work, checklists, voice recordings, surveys and accounts.

Your name and the name of the school will not be included in the thesis that I will write at the end of the research. You will be welcome withdraw from the research process at any stage. The final thesis will be used for examination module purposes and may be published and disseminated at conference.

All information will be confidential and information will be collected, stored and destroyed in a stated timeframe in accordance with the University guidelines. The correct guidelines will be complied with when carrying out this research. This research will not be carried out until approval is granted by the Froebel Department of Primary and Early Childhood Education.

I would like to request permission from you to engage with me as a critical friend. If you have any queries on any part of this research project please feel free to contact me by email at sinead.cahill.2020@mumail.ie.

Yours faithfully,

_____

Sinéad Cahill

CRITICAL FRIEND CONSENT FORM

I have read the information provided in the attached letter and all of my questions have been answered. I voluntarily agree to the participation of my child in this study. I am aware that I will receive a copy of this consent form for my information.

Signature_____

Date: _____

Appendix J – Information and Consent for Parents

Plain language form

Maynooth University Froebel Department of Primary and Early Childhood Education

Roinn Froebel Don Bhun- agus Luath- Oideachas Ollscoil Mhá Nuad.

Dear Parent(s)/Guardian(s),

I am currently studying for a Masters of Education in Self-Study Action Research through Maynooth University. As it is our school policy to introduce cursive handwriting from junior infants, I am looking to research how I can best teach cursive writing to my class. I intend to carry out research in the classroom by implementing and reflecting on various research-based teaching methodologies and approaches used to teach cursive writing.

The data will be collected using observations, samples of the children's work, a daily teacher journal, checklists, voice recordings, surveys and accounts. The children will be aware when they are being voice recorded as part of the study. The recordings will be stored in a password-protected file and the discussions will then be transcribed with all identifying information removed. The children will be asked their opinions and will be encouraged to discuss how they feel about cursive handwriting and how it is taught.

The child's name and the name of the school will not be included in the thesis. Participation in the research is voluntary and your child will be allowed to withdraw at any stage. The final thesis will be used for examination module purposes and may be published and disseminated at conferences.

All information will be confidential. Records and data will be destroyed after 10 years, in accordance with the University guidelines. The research will not be carried out until approval is granted by the Froebel Department of Primary and Early Childhood Education.

I would like to invite you and your child to give permission for him/her to take part in this project. If you have any queries on any part of this research project I am available to discuss either before or after school hours or feel free to contact me by email at sinead.cahill.2020@mumail.ie.

Yours faithfully,

_____

Sinéad Cahill

Maynooth University Froebel Department of Primary and Early Childhood Education

Roinn Froebel Don Bhun- agus Luath- Oideachas Ollscoil Mhá Nuad

PARENTAL CONSENT FORM

I have read the information provided in the attached letter and all of my questions have been answered. I voluntarily agree to the participation of my child in this study. I am aware that I will receive a copy of this consent form for my information.

Parent / Guardian Signature_____

Parent / Guardian Signature_____

Date: _____

Name of Child _____

Child's signature/Initials/Mark_____

Date: _____

Maynooth University Froebel
Department of
Primary and Early
Childhood Education

Roinn Froebel Don
Bhun- agus Luath- Oideachas
Ollscoil Mhá Nuad.

Information Sheet

Parents and Guardians

Who is this information sheet for?

This information sheet is for parents and guardians.

What is this Action Research Project about?

Teachers studying for the Master of Education in the Froebel Department of Primary and Early Childhood, Maynooth University are required to conduct an action research project, examining an area of their own practice as a teacher. This project will involve an analysis of the teacher's own practice. Data will be generated using observations, samples of the children's work, a daily teacher journal, checklists, voice recordings, surveys and accounts. The teacher is then required to produce a thesis documenting this action research project.

What are the research questions?

using observations, samples of the children's work, a daily teacher journal, checklists, voice recordings, surveys and accounts.

- How can I improve my practice of teaching cursive handwriting to junior infants?
- What methodologies work well in my classroom setting?

What sorts of methods will be used?

- Observations, the teacher's reflective journal, accounts, observations, surveys and samples of the children's work.

Who else will be involved?

The study will be carried out by me, Sinéad Cahill as part of the Master of Education course in the Froebel Department of Primary and Early Childhood Education. The thesis will be submitted for assessment to the module leader Dr Bernadette Wrynn and will be examined by the Department staff. The external examiners will also access the final thesis. The data will be triangulated and discussed with critical friends in order to validate the findings. The thesis may be published and disseminated at conferences.

What are you being asked to do?

You are being asked for your consent to permit me to undertake this study with my class. In all cases the data that is collected will be treated with the utmost confidentiality and the analysis will be reported anonymously. The data captured will only be used for the purpose of the research as part of the Master of Education in the Froebel Department, Maynooth University and will be destroyed in accordance with University guidelines.

Contact details: Sinéad Cahill **Email:** sinead.cahill.2020@mumail.com

Appendix K – Assent Form for Children

Maynooth University Froebel Department of Primary and Early Childhood Education

Roinn Froebel Don Bhun- agus Luath- Oideachas Ollscoil Mhá Nuad.

Child's assent to participate

My parent/guardian has explained the information sheet to me and I agree to take part in this research.

Name of child (in block capitals):

_____

Signature/Letter/Mark from child to show understanding:

_____

Date: _____

Appendix L – HLS Scores from Baseline Work Samples

Initial Work Sample							
Name	Legibility	Effort	Layout	Letter formation	Alterations	Average	
Una	1.00	1.25	2.50	1.00	3.25	1.80	
Beth	1.25	1.25	1.50	1.25	4.00	1.85	
Ema	2.00	1.50	1.50	2.25	2.50	1.95	
Sara	1.25	1.50	3.25	1.75	3.25	2.20	Band
Isaac	2.00	2.00	2.25	1.75	3.50	2.30	L
Gary	1.50	1.50	4.50	1.50	4.75	2.75	
Naoimi	2.00	2.00	3.25	2.00	4.50	2.75	
May	2.25	2.75	3.50	2.25	3.25	2.80	
Eoghan	1.75	2.00	3.75	2.00	4.75	2.85	Band
Liam	2.38	2.75	3.50	1.50	4.25	2.88	M
Flora	2.50	3.25	3.50	3.25	4.25	3.35	
Bella	3.50	3.75	3.75	1.75	4.25	3.40	
June	4.25	4.50	4.50	3.25	4.25	4.15	Band
Melissa	4.75	4.75	4.75	4.50	4.75	4.70	H
Class Average	**2.31**	**2.48**	**3.29**	**2.14**	**3.96**	**2.84**	

Appendix M – Baseline Scores from Study Group

Name	Legibility	Effort	Layout	Letter formation	Alterations	Average
Beth	1.25	1.25	1.50	1.25	4.00	1.85
Gary	1.50	1.50	4.50	1.50	4.75	2.75
Naomi	2.00	2.00	3.25	2.00	4.50	2.75
May	2.25	2.75	3.50	2.25	3.25	2.80
Eoghan	1.75	2.00	3.75	2.00	4.75	2.85
Liam	2.38	2.75	3.50	1.50	4.25	2.88
June	4.25	4.50	4.50	3.25	4.25	4.15
Melissa	4.75	4.75	4.75	4.50	4.75	4.70
Average	2.52	2.69	3.66	2.28	4.31	3.09

Appendix N – Quantitative Analysis of Children's Self-Assessment

Legend	
	Easy
	Okay
	Tricky
	Child absent or left letter blank

Name	n	c	k	e	h	r	m	d	g	o	u	l	f	Ave.	Grp. Ave.
Una			0	1	1	1	0	0	0	0		0		0.33	
Beth	0	0	0	1	0	0	0	0	0		0	0	0	0.08	
Ema	0			1	0	1	2	0	2	2	0	0	0	0.73	
Sara	2	0	2	1		0	0	0	0	0	0	0		0.45	
Isaac			0	0	0	1		0	0	0	0	0		0.11	0.34
Gary	1	0	0	0		0	0		0	0	0	0	1	0.18	
Naoimi	0	0	2			0	0	0	0	0	1	0	2	0.45	
May	0		0	0	0	2	2	0	0	0	0	0	0	0.33	
Eoghan	0	1	0	0	0	0	0	0	0	0	0	0	0	0.08	
Liam	1	0	0	0	0	0	0	1	1	1	0	1	1	0.46	0.30
Flora				1	1		0	0	2	0	0	0	0	0.44	
Bella	0	0	0	0	0			0	0					0.00	
June	0	0	0	0	0	0	0			0	0	0	0	0.00	
Melissa	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.11
Jasmine	0	0	0		0	0	0	0	0	0	0	0	0	0.00	
Ugo	0	1	2	0	0	0		0	0	0		0	0	0.27	
Faith	0		0	0	0	0	0	0	0		0			0.00	
Dave	0	0	0	1	0	0	0	1	0	0	0	0		0.17	0.11
Average	0.27	0.17	0.38	0.38	0.13	0.31	0.27	0.13	0.29	0.20	0.07	0.06	0.33	0.23	

Appendix O – Study Group HLS Scores Post Action Cycle 1

Name	Legibility	Effort	Layout	Letter formation	Alterations	Average
Beth	1.50	1.50	2.75	2.00	4.00	2.35
Gary	2.75	3.25	4.25	3.50	3.50	3.45
Naomi	4.00	4.00	4.25	4.00	4.00	4.05
May	4.50	4.50	5.00	5.00	4.75	4.75
Eoghan	4.00	4.25	4.25	4.50	4.50	4.30
Liam	2.00	2.25	3.75	2.75	4.00	2.95
June	3.25	3.25	3.50	3.75	4.75	3.70
Melissa	3.00	3.25	4.50	3.00	3.50	3.45
Average	3.13	3.28	4.03	3.56	4.13	3.63

Appendix P – Study Group HLS Scores Post Action Cycle 2

Name	Legibility	Effort	Layout	Letter formation	Alterations	Average
Beth	2.50	2.50	3.00	2.50	3.50	2.80
Gary	4.00	4.00	4.00	4.50	4.75	4.25
Naomi	3.25	3.25	4.25	3.75	4.00	3.70
May	5.00	5.00	5.00	4.75	4.87	4.92
Eoghan	4.00	4.00	4.00	4.50	4.25	4.15
Liam	4.75	4.50	4.50	4.75	4.50	4.60
June	5.00	5.00	4.50	4.00	4.00	4.50
Melissa	5.00	5.00	5.00	5.00	4.50	4.90
Average	4.19	4.16	4.28	4.22	4.30	4.23