Does the Weaving Well-being programme (WW) affect the academic achievement and engagement of Irish primary school students?

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Abstract

Background: In 2012, 1 in 3 Irish young people were found to experience mental ill-health (Dooley & Fitzgerald, 2012). In light of such data, the Department of Education (DES) has recommended use of universal evidence based social-emotional learning (SEL) programmes to improve child mental wellbeing (DES, 2018a). WW is a SEL programme for children aged 8-12 and is underpinned by Seligman's PERMA model of wellbeing (Forman & Rock, 2016; Seligman, 2011). The existing evidence base for WW is limited and has primarily focused on its impact on student resilience, emotional wellbeing, self-efficacy and emotional regulation.

Aims: Using a mixed-methods approach, this research aims to explore whether WW impacts children's academic achievement and engagement in classroom life. These are two of the pillars of the PERMA model of wellbeing and are as yet unexplored in relation to WW.

Methods: 86 Fourth Class students participated in this non-randomised, quasi-experimental, mixed-factorial design study. Quantitative data measuring academic performance and student engagement was gathered from intervention group and control group. Intervention group teachers received WW training from the programme author prior to delivery. Semi-structured interviews were conducted with intervention group teachers for insight into their experience of the perceived impact of the programme.

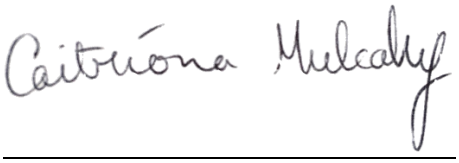
Results: Quantitative data was analysed using SPSS. A statistically significant difference was found between the experimental and control group Spelling change scores, $M = 6.04$, 95% CI [2.12, 9.95], $t(84) = 3.068$, $p = .003$, $d = .67$. A significant intervention effect for emotional engagement was also indicated, $F(1, 84) = 6.32$, $p = .014$, partial $\eta^2 = .070$. No intervention effects were found for Maths, behavioural engagement or cognitive engagement. Qualitative data from interviews were analysed using Thematic Analysis (Braun & Clarke, 2021). Teachers reported an overall positive impact of the programme and perceived improvement

in pupil engagement. Teachers did not conclusively report an impact on academic achievement.

Conclusions: The implications for school practice regarding the efficacy and use of WW regarding student achievement and engagement are discussed. The implications for educational psychologists in the understanding of and recommendations for current SEL programmes going forward are also discussed. Limitations of the study are outlined.

Declaration

I, Caitríona Mulcahy, confirm that the work presented in this thesis is my own. Where information has been derived from other sources, I confirm that this has been indicated in the thesis.



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List of Abbreviations

Abbreviation	Definition
ANCOVA	Analysis of Covariance
ANOVA	Analysis of Variance
APA	American Psychological Association
CAMHS	Child and Adolescent Mental Health Services
CASEL	Collaborative for Academic Social, and Emotional Learning
CfC	Committee for Children
DEIS	Delivering Equality of Opportunity in Schools
DES	Department of Education and Skills
EF	Executive Function
HSE	Health Service Executive
MIC	Mary Immaculate College
MIREC	Mary Immaculate College Research Ethics Committee
PERMA	Positive emotion, engagement, relationships, meaning and achievement
PICO	Population, Intervention, Comparison, Outcome
PRISMA	Preferred Reporting Items for Systematic Reviews and Meta-Analyses
PSI	Psychological Society of Ireland
SEL	Social-emotional learning
SEM	School Engagement Measure
SES	Socioeconomic Status
SPHE	Social, Personal and Health Education
WHO	World Health Organisation
WJ-III	Woodcock–Johnson III Tests of Achievement
WoE	Weight of Evidence
WRAT-5	Wide Range Achievement Test – Fifth Edition
WW	Weaving Well-being: Tools of Resilience Programme

Introduction

Weaving Well-being (WW) is a teacher-led, universal social-emotional learning (SEL) programme that has been designed for use within Irish primary schools. The primary aim of this research is to explore the efficacy of the WW programme. More specifically, the study is primarily concerned with any potential impact of WW on the engagement and academic achievement of a sample of 86 children within the age range of nine to eleven years. The researcher's interest in the area of child mental health and social-emotional learning was first borne of working in DEIS schools. DEIS, an acronym for 'Delivering Equality of Opportunity in Schools, is an Irish governmental initiative targeting educational inclusion for children in disadvantaged communities from preschool to post-primary level (Department of Education [DES], 2005). The researcher's interest was further intensified on professional placements in health and educational psychological services in Ireland. The researcher had also worked in a school wherein the programme was being implemented. The teachers using the programme spoke positively of its user-friendly nature and its perceived impact in their classrooms. Building on this interest, the researcher read a recent unpublished thesis by O'Brien (2020) regarding the impact of the WW programme on student self-efficacy and emotional regulation. While significant quantitative results were not found for emotional regulation or student self-efficacy, qualitative data outlined an overall positive effect of the programme and reported increased emotional regulation (O'Brien, 2020). This study provided inspiration for future directions for the current study and the researcher attempted to build on its findings. The empirical paper of this thesis describes the design and outcomes of the first study to investigate the impact of the WW programme on the engagement and academic achievement of Irish fourth-class pupils.

WW is a SEL programme that was initially designed for use within Irish primary schools. The complete programme was first officially launched in April 2017. According to

the authors, the primary aim of the programme is to "teach children skills and strategies which develop positive mental health, and so promote well-being" (Forman & Rock, 2016, p 6). The programme's central framework is rooted in Positive Psychology theory and employs techniques and strategies from both the areas of Positive Psychology and Cognitive Behavioural Therapy (CBT). WW is designed for use with eight- to twelve-year-old children through five programme modules. The first module is designed for use in Second Class, while the fifth module is to be used in Sixth Class. These modules are: Character Strengths, Positive Emotions, Tools of Resilience, Positive Relationships, and Empowering Beliefs. The lessons are delivered on a weekly basis over a 10-week time period. Each lesson contains a PowerPoint presentation, suggested development ideas, pupil activities in the Pupil Workbook, as well as suggested homework activities to be discussed at each subsequent lesson. The authors outline the elements of the programme that map onto certain strands of the Irish SPHE curriculum (DES, 1999). While certain elements of the SPHE curriculum are covered by WW, it is not intended to be used as a means of covering the entire SPHE curriculum in the classrooms in which it is implemented. The way in which WW addresses some aspects of this curriculum is further elaborated upon in the Empirical Paper of this work.

This programme is the first Irish-developed SEL programme for use with an Irish cohort. This is important as research has suggested that the cultural relevance of a programme is positively related to the efficacy of that programme (Aronson & Laughter, 2016; Byrd, 2016; Cramer & Castro-Olivo, 2016). Research has also suggested that some of the programmes currently in use in Ireland may not be entirely culturally appropriate in this context (Henefer & Rodgers, 2013; Ruttledge *et al.*, 2016; Wiglesworth *et al*, 2018). This is also discussed further in the Empirical Paper. Lastly, it is important to note that there is a limited body of research regarding WW, with six studies as yet unpublished. As the programme authors

report that it is being used in several Irish schools, it is important that teachers and practitioners have access to a research base that can inform their decision to implement the programme, or not. This study is the first to investigate the programme's impact on the academic performance and engagement of Irish primary school pupils.

This thesis begins with a systematic review of the effect of school-based SEL programmes on the academic performance of primary school children. Gough's Weight of Evidence framework (Gough, 2007) was used to critically assess relevant studies in contemporary literature. Findings from the systematic review highlight that SEL programmes, in the main, can have a positive impact on the academic performance of primary school pupils. Limitations of existing research are also identified, such as limitations in the measurements used and the generalisability of results based on demographic makeup of the sample. The review paper is followed by the empirical paper. This paper is a detailed account of the methodology employed by the researcher to investigate the impact of the WW programme on the engagement and academic performance of a sample of Irish nine- to eleven-year-olds. Findings from the systematic review informed the development of the research design of the current study, including the use of a mixed-methods approach and objective, reliable measures of constructs of interest. As the second research question of this study arose from research conducted during the systematic review paper, it is not addressed in the review paper. As such, literature pertaining to school engagement and the possible links to SEL is reviewed in the empirical paper introduction. This is in accordance with Mary Immaculate College (MIC) Research Guidelines (MIC, 2020).

The paradigmatic standpoint of the research was one of pragmatism. This paradigm empowers the researcher to determine the most relevant and suitable means for understanding complex social phenomena (Mertens, 2022). The ontological and epistemological outlooks involved in pragmatism also permit the use of mixed-methods research design (Arthur, *et al.,*

2012). The use of both quantitative and qualitative methodologies allows for multiple interpretations of one reality from different individuals to be integrated (Cresswell & Guetterman, 2019). This, in turn, provides a depth and breadth of detail that would not be obtained using quantitative or qualitative methods in isolation (Ostlund *et al.*, 2011). The empirical paper provides the rationale for conducting this research, which was informed by government policy, national and global trends in mental health, and findings from reviews of the relevant literature. Relevant theories are discussed in the context of the aims of the study.

Finally, the present thesis is concluded by a critical review paper and impact statement. This paper discusses the strengths and limitations of the current study design based on researcher observations and reflections, as well as lessons from relevant literature. The critical paper also presents recommendations for future research in light of these strengths and weaknesses, in addition to any ethical issues encountered over the duration of the study. The paper concludes with implications for professional practice in education and educational and child psychology, and research. Contributions to the existing knowledge base in the area of SEL are also discussed.

1. Literature Review

1.1 Introduction and Rationale

The World Health Organisation (WHO) has stated that, depression, anxiety and behavioural disorders are among the leading causes of illness and disability among adolescents. (WHO, 2021). In Ireland, the My World National Survey of Youth Mental Health in Ireland indicated that one in three Irish young people experience levels of mental health difficulties, such as depression and anxiety, that are outside the typical range (Dooley & Fitzgerald, 2012). In a report on the state of child and adolescent mental health in Ireland, the Irish Health Service Executive (HSE) found that referrals to child and adolescent mental health services are increasing (HSE, 2014). What is more, in a general report on mental health in Irish adults following the onset of the COVID-19 pandemic in the spring of 2020, Hyland *et al.* (2020) found that generalised anxiety disorder and depression were common experiences in a nationally representative sample. In light of such results and the publication of research relating directly to the state of Irish children's mental health as a result of the pandemic, the Irish government has recommended the implementation of evidence based class programmes to improve children's social-emotional and coping skills and therefore their mental well-being (Department of Education and Skills [DES], 2018a). This is a highly important and necessary recommendation, given this new understanding of the current landscape of the mental wellbeing of children and young people in Ireland. There is mounting evidence to suggest that school-based social-emotional learning (SEL) programmes can improve children's social skills and psychological wellbeing (Clarke *et al.,* 2021; Sklad *et al.,* 2012; Weare & Gray, 2003). In their meta-analysis of 213 school-based SEL programmes conducted over a decade ago, Durlak *et al.* (2011) found that children exposed to the programmes demonstrated improvements in social-emotional skills, attitudes, behaviour and academic performance. While research into the impact of SEL programmes on the social and

emotional skills of children and young people is becoming more and more prevalent, there is a dearth of research focusing exclusively on their impact on the academic outcomes of these children, particularly in the general population (i.e. children who do not have a disability, are not receiving special education or do not come from an at-risk background).

This paper encompasses a comprehensive literature search wherein five studies were deemed most relevant to the review question based on several inclusion criteria and were selected for review. The impact of SEL programmes on pupil engagement is not a focus of this review, however, this is discussed in the critical literature review in the empirical paper.

1.1.1 Review Question

Can teacher-led SEL programmes significantly improve the academic performance of primary school children in the general population?

1.2 Search Strategy

The studies included in this review were identified through searching the databases PsychInfo, Academic Search Complete, Education Source, ERIC, APA PsychArticles, Education Full Text (H.W. Wilson) and Social Sciences Full Text (H.W. Wilson). Index terms used for the initial search are outlined in Table 1. The initial search generated 218 results. Upon the application of further exclusion criteria to the results, the list of studies was narrowed down to eight studies to be screened at the full-text level. Table 2 outlines the criteria for inclusion and exclusion and the rationale behind these criteria specifications. The criteria for inclusion were: a randomised control trial (RCT) using SEL interventions or programmes within a primary school environment and in a sample of children within the age range of 4 to 13 years (inclusive). Studies were excluded if they were conducted with a sample of adults or older children (i.e. university or secondary school students), or if the effect of SEL interventions on academic performance was not central to the study's research

question. Studies that were not conducted within a school setting on a general population of students were excluded. An experimental or quasi-experimental design was also a requirement for inclusion.

The PRISMA diagram in Figure 1 illustrates the selection process. Upon applying the exclusion criteria, eight studies were assessed for eligibility through full-text analysis, with five studies being included for review. A list of included studies can be found in Appendix A, Table 10. Excluded studies and rationale for exclusion can be found in subsequent tables in Appendix A. Lastly, Table 3 outlines the salient information from each study pertaining to this review.

Table 1

Search Terms Used

Participants	**Intervention**	**Outcome**
children OR kids OR students OR pupils	Social-emotional learning intervention OR Social-emotional learning programme OR social-emotional development	Academic achievement OR Academic attainment OR academic performance OR academic success

Note: Filters applied to the search served to limit articles retrieved to those written in English and included in peer-reviewed journal

Figure 1

PRISMA Diagram of Selection Process

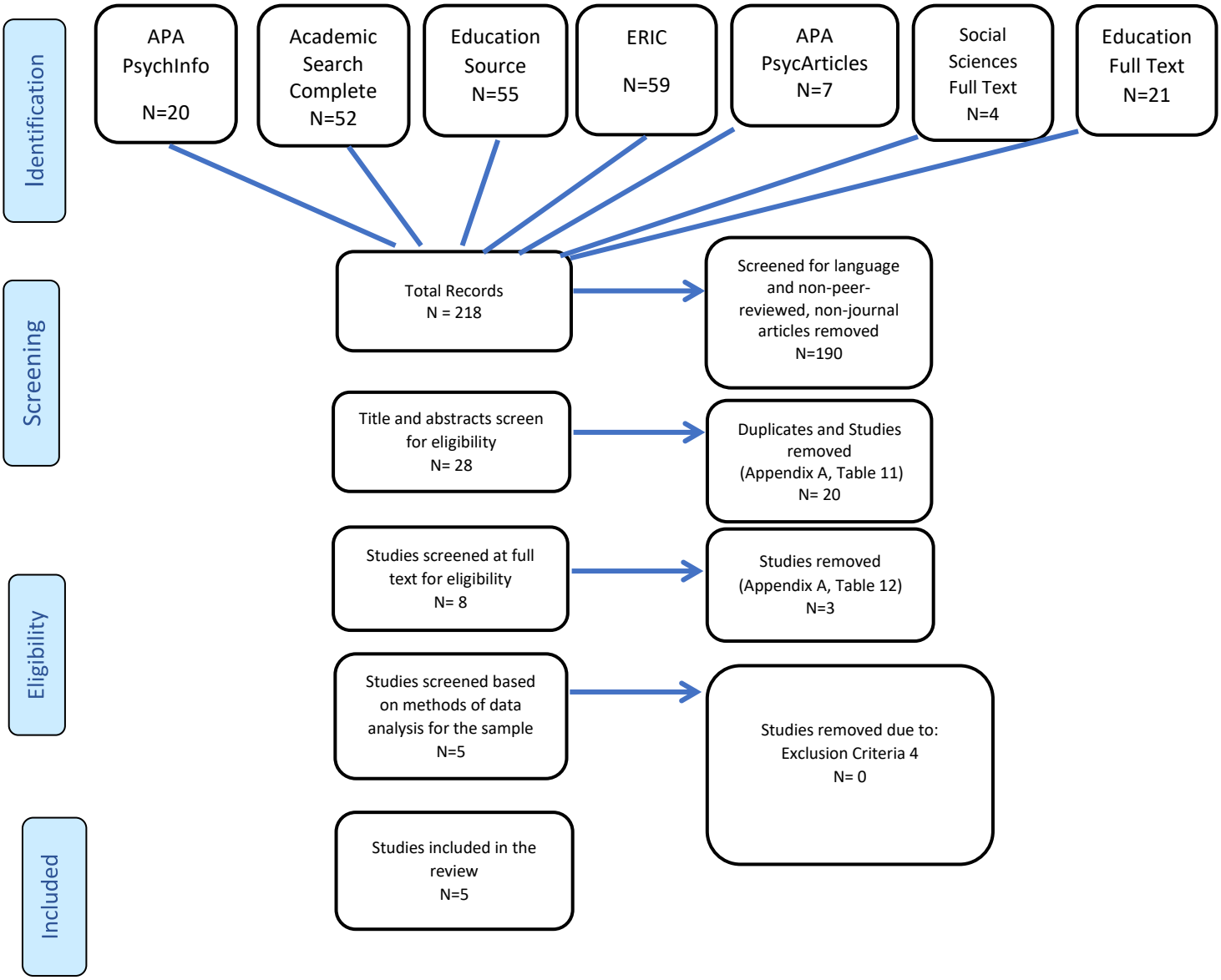


Table 2

Inclusion and Exclusion Criteria

	Inclusion Criteria	Exclusion Criteria	Rationale
1. Participants	Primary school-going children aged 4-13 (inclusive). Preferably a heterogeneous sample.	Individuals over the age of 13 or children who are not school-going age (birth to 4 years).	This review concerns the effects of interventions on the academic achievement of primary school children.
2. Intervention	SEL interventions conducted in a primary school setting with children aged 4-13 years.	Interventions conducted in settings other than primary school – i.e. secondary school, third level institute, at home, clinical settings, community groups.	This review's focus is on the effects of interventions conducted in a primary school setting on the academic performance of primary school children.
3. Measures	Potential change or absence therein of academic achievement such as standardised test results or other measures of academic performance.	Outcomes that are not directly related to academic performance, such as stress, socioemotional or behavioural outcomes.	This review is concerned with outcomes that pertain to learning and academic achievement. As the interventions concerned are school-based, academic achievement or performance is a pertinent measure.

4. Design	Studies that employed experimental or quasi-experimental design were included. The study must include a control group and report between groups outcomes.	Non-experimental studies were excluded, as were qualitative studies. Meta-analyses and reviews were excluded. Studies that did not use a control group were also excluded.	As this review concerns the effect of an intervention on a particular outcome (academic performance), the use of a control group is required to take other variables into account. (Petticrew & Roberts, 2003)
5. Language	Studies written in English.	Studies written in any language other than English.	Outsourcing translation of multiple languages was beyond the scope of this review.
6. Publication Type	Peer-reviewed.	Not peer-reviewed.	Peer-reviewed studies have been rigorously assessed for publication.

Table 3

Mapping the Field

Author	Participants	Study Design	Intervention	Measures	Findings
Carroll *et al.,* 2020 Australia	*n* = 854 Participants belonged to 6 different Australian elementary schools. Age range: 8-12 years. Mean age: 9.64 years. Female: 57.1%	Group-based experimental design. Non-random assignment. Intervention group from 4 schools: *n*=562. Waitlist control group from 2 schools: *n*=292.	*KoolKIDS* SEL programme (Carroll & Houghton, 2018). Duration: 13 weeks. Teacher-led.	Pre and post measurement in both groups. Teacher questionnaires regarding student behaviour and academic achievement completed pre and post intervention.	Intervention group displayed somewhat greater mean increases in academic achievement and effort than control group. However, these changes were not shown to be significant.
Cook *et al.,* 2018 USA	*n*=7,419 Participants belonged to 61 different American elementary schools, ranging from kindergarten to second grade.	Experimental design with random assignment at school group level. Intervention group: *n*=3,727	*Second Step* SEL curriculum (CfC, 2016). Duration: 1 academic year. Teacher-led.	Pre and post measurement in both groups. Measures of academic achievement were	Data analysis did not show a significant effect on academic performance.

	Female: 44.9%	Delayed Start Control Group: *n*=3,692		oral reading fluency and math calculation.	
O'Connor *et al.*, 2014 USA	*n*=435 Participants selected from 22 primary schools in areas of low socioeconomic status (SES). Age range: 4-7 years Mean age: 5.38 years Female: 48%	Experimental design with random assignment to condition at the school level. Assessors were blind to subject condition. Intervention group: *n*=225 Active Control group (supplemental reading programme): *n*=210.	INSIGHTS SEL programme. Duration: 10 weeks, Administered during 2nd half of kindergarten and the 1st half of 1st grade. Facilitator and teacher-led, with some parent content.	Pre and post measurement of reading and math achievement using the Letter Word ID and Applied Problems subtests of WJ-III (Woodcock, *et al.*, 2001). Measurement at 5 time points.	Researchers found a general increase in scores in maths and reading achievement across groups. However, a small and medium effect size was demonstrated for significant increase in maths and reading achievement, respectively, in the intervention group.
Schonert-Reichl *et al.*, 2015 Canada	*n*=99 Participants were selected from 4 primary schools of similar SES (middle-class).	Blind, randomised control trial. Groups were randomised at class-level.	MindUP SEL programme (Hawn Foundation, 2008). Duration: 12 weeks. Teacher-led.	Pre and post-test measures of executive function (EF) using computer tasks measuring pupil	Pupils in the intervention condition were found to have significantly faster response times in tests of EF than

	Mean age: 10.24 years. Female: 44%	Intervention group: *n*=48 Active control group (social responsibility programme): *n*=51		response times and accuracy. End of year maths grades for 89 of the 99 participants were also used.	their control group counterparts, with a small effect size. A small effect size for higher end of year maths grades was also found for the intervention group.
Schonfeld *et al.*, 2015 USA	*n*=705 Participants were selected from 24 schools in an urban area of low SES. Mean age: 8.9 years Female: 49%	Cluster-randomised, longitudinal control trial. Intervention group (selected from 12 schools): *n*= 344. Control group (selected from 12 schools, no intervention): *n*=361	PATHS SEL programme (Kusché & Greenberg, 1994) Duration: Students received up to 170 SEL lessons over the course of 4 years. Teacher-led.	Pre and post measures of academic achievement. State Mastery Tests administered each year (3 time points), measuring maths, reading and writing ability.	Children in the intervention group were found to exhibit higher proficiency in reading and math in 4th grade (T2) and higher proficiency in writing in 5th (T3) and 6th (T4) grade than the control group. Effect sizes were small.

1.3 Critical Literature Review

Gough's (2007) Weight of Evidence (WoE) framework was used to assess the quality of the selected studies. There are three components to the framework: the quality and soundness of the methodology used (WoE A), the suitability of the design to the review question (WoE B), and appraisal of the pertinence of research findings to the review question (WoE C) (Gough, 2007). Each study was scored based on these three components and, subsequently, the mean of these scores indicated its overall quality (WoE D). Table 4 outlines the scores for each study. Coding protocols and criteria are outlined in Appendices B, C and D.

In order to address WoE A (see Appendix B), the soundness of methodology used, Gersten *et al.*'s (2005) coding protocol was applied to each study. This coding protocol was selected and deemed most suitable as it is designed for the appraisal of experimental and quasi-experimental methodologies. This coding protocol comprises two levels: Essential Quality Indicators and Desirable Quality indicators. The scores for each study were tallied according to the protocol and weighted as being Low Quality (1), Acceptable Quality (2) or High Quality (3).

Petticrew and Roberts' (2003) typology of evidence informed the weighting of scores for WoE B, for which there were three levels of quality regarding the type of design employed in the study. Three elements of the design were rated as low, medium or high. These are outlined in Appendix C. Criteria for WoE C, the appropriateness of the evidence to the review question at hand, were established using elements from Counsell's (1997) PICO framework. These appraisal criteria are outlined in Appendix D and are also weighted on three levels: low, medium, high. These scores were averaged and a breakdown of all scores

can be found in Table 4. The overall score (WoE D) illustrates which studies are of the highest quality and are most relevant to the review question.

Table 4

Weight of Evidence D - Overall Ratings

Study	WoE A	WoE B	WoE C	WoE D
Carroll *et al.,* 2020	2	2.33	2.33	2.22 (Medium)
Cook *et al.,* 2018	1	2.67	2.67	2.11 (Medium)
O'Connor *et al.,* 2014	3	3	2.33	2.78 (High)
Schonert-Reichl *et al.,* 2015	3	2.33	2.67	2.67 (High)
Schonfeld *et al.,* 2015	3	3	2.67	2.89 (High)

Note: <1.4 = Low; 1.5-2.4 = Medium; >2.5 = High

1.3.1 Participants

Overall, the studies included for review involved a combined total of 9,512 participants. In each of the studies, the mean age and age range of the sample of children fell within the desired range for inclusion in the review. Approximately 4,906 children were exposed to SEL intervention overall. Sample sizes were wide-ranging, the smallest sample being 99 participants (Schonert-Reichl *et al*., 2015) and the largest being 7,419 (Cook *et al*., 2018). As greater sample size increases the generalisability of research findings, those studies with larger sample size were weighted more heavily on WoE B than those with smaller sample size (Petticrew & Roberts, 2003). Four of the five studies included demonstrated a

small gender imbalance in favour of males (Cook *et al.,* 2018; O'Connor *et al.,* 2014; Schonert-Reichl *et al.,* 2015; Schonfeld *et al.,* 2015) while one study demonstrated a small gender imbalance in favour of females (Carroll *et al.,* 2020).

Four of the five included studies were conducted in North America – including Canada and the USA (Cook *et al.,* 2018; O'Connor *et al.,* 2014; Schonert-Reichl *et al.,* 2015; Schonfeld *et al.,* 2015) – while one study was conducted in Brisbane, Australia (Carroll *et al.* 2020). Two studies were conducted in urban city areas (O'Connor *et al.,* 2014; Schonfeld *et al.,* 2015), two studies were conducted in suburban areas (Carroll *et al.,* 2020; Schonert-Reichl *et al.,* 2015) while one study spanned both rural and urban communities (Cook *et al.,* 2018). Of the included studies, three stated that their participants were predominantly from backgrounds of low SES. This information was gleaned from data on participant eligibility for school free lunch schemes. Carroll *et al.* (2020) noted that, while the overall sample demonstrated a representative distribution of children from varying socioeconomic backgrounds, the intervention group included a larger proportion of children of low SES than the control group, which therefore impinges clear interpretation of results, free from the mediating effects of SES. Lastly, Schonert-Reichl and colleagues (2015) reported a sample of children who were predominantly of a middle-class upbringing. Four of the five studies provided demographic information demonstrating cultural and ethnic diversity and therefore more robust heterogeneity of participants (Cook *et al.,* 2018; O'Connor *et al.,* 2014; Schonert-Reichl *et al.,* 2015; Schonfeld *et al.,* 2015). While Carroll *et al.* (2020) state that the sample recruited was culturally diverse, demographic information provided was limited to age, gender and SES. Furthermore, all participants attended Australian Catholic schools, which further limits the cultural diversity of the sample, therefore limiting its generalisability to the wider population. Such considerations are reflected in the weighting of scores for WoE C. As the majority of participants included in the reviewed studies were of lower SES, it also

calls into question the overall generalisability of these results and suggests that further research should be conducted with a sample that encompasses all levels of SES in order to be truly representative.

1.3.2 Design

All five studies employed either experimental or quasi-experimental design. Each of the studies employed the use of a control group, however, the type of control group used varied within each study. Furthermore, the level and method of randomisation also differed between studies. Randomised trials have been shown to reduce bias in allocation to group conditions (Vogt & Johnson, 2011). All but one of the studies (Carroll *et al.,* 2020) used randomised allocation to control or intervention condition and this was reflected in the allocation of scores. Studies that employed randomisation techniques were rated more highly than those that did not. Carroll *et al.* (2020) stated that logistical considerations such as timing, availability of personnel and curricular demands influenced the allocation of six schools studied to either the control or experimental condition. Three of the studies (Cook *et al.,* 2018; Schonert-Reichl *et al.,* 2015; Schonfeld *et al.,* 2015) employed cluster-randomisation at school level. Cook *et al.* (2018) and Schonfeld *et al.* (2015) matched clusters for equivalence in SES and ethnicity to ensure that valid comparisons could be made between groups. Similarly, the schools included in the study conducted by Schonert-Reichl *et al.* (2015) were considered to be equivalent in terms of SES, racial and ethnic representation, academic achievement and school size. While O'Connor *et al.* (2014) did not match clusters, baseline measures found no significant differences between groups. It is important to note that, while the above studies are randomised, randomisation at school level rather than at the individual level has implications for the interpretation of results from these studies. Given the nature of the interventions administered, it is clear that randomisation at the individual level would have been extremely difficult, if not impossible. However, randomisation at school

level may introduce the presence of confounding variables or mediating factors that either have not or cannot be measured or documented. In light of this, the results and implications of these studies should be interpreted with caution.

Control conditions varied across studies. Both Carroll *et al.* (2020) and Cook *et al.* (2018) implemented a "waitlist" or "delayed start" control group in which participants received the SEL intervention *after* the full intervention course had been implemented with the experimental group. This approach allows for an untreated comparison to the experimental group without the unethical ramifications of withholding a potentially beneficial SEL intervention programme from the control group. Both O'Connor *et al.* (2014) and Schonert-Reichl *et al.* (2015) employed an active control group, exposing control participants to a supplemental reading programme and a social responsibility programme, respectively. Meanwhile, Schonfeld *et al.* (2015) had an inactive control group wherein participants were not exposed to an intervention at any stage. When scoring studies on their design and its relevance to the review question, those using an active control were considered to be most relevant as it was possible to compare the effects of the target intervention with maturation effects (Mertens, 2022).

Each study included for review conducted pre-test and post-test measurements of academic achievement. Most of the studies conducted post-test measurement immediately after intervention however, only Schonfeld and colleagues' (2015) study was longitudinal in design and included measures of academic achievement at multiple timepoints over a four-year time period. This design provides more robust support for the effects of intervention and therefore, this study was given a higher rating on the appropriate measure for WoE A.

1.3.3 Intervention

All included studies implemented a universal, school-based SEL programme. Interventions varied in duration from 10 sessions to up to 170 sessions delivered over 4 years. Each intervention shared a common focus on emotional regulation, empathy and social skills, among a variety of other components. There were varying degrees of depth of information provided on the format of lesson delivery. All five studies documented fidelity of instruction and implementation to some degree.

Carroll *et al.* (2020) implemented the KooLKIDS programme (Carroll & Houghton, 2018) which used sessions centred around animated stories featuring a central character "Okki the Octopus". The lessons were varied in nature ranging from group tasks, self-reflection and artistic activities and were rooted in cognitive-behavioural and strength-based therapy models. The structure of the programme was well-documented. Teachers received one day of training, however, facilitators also completed weekly check-ins with teachers to ensure quality of delivery. Teachers also documented the number of completed sessions via checklist. Cook *et al.*, (2018) implemented the *Second Step* programme (Committee for Children [CfC], 2016), for which the description of implementation was limited, and the study was therefore rated accordingly. Teachers received four hours of training in the curriculum and proactive classroom management prior to delivery. Fidelity of delivery was documented by teachers in the form of weekly logs of adherence and student engagement. O'Connor *et al.* (2014) implemented INSIGHTS intervention programme which is centred on temperament theory (McClowry, 2002). Lessons were guided by both a facilitator and teacher, as well as a parent component conducted in the home. In the classroom component, pupils are introduced to four puppets characterised by different temperaments. Teachers and parents received 10 weekly two-hour long training sessions. The presence and involvement of the facilitator ensured a high level of fidelity to the prescribed programme, however, the

review question concerns teacher-led interventions. Hence, the study was rated accordingly. Schonert-Reichl *et al.* (2015) employed the MindUP intervention programme (Hawn Foundation, 2008) based in mindfulness education with a view to promoting improved executive function, emotional regulation, and social skills. Lesson duration is 40-50 minutes and involves activities such as breathing exercises and mindful smelling as well as gratitude and empathy skill development. Implementation dosage and quality was measured via teacher survey and a daily lesson diary. The amount of training given to teachers prior to implementation was not reported. Lastly, Schonfeld *et al.* (2015) employed the PATHS curriculum (Kusché & Greenberg, 1994) which focused on four areas of concern: Emotional awareness, self-control, interpersonal problem-solving and developing peer relations and social responsibility. This programme was delivered over the course of four academic years. To ensure fidelity of delivery, teachers received 16 to 20 hours of annual training and in-class support and teachers completed biweekly curriculum checklists. Intervention classes received between 25 to 31 PATHS lessons per year, in comparison with 3.5 to 15.9 lessons received by control classes.

Fidelity of implementation has been found to be an important indicator of differential effects and assurance of quality programme delivery is important in accurate interpretation of results and their implications (Low *et al.*, 2016). The studies included for review differed greatly with regard to training and fidelity monitoring and their scores were weighted accordingly. Studies such as Cook *et al.,* (2018) delivered the shortest duration of training and only one quantitative measure of implementation quality assurance and were therefore given less weight on this measure in WoE A. However, studies such as O'Connor *et al.* (2014) were more rigorous in monitoring and ensuring fidelity of implementation and were therefore rated more highly in this regard.

1.3.4 Measures

Only one of the studies included (Schonfeld *et al.*, 2015) had the sole focus of measuring the impact of SEL intervention on academic achievement or performance and was therefore rated most highly in terms of relevance to the review question in this regard. Each of the other studies measured several other outcomes of interest, such as behaviour, emotional or temperament factors.

Researchers in each study used a variety of measures of academic achievement or performance. These differences in measurement made comparison between studies more difficult, as not all measurements were standardised, nor did they all measure the exact same constructs. Carroll and colleagues (2020) used teacher reports at pre-intervention and post-intervention of academic outcomes in English, Maths, achievement and effort. Teachers were asked to give a rating from A to E where A = very high and E = very low. However, in this case the teachers were not blind to the experimental condition of their students, therefore the results are open to bias. Cook *et al.,* (2018) measured academic performance through assessment of oral reading fluency (words read correctly per minute) and maths calculation (number of digits correct in a minute). These were measured at three time points, however only the data from two time points was deemed relevant and reported. Data collection was not blind and therefore also open to bias. O'Connor *et al.* (2014) measured student performance in reading and maths at all five time points using Letter–Word ID and Applied Problems subtests of the Woodcock–Johnson III Tests of Achievement (WJ-III) (Woodcock *et al.,* 2001). This was one of the only studies to report the reliability and validity of the measures used which was noted when considering scores. Data collectors were unaware of the study condition allocated to participants which increases the robustness of results. Schonert-Reichl *et al.* (2015) differed significantly in their methods of measurement of academic performance. Not only were pupils' end of year maths grades reported, but also

measures of their executive function. Schonert-Reichl *et al.* (2015) administered two computer-based tasks: the flanker task and the hearts and flowers task (Davidson *et al.*, 2006). Pupil reaction times and accuracy of response were recorded as measures of executive function at pre-intervention and post-intervention time points. While teachers were not blind to the study condition of pupils when reporting their maths grades, administrators of the computer-based tasks *were* blind to pupil condition. Finally, Schonfeld *et al.* (2015) used pupil performance on the State Mastery Test as a measure of academic achievement. This is an annually administered state-wide test of academic attainment in areas of maths, reading and writing. Schonfeld and colleagues (2015) were also the only other researchers to report the reliability and validity of the measure used, which led to this study being more heavily weighted in light of this.

1.3.5 Outcomes

Significant results for the impact of SEL programmes on the academic performance of primary school children were found in three of the five studies (O'Connor *et al.*, 2014; Schonert-Reichl *et al.*, 2015; Schonfeld *et al.*, 2015). All but one of the studies included for review (Cook *et al.*, 2018) made reference to effect size when reporting results, all of which were reported as small to medium. While Carroll *et al.'s* (2020) results were not statistically significant, the researchers did note greater gains in the intervention group in comparison with the control. Cook and colleagues (2018) reported no positive main effect on academic performance of the intervention group. O'Connor *et al.* (2014) reported significantly faster growth in reading and maths performance in the intervention group compared to the control group, however, effect sizes were small to medium. Schonert-Reichl *et al.*, (2015) demonstrated significantly faster reaction times in the intervention group for the flanker task of executive function. However, the intervention group was found to be no more accurate than the control group on these tasks. Furthermore, the reported effect sizes were small.

Similarly, the intervention group demonstrated a significant yet small increase in maths grades. Finally, Schonfeld *et al.* (2015) found that reading performance was significantly improved in the first measure of academic attainment (i.e. 4th grade exam) and found significant increases in 5th grade writing scores and 6th grade maths scores of the intervention group.

1.4 Conclusion

1.4.1 Key Limitations

Several of the limitations to the methodology of these studies have been mentioned above. While four of the five studies included a sizeable sample, Schonert-Reichl *et al.* (2015) reported the smallest sample of 99 participants. This limits the generalisability of results and, as such, the study received a lower rating in comparison with the other reviewed studies. Furthermore, the review question sought to include studies with samples randomly taken from the general population. However, as is evident from the review, most of the included studies, with the exception of Schonert-Reichl *et al.* (2015), selected their sample from predominantly disadvantaged areas or areas of low SES and therefore received a lower score on this measure of relevance to the review question for WoE C. While the results of these studies concerning the effects of SEL programmes on participants from disadvantaged backgrounds is certainly useful, the sample demographics reduce the generalisability of the results to the wider population. However, it should be noted that four of the five studies included for review (Cook *et al*., 2018; O'Connor *et al.,* 2014; Schonert-Reichl *et al.,* 2015; Schonfeld *et al.,* 2015) provided a demographic breakdown for participants' SES and cultural and ethnic backgrounds which demonstrated the diversity of samples as well as allowing the reader to more easily decipher to what extent and populations the findings are generalisable.

Another notable limitation of several of the reviewed studies was the measure of quality of implementation and fidelity to the prescribed programme by teachers. Four of the studies used quantitative measures of fidelity in the form of checklists or daily diaries to monitor quality of implementation (Carroll *et al.,* 2020; Cook *et al.,* 2018; Schonert-Reichl *et al.,* 2015; Schonfeld *et al.,* 2015). While dosage or number of lessons administered was found to be a significant predictor of basic proficiency in reading and maths (Schonfeld *et al.,* 2015) this quantitative measure is not a sufficient indicator of quality of delivery and cannot account for environmental or interpersonal differences between classrooms and teachers. This is particularly important as classroom environment and delivery style has been noted to be a mediator of academic outcomes (Eccles & Roeser, 2009). O'Connor and colleagues (2014) were the only researchers to have rigorous training and constant onsite support for teachers during implementation. However, as the intervention was partially delivered by facilitators as well as teachers, this impacted the study's scores for relevance to the review question, as it was mainly concerned with interventions that were led entirely by teachers.

Lastly, not all of the studies included used objective measures of academic outcomes, using either teacher reports or measures wherein assessors were not blind to subject condition. Furthermore, only two studies reported the reliability of measures employed (O'Connor *et al.*, 2014; Schonfeld *et al.,* 2015). This meant that less weight was given to the studies that did not report the reliability of measures and to those that used less objective measures.

1.4.2 Key Conclusions and Implications

From the information gleaned from the systematic review of the included studies, there is some evidence to suggest that SEL programmes may improve the academic performance of primary school children in the general population. Three of the five reviewed

studies reported significant results in measures of intervention group academic achievement (O'Connor et al., 2014; Schonert-Reichl et al., 2015; Schonfeld et al., 2015). The effect sizes of these results ranged from small to medium. Each of these studies used a different measure of academic performance to explore the impact of SEL programmes on pupil achievement. The measures employed included literacy and numeracy subtests of the WJ-III, State Mastery Test results in literacy and numeracy, and measures of response time and accuracy in a measure of executive function. Each of these studies employed a control group as well as pre and post measurement of performance. These outcomes provide tentative evidence to suggest that SEL interventions may have an impact on the academic performance of primary school pupils. These results provide a rationale for further investigation into this impact that may replicate and build on the outcomes of this existing research. This can be done by taking lessons learned and limitations from the reviewed studies into account. These are outlined in the Key Limitations section above. Furthermore, two of the reviewed studies did not find statistically significant results regarding an impact of the SEL programme implemented on the academic performance of pupil participants (Carroll et al., 2020; Cook et al., 2018). These outcomes should also be considered when considering the potential impact of a programme on academic achievement in future research.

Based on the inclusion criteria outlined above, each study was rated on the standard of meeting each criteria using a coding protocol for WoE A, B and C. WoE D is scored out of three and reflects the average overall score for each study. The higher the score the higher the quality of the study. In this review, three of the studies received a High rating (O'Connor et al., 2014; Schonert-Reichl et al., 2015; Schonfeld et al., 2015) while two of the studies received a Medium rating (Carroll et al., 2020; Cook et al., 2018). The study that received the highest rating was Schonfeld et al. (2015). This study received high ratings on each of WoE A, B and C due to characteristics such as its relevance to the research question, more robust

study design, large sample size and long-term follow-up measurement. This rating speaks to both the level of relevance to the research question and the generalisability of results to the wider population. This study suggests that there may be reason to believe that the SEL programme implemented (PATHS) may have a positive impact on reading, writing and maths proficiency at different stages with small effect size. It is promising that the three studies that received the highest ratings in this review also reported statistically significant results regarding the impact of SEL programmes on the academic achievement of participants. However, the limited number of studies in this domain demonstrates that further research in this area is warranted in order to test the veracity, reliability and generalisability of these results. This research should take the limitations and implications outlined above into consideration when conceptualising study design.

Implications for Future Practice. An important implication of this review is the in-depth analysis and rating of each study that is now available to Educational Psychologists in their practice. Educational Psychologists are best placed to bridge the gap between research and practice in schools regarding the recommendation of specific SEL programmes. This review provides them with a resource by which to assess any of the programmes discussed in the included studies and also a standard by which to consider other studies that may not have been included in this analysis. Teachers and principals can also access the results of this review to inform their practice, particularly in the realm of SEL. These practitioners may find this review useful in identifying the elements of potentially efficacious SEL programmes and of robust research studies pertaining to them.

Implications for Future Research. While not all studies reported significant results or large effect sizes, the results and noted limitations of the included studies can inform future study of the impact of SEL programmes on academic outcomes. Future researchers should strive to implement true randomisation of samples where feasible and select participants from

the general population rather than a specific subset, as was the case for the majority of the studies included in this review. While school-based studies present difficulties in implementing true randomisation, cluster-randomisation does not allow for the control of confounding variables such as classroom environment or teacher style. Future studies should also use more objective measures of academic outcomes, administered by independent assessors who are blind to subject condition in order to reduce the likelihood of bias in results. Furthermore, more longitudinal research is required in this area to assess the longevity of results, if any. Lastly, rather than focus on samples derived from disadvantaged communities, where practical, future research should seek to explore the impact of SEL programmes at all levels of SES in order to improve the generalisability of results to the wider population.

2 Empirical Paper

2.1 Introduction

According to the My World Survey, a national survey of youth mental health in Ireland, one in three Irish young people reported experiencing mental health difficulties (Dooley & Fitzgerald, 2012). In a follow up survey carried out in 2019, researchers found a notable increase in depression and anxiety rates for adolescents in comparison with data from 2012 (Dooley *et al.*, 2019). What is more, in 2014, the Irish Health Service Executive (HSE) reported an 11% increase in referrals for children's mental health services (HSE, 2014). This is reflective of current global statistics reported by the WHO regarding the prevalence of youth mental health difficulties and the report that depression, anxiety and behavioural disorders are among the leading causes of illness and disability among adolescents, globally (WHO, 2021). Furthermore, these issues appear to have been exacerbated by the effects of the COVID-19 pandemic. McDonnell *et al*. (2021) have reported that, following the onset of the COVID-19 pandemic, there was a significant increase in the number of children presenting to emergency health departments for acute mental health care. This increase was sustained throughout the year and the authors have recommended an increase in national mental health resources in order to target the long term stressors to children's mental wellbeing. This trend is also reflected in more recent figures outlined in performance reports produced by the HSE which indicate that there were 3,818 children and young people waitlisted for Child and Adolescent Mental Health Services (CAMHS) by September 2022 (HSE, 2022). This was an increase of 870 individuals compared with the same time period in 2021 (HSE, 2021; HSE, 2022). What is more, 407 of these referrals had been waitlisted for more than 12 months. This figure had also increased from 195 the previous year (HSE, 2021; HSE, 2022).

In response to such trends in child and adolescent mental health, the Irish government has developed a number of policies. In a broad response to the landscape of Irish mental health, Sharing the Vision: A Mental Health Policy for Everyone was developed to build on the historical mental health policy (Department of Health, 2020). The development of this policy sought to provide a framework for a responsive and effective Irish mental health service. Regarding child and adolescent mental health, the policy outlines the need to support and improve mental wellbeing throughout childhood (Department of Health, 2020). The policy proposes that this can be achieved through the investment of time and resources into mental health supports in relevant public services, including in the domains of health and education (Department of Health, 2020). As such, in order to bolster the efficacy of educational mental health and wellbeing policy, collaboration between these sectors is to be incorporated into the National Mental Health Promotion Plan (Department of Health, 2020).

In 2018, the Department of Education and Skills (DES) launched its Wellbeing Policy Statement and Framework for Practice (2018–2023). In an effort to promote student wellbeing and prevent mental ill-health, this policy recommends the use of both universal and targeted, evidence based social-emotional learning (SEL) programmes and interventions in Irish schools. Circular 0042/2018 accompanies this policy and outlines best practice guidelines for the selection of programmes to promote wellbeing in schools (DES, 2018b). It outlines several criteria to be met by the programme prior to its implementation in a school. These criteria include the stipulations that the programme selected must include evidence informed content with clear educational outcomes and that the programme and its outcomes have been independently evaluated and evidence-based (DES, 2018b). This is particularly relevant in the case of WW, as its current evidence-base is limited, especially in relation to educational outcomes. This is elaborated upon further below. The development and implementation of such policies and related special interest groups in a number of

government sectors indicates that there is growing awareness of the need for evidence based social emotional and mental health supports across the students' lifespan in Ireland (DES, 2018a; Department of Health, 2020).

But why should SEL programmes be implemented in schools and what are they? It is clear from HSE reports and research in the area that Irish mental health services are failing to meet the current demand for child and adolescent mental health support (Coie *et al.*, 2000; Dooley *et al.*, 2019; HSE, 2022). While schools cannot be expected to address moderate to severe mental health difficulties, universal and targeted SEL supports may improve outcomes of children with lower level difficulties or prevent future mental ill-health (Blewitt *et al.*, 2018). Schools are optimal sites for SEL, as children spend the majority of their waking hours at school, and this has been recognised in Circular 0042/2018 (DES, 2018b). Furthermore, universal programme delivery in such a setting allows for wider programme reach, as opposed to small group or individualised settings (Domitrovich *et al.*, 2010). This, coupled with instruction from highly skilled and competent school staff, means that there can be many opportunities for SEL (in addition to academic learning) across a young person's school career (Doll & Lyon, 1998). The 'social' component of SEL reflects a focus on relationships with others, while the 'emotional' component refers to the awareness of one's emotions and those of others. The 'learning' component encapsulates the development of social-emotional skills through instruction and practice (Merrell & Gueldner, 2010). In general, the primary aims of a SEL programme are to equip children with skills to recognise and manage emotions, to understand the power of different perspectives, to make responsible decisions, and to appropriately navigate interpersonal relationships (Greenberg *et al.*, 2003).

Regarding research into the efficacy of SEL, there is evidence to suggest that SEL has a positive impact on student attitudes and behaviour as well as student performance (Zins *et al.*, 2004). Two key elements of SEL instruction lead to greater academic achievement and

engagement in pupils exposed to them. These elements are: creating positive school environments and providing social-emotional competence. Firstly, positive learning environments are facilitated by caring teacher-pupil relationships using instructional motivating strategies. Students in such psychologically safe environments are more connected to school life and therefore more likely to adapt and succeed in these settings (Hawkins *et al.,* 1992; Symons *et al.,* 1997). Secondly, instruction in the development of social-emotional competency allows students to take advantage of classroom learning opportunities (Linares *et al.,* 2005). Research suggests that this is because pupils with greater social-emotional competence engage in fewer disruptive or risky behaviours and experience less emotional distress (Panayiotou *et al.,* 2019)**.** Furthermore, it has been found that learning how to manage one's emotions may improve cognitive functioning (Riggs *et al.,* 2006). This has implications for a pupil's academic performance and capacity to engage in school life. For example, anxiety and stress have been significantly correlated with poorer academic performance (Vitasari *et al.,* 2010). Taking this research base into account, it appears that, when pupils are better equipped to understand and manage their emotions through SEL instruction, they have greater capacity to engage and achieve at school. The evidence to support the links between SEL instruction between pupil engagement and achievement is elaborated upon further in the sections entitled "Pupil Engagement" and "Pupil Achievement" below.

The development of our social and emotional skills is intertwined. SEL interventions draw on several psychological theoretical standpoints to inform effective SEL instruction. Erikson (1950) posited that our socio-emotional development occurs in sequential stages of conflicts across the lifespan that are central to our relationships and interactions with others. In childhood, these include: Trust vs Mistrust, Autonomy vs Shame and Doubt, Initiative vs Guilt, Industry vs Inferiority, and Identity vs Role Confusion. Erikson's theory suggests that,

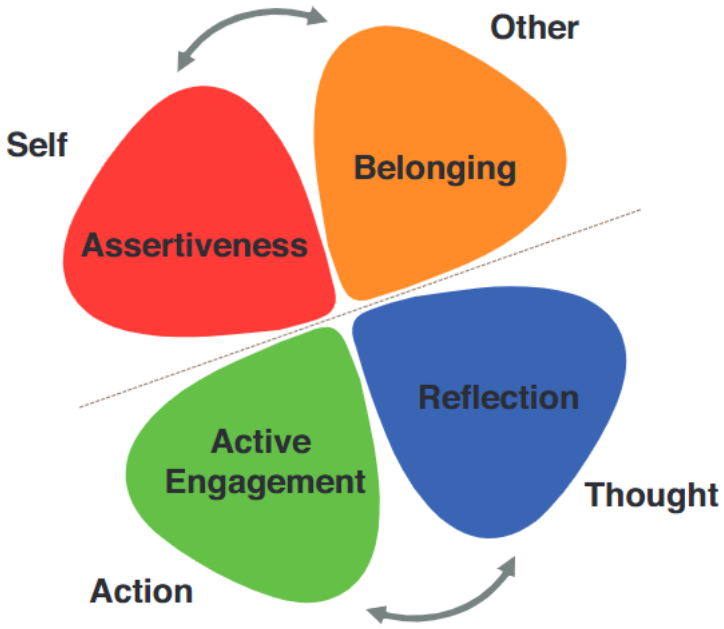
in order for favourable outcomes to be achieved at each of these stages, the central conflict must be resolved. Based on this theory, it is important that children experience consistent care, support, and encouragement, as well as opportunities to build self-esteem, make choices and exercise ingenuity in early childhood. These concepts of social-emotional development can be considered in conjunction with Maslow's Hierarchy of Needs, more specifically the "growth needs" or upper tiers of the hierarchy (Maslow, 1943). Maslow posited that, once physiological and safety needs have been satisfied, humans then require specific psychological and social-emotional needs to be satisfied in order to achieve wellbeing. These include a sense of connection or positive, loving relationships. Secondly is a need for self-esteem which includes achievement and respect. Finally, at the apex of the hierarchy, is self-actualisation which refers to seeking personal growth through creativity, spontaneity and morality.

Building on social-emotional development theory and drawing on research in the area of SEL intervention, Malti & Noam (2016) developed the Clover Model of social-emotional development (see Figure 2). This model illustrates social-emotional development as having four "leaves" or domains of development: active engagement, assertion, belonging and reflection. Active engagement refers to the desire to engage with the world around us. Assertion refers to our agency to express our wants and needs. Belonging refers to our desire to connect with peers and adults, while reflection represents our desire for self-knowledge and identity (Malti & Noam, 2016; Noam & Triggs, 2018). These domains are also reported to be complementary to one another, where skills developed in one domain can support the development of skills in another, leading to overall wellbeing, positive relationships and outcomes such as academic achievement (Figure 2) (Noam & Triggs, 2018; Oberle *et al*., 2014). The Clover Model assumes plasticity of social-emotional development and acknowledges that this inherently varies across developmental stage and age (Malti & Noam,

2016). The authors suggest that each person will experience strength in some domains and challenges in others, which may be genetically predetermined or influenced by external environment (Noam & Triggs, 2018). It is therefore posited that when we as individuals strike a personal balance between the four domains (wherein the level of proficiency in each domain may vary) we may then achieve positive mental health (Noam & Triggs, 2018).

Figure 2

The Clover Model of Social-emotional Development (Noam & Triggs, 2018)



In order to operationalise these concepts and theories in SEL intervention in schools, the Collaborative for Academic Social, and Emotional Learning (CASEL) have concisely identified five objectives and skills to be achieved through formal SEL instruction. These include: self-awareness, self-management, social awareness, relationship skills, and responsible decision-making (CASEL, 2005). Acknowledging that our social-emotional learning does not occur within a vacuum, CASEL have conceptualised it within an ecological model of development, drawing on the work of Bronfenbrenner (1986) (Figure 3). In the CASEL Theory of Action model of SEL, not only is there a focus on directly providing

intervention to children and adolescents, but also on improving the SEL competencies of the adults who are imparting this knowledge to them, such as parents and professionals (Yoder *et al.*, 2021). These aims are supported by the tenets of systemic SEL planning, evaluation and reflection for improvement. As such, the CASEL Theory of Action model of SEL delivery aims to target SEL from the systemic level down to the individual (Yoder *et al.*, 2021).

Figure 3

CASEL SEL Framework (Yoder et al., 2021)

In Ireland today, there is a small number of formally manualised SEL programmes that are recommended for use in Irish primary schools. These include programmes such as the FRIENDS for Life Programme, Incredible Years, and Zippy's Friends. While these are cited by the DES as recommended, evidence based SEL interventions, each of these programmes was developed for use in other countries, such as Australia, the United States and Denmark, respectively. There is research to suggest that the cultural sensitivity and appropriateness of teaching and school programmes leads to positive social-emotional and academic outcomes (Aronson & Laughter, 2016; Byrd, 2016; Cramer & Castro-Olivo, 2016). What is more, a study investigating the efficacy of one of the aforementioned programmes,

FRIENDS for Life, within a sample of Irish pre and early teens found that many of the lesson components were culturally inappropriate for use with an Irish audience (Henefer & Rodgers, 2013). The teachers surveyed in this research were quoted as citing the programme material as consisting of "too much Aussie stuff", as the programme frequently references animals such as kangaroos and koalas or events that are less typical in an Irish context, such as swimming carnivals and barbecues, in its resource materials (Henefer & Rodgers, 2013, p17). Other teachers in this research reported this limitation of the programme to cause them to either adapt or omit such elements of the programme material in order for pupils to be able to engage appropriately with it. Another study quoted those delivering the programme as stating that the tone of the programme is not culturally suitable as the language used in the resources is ostensibly "geared towards…an Australian lifestyle" and that the lessons often required further context to be explained or adjusted (Wigelsworth *et al.*, 2018, p48). Similarly, Ruttledge and colleagues found in their study of the programme that some of the content was reported to be culturally unsuitable by parents, children and teachers involved in the research. Their recommendation was for the programme to be adapted to suit an Irish context (Ruttledge *et al*., 2016). These findings indicate a need for empirical investigation into universal SEL programmes that have been developed for an Irish cohort.

WW is unique as it is the first Irish-developed SEL programme. In comparison with the FRIENDS for Life programme, the language used in the programme is less culturally specific to other regions, unlike other programmes. Conversely to the research outlined above wherein teachers felt the need to adapt or omit programme content to make lessons more accessible to students, teachers who implemented WW reported that it was easy to implement and accessible for the Irish pupils (O'Brien, 2020; Barrington *et al.,* 2019). The language of WW lessons refers to concepts such as "The Helpful Thinking Helmet", "The Planning Pen", and "The Jigsaw of Perspective". This language can be viewed as less region-specific and

may be more accessible to an Irish audience. The programme has also been translated into the Irish language (Fí na Folláine) for use in schools that provide instruction through the Irish language. Its lessons have also been designed to map onto some Strand Units of the Irish SPHE curriculum. Both of these elements add to the cultural relevance of the programme to an Irish audience.

Weaving Well-being (WW) is a teacher-led, universal SEL programme that has been developed for use in Irish primary schools, from second to sixth class. The aim of the programme is to provide children with the skills and strategies to promote positive mental health (Forman & Rock, 2016). As of 2019, according to the author, it is in use in 62% of Irish schools (Forman, 2019). The programme delineates seven key concepts derived from Positive Psychology research and its central framework is rooted in Seligman's PERMA model of wellbeing (Forman & Rock, 2016; Seligman, 2011). The key theoretical components of this model are: Positive emotion, engagement, relationships, meaning and achievement, see Figure 4 (Seligman, 2011). Furthermore, Seligman posits that these components are moderated by an individual's self-esteem, optimism, resilience, vitality and self-determination (Seligman, 2011). Seligman posits that, in order for one to flourish or experience wellbeing, one must possess all five elements.

Figure 4

Seligman's (2011) PERMA Model of Wellbeing

Kern et al. (2016) built on this model further with the Engagement, Perseverance, Optimism, Connectedness and Happiness (EPOCH) Measure of adolescent wellbeing. This work posits that there are characteristics in adolescence that impact PERMA components in adulthood. These are: engagement, perseverance, optimism, connectedness and happiness. As the concepts at play are dynamic and often have reciprocal impacts on one another - as well as being influenced by other external factors such as time and societal factors - it is important to take an overarching social-ecological theoretical standpoint when interpreting results and making inferences in relation to the effects of SEL intervention (Bronfenbrenner, 1986).

The existing research regarding WW is limited with six studies having been completed and only one of these published (Forman, 2019). Two of these studies investigated the programme's impact on negative emotion, such as anxiety and depression (Barrington *et al.*, 2019; Gough, 2020). Two studies investigated the programme's effect on student self-efficacy (Burns 2019; O'Brien, 2020), while two more were concerned with the programme's impact on pupil resilience and practice in the classroom (McGrath, 2017; O'Neill, 2019). The

methods used in the research include qualitative, quantitative and mixed-methods. Study sample sizes range from 8 to 134. Regarding the outcomes of these studies, all studies containing a qualitative component reported a positive impact of the programme overall and on various dimensions measured (Burns, 2019; McGrath, 2017; O'Neill, 2019; O'Brien, 2020). Meanwhile, only one of five studies to employ quantitative analysis of the impact of WW reported statistically significant results (Gough, 2020). Gough (2020) reported a significant decrease in pupil anxiety, but no significant increase in resilience at pre and post measurement. It should be noted that no control group was used in this study. In reviewing this literature, it was evident that some components of the PERMA model had yet to be explored in the context of WW. Two of these key tenets are pupil engagement and achievement.

2.1.1 Pupil Engagement

Theoretical bases for engagement are often linked to motivation theory, such as intrinsic motivation or self-determination theory (Deci, 1996; Shernoff, 2013). Csikszentmihalyi (1990) describes meaningful engagement as "flow", which requires enjoyment, interest, and concentration. An important distinction to be made is *between* engagement and motivation, as the terms are sometimes conflated. Motivation refers to the underlying, intrinsic reasons for behaviour, while engagement can be thought of as the behavioural, emotional and cognitive expression of motivation (Maehr & Meyer, 1997; Skinner *et al.,* 2008). Furthermore, unlike motivation, engagement cannot be separated from the environment in which it occurs (Fredricks *et al.,* 2004). It is important to note that school engagement is influenced by several contextual factors such as peer relationships, teacher relationships, and school climate (Christenson *et al.,* 2012). Pino-James *et al.* (2019) identified five facilitators of engagement: meaning, agency, competence, positive peer relationships and positive teacher-pupil relationships. Pupil engagement has been referred to

as a multidimensional "complex meta-construct" (Shernoff, 2013). Research has posited between two and four dimensions of engagement (Appleton *et al.,* 2008). It is widely conceptualised as consisting of three distinct yet integrated dimensions. These are: behavioural, emotional and cognitive engagement (Fredricks *et al.,* 2005). Behavioural engagement can be described as ostensibly observed actions, such as participation in activities, school attendance, or the amount of effort one puts into a task (Finn & Voelkl, 1993; Green *et al.,* 2008; Marks, 2000). It also includes social interactions at school with teachers and peers (Macklem, 2014). Meanwhile, cognitive engagement encapsulates investment in learning, depth of processing and intrinsic motivation at school (Blumenfeld 1992; Newmann, 1992; Brophy, 1987; Covington, 2000). Finally, emotional engagement describes student affect at and about school, such as boredom, interest and anxiety (Finn, 1989; Shernoff *et al.,* 2003; Voelkl, 1997). It has also been suggested to include feelings of belonging and connectedness at school (Li *et al.,* 2011; Macklem, 2014).

Engagement can sometimes be construed as a monolith and it is important to acknowledge its dimensions, particularly when intending to measure engagement (Fredricks *et al.,* 2004; Jimerson *et al.,* 2003). Lam and colleagues (2012) have posited that emotional engagement may mediate the other dimensions of engagement. In reviewing the literature, many studies have only measured behavioural engagement or selected academic effort or achievement as indicators of engagement. The importance of investigating individual engagement dimensions simultaneously was highlighted by Lee & Smith (1999). In their study of 30,000 elementary school pupils, it was found that the two dimensions of engagement ("academic press", or perceived cognitive and behavioural challenges, and social-emotional strength) did not impact outcomes in isolation. However, pupil outcomes were found to be positively impacted when these dimensions were taken into account in

combination. As such, research investigating pupil engagement needs to employ reliable and valid measures that explore multiple engagement dimensions simultaneously and effectively.

Several different methodologies have been employed in the pursuit of investigating pupil engagement. The most common method of data collection has been the use of student self-report measures. Some of the reasons for using self-report measures include capturing pupils' subjective experiences of engagement (i.e. emotional and cognitive engagement), rather than objective, arguably superficial, behavioural indicators such as attendance or work completion data (Appleton *et al.,* 2006; Garcia & Pintrich, 1996). These methods are likely to be most widely used as they are the most practical for administration in a school setting. They can be administered to large groups in a short timeframe with minimal demand for personnel resources (i.e. one researcher can administer to a group if necessary). This method also facilitates direct comparison between schools or groups of students. Some drawbacks to this method include possible response bias which may not accurately reflect their behaviours or cognitions (Appleton *et al.,* 2006; Garcia & Pintrich, 1996).

Teacher-report measures are also used to measure student engagement (Skinner & Belmont, 1993; Wigfield *et al.*, 2008). These measures can be useful to measure the engagement of younger children, who may be unable to complete self-report measures. However, while data generated by teacher-report surveys has been found to correlate with self-report data on behavioural engagement, the correlation between teacher and self-report data has not been found to be as strong for emotional engagement, which is not directly observable (Skinner *et al.,* 2008). Qualitative interviews have been employed to explore pupil engagement (Blumenfeld *et al.*, 2005; Conchas, 2001; Locke-Davidson, 1996). Conducting structured or semi-structured interviews with students and teachers can illustrate reasons for differences in engagement levels and the contextual factors that contribute to these differences (Blumenfeld *et al.,* 2005). Some limitations to the use of interviews that have

been highlighted include possible social desirability response bias and the influence of the interviewer on participant responses, in the context of skills and biases in questioning.

Experience sampling is another means of assessing pupil engagement (Shernoff *et al.*, 2003). This method requires students to complete self-report questionnaires at set time periods according to signals received from electronic pagers or alarms (Hektner *et al.*, 2007). This approach provides more real-time engagement data in comparison with retrospective results produced by other methods, which may, in turn, reduce the likelihood of social desirability response bias or recall difficulties. However, this approach requires a high level of investment and compliance from participants, which can be challenging to ensure. Lastly, observational techniques may be employed to determine engagement levels on an individual or group level (Lee & Anderson, 1993; Volpe *et al.*, 2005). These techniques can be used to gauge the presence (or absence) of certain forms of behavioural engagement as well as the quality, intensity and frequency of such engagement. This approach, like interviews, can lead to rich contextual data to enhance understanding. However, observations are labour-intensive and time-consuming. Generally, only a small group can be observed at once which also impacts generalisability of results (Fredricks & McColskey, 2012). All in all, it has been suggested that, in order to capture the most accurate and comprehensive picture of pupil engagement, a combination of methods should be used to improve a study's reliability, validity and generalisability (Fredricks & McColskey, 2012).

Research investigating the impact of classroom intervention directly targeting school engagement alone has demonstrated that promoting positive teacher-pupil relationships and peer relationships has an impact on behavioural, emotional and cognitive engagement (Bressler, 2014; Sinha *et al*., 2015; Yeager *et al.*, 2014). Similar findings have been exhibited in studies investigating the impact of SEL interventions on the fostering of pupil engagement. Social-cognitive and self-efficacy theory purport that pupil perceptions of teacher-pupil

relationships significantly influence emotional and behavioural engagement at school (Ryan *et al.*, 1994). While there is evidence to suggest that promotion of positive relationships via SEL instruction positively impacts engagement, results have been mixed as to whether this is primarily for younger students or across age groups (Hargreaves, 2000; Roorda *et al*., 2011). Of note, however, is that meaningful classwork has also been found to be a consistent predictor of all three dimensions of pupil engagement (Corp, 2017). Furthermore, in line with a social-ecological standpoint, it is important to note that higher socioeconomic status of a school and smaller school size may also be linked to greater pupil engagement (Li & Lerner, 2011; Weiss *et al.,* 2010).

Pupils have been found to become gradually less engaged in school as they progress through the school system (Archambault *et al.,* 2009; Klem & Connell, 2004). There is research to suggest that low student engagement is associated with negative outcomes, such as externalising behaviours including substance abuse, risk taking and school dropout (Payne *et al.*, 2003; Simons-Morton, 2004). Meanwhile, higher levels of pupil engagement have been strongly linked to favourable outcomes, such as school completion and academic achievement (Finn & Zimmer, 2012; Mahatmya *et al.*, 2012). Research that directly addresses the link between SEL and pupil engagement is scarce. Nonetheless, studies in the area have indicated that implementation of SEL programmes can promote increased pupil engagement. For instance, SEL has been found to significantly improve attitudes towards school and increase morale (emotional engagement) (Jin & Wang, 2019; Yang *et al.,* 2018; Zins *et al.*, 2004). They were also found to improve motivation and school attendance (behavioural engagement) (Aronson, 2002; Xia *et al.*, 2022). Further to the issue of behavioural engagement, Wilson and colleagues' (2001) meta-analysis of 165 studies found that social emotional learning programmes increased attendance and reduced school dropout rates. With regard to younger children, Conroy *et al.* (2015) reported that preschool children

who were exposed to a SEL intervention (BEST in CLASS), exhibited increased behavioural engagement at school at post-intervention measurement, amongst other favourable results.

In their large scale research investigating associations between SEL instruction and student engagement across school levels, Yang and colleagues (2018) found that SEL intervention was positively and significantly linked to improved emotional and cognitive-behavioural engagement. They posit that when pupils receive effective SEL instruction at school, their social-emotional skills (e.g. emotional regulation, interpersonal skills and distress tolerance) improve and this in turn can result in increased positive relationships with teachers and peers (Yang *et al.*, 2018). This is why we might tentatively expect to see an improvement in pupil engagement as a result of SEL intervention. In the landscape of research exploring the impact of SEL on engagement, the primary demographic of interest when researching pupil engagement has been populations of low SES, in the context of preventing minority populations from disengaging from school life (Taylor & Parsons, 2011). However, engagement has been identified as a construct that is relevant for all pupils, regardless of location, demographic traits or school level (Appleton *et al.*, 2008). Finally, it should be acknowledged that the relationship between SEL intervention and engagement can be described as bidirectional, with levels of pupil engagement influencing the efficacy of an SEL programme (Devlin *et al.*, 2023). Similarly, the reciprocal relationship between pupil engagement and better academic outcomes is frequently mentioned in the literature (Durlak *et al.*, 2011; Shernoff, 2013).

2.1.2 Pupil Achievement

Academic achievement is known by many names (academic performance, academic success, attainment and so forth) and has as many definitions. Academic achievement can be defined as performance on discrete tests, continuous assessment attainments, receiving

awards, or winning academic competitions. It is generally used as a means of measuring the extent of a pupil's learning in a particular area. As such, it is useful to consider academic achievement through theories of learning. Vygotsky's theory of social development posits that our cognition and learning development are inherently social processes as opposed to independent journeys of discovery (Vygotsky, 1978). However, it should be noted that this theory has been criticised for its vagueness and the validity of Vygotsky's claims have been questioned. Other theories of learning include Bandura's Social Learning Theory and Social Cognitive Theory. Social Learning Theory emphasises learning through observation which is mediated by cognitive processes (Bandura, 1977). These processes include attention, retention, reproduction (or imitation) and motivation (Bandura, 1977). Social Cognitive Theory can be considered an extension of Social Learning Theory as it places greater emphasis on the previously mentioned cognitive processes in the interpretation of actions. This interpretation may then lead to seeking greater agency and control over one's actions and environment (Bandura, 1989). The primary features of the Social Cognitive Theory of learning are: reciprocal determinism, behavioural capability, reinforcements, expectations, and self-efficacy (Bandura, 1989). Considering that these theories suggest a major social component to learning, it stands to reason that social-emotional instruction may aid learning outcomes.

As with engagement, academic achievement has been linked to theories of motivation. A theory that is frequently cited in research exploring academic achievement is Expectancy-value Theory (Wigfield, 1994). The central concept of this theory is that the most immediate predictors of achievement are success expectancy and task value beliefs (Wigfield & Eccles, 2000). The former refers to a student's expectation of how they will perform on a certain task, while the latter refers to a student's current evaluation of their competence in completing a specific task. There is research to suggest that positive student expectancy and

task values positively impact student achievement (Dennissen *et al.*, 2007; Durik *et al.*, 2015; Wigfield & Eccles, 2000). This may mean that building pupil sense of self-confidence and positive self-talk, both of which are components of SEL, can lead to improved academic outcomes. Another theory linked to academic performance is Self-determination Theory (Ryan & Deci, 2000). According to this theory, both extrinsic and intrinsic motivation are instrumental to learning. Intrinsic motivation is achieved when the basic psychological needs of autonomy, competence and relatedness (or connectedness) are satisfied (Ryan & Deci, 2000). Three types of extrinsic motivation are outlined: external, introjected, identified, and integrated motivation. These degrees of motivation vary by the level of self-determination involved, whereby the more autonomous the motivation, the greater the quality of pupil engagement and performance (Ryan & Deci, 2000). Of particular relevance to this study, the concept of relatedness within intrinsic motivation has been found to provide a sense of safety and connectedness to pupils such that their academic outcomes may be enhanced (Ulstad *et al.*, 2016).

As there are many interpretations of academic achievement, there is a plethora of ways to measure it, both quantitatively and qualitatively. These include student and teacher reports in qualitative interviews, standardised test scores, aggregate annual grades, state examination results, measures of self-efficacy, academic growth, skill acquisition or executive function skills. The review paper above demonstrated that there are several such means of investigating and measuring the academic achievement of primary school pupils. One study employed the use of teacher ratings, from “Very Low” to “Very High”, of student performance in English and Maths, including achievement and effort (Carroll *et al.*, 2020). However, as the teachers providing the rating were not blind to participant study condition, this opens ratings to bias. Meanwhile, Schonert-Reichl and colleagues (2015) measured pupils’ executive function using computer-based tasks and measures of maths performance.

While computer-based measures are considered to be more efficient and objective measures in some respects, such programmes are, for the most part, proprietary, expensive and, therefore, less readily accessible to researchers. Furthermore, use of such measures may also require specific training. Lastly, three of the studies analysed measured student performance in tests of literacy and numeracy (Cook *et al.,* 2018; O'Connor *et al.,* 2014; Schonfeld *et al.,* 2015). These measures are more objective than teacher or self-report measures. Such measures are also less time intensive and more feasible to administer in groups. However, there is some research to suggest that test scores are not always accurate measures of academic achievement (Arum & Roksa, 2011; Young, 1990). Furthermore, it is acknowledged that exploring academic performance solely through the lens of quantitative test scores may provide a narrow view of academic performance. Therefore, research should ideally explore this construct in conjunction with other methods in order to provide a more holistic view of academic performance. Seligman (2011) describes achievement as the result of mastery and reaching goals leading to a sense of pride. For the purpose of this research, academic achievement was defined as reaching academic goals, such as improvement in literacy and numeracy skills. In order to evaluate any effect on these, performance on tests of Spelling and Maths Computation skills were measured, as these are widely used as indicators of academic attainment in educational psychological practice, research literature and in Irish schools.

As evidenced in the above review paper, there is some research to suggest that exposure to SEL programmes can impact pupil academic outcomes. O'Connor *et al.* (2014) found significant small and moderate increases in students' literacy and numeracy achievement, respectively, for those exposed to SEL intervention. Schonfeld *et al.* (2015) found similar improvements in literacy and numeracy skills of pupils in the intervention group in their longitudinal study of the impact of SEL intervention. Schonert-Reichl *et al*.,

(2015) discovered that pupils exposed to SEL intervention were found to have significantly faster response times in tests of executive function than their control group counterparts. In addition, research beyond the studies meeting the criteria for the review paper have also indicated positive links between pupil achievement and SEL instruction. Zins and colleagues (2004) found that SEL programmes improved academic performance. Building on this, results of meta-analyses by Sklad *et al.* (2012) and Taylor *et al.* 2017 suggest that SEL programmes have as great a long-term impact on academic growth as has been found for programmes designed specifically to support academic learning. There is also research to suggest that students positive relationships and social skills are linked to better academic performance (Yan Carlo, 2022; Yu *et al.,* 2023). What is more, WW authors express that "enhancing children's well-being can lead to a range of other benefits including increased academic performance" (Forman & Rock, 2016).

There is ample research to suggest that supporting students to develop social-emotional competencies contributes to academic learning rather than being simply incidental to it (Durlak *et al.,* 2011; Korpershoek *et al.,* 2016; Zins *et al.,* 2004). Social-emotional competencies taught in SEL intervention, such as emotional awareness and self-regulation, have been linked to increased pupil motivation, engagement and better learning outcomes (Arguedas *et al.,* 2016). Our emotions and relationships have been found to impact how we learn (Elias *et al.,* 1997). As SEL instruction promotes skills such as interpersonal skills, emotional awareness and regulation, and decision making skills, it stands to reason that we could reasonably expect to see an improvement in student learning outcomes that is partially linked to SEL (Durlak *et al.,* 2011; Korpershoek *et al.,* 2016; Zins *et al.,* 2004).

The current study aims to investigate whether WW had an impact on pupils' overall wellbeing through a focus on pupil engagement and achievement. As previously stated, there is currently no research to investigate the WW programme's efficacy in these domains. What

is more, there is a dearth of evidence based SEL programmes developed for use with an Irish audience. It is hoped that this research will provide a unique addition to the existing limited evidence base for the WW programme and offer a unique perspective to the wider discourse on the subject of SEL.

2.1.3 Research Questions

1. Does the implementation of WW improve pupil engagement?
2. Does the implementation of WW improve pupil academic achievement?

2.2 Methodology

2.2.1 Overview of the Weaving Well-being programme

Weaving Well-being (WW) is a SEL programme created for use within Irish primary schools. The overarching aim of the programme is to provide pupils with strategies to promote positive mental health and wellbeing (Forman & Rock, 2016). The programme has its theoretical roots in Positive Psychological theory. More specifically, the authors cite Seligman's PERMA model of wellbeing as the central framework for WW lessons (Forman & Rock, 2016; Seligman, 2011). The tools taught in WW are also based on cognitive behavioural therapy strategies, which have a focus on the connection between thoughts, emotions and behaviours in responding to life situations (Beck, 1976). The programme comprises five modules designed for use in second to sixth class groups. These modules are: Character Strengths, Positive Emotions, Tools of Resilience, Positive Relationships, and Empowering Beliefs. There are seven core concepts that are taught, revisited and reinforced at various points over the course of the programme. These core concepts are: Growth Mindset; Language of Well-Being; Self-Efficacy; Character Strengths; Cognitive Reframing; Social Competence; and Making a Difference. Each module focuses on teaching different sets of social-emotional skills and offers ten lessons to be delivered by the class teacher on a

weekly basis. WW provides teachers with a Teacher Resource book which outlines the plan for each lesson. Within each lesson, a variety of media and activities are included, such as PowerPoint presentations to explain key concepts and skills, video demonstrations, online content, as well as class discussion and practice of skills (see Appendix E for sample WW lesson). Each lesson also involves the completion of an activity in the accompanying WW pupil workbook. Lastly, there is a homework assignment for each lesson which encourages pupils to practice the skill they have learned at home and to engage with their parents or caregivers. Each Pupil Workbook contains a Parent Pullout which gives parents an overview of the skills taught and encourages parents to support their children to practice these skills. There are also additional activities suggested for each lesson which can be applied throughout the school week across the Irish primary school curriculum. Overall, the programme partially aligns with the Irish Social, Personal and Health Education (SPHE) curriculum, and covers some strands of this curriculum, but not all (DES, 1999; Forman & Rock, 2016). Figure 5 demonstrates the Strands and Strand Units that are linked to specific lessons in the Tools of Resilience Module.

Figure 5.

The Strands and Strand Units of the SPHE Curriculum (DES, 1999)

Strands	Strand units
Myself	Self-identity
	Taking care of my body
	Growing and changing
	Safety and protection
	Making decisions (3rd - 6th class)
Myself and others	Myself and my family
	My friends and other people
	Relating to others
Myself and the wider world	Developing citizenship
	Media education

Figure 6.

Overview of the SPHE Strands and Units and the WW Lessons to which they are linked (Forman & Rock, 2016).

Strand	Strand Unit	Lesson Plans
Myself	Self-identity - *Self-awareness*	6
Myself	Taking care of my body *(Health and well-being)*	1 to 10 (All lessons)
Myself	Growing and changing - *As I grow I change* - *Feelings and emotions*	3, 7 and 8 1, 2, 5, 8, 9 and 10
Myself	Making decisions	2, 3, 4 and 10
Myself	Safety and protection - *Personal safety*	4
Myself and others	Myself and my family	10
Myself and others	Relating to others	2 and 10

The module used in the experimental class groups in this study was Weaving Well-being: Tools of Resilience (Fourth Class) (Forman & Rock, 2016). This unit seeks to teach pupils six specific skills across ten lessons that the authors link to resilience: perspective, distraction, thought disputation, using character strengths, problem-focused planning and mindfulness (Forman & Rock, 2016). The specific aims of this particular module of the programme include: providing opportunities to practice aforementioned skills, to give children an understanding of resilience, to increase children's self-efficacy, resilience and self-esteem (Forman & Rock, 2016). See Appendix F for an overview of the lessons in each module.

2.2.2 Research Design

A mixed method approach was employed to investigate the effect of WW on pupils' engagement and academic achievement. The quantitative component of the study involved a quasi-experimental, mixed design wherein pre-intervention and post-intervention results of an experimental and control group were compared. The study had a two-way factorial design. The repeated measures factor was time, for which pre-intervention and post-intervention were levels, while condition was the between subjects factor, for which experimental and control were levels.

Pre and post measurements were taken ten school weeks apart, with the first measurement taken the week before implementation of the first WW lesson and the second measurement taken in the week after the tenth and final lesson had been implemented. Although random assignment of pupils to either the control or experimental group would have been preferable in order to reduce sampling error, this was not possible due to the nature of the study, being conducted in the school environment (Borman, 2002). Participants were matched in age and there was almost equal distribution across gender. Participating schools were matched across size, location and DEIS status. DEIS status (i.e. an indicator of whether the schools served areas of significant socioeconomic disadvantage) was used to determine SES of the area the schools served. As neither school had DEIS status, it was determined that the schools would be comparable in terms of SES for the purposes of this study. The qualitative component of the study consisted of semi-structured interviews which were conducted with two experimental group teachers in the week following completion of the programme.

2.2.3 Paradigm

In order to adequately address the research questions, a pragmatic paradigm with a mixed-methods design was deemed to align best with the goals of the study. This involved the collection of both quantitative data – derived from numeric scores on measures of achievement and engagement – and qualitative data – produced in semi-structured teacher interviews. The ontological and epistemological standpoints of pragmatism lend themselves to the use of both quantitative and qualitative methods (Mertens, 2022). As such, this allowed for acceptance of multiple interpretations of reality and allowed the researcher to determine the most appropriate methods to understand these interpretations with a view to answering the research questions (Johnson & Onwuegbuzie, 2004). However, in adopting this approach, the researcher was cognisant of the importance of working reflexively throughout in order to avoid the pitfalls that can arise from the freedom of choice in methods, which can result in an a-paradigmatic approach (Greene, 2007). The mixed-methods approach offers several advantages, including triangulation of data as well as development and expansion of findings (Mertens, 2022; Ostlund *et al.,* 2011). Many studies in this domain have employed the use of semi-structured interviews with relevant stakeholders (Ostlund *et al.,* 2011). The researcher opted to interview class teachers of the experimental group classes rather than the pupils themselves. This course of action was taken because the concept of engagement and its different dimensions is quite abstract and challenging for Fourth Class pupils to understand and discuss. Furthermore, the researcher was mindful that questioning students on their academic performance in the context of these research questions could have unintended impacts on students' confidence in themselves as learners, particularly for those children who may struggle academically. As such, while it is acknowledged that the voice of the child is extremely valuable, it was determined that it would be inappropriate and unsuitable to interview the children directly in this context (O'Reilly & Dogra, 2017). It was decided that,

for the purposes of this study, the quantitative measure of engagement would sufficiently represent pupil insight regarding engagement in school life (Fargas-Malet *et al.,* 2010). However, child interviews should be considered in the development of further studies. Similarly, the academic achievement measure was deemed sufficient to capture student levels of achievement in the context of this research. Thus, given the timeframe for and scope of the study, two class teachers were interviewed to gain insight into their perception of the potential impact of WW on student engagement and academic achievement.

2.2.4 Participants

In reviewing the literature, similar mixed-methods studies in the same domain reported sample sizes in the range of 8 to 134 participants. G power analysis indicated that a sample size of 84 participants was necessary to ensure sufficient statistical power to detect an effect size of 0.2, with power at 95% and an alpha at 5%. While it was attempted to recruit a larger sample, in total, 86 children assented to participate in the study and completed both measures at both pre and post intervention time points. This sample was deemed to be sufficient given the time and scope of the study. The sample comprised of 42 female identifying children and 44 male identifying children, with an age range of 9-11 years. The ethnicity of the sample was largely Irish (92% Irish nationality; 8% Other). There were 51 children in the experimental group and 35 children in the control group. Experimental group students were members of two fourth classes within the same school. The experimental group school was located in an urban area in the southeast of Ireland. Control group students were members of two fourth classes in the same school. The control group school was situated in a different urban area of similar size in the southeast of Ireland. Both schools were of comparable size and neither school had DEIS status.

The focus of this study centred on pupils in the general population, as much of the existing research in this domain has focused on subsections of the student population, such as those from areas of lower SES, at-risk populations or those with special educational needs. As such, this study aimed to make a unique contribution to the field through its focus on the general student population of primary school pupils. Furthermore, in order to preserve subject anonymity and to reduce the number of demands on participants, the only information gathered from participants was their age, gender and ethnicity. While it is acknowledged that it may have contributed to greater understanding of the results obtained, participant information, such as that regarding special educational needs was not gathered, as it was not deemed directly relevant to the research questions in this instance. The implications of this are further discussed in section 3.2.

2.2.5 Participant Recruitment Procedure

Firstly, an information letter to principals was drafted which outlined the purpose of the study and the details of the WW programme (see Appendix G). The letter also outlined the actions that would be asked of the participating students and teachers and the planned timeline for these actions. In the interest of feasibility and travel accessibility, mainstream primary schools in the southeast of Ireland were identified via the Department of Education website. School principals were contacted via email in August 2022. Expressions of interest were received from two school principals. Parent, teacher and pupil information letters, consent forms and assent forms were then emailed to the principals (see Appendices H, I, J, K, L, M, N, O). Principals were also asked to confirm if the candidate classes were using formal SEL instruction. The school allocated to the experimental condition had previously used the WW programme. However, experimental group teachers had not received training in programme delivery and the two candidate fourth class groups proposed for participation in

the study had never been exposed to the programme previously. The school allocated to the control condition confirmed that no formal SEL programme was in place.

Following this, school principals and the candidate teachers of the proposed experimental and control group classes consented to participate in the study. The author of the WW programme provided training in programme delivery to the two teachers of the experimental group classes prior to implementation of the first WW lesson. The teachers of the control group classes confirmed that no formal SEL programme would be implemented in the first school term for the duration of the study and that their classes would receive this input later in the school year. Participating teachers were asked to distribute and collect parent information letters and consent forms to their classes.

2.2.6 Measures

To measure academic achievement, two subtests of the Wide Range Achievement Test – Fifth Edition (WRAT-5) were administered at pre and postintervention timepoints (Wilkinson & Robertson, 2017). The subtests selected to measure academic achievement were Spelling and Maths Computation. Measurements of numeracy and literacy skills are widely used as indicators of academic performance in schools and in educational psychological practice (Filges *et al.*, 2022; York *et al.*, 2015). This measure produces standard scores and takes a combined total of approximately 40 minutes to administer both subtests. Pupils completed up to 42 spelling items and up to 40 arithmetic, algebra, & geometry computations. The Spelling subtest involved spelling words with regular and irregular letter patterns from dictation. The Maths Computation subtest required participants to solve written computation problems ranging from basic to advanced operations within a 15-minute timeframe.

This measure was selected to measure academic achievement for a number of reasons. The WRAT-5 minimises the confounding variable of practice effects in pre-post measurement as it offers two parallel forms – a Green Form and a Blue Form – to be administered at different time points (see Appendix P for form examples). It is suitable for use with participants aged five and over. Furthermore, both the Spelling and Maths Computation subtests can be administered in small groups, wherein each participant completes the questions independently. This meant that the WRAT-5 was more time efficient in comparison with other measures which must be administered individually. As such, this measure also minimised the disruption to the school day for the participating classes. In addition, the WRAT-5 is a formal test that is widely used in schools and that is familiar to many teachers. Regarding internal consistency reliability, the authors report split-half reliability coefficients of .93 and .91 for Spelling and Maths Computation, respectively (Wilkinson & Robertson, 2017). The authors report moderate to high construct validity for all subtests (Wilkinson & Robertson, 2017). Table 5 outlines the Cronbach's Alpha coefficients that were computed for the Maths and Spelling subtests based on the data yielded in this study.

Table 5

Measured Cronbach's Alpha coefficients for WRAT-5 subtests at Time 1 and Time 2

	Time 1	*Time 2*
Maths Computation	.79	.81
Spelling	.91	.91

The School Engagement Measure (SEM) was employed to measure pupil engagement (Fredricks *et al.,* 2005). This is a student self-report measure that consists of 19 five-point Likert scale questions, where *1 = Never* and *5 = Always* (see Appendix Q for sample SEM questionnaire). It was developed for use with upper-level primary school pupils. Engagement scores are derived from mean subscale scores. The SEM is divided into three subscales measuring behavioural engagement (five items), emotional engagement (six items), and cognitive engagement (eight items). The measurement of these components of engagement was one of the reasons for selecting this particular measure for use in this study. The authors report good face validity, adequate internal consistency and adequate predictive validity (Fredricks *et al.,* 2005). Fredricks *et al.* (2005) reported the Cronbach's Alpha coefficients for each subscale as follows: Behavioural Engagement α = .77, Emotional Engagement α = .86, and Cognitive Engagement α = .82. Table 6 illustrates the Cronbach's Alpha coefficients computed for the subscales based on data from this study.

Table 6

Measured Cronbach's Alpha coefficients for SEM subscales at Time 1 and Time 2

	Time 1	*Time 2*
Behavioural Engagement	.53	.34
Emotional Engagement	.85	.87
Cognitive Engagement	.73	.79

Two individual semi-structured interviews, using a seven-question interview schedule, were conducted with class teachers from the experimental group (see Appendix R

for interview schedule). These were employed to gain richer insight into the teacher's experience of the programme and their perception of its impact, if any, on pupil engagement and academic achievement. Teachers were asked about any perceived overall impact of the programme on the class as well as more specific questions about any impact on engagement and achievement. Teachers were also asked to highlight any challenges or barriers that they encountered while administering the programme.

2.2.7 Data Collection

Once signed consent forms were collected from the parents of the children in the four participating classes, the researcher visited the schools in September 2022. The researcher provided the students with information leaflets and explained the study in a child-friendly manner (see Appendix K). The pupils were informed that the purpose of the study was to explore how learning about feelings and emotions affected how they feel about and act at school, as well as their schoolwork. The researcher addressed any questions the students had. Pupil assent forms were then provided to the prospective participants who had parental consent to participate in the study. The researcher returned to the experimental condition school in mid-September 2022 for pre-intervention data collection, which took place prior to the delivery of the first WW lesson. Due to scheduling constraints, pre-intervention data for the control group was collected two weeks later in the control condition school. Post-intervention data was collected four days after the final WW lesson had been delivered in the experimental group in mid-December 2022. Control group data was collected a week later.

All four class teachers were present for administration at both time points. Alternative activities such as colouring and puzzles were provided to children who did not assent to participate or did not have parental consent to participate. Participants were reminded of the aims of the study at both data collection points. They were also reminded

that their participation was voluntary and that they could withdraw at any point, without any consequences. During data collection, the researcher explained both measures to the pupils prior to administration and checked pupil understanding prior to completion of each measure. Pupils were reminded that their answers were anonymous and private and would not be shared with anyone else in the school. The SEM was administered in whole class groups. Pupils were reminded to only look at their own questionnaire. The researcher read each item of the SEM aloud. Following this, the WRAT-5 subtests were conducted in small groups. The researcher gave the instructions to the pupils prior to each subtest. The WRAT-5 Green Form was administered at Time 1 while the Blue Form was administered at Time 2.

Following post-intervention data collection in December 2022, the interviews were conducted on-site in a classroom at the school. They occurred during the school day at a time specified by the teachers to ensure minimal disruption to the school day. Both teachers granted consent to being recorded and teacher anonymity was protected during each interview using the pseudonyms Teacher 1 and Teacher 2. Audio recording software was used to record the interviews to a laptop and the audio files were saved in a password protected folder. Interviews with Teachers 1 and 2 lasted 30 minutes and 20 minutes respectively.

2.2.8 Intervention Fidelity

Two measures were taken in order to promote and verify a high level of fidelity of programme delivery. Firstly, training in the delivery of the WW programme was delivered to the experimental group teachers by the programme author prior to the delivery of the first lesson. This training was arranged by the researcher with the programme author and was provided free of charge. Secondly, these teachers were asked to complete a fidelity checklist following each lesson (see Appendix S for sample fidelity checklist). The checklist

comprised of a list of each element of the lesson with a checkbox for teachers to indicate whether that element had been completed or not. At the bottom of the checklist, teachers were also asked to provide any reflections they may have had about that particular lesson.

2.2.9 Ethical Approval

Ethical approval to proceed with the research study was granted by Mary Immaculate College Research Ethics Committee (MIREC) in August 2022 (see Appendix T for MIREC-5 Final Decision Form). The Psychological Society of Ireland (PSI) Code of Ethics was used as a guideline document in the consideration of potential ethical issues within the study and how to address them (PSI, 2019).

Regarding any potential unethical conflict of interest or influence of the programme author, while WW training was provided to experimental group teachers by the author, there was no undue influence exacted by the author on this study. The researcher first contacted the programme author to inform her of the intent to conduct the current study pertaining to WW. The researcher arranged the programme training with the author and liaised with the experimental group teachers to ensure their attendance at a date and time that was feasible for all parties prior to programme delivery. No fee was paid for the delivery of this training. Following this communication, there was no further communication with the programme author until the study was completed. The author had no influence on the design of the study, data collection, data analysis or reporting.

2.2.10 Data Analysis

Quantitative data yielded by the SEM and WRAT-5 were analysed using SPSS Statistics Version 28 (IBM Corp, 2021). SPSS was used to run ANCOVA, two-way mixed ANOVA and t-test analyses. Thematic analysis (TA) was selected as a tool for qualitative

interview data analysis as it is a systematic approach that is amenable to generating understanding of other people's experience (Braun & Clarke, 2021). It is an established model that involves identifying emergent themes within the data that may provide answers to research questions. It lends itself to large or small dataset size and focuses on richness of data (Braun & Clarke, 2021). As such, this approach was chosen in order to provide a richer narrative, context and clarity around the quantitative data collected and statistical analyses conducted, which would have been otherwise overlooked. TA is a six-phase process, as outlined by Braun and Clarke (2021), an overview of which is described below.

2.2.10.1 Phases of Thematic Analysis

Phase One: Familiarisation. During this phase, the researcher used the process of transcribing teacher interviews as an opportunity to become initially familiar with the data. The researcher maintained a focus on the two research questions, on the existing literature that informed the study design, and on the paradigmatic and theoretical standpoint of the study when transcribing and considering the data at this phase. Following this, transcripts and audio recordings were revisited many times in order to become intimately familiar with the data.

Phase Two: Coding. The researcher worked systematically through the data, reading each line and identifying data that appeared relevant and meaningful to the research questions. Once again, as well as maintaining a focus on the research questions in this phase, the researcher also coded the data in line with the pragmatic paradigm of the study. This paradigm allowed the researcher to take all of the teachers' interpretations of reality into account, even if one conflicted with the other. (Mertens, 2022). The coding process involved highlighting specific words, phrases or implied ideas using a hard copy of the data and labelling them with meaningful descriptions or codes (Appendix U). A list of codes identified by the researcher in each of the teacher interviews is outlined in Appendix V.

Phase Three: Generating Initial Themes. This phase involved identifying shared or connected ideas across codes that formed new categories of codes. Connected codes were collated and formed the provisional, initial themes. See Appendix W to observe the organisation of codes into themes.

Phase Four: Developing and Reviewing Themes. Once these initial categories or themes were identified, the full data-set was revisited to ensure that these themes make logical sense and provide meaning in the context of the overall data. Furthermore, this phase served as an opportunity to ensure that the themes identified provide salient information that is relevant to the research questions. Some initial codes and themes were combined into one overarching theme or, conversely, split into different themes. Some themes that arose during analysis were discarded as they were not relevant to the research questions.

Phase Five: Refining and Defining Themes. Six key themes were identified in the dataset that were relevant to the research questions. These were refined further and defined with a theme name that illustrated a central organising concept. In refining the themes, some information was omitted as it was not deemed to contribute to the overall theme. See Appendix W for an illustration of how codes were grouped into themes.

Phase Six: Reporting. The researcher related the themes back to the research questions and existing literature. The researcher used sample quotations from interviewees that most clearly and concisely illustrated the themes identified to accurately and authentically convey outcomes to the reader in the words of those with first hand experience of the programme.

2.3 Results

2.3.1 Descriptive Statistics

Mean scores and standard deviations for the subscales of the SEM are presented in Table 7. Mean scores and standard deviations for WRAT-5 Spelling and Maths subtests are outlined in Table 8.

Table 7

Mean SEM subscale scores at Time 1 and Time 2

	Experimental (n = 51)		Control (n = 35)	
	M	*SD*	*M*	*SD*
Behavioural Engagement T1	4.17	.55	4.32	.47
Behavioural Engagement T2	4.25	.46	4.30	.43
Emotional Engagement T1	3.41	.90	3.64	.72
Emotional Engagement T2	3.54	.95	3.39	.77
Cognitive Engagement T1	3.16	.78	3.09	.75
Cognitive Engagement T2	3.26	.85	2.95	.81

Table 8

Mean WRAT-5 Spelling and Maths Computation subtest scores at Time 1 and Time 2

	Experimental (n = 51)		Control (n = 35)	
	M	*SD*	*M*	*SD*
Spelling T1	94.45	17.70	102.29	14.10
Spelling T2	97.43	18.72	99.23	14.67
Maths T1	95.29	11.48	101.46	9.98
Maths T2	96.73	14.46	102.83	10.61

2.3.2 Initial Analysis

Kolmogorov-Smirnov normality tests indicated normality for all Engagement data at Time One, apart from control group data on the behavioural engagement subscale, which was significantly non-normal, $D(35) = .18$, $p = .005$. At Time Two, normality was indicated for Engagement data, with the exception of experimental group data for behavioural engagement, $D(51) = .13$, $p = .030$, and for emotional engagement, $D(51) = .13$, $p = .033$. For Maths Time One data, Kolmogorov-Smirnov normality tests indicated normality for the control group, however, experimental group data was significantly non-normal, $D(51) = .15$, $p = .009$. Normality was indicated for Maths data in both groups at Time Two. For Spelling, normality was indicated for the control group at both time points. However, experimental group data was found to be significantly non-normal at Time One, $D(51) = .13$, $p = .026$, and at Time Two, $D(51) = .13$, $p = .045$. While Kolmogorov-Smirnov tests indicated that some of the data was not normally distributed, visual inspection of representations of these data in histograms and Q-Q plots indicated that they broadly follow normal distribution. Some outliers were

found in the data, however, following inspection, these were not found to be extreme and were determined to be naturally occurring in the sample. In addition, outliers were only present in a minority of instances and were not pervasive throughout the sample. As such, these data were kept in the dataset in order to retain power and to honour valuable information presented in the sample. Furthermore, as the sample was of sufficient size for parametric procedures selected to be robust to non-normal distribution, the main analysis proceeded using parametric measures to achieve meaningful results (Ghasemi & Zahediasl, 2012). Lastly, there were no outliers when assessed by examination of studentized residuals for values greater than ±3.

Independent samples t-tests were conducted to investigate whether baseline scores for Maths, Spelling and Engagement were significantly different between groups. No significant difference was found between groups on the three subscales of the School Engagement Measure at preintervention: behavioural engagement ($t(84) = -1.293$, $p = .199$, $d = .28$), emotional engagement ($t(84) = -1.268$, $p = .208$, $d = .28$) and cognitive engagement ($t(84) = .452$, $p = .653$, $d = .10$). There was a statistically significant difference in mean Maths score between the control and experimental groups at preintervention, $t(84) = -2.577$, p = .012, $d = .57$. The control group mean Maths score was 6.16 (SE = 2.39) higher than experimental group mean Maths score. There was a statistically significant difference in mean Spelling score between the control and experimental groups at preintervention, $t(84) = -2.185$, p = .032, $d = .48$. The control group mean Spelling score was 7.84 ($SE = 3.59$) greater than experimental group mean Spelling score.

2.3.3 Findings from Inferential Statistics

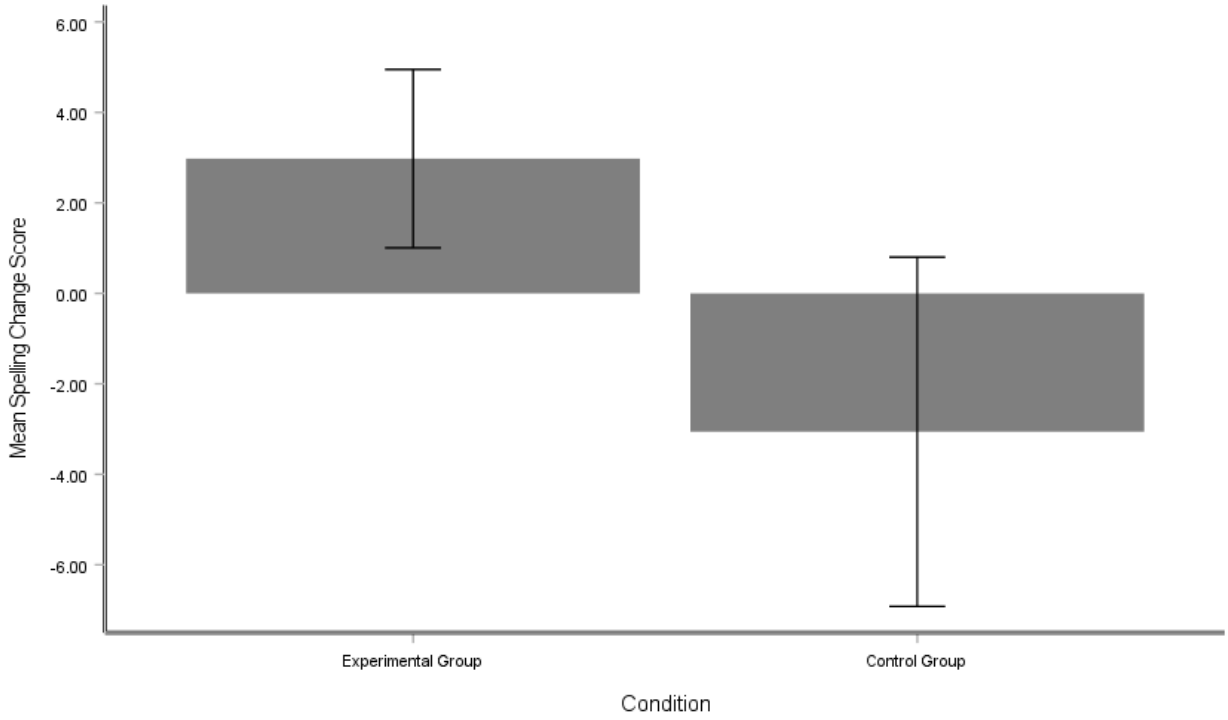
ANCOVA was used to examine the difference between mean Maths scores while taking mean Maths Time One scores into account as covariate. There was a linear

relationship between pre- and post-intervention Maths scores for each condition, as assessed by visual inspection of a scatterplot. There was homogeneity of regression slopes as the interaction term was not statistically significant, $F(1, 82) = 1.552$, $p = .216$. There was homoscedasticity and homogeneity of variances, as assessed by visual inspection of a scatterplot and Levene's test for equality of variance ($p = .144$), respectively. There were no outliers in the data, as assessed by no cases with standardized residuals greater than ±3 standard deviations. After adjustment for preintervention Maths scores, the difference in post-intervention scores between conditions was found to be non-significant, $F(1, 83) = .099$, $p = .754$, partial $\eta 2 = .001$.

While preliminary analysis indicated that there was a significant difference between groups at Time One for Spelling, ANCOVA was not employed in this instance to adjust for preintervention Spelling scores due to violation of the assumption of homogeneity of regression slopes, as the interaction term was statistically significant, $F(1, 82) = 4.118$, $p = .046$. As such, an independent samples t-test was conducted to examine whether change scores in Spelling (Time 2-Time 1) were significantly different between the experimental and control groups. There was homogeneity of variances, as assessed by Levene's test for equality of variance ($p = .122$). A statistically significant difference was found between the experimental and control group change scores, $M = 6.04$, 95% CI [2.12, 9.95], $t(84) = 3.068$, $p = .003$, $d = .67$. Inspection of the means indicated a greater change in the Spelling scores of the control group ($M = -3.06$, $SD = 11.24$) from pre-intervention to post-intervention measurement than in that of the experimental group mean change score ($M = 2.98$, $SD = 7.01$). Control group Spelling scores were significantly higher than experimental group scores at pre-intervention. These scores decreased by a significantly larger margin than the increase observed in experimental group Spelling scores. See Figure 7 for graphic representation of results.

Figure 7

Between Groups Mean Spelling Change Scores

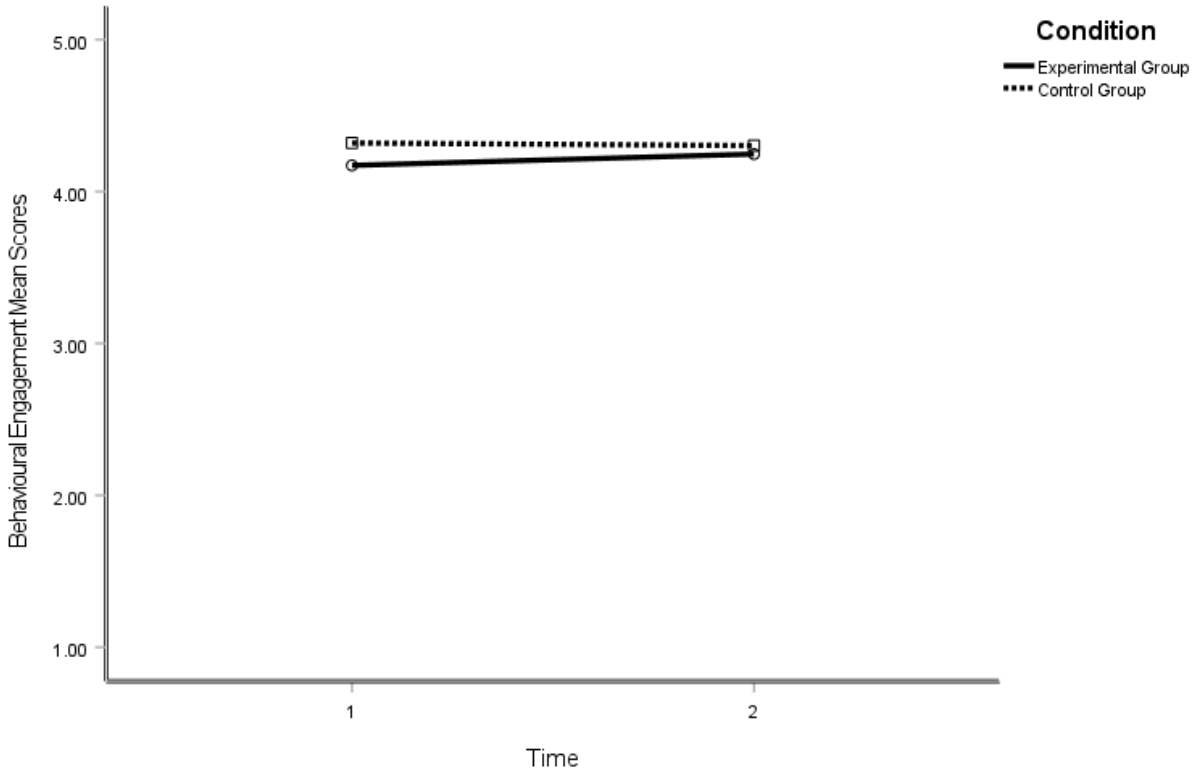


Two-way mixed ANOVAs were conducted to explore whether there was an interaction between group and time for the three subscales of the School Engagement Measure: behavioural engagement, emotional engagement and cognitive engagement. These tests were run with Bonferroni correction to control for family wise error. There was homogeneity of variances for all three mixed ANOVAs, as assessed by Levene's test for equality of variance ($p > .05$). There was homogeneity of covariances for all three analyses, as assessed by Box's test of equality of covariance matrices ($p > .05$). For behavioural engagement, the interaction effect between condition and time was not statistically significant, $F(1, 84) = .99$, $p = .323$, partial $\eta^2 = .012$, see Figure 8. The main effect of time did not show a statistically significant difference in behavioural engagement at Time One and Time Two, $F(1, 84) = .387$, $p = .536$, partial $\eta^2 = .005$. The main effect of group did not show

a statistically significant difference between conditions, $F(1, 84) = 1.121$, $p = .293$, partial $\eta^2 = .013$.

Figure 8

Behavioural Engagement Mean Scores Over Time

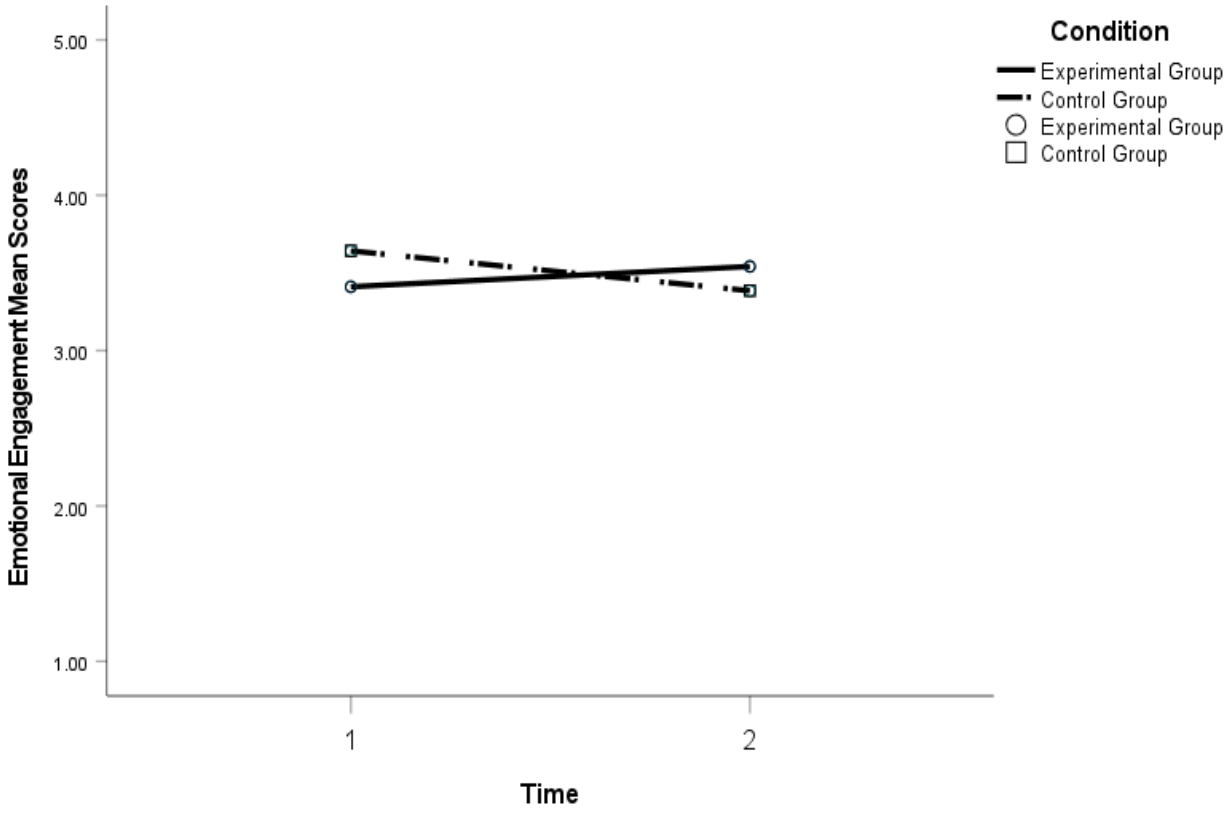


For emotional engagement, the interaction effect between condition and time was statistically significant, $F(1, 84) = 6.315$, $p = .014$, partial $\eta^2 = .070$, see Figure 9. The main effect of condition did not show a statistically significant difference in emotional engagement scores between intervention groups, $F(1, 84) = .047$, $p = .829$, partial $\eta2 = .001$. The main effect of time did not show a statistically significant difference in emotional engagement scores at different time points, $F(1, 84) = .671$, $p = .415$, partial $\eta2 = .008$. Inspection of pairwise comparisons indicated that there was no statistically significant difference between group emotional engagement scores at Time One ($MD = .231$, $SE = .182$, $p = .208$) or at Time Two ($MD = .157$, $SE = .194$, $p = .421$). There was no statistically significant difference in

experimental group emotional engagement scores from Time One to Time Two (*MD* = .131, *SE* =.098, *p* = .188). Control group emotional engagement scores were significantly greater at Time One than at Time Two (*MD* = .257, *SE* = .119, *p* = .033).

Figure 9

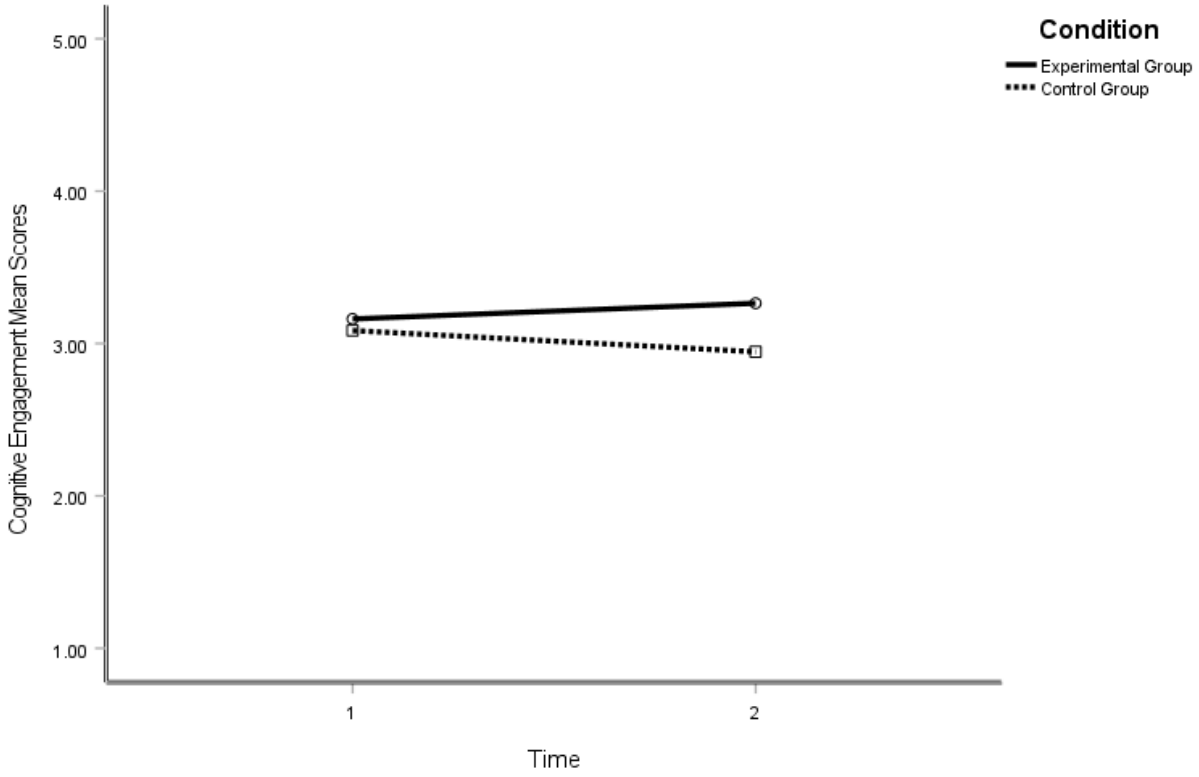
Emotional Engagement Mean Scores Over Time



Lastly, regarding cognitive engagement, the interaction effect between condition and time was not statistically significant, $F(1, 84) = 2.02$, $p = .159$, partial $\eta^2 = .023$, see Figure 10. The main effect of time was non-significant, $F(1, 84) = .045$, $p = .832$, partial $\eta^2 = .001$. The main effect of condition was also non-significant, $F(1, 84) = 1.648$, $p = .203$, partial $\eta^2 = .019$.

Figure 10

Cognitive Engagement Mean Scores Over Time



2.3.4 Interview Findings

Two individual semi-structured interviews were conducted with experimental group teachers in an effort to provide a richer picture of both the teacher and student experience of WW, as well as any perceived impact pertaining to engagement or achievement. In addition, it was intended that this qualitative data would be interpreted in conjunction with quantitative data. The purpose of which was threefold: to provide context for any trends in the quantitative data; to explore whether quantitative and qualitative results offered any contradictions to or reflections of each other; and to increase the reliability of the interpretation of results. Each interview was first interpreted in isolation through the process of Thematic Analysis. As outlined above in section 2.2.10.1, certain ideas, phrases, concepts,

experiences and situations that were mentioned by both teachers, or repeatedlyby one teacher in their own interview, were labelled by codes that identified their salience or importance. What is more, certain ideas, phrases or experiences that arose several times or in a singular instance were also included if they bore particular relevance to either of the research questions. Lastly, codes were also created for statements that highlighted something that may have impacted the reliability or validity of the study, such as the passage of time or events occurring at the time of measurement. See Appendix V for an overview of codes labelled in the Coding Phase of Thematic Analysis. These codes were then analysed and assessed to determine their relevance to the current study. Those codes determined to be least salient were not incorporated into the final themes reported here. Some codes were combined as they reflected the same or a similar concept, idea or experience. For example, the codes "Expressing feelings", "Understanding feelings", "Emotional awareness", and "Asking for Help" were some of the codes combined to form Theme 3: Using the Tools to Understand, Express and Engage. The codes most relevant to this research and the research questions were combined into six themes. The themesidentified by the researcher from the data are: Becoming Engaged in School Life; The Experience of Achievement; Using the Tools to Understand, Express and Engage; Building Relationships as a Bridge to Engagement; Language and Communication; and the Positive Impact of the Programme. These themes are outlined below. See Appendix W for an overview of the organisation of codes according to theme.

2.3.4.1 Theme 1: Becoming Engaged in School Life

The theme of pupil engagement featured in response to direct questions about pupil engagement. However, mention of engagement also arose organically throughout both interviews. Both teachers made reference to increased pupil engagement at post-intervention when compared with pre-intervention engagement. Both teachers reported frequently that

their classes engaged well with the programme itself and that they enjoyed participating in the lessons. Teacher 1 stated: “90% of them were extremely engaged [with the programme], very enthusiastic. Loved the lessons. Loved the calmness of, you know, learning about it and discussing their own experiences” and said of certain children that “it became a part of how they live their lives”. Meanwhile, Teacher 2 stated “They found 90% of the lessons really enjoyable…They enjoyed the workbook. They enjoyed all the activities. They love the little videos…a lot of them loved going home and having the chats with parents”. She also noted that “they were enthusiastic”, referring to her pupils. Teacher 1 noted that even in the few instances where pupils were reluctant to engage with the programme, “one of them got very involved as [the programme] went on”.

Both teachers described observing a shift in their pupils’ engagement in classroom life since implementing the programme. When asked, the teachers illustrated the changes by describing specific behaviours observed prior to the implementation of the programme. Both teachers attributed this change, in part, to WW, with Teacher 1 stating “some of [the change in engagement] will definitely have been down to Weaving Well-being, but some is also the passage of time”. When asked about changes in student engagement since implementing WW, Teacher 2 stated “So, yeah, I would see a bit more interaction with the children you know. That they’re feeling comfortable doing that”.

Both teachers described behaviours that they had observed prior to using the programme and those observed after implementation in order to evoke the perceived change in engagement to which they had referred. Teacher 1 described engagement difficulties that she observed in her class prior to implementation as “slow to speak up, if they were finding something difficult. Very quiet in themselves…Slow to express themselves, I would say. Slow to tell me how they were feeling about something if things were upsetting them”. She noted that if the pupils were experiencing a challenge, rather than engage with her and ask for

help, “that was just a ‘sit there on your own and cry’”. Meanwhile, Teacher 2 mentioned “distraction and focus” as difficulties in engagement prior to implementation. In relation to post-WW engagement and the changes that they had observed, Teacher 1 described “they’re not afraid to speak their minds at all” and “they’re really aware of when they’re able to learn best now”. She also stated that “in a very appropriate manner, they’ll tell me how they’re feeling, they’ll ask me questions”. Meanwhile, Teacher 2 stated that “students are more confident in engaging and their concentration is better, I suppose”.

Teacher 2 was also able to describe two specific instances of an observed marked improvement in engagement in classroom life for two separate pupils. Of one, she said:

> Whereas before, he might have just sat there and started crying if it was September, because he didn’t know how to communicate that to me. He didn’t know how to, I suppose, express how he was feeling at all…so he’s able to tell me that he can’t engage and then we can do something about it.

Regarding the second pupil, she said:

> I think it’s allowed him to engage in things a lot better because he’s not getting in trouble half as much. Which I think obviously allows him to become more engaged in every aspect of school…It’s given him more access to school life because it’s given him a kind of plan of action if he starts to go down a bad path, he comes back, you know, which is good.

2.3.4.2 Theme 2: The Experience of Achievement

The theme of achievement also arose in different forms, both organically and in response to direct questioning during teacher interviews. With regard to academic achievement, both teachers noted difficulty in definitively reporting an observed change in pupils’ academic achievement since implementing the programme. Teacher 1 stated

"Academically, I find it hard to kind of pinpoint if their achievement has changed, we'll say, after [the intervention]" and that she had not noticed a change in students' academic performance. On the other hand, Teacher 2 reported that, while she had not examined formal test results, "certain children have improved. Whether that has had an impact - as in the Weaving Well-being programme has improved in that way or what, I don't know…I suppose it must have had an impact". She also stated that "they are producing better results", referring to her students.

Beyond academic achievement, pupils' sense of success and achievement cropped up in several instances. This was in the context of feeling as though "they were after achieving something and they had learned a new skill". In using tools taught in WW, it was reported that this was evidence to pupils that "they *are* able to use it and they are able to be successful in this area". Teacher 1 noted that "I really liked that it kind of gave them that ownership overachieving success each week."

2.3.4.3 Theme 3: Using the Tools to Understand, Express and Engage

During both interviews, teachers made regular reference to the children's use of specific WW tools outside the bounds of WW lessons. Teacher 1 reported "they're all really good at using their tools…they would use those a lot", while Teacher 2 noted that WW "has given them tools and skills to deal with problems that occur in everyday life and in school life". Both teachers noted the use of particular tools in specific situations. Teacher 1 expressed that she often observed her class using various tools in their interactions and that, for some children "it became a part of how they live their lives". Teacher 1 described how her class now deals with any problems that may arise, stating:

> …the class as a whole would start discussing you know how 'it's not the end of the world' and 'use your Jigsaw of Perspective', you know 'that's just your

> problem right now but take a step back' and 'you still have other good things in your life' and 'you still have lots of friends'. You can hear them coaching each other in what they learned from the programme.

Meanwhile, Teacher 2 also referred to several specific tools, such as the Jigsaw of Perspective, saying that it was "one we always use" and "That's one we use daily". She also referred to the children using Mindfulness Switch regularly if they are feeling "overwhelmed" and to "bring them back down to Flower Level". Flower Level is a term used in the WW programme to denote a state of calm (Forman & Rock, 2016)

A connected trend that arose during teacher interviews was the children's use of tools to understand and express their emotions. Teacher 1 noted that, prior to exposure to WW, the children were "slow to tell me how they were feeling". However, as a result of using WW she noted that now, "they're more aware of, you know, when they're able to learn best now" and that "they'll tell me how they're feeling". Teacher 2 reported that WW had "provided them with skills of not getting stressed over tests and overwhelmed over tests. And if they are overwhelmed, how they deal with these situations". Both teachers gave examples of individual pupils who had benefitted from using WW tools to build awareness and expression of their emotions. Teacher 1 described the experience of one child who "didn't know how to express how he was feeling at all" prior to using WW. She reported that now, "he can tell me if he's overwhelmed" using phrases such as "I'm at Bee Level, I can't". Bee Level is a term used in the WW programme to denote a state of overwhelm or stress (Forman & Rock, 2016). Another example offered was that of a child who now "knows about his Amygdala Hijack, he knows that he starts to feel that feeling around his body and he's really aware of it". Teacher 1 noted that he is "able to ask to be taken away [from the situation] if he feels himself becoming overwhelmed". Both teachers alluded that this increased emotional awareness and expression contributed to increased engagement in the classroom. These reports of an overall

perceived increase in pupils' emotional expression at school align with the pattern seen in the quantitative results (though not statistically significant) of an increase in emotional engagement of the experimental group.

2.3.4.4 Theme 4: Building Relationships as a Bridge to Engagement

Several references were made to WW as a conduit to build trusting relationships with pupils. Indeed, the subsequent impact of these relationships on pupil confidence, engagement and interaction was also raised. Both teachers commented on the absence of an established teacher-pupil relationship at the beginning of the year, prior to implementation of WW, and how this was a perceived barrier to pupil engagement. Teacher 1 reported that WW provided increased opportunities to develop this rapport:

> So before, we wouldn't have any of the time during our SPHE lessons to get to know each other like that, to chat and you know build up that relationship which I think this book did allow us to do.

Teacher 1 reported that WW allowed her to:

> get to know [the students] on a different level than I would be if we weren't doing a programme like this because there are questions and, kind of, scenarios and situations in there that we'd discuss that we never would outside of this.

The impact of this on pupil engagement was noted by the teacher when she said:

> just we hadn't really been given the opportunity to get to know each other or to build up a relationship so obviously their engagement in things was at a different level to what it is now and that obviously has to do with the programme and time passing.

More specifically, she noted that pupils were "more willing to ask me questions. They're way more willing to tell me if they're finding something difficult." When asked if she had noticed any change in class engagement since exposure to WW, Teacher 2 reported:

> The relationship with the teacher has improved over these 10 weeks as well. They've got to know me better and that they feel more comfortable to question or talk or you know… So yeah, I would see a bit more interaction with the children you know. That they're feeling comfortable doing that.

2.3.4.5 Theme 5: Language and Communication

Empowering the children to express and engage through providing them with a new vocabulary and the type of language used arose as trends within the data. Regarding WW, the children were noted to "use the language all the time". Teacher 1 expressed the opinion that she did not think that "they would have had the ability to have put that into words before, the vocabulary to say you know "My head is really busy right now and I need to calm it"'.

Both teachers made reference to the "child-friendly language" and that, for the most part the programme was "accessible" but "not babyish". Teacher 1 mentioned that, regarding Lesson 10, her students "love being able to use these big words now", such as "amygdala" and "prefrontal cortex". On the other hand, Teacher 2 said of the same lesson that "The one lesson I found the children found hard was the last one. The Amygdala Hijack and things like that. The language around that and stuff, I think they found that very challenging." Both teachers made reference to "empowerment" of the children to express and "take ownership" of their emotions and opinions through the language they learned in the programme.

2.3.4.6 Theme 6: Positive Impact of the Programme

In speaking to experimental group teachers, it was evident that they looked favourably upon the programme and intended to continue to use it going forward as a result. Both

Teacher 1 and Teacher 2 commented on the positive impact that WW had on their classes. Teacher 1 offered phrases such as: “what they actually learned from it was extremely beneficial…so I think very beneficial, positive effect on the room and the dynamics in the room”. More specifically, she referred to the pupils’ use of the tools and the language provided to them by WW in everyday classroom life as “the most obvious way I could see a positive impact”. Meanwhile, Teacher 2 stated that she found “that it has a positive impact on the children’s wellbeing” and that “I definitely think I benefitted from it, the children benefit from it”. Both teachers also mentioned instances where the programme had allowed them to identify children with more pronounced need in the area of SEL, with Teacher 1 saying “it told us an awful lot about how those children were feeling”. This in turn allowed them to adapt their support plan accordingly.

2.3.5 Fidelity and Teacher Reflections

Both experimental group teachers indicated that they had completed every element of each lesson outlined in each of the 10 lesson fidelity checklists, indicating 100% fidelity in this regard (see Appendix S for sample checklist). Both class teachers provided brief reflections on the lessons once they had been completed. Overall, these reflections reiterated the points raised in semi-structured interviews and reinforced the positive impact of the programme felt by teachers and the experimental group classes.

2.4 Discussion

This study aimed to investigate whether WW has an impact on pupils’ engagement and academic achievement. The study employed a mixed-methods approach in order to address the two research questions. Quantitative data collected from two measures yielded mixed results. No intervention effect was found with regard to performance in the WRAT-5 Maths Computation subtest. On the other hand, WRAT-5 Spelling change scores indicated

that control group Spelling scores decreased by a significantly greater amount than the increase observed in experimental group scores. For the subscales of the SEM, a significant interaction effect was found for emotional engagement but not for behavioural or cognitive engagement, such that, while there was a non-significant increase in experimental group emotional engagement scores, control group emotional engagement scores were found to significantly decrease. The findings from qualitative interviews were also mixed. Both experimental group teachers reported an improvement in behavioural engagement, however, behavioural engagement was not found to have significantly increased according to quantitative measurement. Similarly, both teachers reported an improvement and increase in student emotional engagement. However, while a significant intervention effect was found for emotional engagement, experimental group emotional engagement scores were not found to have significantly increased. Regarding academic achievement, one teacher did not report improvement in her pupils' academic performance, while the other teacher tentatively reported noticing some improvement in her class and related this, in part, to the WW programme. Below, the research questions will be discussed in the context of these findings. The generalisability of results will be addressed, taking factors that may have influenced outcomes into account. The strengths and limitations of the study will be delineated, as will directions for future research.

In terms of whether the WW intervention had an effect on pupils' academic achievement, the quantitative data collected using the WRAT-5 yielded mixed results. The outcome of an ANCOVA indicated that there was no significant impact of the intervention between the groups on postintervention Maths scores when adjusted for pre-intervention score differences (Zhang *et al.*, 2014). However, while it should be noted that experimental and control group Spelling scores were significantly different at Time 1, a statistically significant difference was found between the experimental and control group change scores.

These results suggest that the pupils' Spelling scores changed in a significantly different manner over time depending on whether they received SEL intervention or not. The experimental group Spelling scores increased over time, while the control group scores decreased by a significantly greater amount. This finding aligns with the findings reported by Schonfeld *et al.,* (2015) and O'Connor *et al.,* (2014) which illustrated a significant improvement in the literacy skills of pupils in receipt of SEL instruction. However, these results should be interpreted cautiously, due to significant differences between group baseline Spelling scores, the effect of which could not be mitigated by ANCOVA in this instance (Zhang *et al.,* 2014). This was due to violation of the assumption of homogeneity of regression slopes.

Qualitative data generated in teacher interviews regarding the programme's impact on academic achievement yielded inconclusive results. While an overall positive impact of the programme was prevalent and frequently mentioned in both teacher interviews, the experimental group teachers both noted that it was difficult to identify a change in academic performance in their respective classes as a direct result of WW. This may be reflective of the results found by Carroll *et al.,* (2020) who employed teacher report of academic outcomes and behaviour as a measure of academic achievement and did not find significant change in the results of pupils in the intervention group. In the context of academic achievement, the teachers referred to the programme providing increased opportunities for students to experience a sense of achievement in themselves, as opposed to improvement in school test results or schoolwork quality. This valuable qualitative information speaks to the concept that academic achievement is often narrowly defined by discrete scores which may not be entirely holistic measures of learning or growth in cognitive ability (Arum & Roksa, 2011; York *et al.,* 2015; Young, 1990). Future research may seek to establish a broader or different

definition of academic achievement in order to gain insight into whether the broader changes described by teachers here are observed by others delivering the WW programme.

Regarding the question of whether WW has an impact on pupil engagement, results were also mixed. No significant effect of the intervention was found for behavioural engagement or cognitive engagement. However, a moderate statistically significant interaction effect between group and time was found for emotional engagement. Inspection of means indicated that, while the experimental group scores did not significantly increase over time, the control group mean emotional engagement score significantly decreased from Time 1 to Time 2, with a large effect size. While these results do not indicate that WW significantly improves pupil behavioural, emotional or cognitive engagement, it may maintain pupil emotional engagement levels over time (Yang *et al.,* 2018). These results warrant further exploration as other existing research suggests that SEL instruction *significantly* increases pupil emotional engagement (Durlak *et al.,* 2011; Wilson *et al.,* 2001; Yang *et al.,* 2018). In the qualitative interviews, when speaking of pupil engagement, both teachers expressed that there had been an improvement in pupil engagement since implementing the programme. Teachers contrasted differences in engagement behaviours prior to implementation – such as reluctance to ask questions or interact with the teacher – with post-intervention engagement, for example, expressing feelings, asking questions and increased interaction in the classroom. Teachers accredited the improvement in class engagement and interaction to the increased opportunities for connection and relationship building within the WW lessons. The theme of fostering teacher-pupil relationships in order to facilitate engagement has been highlighted in other qualitative studies (Keyes, 2019). This is in line with much of the research regarding SEL, positive teacher-pupil relationships and engagement (Roorda, *et al.,* 2017; Roorda, *et al.,* 2011; Skinner & Pitzer, 2012). While teachers stated that WW had contributed to this improvement in engagement for a number of

reasons, they also acknowledged other contributing factors such as the passage of time. Lastly, while the increase in emotional engagement was not found to be significant in the present study, teacher report regarding increased instances of emotional engagement as a direct result of WW aligns with the current quantitative findings in relation to SEL intervention and improved or maintained emotional engagement in the wider research base (Durlak *et al.,* 2011; Hofkens & Pianta, 2022; Yang *et al.,* 2018). Teacher reports of the overall positive impact of WW on general classroom life provides some credence to some of the theoretical models underpinning this study. Firstly, in accordance with Seligman's (2011) PERMA theory of wellbeing, teacher reports about the positive effects of the programme on their classrooms and on individual pupils suggest that improvements in at least one domain (in this case engagement) can contribute to increased individual and group flourishing. The findings may also be linked to the Clover Model of Social-emotional Development, as it would appear that developing specific skills through SEL may have had a complementary impact in at least two areas of wellbeing (i.e. Spelling achievement and emotional engagement) in this case. Belonging and active engagement are the two domains of the Clover Model that are most relevant to this study, in the context of the results. These results, particularly teacher reports, lend credibility to the notion that one does not have to have expert skill in each area in order to flourish, and that each of the four skills may have dynamic, reciprocal relationships, as posited by the Clover Model (Noam & Triggs, 2018).

When considering the results obtained, it is important to triangulate the information yielded from quantitative and qualitative methods (McCrudden *et al.,* 2019). Teacher insights from qualitative interviews provided some contextual information that may add to the interpretation of quantitative results. Teacher 2 noted that the classes had been busy with preparations for a school Christmas concert in the weeks leading up to postintervention measurement. She surmised that this may have had an effect on pupil concentration,

subsequently having a negative impact on the outcome of the post-tests. However, it should be noted that the control group classes were also preparing for a school concert in the weeks prior to post-testing. This information, along with the rich insights regarding improvements in engagement, highlight the importance of triangulation of information from different sources in order to accurately and reliably interpret results (Ostlund *et al.,* 2011).

2.4.1 Strengths of the Study

The current study had a number of strengths. The use of a mixed-methods approach allowed for triangulation of multiple sources of information in order to provide a richer picture of the data collected (McCrudden *et al.,* 2019; Ostlund *et al.,* 2011). The inclusion of a control group for outcome comparison bolstered study design and interpretation of experimental group data. The use of qualitative interviews and thematic analysis enabled identification of an overall positive feeling towards and perception of the programme and its effects on the part of experimental group class teachers and, reportedly, students. This would not have been identified from the quantitative data alone (Braun & Clarke, 2021; Harris & Brown, 2010; Ostlund *et al.,* 2011). All participants were matched in age, gender and school context and the sample size was sufficient (n = 86). The experimental and control group participants were sampled from two separate schools. This minimised bias and the spread of information regarding measurement and intervention across groups, therefore reducing contamination between groups (Torgerson, 2001). A high level of fidelity was reported by experimental group teachers. Fidelity of delivery was encouraged through preintervention training in programme delivery provided by the programme author and through the completion of a fidelity checklist for each WW lesson. This improves reliability of results (Dusenbury *et al.,* 2005). The originality of the research should also be noted, as these research questions had not yet been explored in the context of the WW programme. The

study's results, therefore, add novel information to the existing body of literature relating to SEL programmes.

2.4.2 Limitations of the Study

The inclusion of the child's voice in qualitative interviews to capture pupil experience directly would have added to the richness of the interview data on the impact of the programme. This should be considered for future research in this domain. However, researcher approach to addressing abstract topics with children will need to be considered. Despite the fact that children were frequently reminded that their responses would be private and anonymous, the possibility that pupils responded to SEM items with response bias should be considered (Appleton *et al.,* 2006; Garcia & Pintrich, 1996). The nature of SEM items may have encouraged pupils to respond in a socially desirable manner, as they pertain to what is generally perceived as "good" behaviour at school.

In order to measure fidelity, teachers completed self-report fidelity checklists. Self-report measures can be subject to inaccuracies and biases (Swindle *et al.,* 2018). In order to ensure accuracy of fidelity monitoring, programme delivery should be independently monitored by a researcher or evaluator.

The timing of measurement was also a limitation. Pre-intervention measurement was taken early in the school year when both groups were in a "settling-in" period in their respective classes. Furthermore, postintervention measurement was taken at a busy time in the school term, when there were some distractions, such as preparation for school concerts, which may have interfered with outcomes. It should be noted that due to scheduling constraints in schools, initial measurement with the experimental and control groups was taken two weeks apart. Future researchers should aim to conduct measurements within a smaller window of time. There was no follow-up measurement to monitor long-term effects

in the current study due to a limited timeframe. Future research should incorporate follow up assessment in order to provide information on any effects that may occur over time (Diener *et al.,* 2022; Sklad *et al.,* 2012; Taylor *et al.,* 2017).

For this study, teachers were not required to maintain a record of the number of students who completed all 10 WW lessons. Maintaining a log of the number of sessions completed by each student may have been useful to provide further context to the outcomes for the experimental group. This should be taken into consideration for future research. Furthermore, from this research, it is not possible to glean whether the particular WW module delivered to students (WW: Tools of Resilience, 4th Class) had an impact on findings. As such, future research may seek to include participants from several different class levels who are exposed to each of the other modules in the experimental group in order to determine whether the specific WW module delivered impacts experimental group engagement or achievement.

Further on the subject of participant information gathered, it is acknowledged that it may have been helpful to have collected information regarding the special educational or additional needs of participants. This information may have provided further context for the results obtained. Furthermore, a lack of this participant information may have led to individual participants having accessed targeted interventions when receiving individual school support during the duration of this study. In turn, this may have had an impact on their performance on the WRAT-5 measures administered that was not taken into account. This may subsequently have had implications on the results obtained.

Overall, the WRAT-5 was found to be a reliable measure of achievement in Maths and Spelling, with authors reporting high split-half reliability coefficients for both subtests and moderate to high Cronbach's Alpha coefficients found in this study (Wilkinson &

Robertson, 2017). The SEM was also found to have acceptable reliability coefficients regarding emotional and cognitive engagement in this study. However, future researchers might consider employing a measure of engagement that has a more reliable Cronbach's Alpha coefficient to measure the dimension of behavioural engagement (Taber, 2018). Cronbach's Alpha coefficients for behavioural engagement at Time 1 ($\alpha = .53$) and Time 2 ($\alpha = .34$) in the present study were low, likely due to the fact that this subscale contained fewer than eight items (Taber, 2018).

Lastly while every effort was made to ensure that the control and experimental groups were matched in size, fewer children assented to participate in the control group than in the experimental group. Time constraints prohibited recruitment of further participants for inclusion in the control group. Experimental and control groups in future research should be matched in size. While the qualitative aspect of this research added depth and richness to the study, the sample size was small ($n = 2$) and results should therefore be interpreted with caution.

3 Critical Review

3.1 Strengths of the Study

In reviewing the existing body of empirical research regarding culturally appropriate SEL programmes for Irish students, it was apparent that the evidence base for WW was limited, with only six studies currently concerned directly with WW. In light of current government policy that all schools should employ evidence based SEL programming, in addition to the current landscape of youth mental health, there was a clear and strong rationale for this research to be conducted (DES, 2018a; HSE, 2022). This is the only study to have explored the impact of the WW programme on the engagement and academic achievement of Irish primary school pupils, for whom it was developed. Existing literature in the general subject area provided a roadmap for the most suitable paradigm and research methods that could address the research questions.

Employing a pragmatic paradigm allowed for the use of a mixed-methods approach. This approach is suited to the exploration of complex educational and social questions (DeCuir-Gunby & Schutz, 2017). The pragmatic paradigm takes the ontological standpoint that there is one reality that can be interpreted in multiple ways by different individuals (Mertens, 2022; Arthur, *et al*., 2012). Paired with the pragmatic epistemological concept that relevant knowledge and relationships are determined by the researcher, this allowed for the use of qualitative interviews in conjunction with the quantitative measures employed (Mertens, 2022). A mixed-methods approach facilitates the triangulation of quantitative and qualitative data to provide a richer context and deeper understanding of what is at play within the data, as opposed to parallel interpretation of both data forms (McCrudden *et al.,* 2019; Ostlund *et al.,* 2011). This approach provides more meaningful interpretation of results. For instance, while no significant increase was found in the three domains of engagement for the

experimental group, both teachers expressed that they had observed pupil engagement to have improved considerably over time. Not only this, but teachers also made a direct attribution of this improvement to the WW programme and noted an overall positive impact of the programme. Regarding the second research question, teachers were unable to identify any impact on pupil academic performance. While no significant improvement was found for Maths, control group Spelling scores were found to have decreased by a significantly greater amount than the increase observed in experimental group scores. Overall, this information would not have been gathered through the use of quantitative and qualitative measures in isolation. Continued use of the mixed-methods approach in this area of research may build a body of more reliable findings as the evidence base grows (O'Cathain *et al.,* 2010).

The use of Thematic Analysis to interpret qualitative data allowed for cross-referencing of information gleaned from teacher interviews. The identification of codes and themes across the data allowed the researcher to find information that was meaningful to the teachers and relevant to the research questions (Braun & Clarke, 2021). The strengths of this approach have been noted to be its use of the spectra of inductive to deductive interpretation and of semantic to latent interpretation (Braun & Clarke, 2021). This conceptualisation of interpretation as a process and not as an end goal provided a highly structured methodology for the analysis of qualitative data such that the researcher could accurately identify salient information. This in turn provides meaningful answers to the research questions.

Another strength of the study was the effort to promote a high level of fidelity of programme implementation in the experimental group classes. There is research to suggest that school-based interventions are often delivered with a low level of fidelity to programme requirements (Ringwalt *et al.,* 2009). To combat this, experimental group teachers were asked to undertake a WW training session delivered by the programme author prior to the delivery of the first WW lesson. Dusenbury *et al.* (2005) have reported that, in cases where high

fidelity of delivery is reported, teacher training in programme delivery was a significant factor in programme efficacy and outcomes. As a second measure to promote fidelity, teachers were asked to complete fidelity checklists to indicate which elements of each lesson were fulfilled. Not only this, but teachers were asked to provide a brief reflection on each lesson. These measures contributed to both experimental group teachers reflecting a high level of fidelity for all lessons.

This study was designed with the intention to control for as many external variables as possible. The use of non-randomised, experimental between groups design was a particular strength of the study, as this facilitates understanding of intervention effects (Feuer *et al.*, 2002). While there were some variables that could not be controlled for, such as the general passage of time, and factors that may have affected the study's internal validity, the use of an experimental design permitted tentative conclusions about the impact of the WW intervention. More specifically, this refers to the observed impact of the intervention for Spelling and emotional engagement at Time 2 measurement. Another strength of study design was the use of parallel forms from the WRAT 5 in the measurement of academic performance to minimise practice effects across data collection points (Wilkinson & Robertson, 2017).

A further strength in the design of this study was that participants in the control and experimental groups were students from two different schools in different urban areas. This minimised the risk of transfer of information or contamination effects across groups (Torgerson, 2001). There was no transfer of intervention effect or assessment information as there was no opportunity for the groups to interact with one another. Finally, while the sample was not randomly selected, it was of adequate size. All participants were matched in age and gender balance was achieved. Participants were also matched based on socioeconomic status. This was determined by the DEIS status of the school. Both schools

had non-DEIS status, meaning they did not serve areas of significant disadvantage. As much of the research in the area reviewed was conducted with samples from areas of low socioeconomic status, the findings from this study have increased the generalisability of results regarding the impact of SEL on the broader population.

3.2 Limitations of the Study

A limitation of this research is the absence of the direct voice of the child. It is recommended that views of children should be considered in all issues that impact them (Children's Rights Alliance, 1998; PSI, 2019; UNICEF, 2009). While children can provide rich insights into their experience of certain concepts, engagement is quite an abstract concept. Even psychologists have had difficulty reaching consensus in defining engagement (Jimerson *et al.*, 2003; Shernoff, 2013). In this current study, the use of the SEM was intended to capture the student voice with regard to engagement. Nonetheless, the voice of the child would have been valuable to include and future research should seek to incorporate the student voice on all matters which impact them.

Due to the limited timeframe for data collection, it was not feasible to conduct a follow up measurement to investigate any long-term effects of WW on engagement and achievement. There is a large body of research to suggest that SEL programmes are linked to positive outcomes in the short term (Durlak *et al.*, 2011; Wiglesworth *et al.*, 2016). However, the positive impacts of school-based SEL programmes on student wellbeing have also been found to last up to 3.75 years post intervention (Taylor *et al.*, 2017). For this reason, it would have been valuable to investigate whether WW has a long-term impact on engagement or academic achievement and whether the effects found at short term measurement are maintained or changed over time. Therefore, this should be considered when developing future research. On the subject of timing of measurement, the timing of pre and post

intervention testing in the current study must be highlighted. Firstly, due to scheduling constraints within the participating schools and in the researcher's professional placement arrangements, pre-test measurement in the control group took place two weeks after pre-test measurement in the experimental group. It is possible that this delay had an impact on results, most specifically the significant difference between groups at baseline for Maths and Spelling. Secondly, class teachers commented on the temporal school context when pre and post measurements were taken. Teacher 1 noted that differences in engagement at the pre-intervention could be partially attributed to the fact that the students had just returned to school from the summer holidays. Teacher 2 noted that, in the lead up to post-measurement, the school days had been busier than usual with preparations for a school concert and that this may go on to impact student quantitative results. However, it is important to state that control group classes were also preparing for a school concert in the lead up to post-measurement, meaning that the contexts of both groups were still comparable at this point.

Due to limited resources and time constraints, the researcher opted to narrow the definition of academic achievement for the purposes of this research. Of course, there are many other ways of measuring achievement outside the realm of numeracy and literacy scores. Limiting the concept explored means that results may have been impacted or other relevant intervention effects went undocumented. Future researchers might consider investigating a broader view of academic achievement, such as *sense* of achievement or success, as mentioned by experimental group teachers during semi-structured interviews.

In the interest of transparency and ethical research, participants were made aware of the purpose of the study. This may have resulted in demand characteristics or response bias. Future research may consider the use of deception in an ethical manner in an attempt to minimise these effects (Hendrick & Jones, 2013).

There were some limitations regarding study sample. Firstly, random sampling methods were not employed as this was not feasible within the timeframe following the award of ethical approval and the beginning of the school year. As only two principals responded positively to recruitment attempts within this timeframe, and as one school had historically implemented the WW programme, schools were non-randomly assigned to condition. In situations where non-probability sampling is employed, there is increased risk of sampling bias and subsequent adverse effects on the generalisability of results (Bryman, 2016). Furthermore, teachers in the experimental group were voluntary participants, which may have led to volunteer bias when responding to interview questions (Rosnow & Rosenthal, 1997). Only two teachers were interviewed regarding the perceived impacts of WW on engagement and achievement. This again limits the generalisability of results from this aspect of the study to wider populations and across other SEL programmes. Nonetheless, this data is valuable and meaningful in the context of the investigation into this specific SEL programme and can be built upon in future research to further establish the impact of SEL programmes. Regarding the student sample, while the target sample size was reached (n = 86), and the samples were matched in age, gender, and school context, the samples were not matched in size (experimental group, n = 51; control group, n = 35). This occurred as, while over 100 parents consented for their children to participate overall, fewer control group pupils than anticipated assented to participate in the study. Due to the limited recruitment timeframe, it was not possible to recruit additional schools for inclusion in the control group. Ideally, both groups would have been equal in size. However, the current control group still accounted for 40% of the sample which was deemed to be sufficient in the context of the current study (Mertens, 2022). It is also acknowledged that it would have been useful to request that experimental group teachers keep a log of the number of WW lessons completed by each participant. This data would have informed the researcher of the number of pupils

who completed all 10 lessons as well as the number of students who may have missed a significant number of lessons, if any. This may have provided further insight into the results obtained, as there is currently mixed information regarding the impact of dosage (number of lessons) on student outcomes (Taylor *et al.*, 2017; Wu *et al.*, 2023). Lastly, it is acknowledged that the sample was broadly homogenous in terms of ethnicity. Participants in both groups were largely of Irish heritage. While this can be construed as useful in the context of this study, as the programme in question is developed to be culturally appropriate for an Irish cohort, this limits the generalisability of results to diverse populations.

As the focus of this study was on the impact of WW on the academic performance and engagement of Irish primary school pupils in the general student population, it was not deemed relevant to the research questions to collect participant demographic data beyond age, gender and ethnicity. Furthermore, the researcher aimed to preserve the anonymity of participants to the greatest extent. However, it is acknowledged that, in hindsight, gathering information regarding the special educational or additional needs of participants would have been useful in this study. It is important to acknowledge that students with special educational needs may have been in receipt of targeted individual intervention that may have had an impact on their performance in the WRAT-5. As this data was not collected, such an impact could not be identified or controlled for when analysing quantitative results. Future research should consider collecting such information to ensure that this impact is taken into account when interpreting the results.

3.3 Ethical Issues

The PSI Code of Professional Ethics (2019) was used to guide the ethical planning and design of this research. Ethical approval was granted by MIREC in August 2022. All participants were informed prior to providing consent that their participation would be

voluntary and that they could withdraw their consent at any time without incurring any negative ramifications. Those who consented to take part, both teachers and pupils, were reminded of this at each data collection point. The children were informed of the purpose and aims of the study prior to providing assent to participate. They were also made aware that their responses would be anonymous and confidential.

According to sub-principle 1.3.9 of the PSI Code of Ethics, informed consent must be obtained from individuals for research that requires invasive measures, intrusion into participants' lives, any attempts to alter participant behaviour or risk (PSI, 2019). On three occasions, pupils whose parents had not provided parental consent for their child to participate asked the researcher if they could take part in the measurement taking place. In light of the PSI Code of Ethics, the researcher informed the children, in sensitive and child-friendly language, that they were not permitted to participate in the study as their parents had not provided consent.

In accordance with PSI sub-principle 1.2.6, which states that participant records should be stored, handled, transferred and destroyed such that confidentiality and security of participant information is always preserved (PSI, 2019), measures were taken to ensure that all participant data remained anonymous. Firstly, all four class teachers were asked to assign a participant identification number to participating students such that the researcher would not be privy to their details. Teachers then assisted in distribution of pupil forms for measurement according to pupil number. Secondly, pupils were regularly reminded that their answers would be private and to refrain from writing their names on their response forms. However, when collecting pupil response forms, the researcher noticed that a small number of children had written their name on the response form. In these cases, the researcher discreetly asked the pupil to erase their name from the form (as all were written in pencil) and

reminded them in child-friendly language that all of their responses would be private and anonymous.

PSI Code of Ethics sub-principle 1.3.7 states that the psychologist must ensure that consent to participate in research is not given under coercion or undue pressure (PSI, 2019). To ensure that any pupil who did not wish to participate did not feel as though they were being "punished" for not assenting to participate, the researcher ensured to provide alternative, age-appropriate activities such as colouring sheets and puzzles. This was an alternative to asking non-participants to complete schoolwork, which may have been construed as a negative consequence in the absence of assent. In the case of one child who did not wish to participate, the class teacher wished to provide the child with schoolwork to complete instead. In this instance, the researcher explained to the teacher that alternative activities had been prepared and provided them to the child.

PSI Code of Ethics sub-principle 4.2.7 outlines that researchers must be committed to clear communications of research aims, sponsorship, social context, personal values or financial interests that may influence or appear to influence their research (PSI, 2019). Transparency regarding any undue unethical influence on this study by interested stakeholders, such as the programme author, is important to the integrity of the study and its results. The researcher had limited communication with the programme author over the duration of this research. The researcher made first contact with the author via email to inform her that the study pertaining to WW was intended to be conducted. The author provided her consent for the study to proceed. The researcher also communicated with the author via email to arrange WW teacher training to ensure fidelity of programme delivery. This training was provided by the author to the experimental group teachers free of charge. The author had no further communication with the programme author for the duration of the

study. The author had no other influence on the study design, implementation or any aspect of the data collection, analysis or reporting.

3.4 Implications of Findings for Understanding of the Topic in Psychology

Findings regarding the intervention effects of WW on engagement and academic achievement were mixed. Regarding literacy skills, a statistically significant difference was found between the experimental and control group change scores. More specifically, control group Spelling scores decreased by a significantly larger margin than the increase observed in experimental group Spelling scores. However, the same cannot be said for an effect of the intervention on numeracy skills. This is partially consistent with wider research on the effect of SEL on academic performance (Durlak *et al.,* 2011; O'Connor *et al.,* 2014; Schonfeld *et al.,* 2015). The discrepancy between scores may be explained by sampling error. Future research would benefit from implementing probability sampling in order to control for this error.

The finding that there was a significant difference in Spelling change scores in between groups is consistent with wider research regarding the impact of SEL on academic achievement in the area of literacy. Narrowing the focus, these findings suggest that this specific, culturally appropriate SEL programme, WW, may contribute to positive literacy outcomes in Irish primary school pupils. Additional research and replication of these results will be required for findings to be generalised to the wider population. Nonetheless, this finding is promising for the implementation of the programme and for the understanding of the wider topic in Psychology.

While an intervention effect was found for pupils' emotional engagement, an overall positive outcome may not be directly inferred from the results. This is because no significant improvement was found in the experimental group at postintervention measurement. Rather,

a significant decrease was found in control group engagement at postintervention measurement. Further research is required to determine whether WW has maintaining effects for emotional engagement, i.e. that the programme prevents a decrease in emotional engagement at school over time. Existing research suggests that SEL promotes increased emotional engagement in pupils (Yang *et al.*, 2018). An alternative hypothesis is that the decrease in control group emotional engagement scores may have been unique to the control group context due to specific events affecting only that group. In order to have access to contextual information that may explain such phenomena, future research may consider the inclusion of control group class teachers as well as experimental group teachers in qualitative interviews.

Qualitative data yielded by teacher interviews provides valuable information for the authors regarding development and structure of the programme. Both teachers reported observing an overall positive impact of the programme in their classes. Teachers reported that they felt pupils had been empowered through the use of the "tools" or skills taught in the programme. Both teachers offered several examples of occasions wherein pupils used the WW tools beyond the context of WW lessons. Teacher 1 reported that the new language that the children learned from the programme empowered them to express their feelings in ways that they had not been observed to prior to intervention. Both teachers praised the "child-friendly" language of the programme that does not "talk down" to the children. Teacher 2, however, reported that, while the majority of the programme was accessible for her class, they struggled with the more complex anatomical language of the tenth lesson, Name, Accept, Breathe, Body (NABB).

Regarding engagement, qualitative data indicated a perceived "drastic improvement" in pupil engagement. While both teachers expressed that they felt that, while some of this improvement may be attributed to the passage of time, it was also their opinion that the

improvement was definitely partially attributable to WW. Experimental group teachers commented on the increased opportunities to build pupil-teacher relationships that would not have occurred without WW. The building of these relationships through WW was linked directly to increased engagement in both interviews. This finding is consistent with existing theory and literature in the field regarding the importance of teacher-pupil relationships and feelings of belonging or connectedness in fostering pupil engagement (Noam & Triggs, 2018; Ryan *et al*, 1994; Yang *et al.,* 2018). Both teachers also commented on the "user-friendly" nature of programme delivery. These findings contribute to the understanding of what teachers implementing SEL programmes feel benefit their pupils in terms of engagement and achievement. They also provide valuable, practical information for programme authors regarding components that worked well and did not work well with this cohort of students. This feedback from practitioners also provides worthwhile information for other teachers and educational psychologists.

3.5 Implications for Future Practice in Educational Psychology

According to the authors, WW has been used in over 62% of Irish schools (Forman, 2019). The programme is also being used in schools in other countries. The user-friendly nature of programme delivery for teachers and the purposeful design of the programme to map onto the SPHE primary school curriculum are appealing to school staff, as evidenced by interview data from this study. With an increasing number of schools implementing the WW programme and the growing appetite within schools to seek recommendations for such SEL programmes, it is more important than ever that educational psychologists are furnished with up-to-date research regarding efficacy of these programmes. The current evidence base for WW is small, with only six studies exploring its impact on a limited number of outcomes. This study is the first and only study to evaluate the impact of the programme on two of the key pillars of its central framework, the PERMA model of wellbeing (Seligman, 2011). These

pillars are engagement and achievement. The findings from qualitative and quantitative measures regarding the impact of WW on engagement and academic achievement were mixed in this instance and obtained results will need to be replicated before they can be generalised to wider populations. Nonetheless, this data makes a valuable contribution to the as yet unexplored facets of the programme and to the broader discourse around the efficacy of SEL programmes in Irish schools. As such, the information produced by this study can equip educational psychologists with further information in their recommendations to schools regarding the use of SEL programmes. Not only does this research provide tentative results regarding intervention effects for Spelling and emotional engagement in the short-term, but educational psychologists can also provide schools with information regarding teachers views on WW implementation and aspects of the programme that teachers found useful and those that present challenges. Armed with increased knowledge on this intervention, educational psychologists will be better equipped to make more informed SEL recommendations that are tailored to a specific school's needs.

Continued research and inquiry is a core competency that is considered central to the identity and role of educational psychologists (British Psychological Society [BPS], 2022). Given the close links between educational psychologists and schools in services such as the National Educational Psychological Service in Ireland, these practitioners are well placed to build on the findings of this current study in future research (Harlacher & Merrell, 2010; Roffey 2015). This research can be used to inform the psychologist's individual practice within a particular school or with a view to inform practice in a wider context or cohort of schools. This research has demonstrated the rich data that can be gleaned from a mixed-methods approach to investigation of SEL intervention effects when quantitative and qualitative data are triangulated and integrated (Bryman, 2016; Gavin, 2008; McCrudden *et al.,* 2019). Educational psychologists are also uniquely placed in their qualification and

training in the use of statistical analyses and consultative exploration for both quantitative and qualitative data collection. As evidenced by this study, this research design can provide useful data regarding the use of SEL intervention in schools and should be replicated in future studies by educational psychologists.

3.6 Implications for Educational Policy and Practice

This research has several implications for both government policy regarding education and for educational practice in schools. Firstly, taking educational policy into consideration, this research presents itself at an opportune moment in the educational landscape in Ireland. In March 2023, the Minister for Education launched a new Primary Curriculum Framework which outlines the principles and components of a redeveloped curriculum for primary and special schools (DES, 2023a). This framework outlines five key curriculum areas, of which Wellbeing is one. It places greater emphasis on school subjects under the umbrella of Wellbeing, which includes SPHE, with an increased time allocation from 1.5 hours per week to three hours. The specifications for these subjects are reported to be made available to schools in 2025/2026 (DES, 2023b). Given this timeline, this research has the potential to inform government policy in the development of these specifications for aspects of the new SPHE curriculum. Furthermore, taking the existing government recommendation for the implementation of "independently evaluated" programmes whose outcomes are informed by research and evidence into account, this study provides essential information to the Department of Education in their consideration of which SEL programmes to recommend in Irish schools. While, overall, in the present study a significant increase was not seen in any of the quantitative measures of achievement and engagement on completion of the WW programme, there was some evidence from the qualitative interviews to suggest an improvement in pupil engagement. The findings must be interpreted in the context of this research, i.e., taking into consideration that the qualitative sample size was small (n = 2). In

this way, both the quantitative and qualitative dimensions of these results will be important considerations for the Department of Education, and the National Council for Curriculum and Assessment when providing schools with recommended programmes for use in Irish schools. Especially given that other programmes with an established independently evaluated evidence base, such as FRIENDS for Life, also map onto aspects of the SPHE programme.

With regard to educational practice in Irish schools, the results of this research are particularly relevant to those teachers and schools that are currently implementing WW in their classrooms. As previously stated, it has been reported by WW authors that the programme is in use in at least 62% of Irish schools (Forman, 2019). What is more, WW is now also available for use in Australia and in the UK. It is important for teachers and principals who are either currently using the programme, or considering its use, to have access to results from independent evaluations. These teachers and principals seek to select programmes in line with the guidance and recommendations from the Wellbeing Policy Statement and Framework for Practice (DES, 2018a) and accompanying circular (DES, 2018b). As previously highlighted, interpreting the implications of the quantitative and qualitative results in the context of the present study is important for practitioners in the educational field. It is crucial to acknowledge that the results of any one study alone do not provide sufficient evident to merit implementation or recommendation of the programme. When considered in conjunction with the findings of existing studies on the programme, the outcomes of the present study can still inform decisions made by practitioners and policymakers. In the existing body of research, one previous evaluation of the programme found statistically significant improvements in the respective areas studied (Gough, 2020). Each of the other five studies did not report statistically significant outcomes (Barrington *et al.,* 2019; Burns 2019; McGrath, 2017; O'Brien, 2020; O'Neill, 2019). Similarly in this research, statistically significant improvements in quantitative measurements were not

reflected in the experimental group scores. Regarding the qualitative results in this study, the teachers interviewed provided valuable insight into what they saw to be the positive attributes of the programme, such as a perceived improvement in pupil engagement and the ease of implementation. This is in line with qualitative reports from other studies that also highlight the perceived positive impact of the programme and pupils' and teachers' experience of implementation. However, the small sample size here impacts the generalisability of results. The synthesis of these results with the existing body of WW research and, vitally, further research into the efficacy of the programme will inform the practice and decision-making process of teachers and principals who implement SEL in their schools.

3.7 Implications for Future Research

Taking the findings, limitations, and lessons learned by the researcher in this study into account, there are several possible directions for future research. Firstly, this research found a significant difference in experimental and control group Spelling change scores, wherein the control group scores decreased by a significantly greater amount than the increase observed in experimental group scores. However, no such difference was found for Maths performance. Future research might seek to replicate this study in order to verify the veracity and reliability of these results. Consideration should also be given to other broader definitions and measurements of academic achievement, as a narrower focus on Maths and Spelling performance was taken to match the scope of this study. Future researchers might consider taking scores from subjects across the primary school curriculum or measuring *sense* of achievement in pupils exposed to WW. Future research might also explore the discrepancy between the presence of intervention effects in Maths and Spelling in this study in order to determine if this is a pervasive trend across the wider population and, if so, why intervention effects are seen for literacy skills and not numeracy skills. Similarly, further investigation into the findings for the different dimensions of engagement should be considered. While the

experimental group engagement did not significantly improve across any of the three dimensions of engagement measured, control group emotional engagement was found to significantly decrease over time. Future researchers might consider exploring this further to investigate whether these results were unique to this study or if the WW is effective in maintaining emotional engagement in the experimental group, as has been previously found (Yang *et al.,* 2018). This could be achieved through the inclusion of qualitative interviews with control teachers to identify any extenuating circumstances that might account for the significant decrease in emotional engagement in the control group during the course of the study. Furthermore, researchers might consider employing a measure of engagement that has a more reliable Cronbach's Alpha coefficient to measure the dimension of behavioural engagement (Taber, 2018). While the Cronbach's Alpha coefficients for emotional and cognitive engagement were acceptable, those measured for behavioural engagement in this study at Time 1 and Time 2 were low. This is likely due to the fact that this subscale contained fewer than eight items (Taber, 2018).

The results of the present study found tentative and mixed results regarding the link between SEL and student achievement and engagement. While it was not the focus of this research endeavour, future researchers should seek to explore the links between achievement, engagement and the specific social-emotional skills that may give rise to improvements in these areas. As has been previously reported in the existing literature, interpersonal relationships and connectedness have been found to be strongly linked to engagement at school (Ryan *et al.,* 1994). This was also reported by teachers in this study during semi-structured interviews. Our emotions have been shown to impact how we learn and social-emotional skills, such as emotional awareness and self-regulation, have been linked to increased pupil motivation engagement and better learning outcomes (Arguedas *et al.,* 2016; Elias *et al.,* 1997). Academic achievement and engagement are frequently mentioned together

in the research regarding SEL outcomes (Arguedas *et al.*, 2016; Aronson, 2002). Measuring outcomes for socio-emotional skills in conjunction with measurements of achievement and engagement in relation to WW may provide greater insight into the correlations between specific skills taught by the programme and specific outcomes. This exploration would be useful to programme authors, practitioners and teachers in highlighting specific skills and outcomes that may be related to the programme. It may also highlight areas for further lesson development in the areas of specific skill instruction.

In this instance, the concepts being measured were deemed to be too abstract or esoteric to be broached with the 9-11 year old participants of the study as there is still some dispute in the literature regarding definition of both concepts of engagement and academic achievement (Elias & Arnold, 2006; Shernoff, 2013). As such, qualitative interviews were only conducted with experimental group class teachers to provide insight into potential intervention impact on engagement and achievement, and not with the children themselves. However, children have been found to be articulate in providing rich insights about their experiences (Hogan & Gilligan, 1998). Furthermore, the United Nations have specified that the child's voice should always be considered when discussing any issue that pertains to those children (Children's Rights Alliance, 1998; UNICEF, 2009). Future research should incorporate qualitative student interviews or focus groups to capture the children's experience of WW through the lens of engagement and achievement. This can provide greater depth of insight into the impact of the programme, as this information can be triangulated with qualitative data from teacher perspectives as well as with data from quantitative measures to provide more robust, reliable and meaningful results (McCrudden *et al.*, 2019).

The timing of quantitative measurement is crucial in capturing meaningful data regarding intervention effects. The timing of measurement can influence external validity of

results, as effects may not be generalised over time when studies are conducted over a short timeframe (Diener *et al.*, 2022; Sklad *et al.*, 2012; Taylor *et al.*, 2017). Due to the scope and time constraints of this research, the study was conducted over a timeframe of 12 weeks, which is relatively short. Studies in the domain have found that the impacts of SEL programmes can last up to 3.75 years beyond post-intervention measurement, though it should be noted that effects were not as large at follow-up measurement (Sklad *et al.*, 2012; Taylor *et al.*, 2017). Taking this into account, future researchers should opt to include long term follow-up or longitudinal measurement of intervention impact where feasible in order to bolster the external validity of the research findings. It will be valuable to investigate whether WW has a long-term impact on engagement or academic achievement and whether the effects found at short term measurement are maintained or changed over time. Further on the issue of timing, in this case, pre-intervention measurement was taken two weeks apart in the experimental and control group due to scheduling constraints. This discrepancy may have impacted the significant difference in baseline scores between groups. Future researchers should aim to conduct measurements with both groups simultaneously, where possible. In this instance, simultaneous measurement was not feasible as only one researcher conducted the measurement. As such, where research lacks personnel, between group measurements should be taken as close in time to one another as possible to minimise the contribution of other external variables.

WW is a manualised programme which does not require mandatory training prior to delivery (Forman & Rock, 2016). Programme training prior to delivery has been shown to result in higher levels of fidelity of delivery (Dusenbury *et al.*, 2005). Poor fidelity of delivery may lead to inconsistent results (Freeman, *et al.*, 2019). In this study, teachers received programme training from the WW author prior to implementing the first lesson. Both teachers reported a high level of fidelity and some intervention effects were found.

Future researchers could include a comparison between class groups who receive instruction by both trained and untrained teachers in the delivery of WW. This will aid in determining the impact that programme training may have on the efficacy of the intervention and, subsequently, whether WW training *should* be mandatory prior to delivery. Furthermore, future researchers might require experimental group teachers to keep a log of how many WW sessions each student has completed in order to monitor whether the number of sessions attended or missed has an impact on outcomes. Previous research in this domain has indicated differing intervention effects according to gender (Holen *et al.,* 2012). Gender differences were not explored in this research and future researchers could consider investigating whether WW has differing effects between males and females.

Where possible, future research should seek to minimise biases that may have been present in the current study. Firstly, this may be mitigated through the recruitment of a larger sample size. Random sampling was not possible in this study, however researchers should strive to conduct true random sampling in order to limit sample bias and to ensure that the sample is not homogenous, as the sample in this study was. Child participants have been found to be susceptible to social desirability response bias in self-report questionnaires (Logan *et al.,* 2008). Future research should also seek to minimise the instances of social desirability in response bias and demand characteristics in participant responses. This may be achieved through ethical and sensitive deception regarding the purpose and aims of the study (Hendrick & Jones, 2013). Implementing a comparative study, for example, comparing the outcomes for pupils in an urban area versus a rural area should also be considered.

3.8 Distinct Contribution to Knowledge of the Subject

This study provided a unique and valuable contribution to our knowledge of the impact of the WW programme specifically but also to knowledge on the wider subject of

SEL programmes in schools. In reviewing policy and literature on SEL programming in an Irish context, it was found that options that are culturally appropriate and evidence based for Irish schools are very limited. The evidence base for WW is very small and not all of this research found significant results. This study has contributed to and built upon that body of research as this is the only study to investigate the impact of WW on two of the tenets of its central PERMA framework, engagement and achievement (Seligman, 2011). While no intervention effects were found for some dimensions of engagement and achievement measured, a significant intervention effect was found for emotional engagement. Furthermore, the decrease in control group Spelling scores was found to be significantly greater than the increase observed in experimental group scores, as measured by group change scores for Spelling. The significant results found for Spelling are promising for the implementation of the programme in schools, for educational psychologists recommending the programme and for the WW evidence base. The discrepancy between Maths and Spelling outcomes, as well as the noted significant decrease in emotional engagement scores in the control group while no such decrease was found for other engagement dimensions, are also a valuable finding for knowledge on the subject of the WW programme and wider research into SEL provision. These findings raise further questions about the nature of the impact of such programmes on specific dimensions of engagement and achievement. This unique knowledge opens opportunities for further, targeted investigation into SEL provision to ensure effective promotion of wellbeing in schools. Teachers also provided insights into aspects of the programme that they felt worked well to engage the children and those which may have acted as barriers to engagement. The language used in the programme was mentioned as both a facilitator and a barrier to engagement.

The mixed-methods approach allowed for the collection of valuable qualitative data from class teachers regarding the perceived impact of WW on their pupils' engagement and

achievement. This data provides useful information for the authors regarding current programme structure and reception, as well as for educational psychologists or teachers who may be considering recommending or using WW. Teachers who implemented the programme indicated an overall positive impact of the programme on pupil wellbeing. Both teachers also reported a large perceived improvement in pupil engagement, which they attributed, at least in part, directly to the WW programme. This is information that is novel and new to the knowledge base for WW and culturally appropriate SEL programmes for Irish pupils.

In a wider sense, in reviewing the literature, regarding SEL impacts, not all studies used reliable, objective measures of academic performance to measure achievement. This study employed a reliable and objective measure of literacy and numeracy skill that is widely used in educational psychological practice in an effort to build on this limitation in previous research. Furthermore, evidence from the literature review indicated that much of the research into effects of SEL on academic achievement has been conducted with children and adolescents within a disadvantaged socio-economic demographic (Carroll *et al.,* 2020; O'Connor *et al.,* 2014; Schonfeld *et al.,* 2015). While this is valuable research, it limits the generalisability of results to wider socio-economic demographics and populations. As this research was conducted in non-DEIS schools, i.e. schools that have not been identified as serving areas of significant disadvantage in Ireland, the findings have contributed to the discussion of whether SEL programmes can have a significant impact on engagement and achievement irrespective of the socioeconomic background of the students.

3.9 Impact Statement

The findings from this study have the potential to be impactful across research and practice in education and educational psychology. The implications of this research can also

have an impact on the development and modification of the WW programme and of future culturally sensitive SEL programmes targeted at Irish students.

In the context of research, in addition to adding to the evidence base for the WW programme and SEL programmes in general, the findings of this study have highlighted interesting discrepancies in the effects of this SEL intervention on different dimensions of engagement and achievement. This has opened opportunities and avenues for further research in this area. Moreover, the documented pitfalls and limitations in the methodology of this study provide meaningful and practical lessons for researchers seeking to explore this area further. This will lead to more robust and reliable research that will, in turn, produce more generalisable and meaningful results going forward.

Regarding practice, the tentatively promising results produced in this study can contribute to decision making processes undertaken by teachers and educational psychologists regarding SEL provision. Due to governmental policy recommendations to implement evidence based SEL programmes in Irish schools, educational psychologists and schools are in need of reliable SEL resources (DES, 2018a). While acknowledging the mixed results of this study, educational psychologists and teachers now have further insight into the impact of a SEL programme that has been specifically developed for use in Irish schools. The mixed-methods approach means that there are qualitative data that provide context and understanding of the quantitative results for teachers and practitioners who may be researching this programme. However, it is acknowledged that the evidence base for WW is still limited at the time of writing and educational practitioners should draw recommendations from interventions that have a large and established evidence base.

Lastly, the qualitative and quantitative findings have provided information that will be valuable to WW authors in the development of new iterations of the programme or when

considering adjustments to WW. Listening to direct information about teacher experiences and their observations of pupil experiences of the programme and its outcomes is an important means of intervention development in order to improve programme efficiency.

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Appendix A – Included and Excluded Studies

Table 9

Included Studies

Carroll, A., McCarthy, M., Houghton, S., & Sanders O'Connor, E. (2020). Evaluating the effectiveness of KooLKIDS: An interactive social emotional learning program for Australian primary school children. *Psychology in the Schools*, *57*(6), 851–867. https://doi.org/10.1002/pits.22352
Cook, C. R., Low, S., Buntain-Ricklefs, J., Whitaker, K., Pullmann, M. D., & Lally, J. (2018). Evaluation of second step on early elementary students' academic outcomes: A randomized controlled trial. *School Psychology Quarterly*, *33*(4), 561–572. https://doi.org/10.1037/spq0000233
O'Connor, E. E., Cappella, E., McCormick, M. P., & McClowry, S. G. (2014). An examination of the efficacy of INSIGHTS in enhancing the academic and behavioral development of children in early grades. *Journal of Educational Psychology*, *106*(4), 1156–1169. https://doi.org/10.1037/a0036615
Schonert-Reichl, K. A., Oberle, E., Lawlor, M. S., Abbott, D., Thomson, K., Oberlander, T. F., & Diamond, A. (2015). Enhancing cognitive and social–emotional development through a simple-to-administer mindfulness-based school program for elementary school children: A randomized controlled trial. *Developmental Psychology*, *51*(1), 52–66. https://doi.org/10.1037/a0038454
Schonfeld, D. J., Adams, R. E., Fredstrom, B. K., Weissberg, R. P., Gilman, R., Voyce, C., Tomlin, R., & Speese-Linehan, D. (2015). Cluster-randomized trial demonstrating impact on academic achievement of elementary social-emotional learning. *School Psychology Quarterly*, *30*(3), 406–420. https://doi.org/10.1037/spq0000099

Table 10

Excluded Articles After Title and Abstract Screening

Reference	Exclusion Criteria
Burckhardt, R., Manicavasagar, V., Batterham, P. J., Miller, L. M., Talbot, E., & Lum, A. (2015). A web-based adolescent positive psychology program in schools: Randomized controlled trial. *Journal of Medical Internet Research*, *17*(7). https://doi.org/10.2196/jmir.4329	Sample – Teenagers, Secondary school environment
DeLay, D., Zhang, L., Hanish, L. D., Miller, C. F., Fabes, R. A., Martin, C. L., Kochel, K. P., & Updegraff, K. A. (2016). Peer influence on academic performance: A social network analysis of social-emotional intervention effects. *Prevention Science*, *17*(8), 903–913. https://doi.org/10.1007/s11121-016-0678-8	Independent variable measured was peer influence rather than effect of SEL intervention.
Evans, J. J., Floyd, R. G., McGrew, K. S., & Leforgee, M. H. (2002). The relations between measures of Cattell-Horn-Carroll (CHC) cognitive abilities and reading achievement during childhood and adolescence. *School Psychology Review*, *31*(2), 246–262.	Effect of SEL intervention was not the focus of the study
Evans, R., Scourfield, J., & Murphy, S. (2015). The unintended consequences of targeting: Young people's lived experiences of social and emotional learning interventions. *British Educational Research Journal*, *41*(3), 381–397. https://doi.org/10.1002/berj.3155	Qualitative study reporting student experience of SEL intervention;

	Effect of intervention not measured.
Hiscock, H., Quach, J., Paton, K., Peat, R., Gold, L., Arnup, S., Sia, K.-L., Nicolaou, E., & Wake, M. (2019). Impact of a behavioral sleep intervention on new school entrants' social emotional functioning and sleep: A translational randomized trial. *Behavioral Sleep Medicine*, *17*(6), 698–712. https://doi.org/10.1080/15402002.2018.1469493	Non-SEL intervention
Horan, J. M., Brown, J. L., Jones, S. M., & Aber, J. L. (2016). The influence of conduct problems and callous-unemotional traits on academic development among youth. *Journal of Youth and Adolescence*, *45*(6), 1245–1260. https://doi.org/10.1007/s10964-015-0349-2	Impact of SEL not measured
Kwon, K., Hanrahan, A. R., & Kupzyk, K. A. (2017). Emotional expressivity and emotion regulation: Relation to academic functioning among elementary school children. *School Psychology Quarterly*, *32*(1), 75–88. https://doi.org/10.1037/spq0000166	Impact of SEL not measured

Lovering, K., Frampton, I., Crowe, B., Moseley, A., & Broadhead, M. (2006). Community-based early intervention for children with behavioural, emotional and social problems: Evaluation of the Scallywags Scheme. *Emotional & Behavioural Difficulties, 11*(2), 83–104. https://doi.org/10.1080/13632750600619257	Community-based intervention, not school-based.
McCormick, M. P., Cappella, E., O'Connor, E. E., & McClowry, S. G. (2015). Context matters for social-emotional learning: Examining variation in program impact by dimensions of school climate. *American Journal of Community Psychology*, *56*(1–2), 101–119. https://doi.org/10.1007/s10464-015-9733-z	Effect of SEL intervention aws not the main focus of the study.
Medin, E., & Jutengren, G. (2020). Children's perspectives on a school-based social and emotional learning program. *Children & Schools*, *42*(2), 121–130. https://doi.org/10.1093/cs/cdaa007	Qualitative study of children's experience of SEL programme.
Stuhlman, M. W., & Pianta, R. C. (2002). Teachers' narratives about their relationships with children: Associations with behavior in classrooms. *School Psychology Review*, *31*(2), 148–163.	Qualitative study base on teacher reports of student behaviour.

Tijms, J., Stoop, M. A., & Polleck, J. N. (2018). Bibliotherapeutic book club intervention to promote reading skills and social–emotional competencies in low SES community-based high schools: A randomised controlled trial. *Journal of Research in Reading*, *41*(3), 525–545. https://doi.org/10.1111/1467-9817.12123	Non-primary school sample Not exclusively SEL intervention
Top, N., Liew, J., & Luo, W. (2017). Family and school influences on youths' behavioral and academic outcomes: Cross-level interactions between parental monitoring and character development curriculum. *The Journal of Genetic Psychology: Research and Theory on Human Development*, *178*(2), 108–118. https://doi.org/10.1080/00221325.2017.1279118	Direct impact of SEL programme not measured

Table 11

Studies Excluded at Full Text Analysis

Reference	Exclusion Criteria
Bierman, K. L., Coie, J. D., Dodge, K. A., Greenberg, M. T., Lochman, J. E., McMahon, R. J., & Pinderhughes, E. (2010). The effects of a multiyear universal social–emotional learning program: The role of student and school characteristics. *Journal of Consulting and Clinical Psychology*, *78*(2), 156–168. https://doi.org/10.1037/a0018607	Focus not on academic outcomes but on the mediating effects of school environment and child characteristics.
Hutchison, M., Russell, B. S., & Wink, M. N. (2020). Social-emotional competence trajectories from a school-based child trauma symptom intervention in a disadvantaged community. *Psychology in the Schools*, *57*(8), 1257–1272. https://doi.org/10.1002/pits.22388	Academic outcomes were not a main measure of concern.
Jones, S. M., Brown, J. L., Hoglund, W. L. G., & Aber, J. L. (2010). A school-randomized clinical trial of an integrated social–emotional learning and literacy intervention: Impacts after 1 school year. *Journal of Consulting and Clinical Psychology*, *78*(6), 829–842. https://doi.org/10.1037/a0021383	Focus was on 2 of the 13 outcomes measured in this longitudinal study, of which academic outcomes was not one.

Appendix B – Weight of Evidence A

Coding protocol employed: Gersten, R., Fuchs, L. S., Compton, D., Coyne, M., Greenwood, C, & Innocenti, M. (2005). Quality indicators for group experimental and quasi-experimental research in special education. *Exceptional Children, 71*,149-164.

Sample Study: Carroll, A., McCarthy, M., Houghton, S., & Sanders O'Connor, E. (2020). Evaluating the effectiveness of KooLKIDS: An interactive social emotional learning program for Australian primary school children. *Psychology in the Schools*, *57*(6), 851–867. https://doi.org/10.1002/pits.22352

Table 12
WoE A Scoring Protocol - Essential Quality Indicators

Essential Quality Indicators	**Criteria Satisfied?**
Quality Indicators for Describing Participants 1. Was sufficient information provided to determine/confirm whether the participants demonstrated the disability(ies) or difficulties presented? *For the purpose of this review, this question was adapted to: Was there sufficient information to determine whether participants were members of the general primary school-going population?*	✓ Yes ☐ No ☐ N/A
2. Were appropriate procedures used to increase the likelihood that relevant characteristics of participants in the sample were comparable across conditions?	☐ Yes ✓ No ☐ N/A
3. Was sufficient information given characterizing the interventionists or teachers provided? Did it indicate whether they were comparable across conditions?	☐ Yes ✓ No ☐ N/A
Quality Indicators for Implementation of the Intervention and Description of Comparison Conditions	
1. Was the intervention clearly described and specified?	✓ Yes ☐ No ☐ N/A

2. Was the fidelity of implementation described and assessed?	✓ Yes ☐ No ☐ N/A
3. Was the nature of services provided in comparison conditions described?	✓ Yes ☐ No ☐ N/A
Quality Indicators for Outcome Measures	
1. Were multiple measures used to provide an appropriate balance between measures closely aligned with the intervention and measures of generalized performance?	✓ Yes ☐ No ☐ N/A
2. Were outcomes for capturing the interventions' effect measured at the appropriate times?	✓ Yes ☐ No ☐ N/A
Quality Indicators for Data Analysis	
1. Were the data analysis techniques appropriately linked to key research questions and hypotheses? Were they appropriately linked to the limit of analysis in the study?	✓ Yes ☐ No ☐ N/A
2. Did the research report include not only inferential statistics but also effect size calculations?	✓ Yes ☐ No ☐ N/A
Total Score	9

Table 13
WoE A Scoring Protocol - Desirable Quality Indicators

Desirable Quality Indicators	**Criteria Satisfied?**
1. Was data available on attrition rates among intervention samples? Was severe overall attrition documented? If so, is attrition comparable across samples? Is overall attrition less than 30%?	☐ Yes ✓ No ☐ N/A
2. Did the study provide not only internal consistency reliability but also test-retest reliability and interrater reliability (when appropriate) for outcome measures? Were data collectors and/or scorers blind to study conditions and equally (un)familiar to examinees across study conditions?	☐ Yes ✓ No ☐ N/A
3. Were outcomes for capturing the intervention's effect measured beyond an immediate post-test?	☐ Yes ✓ No ☐ N/A
4. Was evidence of the criterion-related validity and construct validity of the measures provided?	☐ Yes ✓ No ☐ N/A
5. Did the research team assess not only surface features of fidelity implementation (e.g., number of minutes allocated to the intervention or teacher/interventionist following procedures specified), but also examine quality of implementation?	✓ Yes ☐ No ☐ N/A
6. Was any documentation of the nature of instruction or series provided in comparison conditions?	☐ Yes ✓ No ☐ N/A
7. Did the research report include actual audio or videotape excerpts that capture the nature of the intervention?	☐ Yes ✓ No ☐ N/A
8. Were results presented in a clear, coherent fashion?	✓ Yes ☐ No ☐ N/A

Total Score	**2**

Table 14

WoE A Scoring Sample

	Tally	**Score**
Essential Quality Indicators Total of >9 = Score 1 Total of <9 = Score 0	9	1
Desirable Quality Indicators Total of ≥4 = Score 2 Total of <4 = Score 1 Total 0 = Score 0	2	1
WoE A Score 3 = High Quality 2 = Acceptable Quality <2 = Poor Quality	2 (Acceptable)	

Appendix C – Weight of Evidence B

WoE B assessed the suitability of the study's research design to answering the review question.

Table 15

WoE B Scoring Criteria

Rating	Criteria
A) Design type	• 3 = Randomised control trial • 2 = Quasi-experimental design; non-random assignment to control condition • 1 = Non-experimental design; qualitative design; no control condition
B) Pre-post Measures used	• 3 = Pre and post values obtained for both conditions; baseline difference between group values is measured; long-term follow up test. • 2 = Pre/post-testing measures. • 1 = No pre/post-test measures
C) Sample Size	• 3 = Large sample size • 2 = Moderate sample size • 1 = Small sample size

Note: 3 = high, 2 = medium, 1 = low

Table 16

WoE B Scores

Study	Ratings	WoE B Score (Average)
Carroll *et al.,* 2020	A = 2 B = 2 C = 3	2.33
Cook *et al.,* 2018	A = 3 B = 2 C = 3	2.67
O'Connor *et al.,* 2014	A = 3 B = 3 C = 3	3
Schonert-Reichl *et al.,* 2015	A = 3 B = 3 C = 1	2.33
Schonfeld *et al.,* 2015	A = 3 B = 3 C = 3	3

Appendix D – Weight of Evidence C

WoE C assessed the relevance of the evidence and focus of the studies to the review question. Three qualities were considered: sample, academic achievement being the main focus of the study and the type of SEL intervention employed.

Table 17
WoE C Scoring Criteria

Score	Criteria
A) Sample	• 3 = Sample is heterogeneous, from general population of school-going children aged 4-13 • 2 = Sample is heterogeneous but is selected from a specific population pool; sample includes individuals older or younger than 4-13 as well as individuals within this age range • 1 = Sample is homogenous from a specific population/subgroup; sample age range is exclusively younger or older than 4-13 years
B) Measure	• 3 = Academic achievement is the main outcome measured by the study; assessed by measures of ability – grades, GPA, standardised testing. • 2 = Academic achievement is one of several foci in the study; Academic achievement or engagement based on non-standardised teacher report • 1 = Academic achievement is not an outcome of interest
C) Intervention	• 3 = SEL interventions are robust and administered in a controlled manner by a trained administrator; SEL interventions are the sole type of intervention • 2 = SEL interventions are informally administered by teachers or untrained administrator; Other types of interventions are also administered. • 1 = Non-SEL interventions are implemented during the study

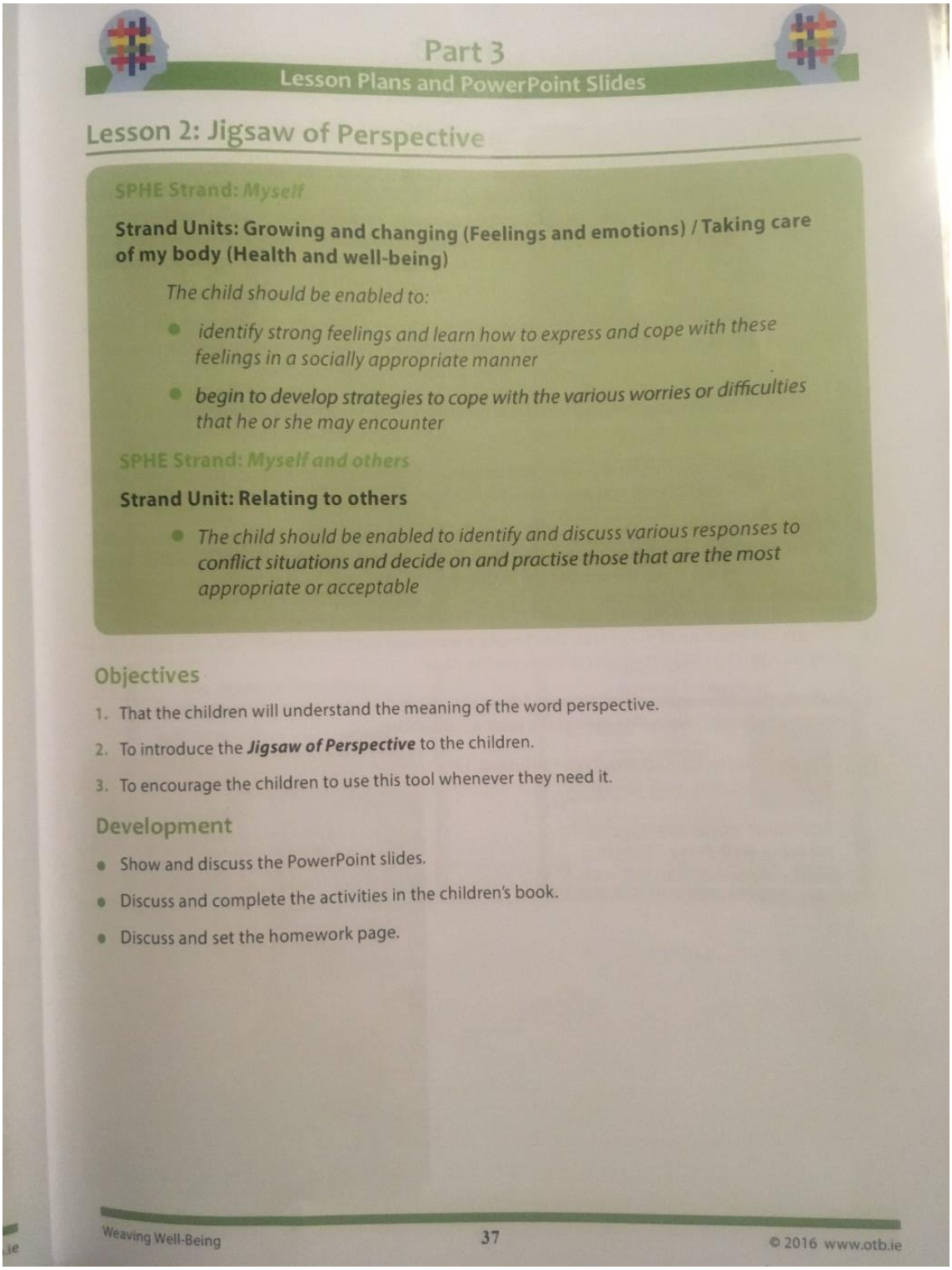
Note: 3 = high, 2 = medium, 1 = low

Table 18

WoE C Scores

Study	Ratings	WoE C Score (Average)
Carroll *et al.,* 2020	A = 3 B = 2 C = 3	2.67
Cook *et al.,* 2018	A = 3 B = 2 C = 3	2.67
O'Connor *et al.,* 2014	A = 2 B = 2 C = 3	2.33
Schonert-Reichl *et al.,* 2015	A = 2 B = 3 C = 3	2.67
Schonfeld *et al.,* 2015	A = 2 B = 3 C = 3	2.67

Appendix E – Sample WW Lesson



Part 3

Lesson Plans and PowerPoint Slides

Lesson 2: Jigsaw of Perspective

SPHE Strand: *Myself*

Strand Units: Growing and changing (Feelings and emotions) / Taking care of my body (Health and well-being)

The child should be enabled to:

- *identify strong feelings and learn how to express and cope with these feelings in a socially appropriate manner*
- *begin to develop strategies to cope with the various worries or difficulties that he or she may encounter*

SPHE Strand: *Myself and others*

Strand Unit: Relating to others

- *The child should be enabled to identify and discuss various responses to conflict situations and decide on and practise those that are the most appropriate or acceptable*

Objectives

1. That the children will understand the meaning of the word perspective.
2. To introduce the ***Jigsaw of Perspective*** to the children.
3. To encourage the children to use this tool whenever they need it.

Development

- Show and discuss the PowerPoint slides.
- Discuss and complete the activities in the children's book.
- Discuss and set the homework page.

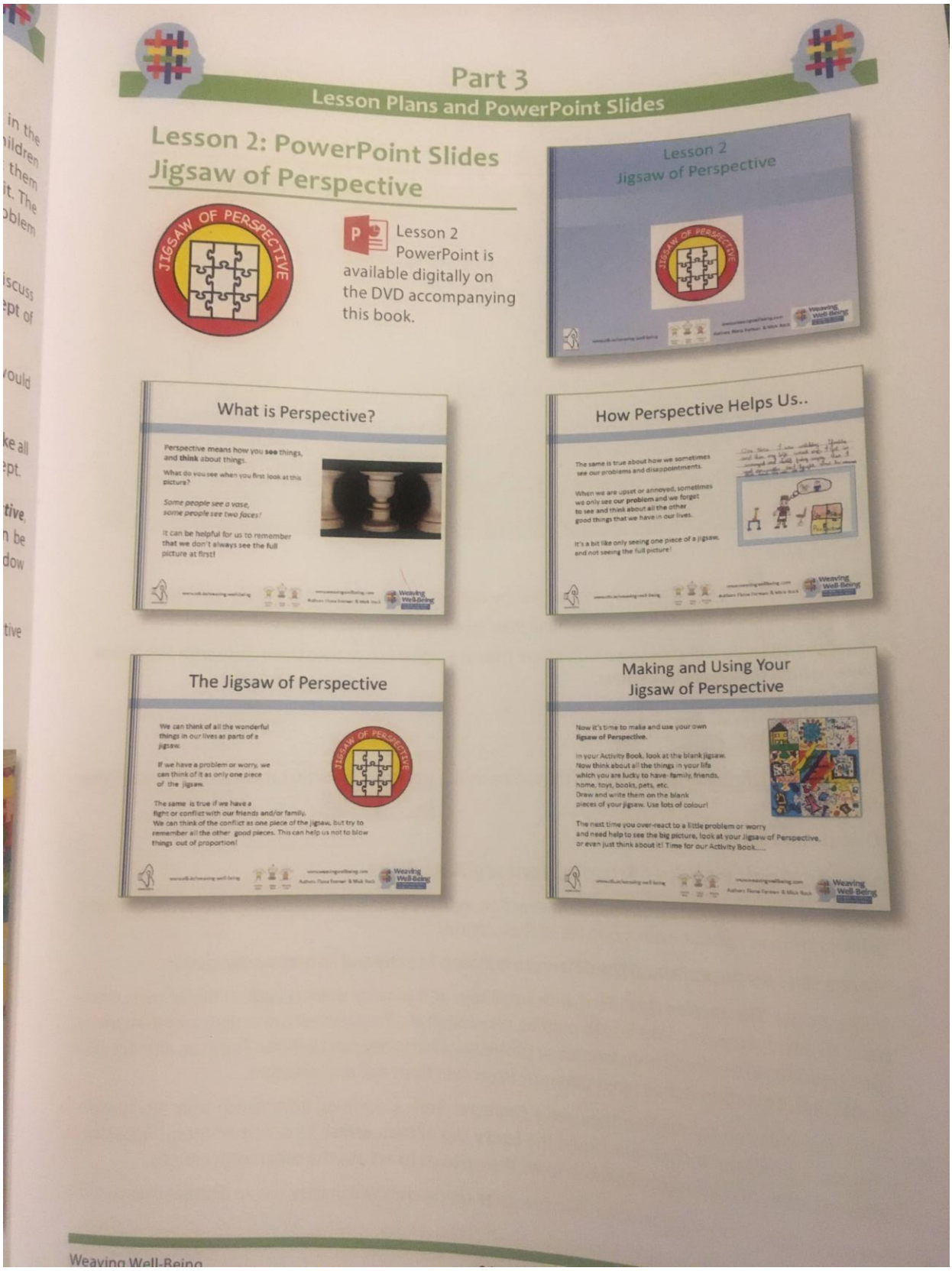
Part 3
Lesson Plans and PowerPoint Slides

Lesson 2: Cross-curricular Links / Supplementary Activities

- Make a class display entitled ***'Our Jigsaw of Perspective'*** (Jigsaw piece template is included in the Supplementary Worksheets - SW2B - page 69). Do a class brainstorm on all of the things the children are lucky to have in their lives. Each child then chooses one to illustrate on their piece. Put them together, leaving a blank piece in the middle with the words *'My Problem'* or *'My Worry'* on it. The children can use it as a visual reminder whenever they need to put a disappointment or problem into perspective.
- Show some examples of optical illusions and allow children to research some of their own. Discuss the idea that it is possible to see things in different ways. Discuss and encourage the concept of seeing things from another perspective or from someone else's perspective.
- Ask the children to imagine if their friend was having the same problem as them - what advice would they give them?
- Remind the children that it takes effort and determination to get things into perspective, and like all skills, it will get easier with practice. Allow children to relate their own experiences of this concept.
- Encourage the children to think of specific areas of their lives as having specific ***Jigsaws of Perspective***, for example, their family and friendships. Then if they have a conflict with a friend, they can be encouraged to put it into the perspective of the whole relationship, so that it does not overshadow it, or become disproportionate.
- Discuss the meaning of the phrase ***'Don't make a mountain out of a molehill'***. How can perspective help us with this? Have they ever done this in the past?
- A photocopiable version of the ***Jigsaw of Perspective*** is included in the resources section (SW2A - page 68). This can be used at the teachers' discretion.

Optical Illusion for Kids (No. 27) – YouTube (1:17)
www.tinyurl.com/wwb-optical

Additional movies available on the ***Weaving Well-Being*** Channel:
www.vimeo.com/channels/wwb



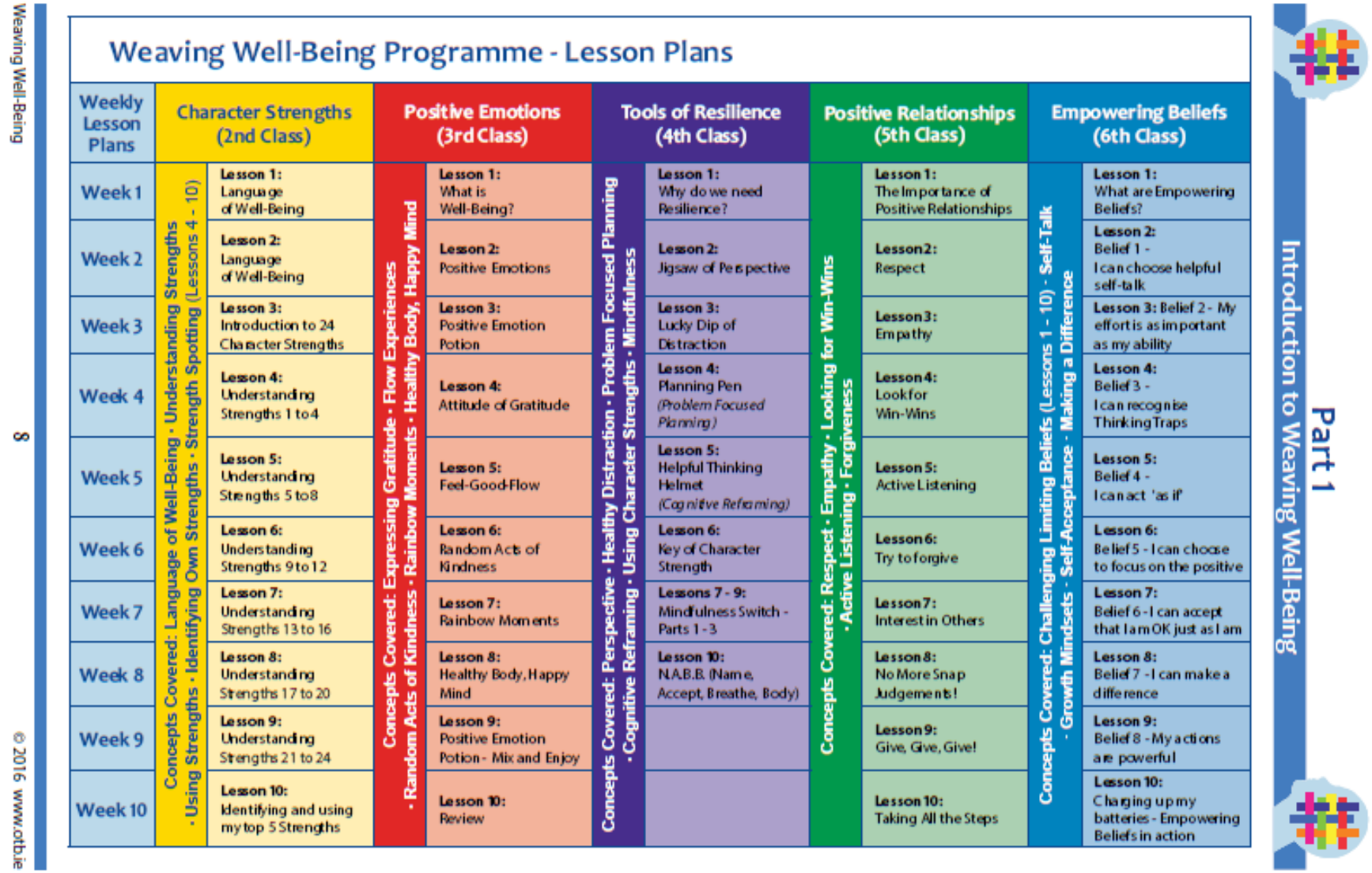
Part 3

Lesson Plans and PowerPoint Slides

Lesson 2: PowerPoint Slides
Jigsaw of Perspective

Lesson 2 PowerPoint is available digitally on the DVD accompanying this book.

Appendix F – WW Lesson Overview



Appendix G – Institutional Permission Request to Conduct Research - Email to School Principal

Dear Principal,

My name is Caitríona Mulcahy and I am a student undertaking a Doctorate in Educational and Child Psychology at Mary Immaculate College. I am writing to invite two class groups from your school to take part in a research study entitled: *An Investigation into the Effect of the Weaving Well-being programme on the Academic Performance and Engagement of Irish Primary School Students.* I will be conducting this research under the supervision of Dr Niamh Higgins and Dr Trevor O'Brien of Mary Immaculate College, Limerick.

What is the purpose of the study?

Student mental health and wellbeing is a priority for all schools. This is reflected in the Department of Education's (DES) Well-being Policy Statement recommendation for the implementation of universal evidence-based social-emotional learning (SEL) programmes in schools. As you may be aware, the Weaving Well-being Positive Education Programme is an Irish SEL programme that consists of five modules developed for use in second to sixth class and delivered over 10 lessons. This research will investigate what effect this programme has on the academic performance and classroom engagement of fourth class pupils. Schools that are eligible to participate in the study are those that are planning to deliver the Weaving Well-being programme in either the first or second term of the coming school year. Furthermore, preferably only teachers who have completed a Weaving Well-being training course will be eligible to participate in the study.

What does the study entail?

Participating classes will be allocated to either the Term 1 group (classes in which the Weaving Well-being programme is used *before* Christmas break) or the Term 2 group (classes in which the programme is not used until *after* the Christmas break). I will visit the school at the beginning and end of the study - approximately 10 weeks apart – to administer two short measures. The first measure is a questionnaire that asks children about their engagement in classroom life. This questionnaire should take 20 minutes to complete. The pupils will also be asked to complete a brief measure of academic performance, which should take approximately 40 minutes to complete. Both of these will take place in the classroom setting and pupils will be given adequate breaks between measures. The Principal Researcher will be present to read questionnaire items aloud to ensure the

children understand them. The Engagement measure will be administered to the whole class simultaneously, while the academic measure will be administered in consecutive small groups in the classroom setting. Class teachers are also asked to be present during this time. Alternative deskwork activities, such as colouring activities and wordsearches, will be provided to pupils who are not participating in the study. Lastly, each class teacher will be asked to complete to a 30-minute interview with the Principal Researcher, pertaining to their experience of programme delivery. The interview will take place at a time and place that best suits the class teacher.

Consent:

- If you consent for your school to participate in the study, I would appreciate if you would share the Teacher Information Leaflets to teachers. If teachers agree to participate, parents will then be asked to provide parental consent for their child to participate. The Principal Researcher will visit the school prior to data collection to discuss the study with participating classes, to answer any questions that the children may have and to request informed assent. Children of parents who have provided parental consent will be asked to provide child assent (children's written agreement to participate in the study). Only children who give child assent (children's written agreement to participate in the study) and whose parents provide parental consent, will complete the two questionnaires, once during the Principal Researcher's first visit and again ten weeks later.

Sample A below is an example of a question from the Student Engagement Questionnaire. Sample B below shows sample questions from the Wide Range Achievement Test (WRAT-5).

Sample A – Student Engagement Questionnaire

5) I am interested in the work at school	1 Never	2 Rarely	3 Sometimes	4 Most of the time	5 Always

Sample B – WRAT-5

Numeracy	**Spelling**
51 + 27	11. ***Should*** We should leave soon.

Data Protection:

- This research will be used as part of my doctoral thesis and may be presented at conventions or published in an academic journal. The data collected will be kept strictly confidential and will not be released to a third party. For the purposes of future publication, anonymised data may be retained indefinitely as per General Data Protection Regulation guidelines (GDPR; 2018). Each participating pupil will be allocated an ID number by their teacher which will be used on all documentation pertaining to them, such that their anonymity will be preserved. Data will be collected only if parental consent and child assent has been provided.

Should your school participate in this research, the school, participating teachers and pupils are free to withdraw from the study at any stage without consequence. To do so, the researcher can be contacted at 20116683@micstudent.mic.ul.ie with a request to withdraw from the study. While it is not anticipated that pupils will experience any psychological distress, should a child become upset during the study, they will have the right to withdraw immediately and appropriate care will be taken to ensure the child's welfare.

If you would like more information or have any questions regarding the study, please contact Caitríona Mulcahy at 20116683@micstudent.mic.ul.ie. This research study has received ethical approval from the Mary Immaculate College Research Ethics Committee (MIREC) (Reference number: A22-010). If you have any concerns about this study and wish to contact an independent authority, you may contact: Mary Collins, MIREC Administrator, Mary Immaculate College, Limerick. Telephone: 061-204980 E-mail: mirec@mic.ul.ie.

Thank you for taking the time to read this email. I look forward to hearing from you.

Kind regards,

_____

Caitríona Mulcahy (Principal Researcher)

Research Supervisors

Dr Niamh Higgins
Email: niamh.higgins@mic.ul.ie

Dr Trevor O'Brien
Email: Trevor.OBrien@mic.ul.ie

Appendix H - Teacher Information Letter

Dear Teacher,

My name is Caitríona Mulcahy and I am a student undertaking a Doctorate in Educational and Child Psychology at Mary Immaculate College. I am writing to invite you and your class to take part in a research study entitled: *An Investigation into the Effect of the Weaving Well-being programme on the Academic Performance and Engagement of Irish Primary School Students.* I will be conducting this research under the supervision of Dr Niamh Higgins and Dr Trevor O'Brien of Mary Immaculate College, Limerick.

Purpose of the Study:

With increasing awareness of the importance of pupil wellbeing and mental health, the Department of Education has recommended the implementation of universal evidence-based social-emotional learning (SEL) programmes in schools. As you may be aware, the Weaving Well-being Positive Education Programme is an Irish SEL programme that consists of five modules developed for use in second to sixth class and delivered over 10 lessons. This research aims to investigate the effect this programme has on the academic performance and classroom engagement of fourth class pupils. Schools that are eligible to participate in the study are those that are planning to deliver the Weaving Well-being programme in either the first or second term of the coming school year. Furthermore, preferably only teachers who have completed a Weaving Well-being training course will be eligible to participate in the study.

If you agree to participate in this research:

- You will be asked to sign a consent form.
- Parents will be asked to provide parental consent for their child to participate via parent information letter.
- The Principal Researcher will visit the school prior to data collection to discuss the study with participating classes, to answer any questions that the children may have and to request informed assent. Children of parents who have provided parental consent will be asked to provide child assent (children's written agreement to participate in the study). Only children who give child assent (children's written agreement to participate in the study) and whose

parents provide parental consent, will complete the two measures, once during the Principal Researcher's first visit and again ten weeks later.

- Participating classes will be assigned to either the Term 1 group (classes in which the Weaving Well-being programme is used *before* Christmas break) or the Term 2 group (classes in which the programme is not used until *after* the Christmas break).
- Pupils will be asked to complete two short measures: a questionnaire about their engagement in classroom life and a brief measure of academic performance. These questionnaires should take approximately 20 minutes and 40 minutes to complete, respectively. These will be completed in the classroom setting and pupils will be given adequate breaks between measures.
- Alternative deskwork activities, such as colouring activities, puzzles and wordsearches, will be provided to pupils who have not consented to participate in the study.
- The Principal Researcher will be present to administer both measures. Class teachers are also asked to be present during this time. The engagement measure will be administered to the whole class simultaneously, while the academic measure will be administered in consecutive small groups in the classroom setting.
- Lastly, class teachers who deliver the programme in Term 1 will be asked to complete to a 30-minute interview with the Principal Researcher, reflecting on their experience of programme delivery. The interview will take place at a time and place that best suits the class teacher. Term 1 group teachers are also asked to maintain a brief record of each WW lesson delivered. The Term 2 group teachers will not be interviewed.
- Sample A below is an example of a question from the Student Engagement Questionnaire. Sample B below is a sample question from the Wide Range Achievement Test (WRAT-5).

Sample A – Student Questionnaire

5) I am interested in the work at school	1 Never	2 Rarely	3 Sometimes	4 Most of the time	5 Always

Sample B – WRAT-5

Numeracy	**Spelling**
51 + 27	11. ***Should*** We should leave soon.

Data Protection

- This research will be used as part of my doctoral thesis and may be presented at conventions or published in an academic journal. The data collected will be kept strictly confidential and will not be released to a third party. For the purposes of future publication, anonymised data may be retained indefinitely as per General Data Protection Regulation guidelines (GDPR; 2018). Each participating pupil will be allocated an ID number by their teacher which will be used on all documentation pertaining to them, such that their anonymity will be preserved. Data will be collected only if parental consent and child assent has been provided.

Should you and your class participate in this research, you and your pupils are free to withdraw from the study at any stage. To do so, the researcher can be contacted at 20116683@micstudent.mic.ul.ie with a request to withdraw from the study. It is not anticipated that participating pupils will experience any psychological distress as a result of participation. However, any child who may become upset during the study will have the right to withdraw immediately and appropriate care will be taken to ensure the child's welfare.

If you would like more information or have any questions regarding the study, please contact Caitríona Mulcahy at 20116683@micstudent.mic.ul.ie. This research study has received ethical approval from the Mary Immaculate College Research Ethics Committee (MIREC) (Reference number: X). If you have any concerns about this study and wish to contact an independent authority, you may contact: Mary Collins, MIREC Administrator, Mary Immaculate College, Limerick. Telephone: 061-204980 E-mail: mirec@mic.ul.ie.

Thank you for taking the time to read this information letter. I look forward to hearing from you.

Kind regards,

_____

Caitríona Mulcahy (Principal Researcher)

Research Supervisors

Dr Niamh Higgins
Email: niamh.higgins@mic.ul.ie

Dr Trevor O'Brien
Email: Trevor.OBrien@mic.ul.ie

Appendix I - Parent Information Letter, Experimental Group

Dear Parent,

Your child is invited to take part in a research study called: *An Investigation into the Effect of the Weaving Well-being programme on the Academic Performance and Engagement of Irish Primary School Students.* My name is Caitríona Mulcahy and I am the Principal Researcher. I am a trainee educational and child psychologist and I am currently undertaking this research as part of my doctoral studies at Mary Immaculate College, Limerick. I will be completing this research under the supervision of Dr Niamh Higgins and Dr Trevor O'Brien in Mary Immaculate College.

What is the purpose of the study?

As we are becoming more aware of the benefits of teaching social-emotional skills to pupils to promote their wellbeing, it is important to investigate whether the programmes that are used to teach these skills are effective. Weaving Well-being is a social-emotional learning programme that aims to enhance the wellbeing of children aged 8-12 years old. The aim of this research is to investigate the effect of the Weaving Well-being Positive Education programme on the academic performance and classroom engagement of Irish primary school pupils.

Participating classes will be assigned to one of two groups: the Term 1 group (classes in which the Weaving Well-being programme is used *before* Christmas break) or the Term 2 group (classes in which the programme is not used until *after* the Christmas break). As your child's class will be using the Weaving Well-being programme before Christmas, your child's class will be in the **Term 1** group.

If you and your child agree to take part:

- You will be asked to sign a consent form. If you sign the consent form your child will then be asked to sign an assent form (a written agreement from your child confirming whether he/she is willing to participate in the research). The Principal Researcher will visit your child's class to explain this research and to ask for informed assent. The Principal Researcher is Garda vetted and the Class Teacher will be present at all times. Data will be collected only if parental consent and child assent has been provided. Alternative deskwork activities, such as wordsearches, puzzles and colouring activities, will be provided to pupils who are not participating in the study.

- Your child will be asked to complete two measures: a short questionnaire about their engagement in classroom life and a brief measure of academic performance. The latter involves answering some Maths problems and Spelling a list of words called out by the researcher. These questionnaires should take approximately 20 minutes and 40 minutes to complete, respectively. Children will be given adequate breaks between measures. Your child will be asked to complete these questionnaires at two time points; once in September and once again in November.
- The Principal Researcher will be present to administer the measures. Class teachers will also be present for the duration of administration. The engagement measure will be administered to the whole class simultaneously, while the academic measure will be administered in consecutive small groups in the classroom setting.
- Lastly, class teachers will be asked to complete to a 30-minute interview with the Principal Researcher, reflecting on their experience of programme delivery.
- Sample A below is an example of a question from the Student Engagement Questionnaire. Sample B below is a sample maths problem and spelling exercise.

Sample A – Student Questionnaire

5) I am interested in the work at school	1 Never	2 Rarely	3 Sometimes	4 Most of the time	5 Always

Sample B – Maths and Spelling Examples

Numeracy	**Spelling**
51 + 27	11. ***Should*** We should leave soon.

Your child does not have to take part if you do not want them to or if they do not want to themselves. Should you wish to withdraw your child from the study at any stage, you can do so without any impact. To do so, you can contact Caitríona Mulcahy at 20116683@micstudent.mic.ul.ie requesting to no longer be part of the study. Your child will be supervised by a school staff member at all times. While it is not anticipated that participating pupils will experience any psychological distress due to participation, should a child become upset during the study, they will have the right to withdraw immediately and appropriate care will be taken to ensure the child's welfare

Data Protection

- This research will be used as part of my doctoral thesis and may be presented at conventions or published in an academic journal. The data will be kept strictly confidential and will not be released to a third party. For the purposes of future publication, anonymised data may be retained indefinitely as per General Data Protection Regulation guidelines (GDPR; 2018). Pupil confidentiality will be prioritised. Each participating pupil will be allocated an ID number by their teacher which will be used on all documentation relating to them, in order to ensure their anonymity. Data will be collected only if parental consent and child assent has been provided. All data will be stored securely.

If you would like more information or have any questions regarding the study, please contact the primary researcher, Caitríona Mulcahy at 20116683@micstudent.mic.ul.ie. This research study has received ethical approval from the Mary Immaculate College Research Ethics Committee (MIREC) (Reference number: A22-010). If you have any concerns about this study and wish to contact an independent authority, you may contact: Mary Collins, MIREC Administrator, Mary Immaculate College, Limerick. Telephone: 061-204980 E-mail: mirec@mic.ul.ie.

I sincerely thank you for taking the time to read this information letter.

Kind regards,

_____

Caitríona Mulcahy (Principal Researcher)

Research Supervisors

Dr Niamh Higgins
Email: niamh.higgins@mic.ul.ie

Dr Trevor O'Brien
Email: Trevor.OBrien@mic.ul.ie

Appendix J - Parent Information Letter, Control Group

Dear Parent,

Your child is invited to take part in a piece of research called: *An Investigation into the Effect of the Weaving Well-being programme on the Academic Performance and Engagement of Irish Primary School Students.* My name is Caitríona Mulcahy and I am the Principal Researcher. I am a trainee educational and child psychologist and I am currently undertaking this research as part of my doctoral studies at Mary Immaculate College, Limerick. I will be completing this research under the supervision of Dr Niamh Higgins and Dr Trevor O'Brien in Mary Immaculate College.

What is the purpose of the study?

As we are becoming more aware of the benefits teaching social-emotional skills to pupils to promote their wellbeing, it is important to investigate whether the programmes that are used to teach these skills are effective. Weaving Well-being is a social-emotional learning programme that aims to enhance the wellbeing of children aged 8-12 years old. The aim of this research is to investigate the effect of the Weaving Well-being Positive Education programme on the academic performance and classroom engagement of Irish primary school pupils.

Participating classes will be assigned to one of two groups: the Term 1 group (classes in which the Weaving Well-being programme is used *before* Christmas break) or the Term 2 group (classes in which the programme is not used until *after* the Christmas break). As your child's class will not be using the Weaving Well-being programme before Christmas, your child's class would be in the **Term 2** group.

If you and your child agree to take part:

- You will be asked to sign a consent form. If you sign the consent form your child will then be asked to sign an assent form (written agreement from your child confirming whether he/she is willing to participate in the research). The Principal Researcher will visit your child's class to explain this research and to ask for informed assent. The Principal Researcher is Garda vetted and the Class Teacher will be present at all times. Only children who give child assent and whose parents provide parental consent, will complete the two questionnaires. Alternative deskwork activities, such as wordsearches puzzles and colouring activities, will be provided to pupils who are not participating in the study.

- Your child will be asked to complete two measures: a short questionnaire about their engagement in classroom life and a brief measure of academic performance. The latter involves answering some Maths problems and Spelling a list of words called out by the researcher. These questionnaires should take approximately 20 minutes and 40 minutes to complete, respectively. Children will be given adequate breaks between measures. Your child will be asked to complete these questionnaires at two time points; once in September and once again in November.
- The Principal Researcher will be present to administer the measures. Class teachers will also be present for the duration of administration. The engagement measure will be administered to the whole class simultaneously, while the academic measure will be administered in consecutive small groups in the classroom setting.
- Sample A below is an example of a question from the Student Engagement Questionnaire. Sample B below is a sample maths problem and spelling exercise.

Sample A – Student Questionnaire

5) I am interested in the work at school	1 Never	2 Rarely	3 Sometimes	4 Most of the time	5 Always

Sample B – Maths and Spelling Examples

Numeracy	**Spelling**
51 + 27	11. ***Should*** We should leave soon.

Your child does not have to take part if you do not want them to or if they do not want to themselves. Should you wish to withdraw your child from the study at any stage, you can do so without any impact. To do so, you can contact Caitríona Mulcahy at 20116683@micstudent.mic.ul.ie requesting to no longer be part of the study. Your child will be supervised by a school staff member at all times. While it is not anticipated that participating pupils will experience any psychological distress due to participation, should a child become upset during the study, they will have the right to withdraw immediately and appropriate care will be taken to ensure the child's welfare

Data Protection

- This research will be used as part of my doctoral thesis and may be presented at conventions or published in an academic journal. The data will be kept strictly confidential and will not be released to a third party. For the purposes of future publication, anonymised data may be retained indefinitely as per General Data Protection Regulation guidelines (GDPR; 2018). Pupil confidentiality will be prioritised. Each participating pupil will be allocated an ID number by their teacher which will be used on all documentation relating to them, in order to ensure their anonymity. Data will be collected only if parental consent and child assent has been provided. All data will be stored securely.

If you would like more information or have any questions regarding the study, please contact the primary researcher, Caitríona Mulcahy at 20116683@micstudent.mic.ul.ie. This research study has received ethical approval from the Mary Immaculate College Research Ethics Committee (MIREC) (Reference number: X). If you have any concerns about this study and wish to contact an independent authority, you may contact: Mary Collins, MIREC Administrator, Mary Immaculate College, Limerick. Telephone: 061-204980 E-mail: mirec@mic.ul.ie.

I sincerely thank you for taking the time to read this information letter.

Kind regards,

_____

Caitríona Mulcahy (Principal Researcher)

Research Supervisors

Dr Niamh Higgins
Email: niamh.higgins@mic.ul.ie

Dr Trevor O'Brien
Email: Trevor.OBrien@mic.ul.ie

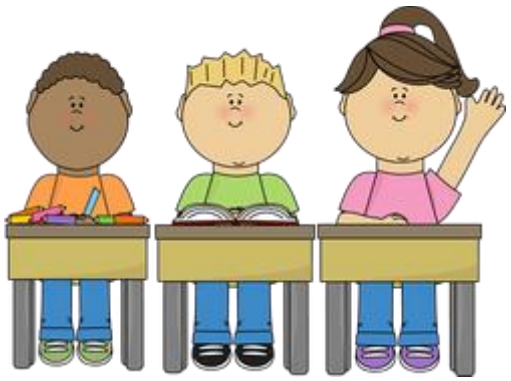
Appendix K - Pupil Information Sheet

An Investigation into the Effect of the *Weaving Well-being* programme on the Academic Performance and Engagement of Irish Primary School Students

This is Caitríona and she would like to invite you to take part in her research project.

What is this project about?

This project is going to try to find out about how learning about feelings and wellbeing affect how you feel about school and how you act at school. It will also try to find out how these lessons affect your school work.



What will you do?

Caitríona will come to your class and will ask you to answer some questions on a sheet about what you think about school and how you act at school. For each question you can give an answer from 1 to 5. For example:

1) I pay attention in class	1	2	3	4	5
	Never	Rarely	Sometimes	Most of the time	Always

In this example, this pupil circled the number 4 because they **sometimes** pay attention in class. There are no right or wrong answers. You will also be asked to answer some sums and to write some spellings, like the ones in the box below.

Maths	**Spelling**
51 + 27	11. ***Should*** We should leave soon.

A few weeks after you answer these questions, Caitríona will come back to your classroom and ask you to answer some more questions like the ones in the examples above.

All of your answers will be private and Caitríona will not tell them to anyone else. She will not use your name if she is telling other people what she has learned from this project.

If you don't want to take part in the project, you don't have to.

If you say that you want to take part in the project, it is okay to change your mind. At any time, you can tell your teacher, your parent or guardian or Caitríona that you don't want to take part anymore.

If you have any questions, you can ask your teacher, parents or guardians, or Caitríona.

If you would like to take part in this project, your parents or guardians can fill in a form. If you give it to your teacher, they will give the form to Caitríona.

This research study has received Ethics approval from the Mary Immaculate College Research Ethics Committee (MIREC) (Reference Number: A22-010).If you have any concerns about this study and wish to contact an independent authority, you may contact: Mary Collins, MIREC Administrator, Mary Immaculate College, Limerick Telephone: 061-204980 E-mail: mirec@mic.ul.ie

Appendix L – Principal Consent Form

Consent Form: An Investigation into the Effect of the *Weaving Well-being* programme on the Academic Performance and Engagement of Irish Primary School Students

- I have read and understand the information sheet.
- I understand what the aims of the research are and what the results will be used for.
- I am fully aware of all of the procedures involving my school, participating teachers and pupils, and of any risks associated with the study.
- I know that the school's participation is voluntary and that I can withdraw from the project at any stage without giving any reason and without consequence.
- I am aware that any information given by me or from the teachers or children participating in the study, will be treated with the utmost confidentiality, and that pseudonyms will be applied to the data to maintain anonymity.
- I willingly agree for my school to take part in this study.

_____	_____
Name of Principal (Printed)	Name of Researcher (Printed)
_____	_____
Signature of Principal	Signature of Researcher
_____	_____
Date	Date

Appendix M - Teacher Consent Form

Consent Form: An Investigation into the Effect of the *Weaving Well-being* programme on the Academic Performance and Engagement of Irish Primary School Students

- I have read and understand the teacher information sheet.
- I understand what the aims of the research are and what the results will be used for.
- I am fully aware of all of the procedures involving myself and of any risks associated with the study.
- I know that my participation is voluntary and that I can withdraw from the project at any stage without giving any reason and without consequence.
- I am aware that any information given by me or from the children participating in the study, will be treated with the utmost confidentiality, and that pseudonyms will be applied to the data to maintain anonymity.
- I willingly agree to take part in this study.

_____	_____
Name of Teacher (Printed)	Name of Researcher (Printed)
_____	_____
Signature of Teacher	Signature of Researcher
_____	_____
Date	Date

Appendix N - Parent Consent Form

Consent Form: An Investigation into the Effect of the *Weaving Well-being* programme on the Academic Performance and Engagement of Irish Primary School Students

- I have read and understand the parent information sheet.
- I understand what the project is about and what the results will be used for.
- I am fully aware of all of the procedures involved should my child take part in this study and of any risks associated with the study.
- I know that my child's participation is voluntary and that I can withdraw my child from the project at any stage without giving any reason, and that my child can withdraw themselves at any stage without consequence.
- I am aware that my child's information will be anonymised and confidential and that my child will not be identified.
- I willingly agree for my child to take part in this study.

_____	_____
Name of Parent/Guardian (Printed)	Name of Researcher (Printed)
_____	_____
Signature of Parent/Guardian	Signature of Researcher
_____	_____
Date	Date

Appendix O - Pupil Assent Form

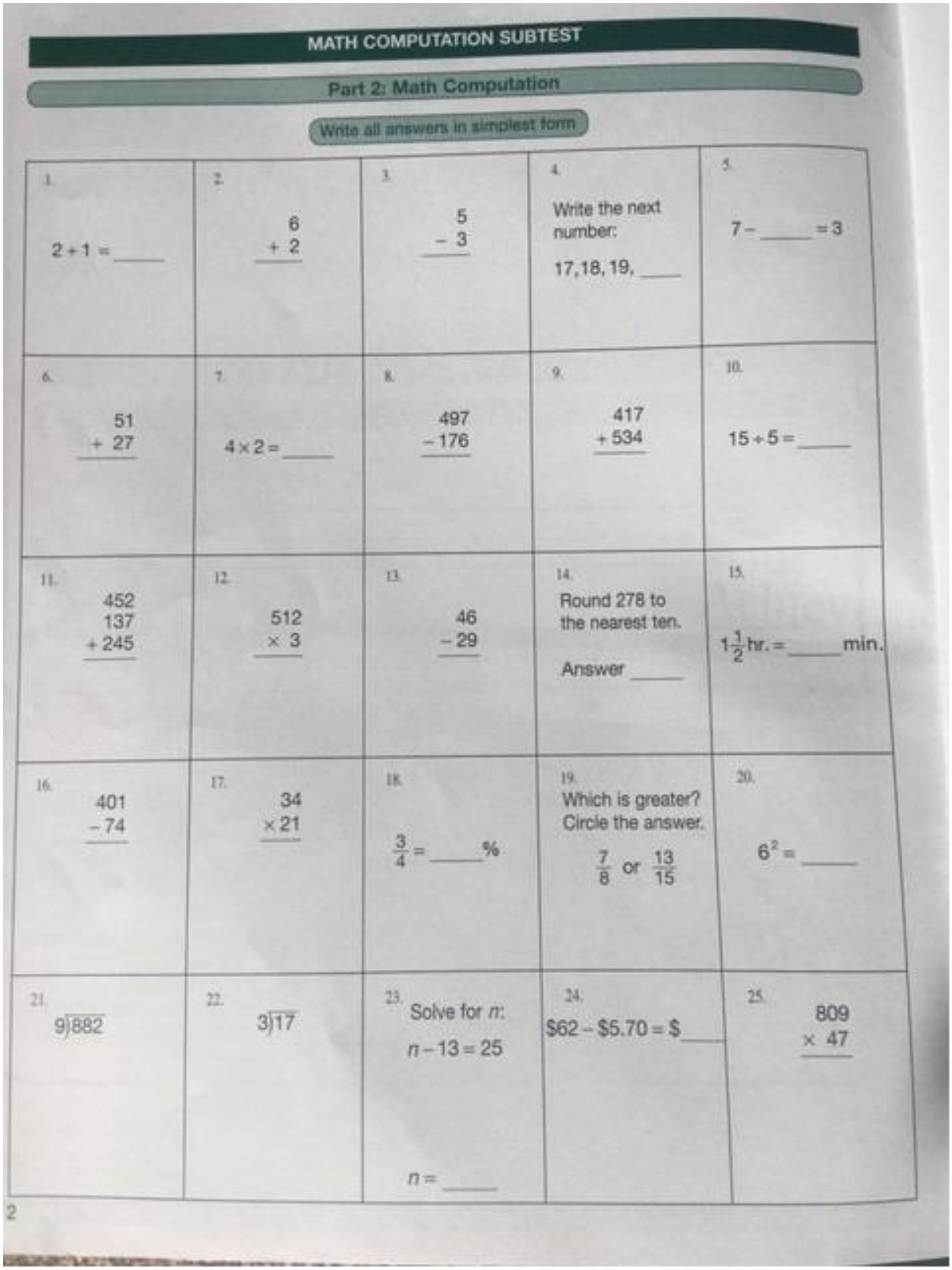
An Investigation into the Effect of the *Weaving Well-being* programme on the Academic Performance and Engagement of Irish Primary School Students

1. **I have read Caitríona's information letter and she has explained her project to me. I understand what her project is about.**
2. **I know that Caitríona wants to ask me questions about how I feel about school and how I act at school.**
3. **I know that I can ask for help if I need it.**
4. **I know that I can change my mind about taking part at any time.**
5. **I know that my answers will be private.**
6. **I know that I don't have to take part if I don't want to.**

I want to take part in this project	I don't want to take part in this project
Yes ☐	No ☐

Write your name here:

Appendix P – WRAT-5 (Wilkinson & Robertson, 2017)



MATH COMPUTATION SUBTEST

Part 2: Math Computation

Write all answers in simplest form

1. $2+1=$____	2. $6+2$	3. $5-3$	4. Write the next number: 17, 18, 19, ____	5. $7-$____$=3$
6. $51+27$	7. $4\times2=$____	8. $497-176$	9. $417+534$	10. $15\div5=$____
11. $452+137+245$	12. 512×3	13. $46-29$	14. Round 278 to the nearest ten. Answer ____	15. $1\frac{1}{2}$ hr. = ____ min.
16. $401-74$	17. 34×21	18. $\frac{3}{4}=$____%	19. Which is greater? Circle the answer. $\frac{7}{8}$ or $\frac{13}{15}$	20. $6^2=$____
21. $9\overline{)882}$	22. $3\overline{)17}$	23. Solve for n: $n-13=25$ $n=$____	24. \$62 − \$5.70 = \$____	25. 809×47

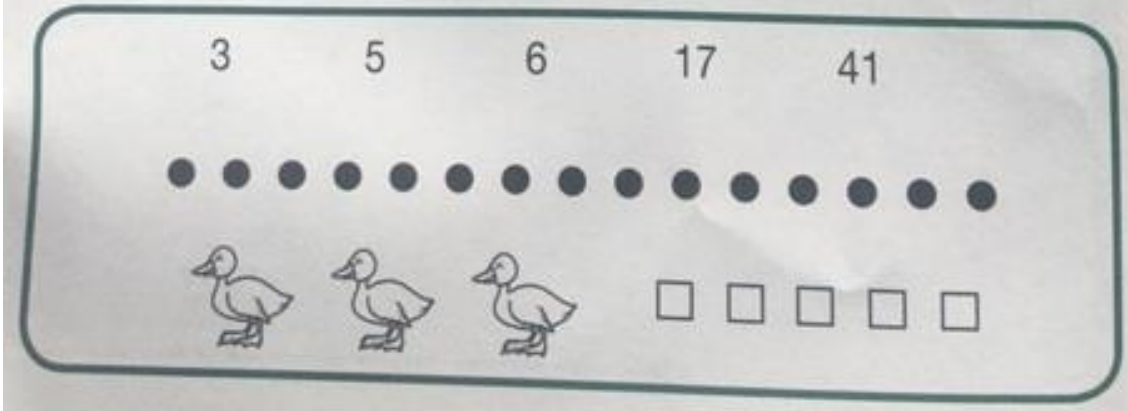
2

Part 2: Math Computation

Write all answers in simplest form.

26. $5 - 3\frac{1}{3}$	27. 20% of 120 = Answer _____	28. Write <, >, or =: $\frac{5}{8}$ ◯ 58%	29. $12\overline{)966}$	30. Solve for s: $\frac{3}{s} = \frac{100}{300}$ $s =$ _____
31. Solve for p: $\frac{p}{2} + 2 = 12$ $p =$ _____	32. $4\frac{5}{6} + 3\frac{1}{3} + 2\frac{1}{2}$	33. $\frac{8}{9} \times \frac{1}{2} \times \frac{9}{4} =$ _____	34. 7.90×30.8	35. Write as a decimal: $52\frac{1}{2}\% =$ _____
36. Find the mean: 24, 18, 21, 26, 17 Answer _____	37. Evaluate: $\frac{7-(6+8)}{2}$ Answer _____	38. $0.82\overline{)6.15}$	39. $6 \times 3\frac{7}{8} =$ _____	40. Find the interest on $1200 at 6% per year for 2 years compounded annually: Answer $_____

___/15	+	___/40	=	___/55
Oral Math Raw Score		Math Computation Raw Score		Math Computation Total Raw Score



BLUE SPELLING LIST

NAME A C F O W N G L D I K Y X

1.	**on**	It is on the table.	on
2.	**and**	The boys and girls played together.	and
3.	**him**	They saw him yesterday.	him
4.	**make**	He can make us laugh.	mayk
5.	**must**	You must do your homework.	must
6.	**cook**	We cook our own dinner.	kuuk
7.	**light**	The light is on.	līt
8.	**enter**	Enter this way.	**en**-tĕr
9.	**reach**	She could not reach the ball.	reech
10.	**should**	We should leave soon.	shuud
11.	**circle**	A circle is round.	**sur**-kĕl
12.	**correct**	Write down the correct answer.	kŏ-**rekt**
13.	**minute**	The speaker left the minute we arrived.	**min**-it
14.	**ruin**	Try not to ruin your shoes.	**roo**-in
15.	**material**	The material was expensive.	mă-**teer**-i-ăl
16.	**believe**	I believe you are right.	bi-**leev**
17.	**reasonable**	They made a reasonable request.	**ree**-zŏ-nă-bĕl
18.	**character**	The mayor praised her fine character.	**kar**-ik-tĕr
19.	**brief**	My friend wrote a brief note.	breef
20.	**success**	Success usually makes people happy.	sŭk-**ses**
21.	**quantity**	He ate a large quantity of food.	**kwon**-ti-tee
22.	**executive**	She became an executive of the company.	ig-**zek**-yŭ-tiv
23.	**decision**	Everyone accepted your decision.	di-**sizh**-ŏn
24.	**recognize**	His brother did not recognize me.	**rek**-ŏg-nīz
25.	**anxiety**	Natural disasters create anxiety among people.	ang-**zī**-ĕ-tee
26.	**opportunity**	The job offered her an opportunity for advancement.	op-ŏr-**too**-ni-tee
27.	**lucidity**	During moments of lucidity, the patient made perfect sense.	loo-**sid**-i-tee
28.	**enthusiasm**	There was little enthusiasm for the plan.	en-**thoo**-zi-az-ĕm
29.	**receive**	The teacher will receive an award.	ri-**seev**
30.	**conscience**	His conscience was clear.	**kon**-shĕns
31.	**possession**	The new owners took possession of the house.	pŏ-**zesh**-ŏn
32.	**exaggerate**	The players did not exaggerate how hard it was to win the game.	ig-**zaj**-ĕ-rayt
33.	**medieval**	In medieval times, life was very different from what it is today.	mi-**dee**-văl
34.	**commiserate**	Her friends did not commiserate with her when she lost the contest.	kŏ-**miz**-ĕ-rayt
35.	**stationery**	The letter was written on business stationery.	**stay**-shŏ-ner-ee
36.	**charlatan**	Since the man treating patients had no medical training, he was called a charlatan.	**shahr**-lă-tăn
37.	**acquiesce**	The judge refused to acquiesce to the attorney's demands.	ak-wi-**es**
38.	**camouflage**	Camouflage is a natural defense for many animals.	**kam**-ŏ-flahzh
39.	**malfeasance**	The company treasurer was found guilty of malfeasance.	mal-**fee**-zăns
40.	**cacophony**	The blaring cacophony produced by the screeching birds woke the whole family.	kă-**kof**-ŏ-nee
41.	**belligerent**	The two belligerent nations could not resolve their differences.	bi-**lij**-ĕ-rĕnt
42.	**pusillanimous**	His pusillanimous nature caused him to flee from the scene of the accident.	pyoo-si-**lan**-i-mŭs

5/10 RULES

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Appendix Q – School Engagement Measure (Fredricks *et al.*, 2004)

Behavioural Engagement					
1) I pay attention in class	1 Never	2 Rarely	3 Sometimes	4 Most of the time	5 Always
2) When I am in class, I just act as if I am working	1 Never	2 Rarely	3 Sometimes	4 Most of the time	5 Always
3) I complete my homework on time	1 Never	2 Rarely	3 Sometimes	4 Most of the time	5 Always
4) I follow the rules at school	1 Never	2 Rarely	3 Sometimes	4 Most of the time	5 Always
5) I get in trouble at school	1 Never	2 Rarely	3 Sometimes	4 Most of the time	5 Always
Emotional Engagement					
1) I feel happy in school.	1 Never	2 Rarely	3 Sometimes	4 Most of the time	5 Always
2) I feel bored in school	1 Never	2 Rarely	3 Sometimes	4 Most of the time	5 Always
3) I feel excited by the work in school	1 Never	2 Rarely	3 Sometimes	4 Most of the time	5 Always
4) I like being at school	1 Never	2 Rarely	3 Sometimes	4 Most of the time	5 Always
5) I am interested in the work at school	1 Never	2 Rarely	3 Sometimes	4 Most of the time	5 Always

6) My classroom is a fun place to be	1 Never	2 Rarely	3 Sometimes	4 Most of the time	5 Always
Cognitive Engagement					
1) When I read a book, I ask myself questions to make sure I understand what it is about	1 Never	2 Rarely	3 Sometimes	4 Most of the time	5 Always
2) I study at home even when I don't have a test	1 Never	2 Rarely	3 Sometimes	4 Most of the time	5 Always
3) I try to watch TV shows about things we are doing in school	1 Never	2 Rarely	3 Sometimes	4 Most of the time	5 Always
4) I talk with people outside of school about what I am learning in class	1 Never	2 Rarely	3 Sometimes	4 Most of the time	5 Always
5) I check my schoolwork for mistakes	1 Never	2 Rarely	3 Sometimes	4 Most of the time	5 Always
6) If I don't know what a word means when I am reading, I do something to figure it out, like look it up in the dictionary or ask someone	1 Never	2 Rarely	3 Sometimes	4 Most of the time	5 Always
7) I read extra books to learn more about things we do in school	1 Never	2 Rarely	3 Sometimes	4 Most of the time	5 Always

8) If I don't understand what I read, I go back and read it over again	1 Never	2 Rarely	3 Sometimes	4 Most of the time	5 Always

Appendix R - Semi-structured Interview Questions

1. What impact, if any, did the programme have on your class? (If impact reported…) How did you know that this had occurred? Can you give examples?
2. If a change was noticed, what aspects of the programme do you think contributed to this?
3. How do you feel the students engaged with the programme? Were there any challenges encountered in relation to student engagement with the programme?
4. What challenges, if any, did you encounter in relation to pupil engagement pre-intervention?
5. What change, if any, have you noticed in pupil engagement in classroom life since implementing the programme?
6. What changes, if any, did you notice in relation to pupils' academic performance?
7. Is there anything that you would change about the programme?

Appendix S - Sample Fidelity Checklist

Lesson 1: Fidelity Checklist

Please respond to each question by ticking the appropriate box to indicate whether each element of the lesson was completed.

1. Lesson PowerPoint completed.

   Yes ☐ No ☐

2. Class discussion and explanation of activity in pupil workbook completed.

   Yes ☐ No ☐

3. Pupil workbook activity completed.

   Yes ☐ No ☐

4. Homework activity explained.

   Yes ☐ No ☐

5. Homework activity reviewed.

   Yes ☐ No ☐

6. Please outline any reflections on the lesson.

Appendix T – MIREC-5 Form

MIREC-5, Created November 2021

MIREC-5

Research Ethics Committee

MIREC Final Decision Form

APPLICATION NUMBER:	A22-010

1. PROJECT TITLE

An investigation into the effect of the Weaving Well-being programme on the academic achievement and engagement of Irish primary school pupils.

2. APPLICANT

Name:	Catríona Mulcahy
Department / Centre / Other:	EPISE
Position:	Postgraduate Researcher

3. DECISION OF MIREC CHAIR (✓)

☐	Ethical clearance through MIREC is not required and therefore the applicant need take no further action in this regard.
✓	Ethical clearance is required and is hereby granted by the Chair without need for referral to the MIREC committee.
☐	Ethical clearance for a funding application or a similar purpose is granted by the Chair ***pro tem*** without need for referral to the MIREC committee. However, the applicant must subsequently seek ethical clearance from MIREC prior to embarking on any related project work involving human participants or their data.
☐	Ethical clearance is granted following review of the application by the MIREC committee.
☐	Ethical clearance is not granted following review of the application by the MIREC committee.

4. **REASON(S) FOR DECISION**

I have received this application and I am satisfied it meets MIREC requirements.

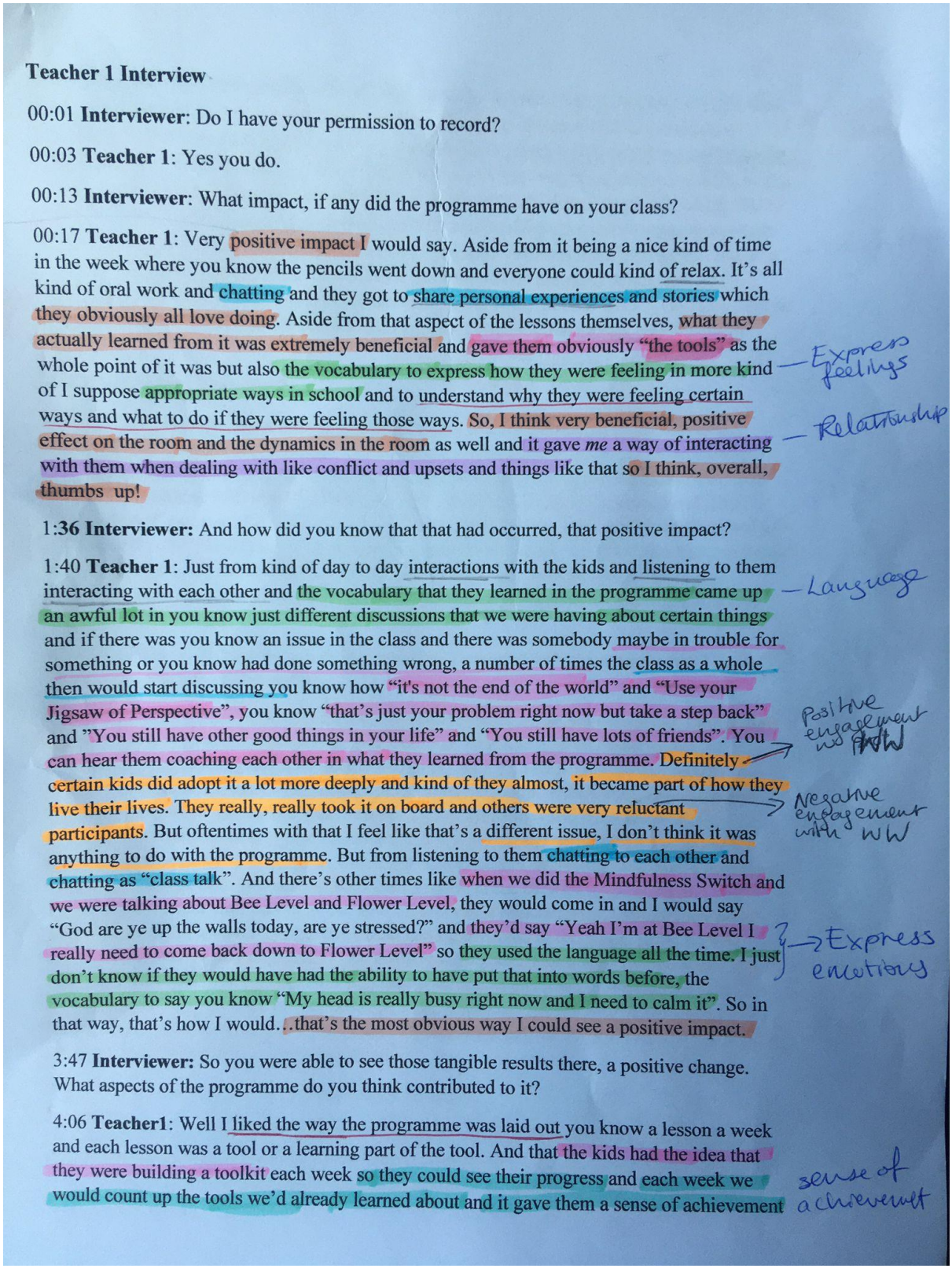
The Safeguarding Statement is fully fit-for-purpose.

The application is, therefore, approved.

5. **SIGNATURE OF MIREC CHAIR**

Name (Print):	Dr Marie Griffin
Signature:	
Date:	22nd August 2022

Appendix U – Thematic Analysis – Coding Sample



Teacher 1 Interview

00:01 **Interviewer**: Do I have your permission to record?

00:03 **Teacher 1**: Yes you do.

00:13 **Interviewer**: What impact, if any did the programme have on your class?

00:17 **Teacher 1**: Very positive impact I would say. Aside from it being a nice kind of time in the week where you know the pencils went down and everyone could kind of relax. It's all kind of oral work and chatting and they got to share personal experiences and stories which they obviously all love doing. Aside from that aspect of the lessons themselves, what they actually learned from it was extremely beneficial and gave them obviously "the tools" as the whole point of it was but also the vocabulary to express how they were feeling in more kind of I suppose appropriate ways in school and to understand why they were feeling certain ways and what to do if they were feeling those ways. So, I think very beneficial, positive effect on the room and the dynamics in the room as well and it gave *me* a way of interacting with them when dealing with like conflict and upsets and things like that so I think, overall, thumbs up!

1:**36 Interviewer:** And how did you know that that had occurred, that positive impact?

1:40 **Teacher 1**: Just from kind of day to day interactions with the kids and listening to them interacting with each other and the vocabulary that they learned in the programme came up an awful lot in you know just different discussions that we were having about certain things and if there was you know an issue in the class and there was somebody maybe in trouble for something or you know had done something wrong, a number of times the class as a whole then would start discussing you know how "it's not the end of the world" and "Use your Jigsaw of Perspective", you know "that's just your problem right now but take a step back" and "You still have other good things in your life" and "You still have lots of friends". You can hear them coaching each other in what they learned from the programme. Definitely certain kids did adopt it a lot more deeply and kind of they almost, it became part of how they live their lives. They really, really took it on board and others were very reluctant participants. But oftentimes with that I feel like that's a different issue, I don't think it was anything to do with the programme. But from listening to them chatting to each other and chatting as "class talk". And there's other times like when we did the Mindfulness Switch and we were talking about Bee Level and Flower Level, they would come in and I would say "God are ye up the walls today, are ye stressed?" and they'd say "Yeah I'm at Bee Level I really need to come back down to Flower Level" so they used the language all the time. I just don't know if they would have had the ability to have put that into words before, the vocabulary to say you know "My head is really busy right now and I need to calm it". So in that way, that's how I would…that's the most obvious way I could see a positive impact.

3:47 **Interviewer:** So you were able to see those tangible results there, a positive change. What aspects of the programme do you think contributed to it?

4:06 **Teacher1**: Well I liked the way the programme was laid out you know a lesson a week and each lesson was a tool or a learning part of the tool. And that the kids had the idea that they were building a toolkit each week so they could see their progress and each week we would count up the tools we'd already learned about and it gave them a sense of achievement

Express feelings

Relationship

Language

Positive engagement with WW

Negative engagement with WW

Express emotions

sense of achievement

Appendix V: List of Code Labels

1. Expressing feelings
2. Understanding feelings
3. Emotional awareness
4. Learning about feelings
5. Learning about the tools
6. Using the WW Tools in class outside of WW lessons
7. Using the WW Tools with peers
8. Using the WW Tools in WW lessons
9. Positive experience
10. Increased confidence
11. Positive impact of the programme
12. Increased engagement at school
13. Engagement from parents and at home
14. How the pupils engaged with WW
15. Communicating using the language of WW
16. Pupils' sense of achievement
17. WW language of the programme
18. Positive aspects of the programme
19. Barriers to engagement
20. Negative aspects of the programme
21. Lack of perceived improvement in achievement
22. Lack of relationships at the beginning of academic year
23. Building teacher-pupil relationships
24. Improvements as a result of relationships
25. Varying levels of engagement
26. Possible confounding factors or variables
27. The passage of time
28. Increased trust
29. Involvement in school life
30. Teachers' experience of the programme
31. Teachers' enjoyment of the programme
32. Emotional regulation
33. Greater calm
34. Pupil reflection
35. A shift in pupil perspective
36. Greater pupil focus
37. Asking for help
38. Changes teachers would make to the programme
39. Challenges external to the programme
40. Usefulness of the programme
41. WW providing opportunities to communicate
42. Child-friendly nature of the programme
43. The volume of work to be covered in WW
44. Ease of WW implementation
45. Intention to continue to use the tools
46. Pupil empowerment
47. Some pupils' initial reluctance to engage
48. Pupils' new ability to cope with challenging situations

Appendix W: Codes Organised According to Theme

Theme Name	Code Number
Theme 1: Becoming Engaged in School Life	10, 12, 13, 14, 19, 25, 29, 35, 36, 37, 46.
Theme 2: The Experience of Achievement	16, 21, 36.
Theme 3: Using the Tools to Understand, Express and Engage	1, 2, 3, 4, 5, 6, 7, 8, 32, 33, 34, 41, 46, 47, 48.
Theme 4: Building Relationships as a Bridge to Engagement	22, 23, 24, 28, 35, 41.
Theme 5: Language and Communication	15, 17, 20, 34, 42.
Theme 6: Positive Impact of the Programme	9, 10, 11, 18, 28, 30, 31, 40, 44, 45.