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What effect does teaching a generic planning strategy have on
student writing?

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Abstract

Writing is viewed as applied metacognition. Metacognition is conceptualised as a conscious use of strategies to carry out a process. By using planning as a central metacognitive tool, the researcher has examined the link between the quality of student writing and the use of a generic planning strategy. Participants were 11-year-old students in mainstream classes at an intermediate school in New Zealand. Results indicate that there is a link. This link is discussed in terms of the cognitive construct of conditional knowledge. Conditional knowledge is defined as knowing why, when and where an action is necessary or useful. It is also explored as a social construct of roles and interactions between hypothetical selves. Recommendations are made for further exploration of generic planning instruction.

Keywords: metacognition, writing, e-asTTle, planning, primary

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CHAPTER ONE

INTRODUCTION

The aim of the present study is to explore the effects on their writing when students have been taught a generic planning strategy. Planning is framed as a structure that enhances conditional knowledge use and control. The central hypothesis of the study is that students will write more cohesive recounts when they have been taught a strategy that supports increased metacognitive control of conditional knowledge. The study uses an experimental design to test this hypothesis, with support from a qualitative analysis of the students' writing and other written data. Above all else, however, this study seeks to find a usable classroom-based intervention to enhance the writing skills of 11-year-old students.

In New Zealand there has been some concern expressed about a possible decline in the writing skills of students in years 7 and 8 (Gilmore & Smith, 2011). The National Education Monitoring Programme (NEMP) study compared students in year 8 and year 4 in 2004 with students in year 8 and year 4 in 2010. While some genre of writing improved, such as forming an argument or sending a message to a friend, other genre declined, such as descriptive writing. Of more concern, however, was the finding that the attitudes and strategy use of year 8 students (measured using a rating scale) were significantly less positive over time. The study also highlighted that writing genre is an important factor, and that year 8 students were more focused on emails and text messages than any other form of writing. This decline in positive attitude towards the writing of longer texts in the school context is one of the reasons for the present study.

A second reason for the formulation of this study is an anecdotal awareness that New Zealand schools are moving towards using agency as a concept that captures ideas of self-management and self-directed learning (D. Reardon, personal communication April 10, 2014). An exploration of the literature in these areas led to a growing awareness that writing is linked to self-regulation (Harris, Graham, MacArthur, Reid, & Mason, 2011).

Writing is widely understood to be a complex task, which takes normally developing students many years to gain mastery (Zumbrunn & Bruning, 2013). Metacognition is needed for writing to become controlled (Hacker, Keener, & Kircher, 2009; Haider, 2013; O'Brien-Moran & Soiferman, 2010) and self-regulation has become recognised as a primary function in applying metacognitive processes to writing (Graham, McKeown, Kihara, & Harris, 2012; Negretti, 2012; Zimmerman & Moylan, 2009). Self-regulation is the term used to describe the suite of skills used by a student who is well-motivated, self-aware, deliberate and persistent in their learning behavior. Self-regulation development is considered to mediate the development of motivation (Zimmerman & Moylan, 2009).

A substantial body of literature explores self-regulated strategy development (SRSD) in writing (Berry & Mason, 2012; Harris & Graham, 2009; Hauth, 2013; Little et al., 2010). SRSD is a structured instructional method for enhancing the knowledge that students have about writing as well as about how to write. In general, SRSD uses genre-specific strategies to achieve this enhancement, although some exceptions will be discussed.

Planning is not well defined across different disciplines (eg Sotsky, 1990). Planning is described in this study as a metacognitive skill (Ardila, 2013) that controls declarative knowledge (what is known) and procedural knowledge (about

how to do a task) and is guided by a goal (Harris, Santangelo, & Graham, 2010).

Planning is also framed as being subject to a goal or purpose.

Problem solving and planning are considered to have significant overlap in that both require clarity of purpose to establish efficient processes to implement a course of action (Kaller, Rahm, Spreer, Mader, & Unterrainer, 2008; Ormerod, 2005).

There is ample literature on problem solving, but this study places it as synonymous with planning as a goal-directed process that draws on declarative and procedural knowledge to move from a current state to a desired state.

Planning is placed at the top of a hierarchy of metacognitive strategies and skills (Tobias & Everson, 2009). This study will test the hypothesis that teaching a planning strategy, for example, a strategy that focuses on the highest level of metacognitive control, will have an impact on the writing produced by intermediate aged students.

This study has used a treatment intervention adapted from a resilience building intervention, the FRIENDS for Life programme (Barrett, 2010a, 2010b). FRIENDS is a multi-dimensional programme designed for reduction of anxiety and increase of resilience. One module of the programme is a planning module termed The Coping Step Plan. This module has been adapted for use as a structured planning process. This structured planning process is the intervention model, and is described as a generic planning strategy.

Assessment of writing is generally carried out using rubrics of descriptors and exemplars for comparison (De La Paz, 2009; Westby & Clauser, 2005). The New Zealand Ministry of Education has provided an online tool for this purpose, called the Assessment for Teaching and Learning, referred to as e-asTTle (pronounced "as-til"). E-asTTle Writing was used in a pre-treatment and post-

treatment condition across a control group and a treatment group (TG). In addition to the e-asTTle Writing assessment, student and teacher questionnaires were used to gather self-report data. A mixed methods approach was used to analyse the data collected from the measures. Convergence was found between quantitative and qualitative methods. This convergence supports a claim that the TG improved the quality of their writing in the post-treatment condition.

This study will add to the discourse on metacognition and its application to writing instruction. The intervention has potential for use as a tool for increasing the self-regulation skills of intermediate aged school children.

This thesis is structured in a standard model of reporting: review of the literature, methodological description, reporting of results, discussion of the results with reference to the current literature, and a discussion on the limitation, implications and recommendations from the study. Tables are situated within the text, and additional reference material is provided as Appendices. See the table of contents above for page numbering.

CHAPTER TWO

REVIEW OF LITERATURE

The research question that has been formed is: “What effect does teaching a generic planning strategy have on student writing?” This review of the literature explores how writing and planning are linked. Writing assessment is also explored, specifically to find how writing can be analysed for evidence of planning. Definitions of key terms are offered, followed by a discussion on the literature on writing over the past four decades. A review of recent writing research leads towards the constructs of metacognition and self-regulation, which in turn lead to the understanding that planning is the tool set for gaining metacognitive control. The review also highlights that planning capability is reduced or undeveloped in students with attention deficit hyperactivity disorder (ADHD) and traumatic brain injury (TBI). The chapter closes with a discussion on how teaching planning, and a structured planning strategy, might have an impact on the writing quality of intermediate school students. Writing will become the test of increase in planning, and therefore metacognitive control.

Definition of terms specific to the research question

Sotsky (1990) claims that much of the research into writing instruction has been inhibited by conceptual ambiguity, particularly in the way planning is discussed in the literature on writing. The definitions below are supplied to reduce the ambiguity in the present study.

Writing

There are two broad areas that can be defined: composition and transcription (Juel, 1988). This study will use composition as the term to describe the cognitive and

procedural aspects to writing, while transcription will be used to describe the text production aspects of handwriting, spelling and punctuation. A more detailed definition is adapted from Hacker, Keener and Kircher (2009), who view writing as being a production of thought that involves oneself and/or others and uses goal-directed metacognitive monitoring and control to translate thoughts into an external symbolic representation. The “goal-directed metacognitive monitoring” part of the definition above is the core concern of this study, and will be described more fully.

Planning

To plan is to think ahead. Planning is a cognitive activity that is closely linked with problem solving (Ormerod, Macgregor, Chronicle, Dewald, & Chu, 2013). Others have noted that planning requires a “search ahead” function that allows a person to envisage a desired or potential state prior to when that state appears or is experienced (Kaller et al., 2008). For the purpose of this study, planning will be defined as *the activity of envisaging a goal state and identifying actions or resources that would be needed to achieve that goal state*. Planning is considered to be a cognitive activity. External evidence of planning may or may not be observable in the context of writing.

Teaching

“Teaching is a highly complex activity drawing on repertoires of knowledge, practices, professional attributes and values to facilitate academic, social and cultural learning for akonga (learners) in diverse education settings” (New Zealand Teacher's Council, 2010, p. 9). Teaching involves the effective use of instructional strategies, which induce change in the cognition or behaviour in the learners being taught (Ministry of Education, 2006). Quality teaching requires that a teacher has expert domain knowledge, experience and knowledge of instructional strategies

and deep understanding of the students they are teaching (Eggen & Kauchak, 2007). For the purpose of this study, teaching is the term to describe the delivery of an intervention to a group of students. The intervention used in this present study, and the methods used to “teach” the intervention, are discussed in more detail in the following chapter.

The research question is: “What effect does teaching a generic planning strategy have on student writing?” The definitions above should reduce the ambiguity of some key terms from that question. However, there are some other complex constructs that require further exploration, particularly metacognition and self-regulation.

Definition of related terms

Cognition

Cognitive psychology places cognition as the automatic processes that our minds use to collect, organise and make sense of the information we gather through our senses (Goldstein, 2011). A great deal more can be said about cognition, memory and knowledge, but for the purpose of this study I will take a pragmatic view that cognition is the process of gathering and making sense of information.

Metacognition

Metacognition is often loosely defined as “thinking about thinking”. From a cognitive psychology viewpoint, metacognition relates to how memory is constructed and accessed (Goldstein, 2011; Schneider, 2010), and also to how knowledge is constructed and accessed (Waters & Waters, 2010). Metacognition is the function that allows a person to become aware of their thinking and their knowledge retrieval processes (Zimmerman & Schunk, 2011). Metacognition is also described as complex

cognition (Ardila, 2013) and implies control over the thinking or the processes, as well as the awareness of them (Ardila, 2013; Winne, 2011).

More detailed descriptions of metacognition include both knowledge about cognition and control of cognition (McKeown & Beck, 2009). Research that is specifically focused on metacognition in writing has developed a two-part framework of knowledge and regulation (Harris, Graham, Brindle, & Sandmel, 2009). Knowledge monitoring is also a significant aspect of metacognition (Tobias & Everson, 2009). Knowledge has been placed into three categories: declarative, procedural and conditional. Declarative knowledge is knowledge about what to do (for example, write a recount), procedural knowledge is knowledge about how to do it (how to get ready to write, how to use a dictionary, how to edit the text, how to plan, how to follow a model). The conditional knowledge describes knowing the when, the where and the why of a task (plan when to tackle a task, where to place oneself, why the task is important). Conditional knowledge is the area in which a writer is making decisions about purposes and how best to meet these (Harris et al., 2010). As pointed out by Hacker, Dunlosky, and Graesser (2009), metacognition is about a “self aware agent” (p.1). Metacognition is the set of skills, strategies and processes that enable a student to gain control over their own thinking, memory and knowledge. The literature on how metacognition is applied to writing will be discussed later in the chapter. In the next section, however, we look at what relationship the construct of self-regulation has to metacognition.

Self-regulation

Underpinning this study is the social cognitive theory of behavioural change proposed by Bandura (1989). From this theory come the constructs of agency

(Bandura, 1989, 2001; Hacker, Dunlosky, et al., 2009) and self-regulation (Dweck & Master, 2008; Zimmerman, 1998; Zimmerman & Moylan, 2009; Zimmerman & Risemberg, 1997). The social cognitive theory holds that cognitions, behaviour and environmental feedback are the three domains necessary for describing, predicting and explaining human behavioural change. Self-regulation is a descriptor used to discuss the way in which a student can plan, monitor, reflect on and change their behaviour in response to the feedback they receive. Zimmerman (1998) proposes that self-regulation is a process that cycles through three phases: forethought, performance or volitional control, and self-reflection. Carver and Scheier (2011) offer a broad overview of self-regulation of action and affect. They posit that self-regulation has its roots in feedback control systems. Throughout their discussion is the fundamental concept that self-regulation is effortful. They go on to suggest that a self-regulated action can become a trained response, thus reducing the effort. The dynamic nature of self-regulation is a concept that Zimmerman (1998) discusses as an ever-changing process as a learner moves from task attention to generalisation.

Self-regulation and motivation

In the literature specific to academic learning, self-regulation has recently been framed as the place where metacognition and motivation meet (Zimmerman & Moylan, 2009). Zimmerman and Moylan argue that self-regulation is the mechanism that gives the necessary motivation to a student to carry out a metacognitive task. They point out the metacognitive strategies are necessary, but not sufficient. This linkage has been explored in relation to procrastination, with findings that support the premise that self-regulation aids motivation (Strunk & Steele, 2011). Efklides (2011) developed a model she termed the metacognitive and affective model of self-regulated learning to describe the linkage between motivation and self-regulation. This model supports the linkage

between self-regulation and motivation, and adds to the large body of work that has explored the various constructs of self-efficacy, volition and motivation (see Job, Dweck, & Walton, 2010; Pajares, 2003; Schell et al., 2010; Tobias & Everson, 2009).

By applying a social cognitive model to self-regulated learning, Zimmerman and Moylan have described very similar processes in self-regulation as those described by others looking at self-regulation through a wider lens (Carver & Scheier, 2011; Koole, Dillen, & Sheppes, 2011; Waters & Kunnmann, 2010). There is agreement that self-regulation has the following elements: goals and/or needs; strategies for control of emotion and strategies for control of action; and strategies for assessment of performance or of progress towards the goal. Zimmerman and Moylan offer a three-phase model of forethought, performance and reflection. These phases are cyclic. Essentially, this phased model captures the three domains of influence (cognition, behaviour and environmental feedback) described in the social cognitive model, developed from the theory of behavioural change (Bandura, 1977, 1989, 2001). So we return to the structural understanding that self-regulation is the ability to control metacognitive knowledge.

Research into the teaching of writing

The definitions above and descriptions provide a platform to understanding how metacognition and self-regulation are understood. The next section will discuss research into writing and how writing interacts with self-regulation.

Research into the teaching of writing has undergone three distinct phases in the past half century: a focus on product, a focus on process, and a focus on strategy and metacognition (Hacker, Keener, et al., 2009; Waters & Kunnmann, 2010). These

phases parallel changes in research and theory on memory and metacognition (Schneider, 2010) as well as self-regulation (Zimmerman & Schunk (2011).

Prior to the work of John Hayes and Linda Flower (1981), which focused on the cognitive process of writing, teachers of writing had largely used models of “good writing”, or output . Subsequent to Flower and Hayes’ proposal that the process of writing was an important aspect of learning to write, researchers into the teaching of writing embraced process-driven theory.

The Simple View of Writing (Juel, 1988) condensed writing into the two strands of spelling and ideation. Ideation is defined as the cognitions that are then transcribed using spelling, which in the Simple View includes handwriting, spelling and punctuation. The Simple View has similarities to the definition being used above in that writing includes cognition and includes transcription. The Simple View continues to be used implicitly, for example, “encode (form words accurately and efficiently); create meaning effectively; think critically as a writer” (Ministry of Education, 2003, p. 41). Note the addition in the Ministry of Education document of critical thinking. This added dimension of metacognitive behaviour is the key difference to be found in more recent research into writing.

Sotsky (1990) challenged the assumption that writing is the transcription of thought. She decried the reliance on a process/product dichotomy in the literature on writing and put forward the idea that writing is neither output nor a process, but a record of an interaction between thought and the text. Sotsky further claimed that planning, as discussed in the research on writing, has been ill defined and ambiguous. Rather than seeing planning as a pre-writing activity, Sotsky prefers an interactive model. She states that: "The interaction between thought and written language during the planning process may be the critical activity that determines the coherence of the first draft" (p. 49). This

critique is similar in conclusion to the guidance offered in *Effective Literacy Practice in Years 5 to 8* (Ministry of Education, 2006) that students are to be encouraged to view writing as a dialogue with the text as it is being written.

Researchers such as Stephen Graham and Karen Harris have contributed much to the discussion on the process of writing (Graham & Harris, 2000; Harris, 1986; Harris et al., 2011; Harris & Graham, 2009, 2013; Johnson, Graham, & Harris, 1997). They have developed a technique known as SRSD, an approach to the teaching of writing that focuses on the deliberate use of strategies to manage the writing process. SRSD has been applied specifically to writing and has been found to be a very effective instructional technique (De La Paz, 2009; Graham, 2006).

A potential weakness in SRSD lies in the focus on the individual writer removed from the context in which they write, and potentially removed from the cultural and linguistic resources that are available to the students. Some theorists view that writing (and all learning) is inevitably a communal occupation, and is contextualised by the social norms, the language norms and the socially constructed purposes for communicating (Mercer, 2013; Prior, 2006). If I take writing to be a form of communication, then I can develop this argument to suggest that writing is, at some level, socially constructed. If I return to the initial concern expressed from the NEMP team that year 8 students have become less enthusiastic about writing, perhaps it would be worth looking at how writing is being socially constructed. Maybe it is not surprising that the students in question have become far more interested in email and text messaging, as digital media is becoming the most common forum for social communication. If Mercer's ideas are followed further, it might be reasonable to suggest that any writing must meet some social convention as well as conventions for text production. Research into the effects of using "txt" indicates that children learn to

differentiate the norms for texting versus narrative writing (Wood, Jackson, Hart, Plester, & Wilde, 2011), which can be seen as further evidence that the social norms have a significant impact on the writing goals and therefore on the processes being used.

Still others have described writing as a problem solving process (Berkenkotter, 2000). Berkenkotter's brief discussion on writing as a problem solving exercise has not been strongly followed up in the literature, and was presented as a commentary rather than a theoretical statement or research article. However, there are many elements to her discussion that have subsequently been reflected in other writing. For example, she analyses the barriers to a student's writing and finds that there are motivational barriers and skill barriers. The skill barriers lead to poor planning and execution while the motivational barriers include distractions and lack of interest in either subject or purpose. These skill and motivation areas are deeply explored by other researchers looking at writing from a self-regulation standpoint (Dignath, Buettner, & Langfeldt, 2008; Rieser, Fauth, Decristan, Klieme, & Büttner, 2013; Zimmerman & Moylan, 2009; Zumbrunn & Bruning, 2013). By applying a problem solving view to the writing process, Berkenkotter also offered the opportunity to use a metacognitive tool set to the writing process. For example, identification of audience becomes a part of the defining of a problem, and generating ideas becomes a purposeful problem solving task.

Writing has also been explained in terms of a developmental pathway towards greater control of the knowledge being presented (Bereiter & Scardamalia, 1987). Writing moves from knowledge telling to knowledge transforming as a writer becomes both more familiar with transcription skills and more aware of the ways in which their own knowledge is altered by the act of writing. This move from telling to transforming is considered to be both developmental and the result of greater metacognitive control.

Writing is also described as a creative act that requires the writer to have interaction with the text as it is being written (Ministry of Education, 2006). In this description of writing, the construct of intention is used to capture pre-writing purposes and pre-writing planning. The process is discussed in terms of: intentions, composing, reflecting and presenting. These descriptors match some of the stages described by other researchers into writing instruction, for example, planning, composing, editing/reviewing (Flower & Hayes, 1981; O'Brien-Moran & Soiferman, 2010; Troia & Graham, 2002).

When Hacker, Dunlosky and Graesser (2009) presented the notion that writing is applied metacognition, they were attempting to unify the research into writing. As they point out, there had been few definitions of the writing process. The definition still takes a cognitive view of writing, yet it also allows for the writer to take up different goals or sub-goals and different roles within the writing process. Hacker et al. explore the need to include both the solitary writer alone with their thoughts and the actor (in the sense of taking action) who is constrained by the social constraints of their non-writer role. The role of actor here implies that the writing process is not done completely alone, but is surrounded by the language of the social setting. Hacker et al. also describe the writing process as essentially metacognitive and goal-directed.

The guidance into writing instruction offered to New Zealand teachers has balanced many of these perspectives by placing writing into an instructional model that draws on two key constructs: constructivism and explicit feedback (Ministry of Education, 2006). This model requires teachers to model and demonstrate new skills, to set the instructional objects and present material in a scaffolded way, to provide shared experiences for social support during new learning, and to provide many opportunities to practice with timely feedback. *Effective Literacy Practice in Years 5 to 8* (Ministry of

Education, 2006) also guides teachers towards building metacognitive awareness and promotes self-reflection and critical thinking. This guidance is very much in line with the literature on self-regulated learning, but it is not quite declaring that self-regulation is the key element.

Self-regulation and writing

The literature on self-regulation strategies in writing makes links to the cognitive foundations of self-regulation (Fidalgo Redondo, Torrance, & Robledo Ramon, 2011; McNamara & Magliano, 2009) and of planning and monitoring (Flower & Hayes, 1981). The literature on self-regulation strategies in a larger context points to concepts of self-efficacy, volition, motivation and agency (Bandura, 2001; Benight & Bandura, 2004; Carroll, Gordon, Haynes, & Houghton, 2013; Steca et al., 2013; Zimmerman, 2013), grounded in the social cognitive theory of behaviour change.

One of the alternative views of writing, and of self-regulation, is that people are embedded in the social, cultural and linguistic norms of their particular situation, and are a product of the environment that they have been operating within. This view emphasises the group, the setting, and the context in explaining even the thoughts that are available to the student as resources that are only available because of the context (Ball & Ellis, 2008; Finkel & Fitzsimons, 2011; Ministry of Education, 2006; Prior, 2006). Various other authors refer to the socio-cultural theory of learning as a source of insight into how self-regulation arises (Zimmerman & Schunk 2011). There are clear overlaps in the two theories, particularly in the surmising of how self-regulation develops out of having a form of internal “script” to follow. This script is considered using a language-based explanation (private speech) by the socio-cultural theory, and a cognition/feedback approach by the social cognitive theory. It is this scripted cognition that is of interest as it is fundamental to skills in metacognition (being able to change

the script), self-control (choosing which script to follow), motivation (identifying which script will reduce the load or increase the enjoyment) and ultimately in self-regulation. Socio-cultural theory takes the view that the external scripting (the language resources of family, home, community, stories and traditions, repeated phrases and songs) establishes the dominant internal scripts (termed private speech). In this way, the trajectory of self-regulation begins in the language that a young child is surrounded by.

Strategy instruction in writing

SRSD has become a well-established writing intervention (Graham, 2006; Graham et al., 2012; Harris et al., 2011; Harris & Graham, 2009, 2013; Harris et al., 2010; Little et al., 2010). The essential elements of writing instruction are described as: develop and activate background knowledge; discuss it; model the writing process; enable the students to memorise the strategy being taught; and support and scaffold the strategy until the student shows independent performance (Harris et al., 2011). These steps draw on the various parts of the cognitive writing-as-process model proposed by Flower and Hayes (1981), specifically: long-term memory (background knowledge); planning (discuss it); model, use strategies (organise, identify rhetorical problem); and scaffold (supply and external monitor). In addition to the process model, which takes a linear approach to a writing activity, SRSD draws on instructional models for the preparation of learning, and the practice of new learning. As noted earlier, the Ministry of Education guidelines for literacy instruction are well balanced and useful, and with the addition of SRSD, they would be describing the very model that Graham and Harris have been formulating.

Self-regulated strategy development utilises a core instructional approach that scaffolds a learner from having no knowledge through to having a way to both have new knowledge and have control over the use of that new knowledge.

Spelling and transcription – the mechanical skills

Temple, Nathan, and Temple (2013) give a thorough exploration of the origins, development and early learning of handwriting and spelling. Their book *Beginnings of Writing* is an accessible discussion of the theory and research into early writing, and some implications for quality instruction. Two statements about transcription (handwriting and spelling) are relevant to this present study. The first is about the learning of letters. “Children will spend that better part of two years learning to read and write those letters ... and they will have intimate relations with those letters for the rest of their lives” (p. 3). The second relevant statement, about the learning of spelling morphology, is: “Some of the explanation lies in patterns, and when the patterns aren’t followed, you rely on stories” (p. 3). Temple et al. make a convincing case that the teaching of spelling could be more effective for young children if teachers had a sound knowledge of the etymology and morphology of English spelling patterns. Formation of letters and the placement of letters to create words are behaviours that are fundamental to writing. They need to become mechanical for writing to develop (Graham & Harris, 2000).

Planning

Planning will be explored more deeply in this section. Planning is framed as the suite of processes that enable metacognitive skills to be mobilised towards a goal.

I have defined planning as *the activity of envisaging a goal state and identifying actions or resources that would be needed to achieve that goal state*. Inquiry into planning has connected a number of dimensions and disciplines. The smallest element of planning is the notion of anticipating future need. Even this small aspect is considerable in its philosophical and ontological implications. For example, need can be

viewed as an urgent, vital, immediate requirement (I need oxygen), or a social expectation (I need to feel like I belong). Anticipation implies both temporal considerations (future, time, present, before and after), and imaginative considerations (forming a mental image of a future that is not immediately occurring and for which there is no external stimulus). Much of the literature locates planning as a component of problem solving (Eskin, 2013; Krpan, Stuss, & Anderson, 2011; Ormerod, 2005; Ormerod et al., 2013). Solving a problem assumes there is a problem, and assumes a future in which the problem might be solved. For the purpose of this study, however, “problem” will be located as a “yet to be achieved goal state” and therefore one component of the planning process.

Planning with the use of look-ahead (Ormerod et al., 2013) involves being able to use mental imagery to “see” a number of steps ahead. As many of the experiments that have explored planning by using the Tower of London, this “look-ahead” construct has been an effective measure for quantifying planning capability variants (Grafman, Spector, & Rattermann, 2005). This narrow measure of planning, which is heavily reliant on visual imagery function, is not necessarily a useful tool for describing planning in a wider sense. However, attempts to use a more real world measure have been inefficient and difficult to quantify (Baker-Sennett et al., 1993; Fabricius, 1988). The most recent attempt at a resolution to the narrow measures gained from the to look-ahead approach, and the inefficient methods of real world observation of people is a computer programme called Plan-A-Day (PLAND) (Holt et al., 2011). PLAND is similar in principle to the real world scenarios used by earlier researchers attempting to find this balance (Burgess et al., 2005). One of the important points made by Holt et al. is that planning in the real world is strongly influenced by preferences held by the planner.

“Cognitive control processes, often referred to as executive functions, include a suite of abilities enabling successful planning and enactment of goal-oriented behaviour” (Albert & Steinberg, 2011, p. 1501). Planning is associated with executive function, and dysfunction in planning has been associated with various disorders such as obsessive-compulsive disorder (OCD) (Huysen, Veltman, Wolters, de Haan, & Boer, 2010), emotional dis-regulation (Sheppes & Levin, 2013), ADHD (Barkley, 2010) and schizophrenia (Holt et al., 2011). Planning dysfunction has also been identified in people who have sustained damage to the pre-frontal cortex as a TBI (Goldstein, 2011). From the list above, it is clear that planning requires a level of cognitive functioning, of emotional regulation and of behavioural control to be successful. Further, planning is not considered to be a single cognitive function, but instead is a process that recruits many functions (Burgess et al., 2005).

Not only is planning associated with executive functioning, but also a lower capacity to plan is associated with TBI (Krpan, Stuss, & Anderson, 2011), which seems to affect a person’s ability to plan by replacing the planning behaviour with avoidant behaviour. The relationship between avoidant behaviour and planning appears to be linked through a person’s response to anxiety. Adults who have suffered a TBI show a weakness in planning skills, and tend to engage in avoidance behaviours as a way of coping with pressure (Krpan et al., 2011). Children who have suffered a TBI, and who show signs of poor executive function control, are a group who are not well understood. However, a small number of case studies indicate that there are interventions which will help develop planning skills in this population as well (Catroppa & Anderson, 2006). Catroppa and Anderson offered recommendations that further study be done into the effects of direct instruction of strategy development for increasing executive functioning.

Development of planning in young children

Ardila (2013) found that the ability to plan using goal-directed action is a developmental one and is evident from around age three years. Planning has also been observed in children as young as two years old (Bauer, Schwade, Wewerka, & Delaney, 1999; Fabricius, 1988), using physical obstacles to a physically present goal. Bauer et al. found that making the goal state clear was more effective in encouraging the children to plan than making the path (or steps) to be taken clearer. Goal-directed action is a part of the definition of writing offered by Hacker et al. (2009).

The developmental view of planning ability is followed in studies of older children and young adults. It seems that the aspects of planning that require impulse control continue to develop past age 18 years, whereas the aspects of planning that rely on working memory develop through the ages 10 to 17 years (Albert & Steinberg, 2011).

Planning as a social function

Planning by a group allows the participants to access a wide range of cultural and social resources to create plans together, and at times planning is socially mediated (Baker-Sennett, Matusov, & Rogoff, 1993). There is some support from Vassallo (2013) for the idea that all planning, and all executive control, is socially mediated, a finding supported by literature on emotional regulation within collaborative social settings (Jarvenoja & Jarvela, 2009). Socially located planning of writing is proposed as evidenced practice in the form of shared writing or modelling (Ministry of Education, 2006). Having a model to observe and emulate could be viewed as a part of clarifying the end state, which is an effective way to improve planned behaviour (Bauer, Schwade, Wewerka, & Delaney, 1999).

Planning draws on a range of abilities including visual imagery, goal setting, metacognition and monitoring progress towards a goal. Planning is the suite of processes and skills that are used to take a purpose and make it into an action. Planning begins when a goal state is identified and ends when the goal has been reached, as it is reiterative and recursive until the purpose is met or the goal is achieved. Planning, for the purpose of this study and in relation to writing, is then defined as *the act of envisaging a goal state and identifying actions or resources that would be needed to achieve that goal state.*

Instruction into planning

Planning is not explicitly mentioned in the New Zealand Curriculum key competencies (Ministry of Education, 2007), although could be seen as implicit in the stated competencies of thinking, managing self, and participating and contributing. There is also implicit links made to planning in the terms “making decisions” (p. 12). Planning is not explicitly stated as an area of learning, nor is it mentioned as a framework for learning. In *Effective Literacy Practice for Years 5 to 8* (Ministry of Education, 2006), planning is not explicitly stated as a skill that needs direct instruction. Once again, planning can be found implicitly in some instructional strategies, for example, “develop the ability to apply their learning and transfer it to new contexts” (p. 79), “be deliberate” (p. 80) and use feedback to “guide future learning” (p. 86). However, there is explicit mention made of the requirement of a teacher to plan.

This review has found many articles that test planning skills and the development of these skills (Grafman, Spector, & Rattermann, 2005; Kofman, Larson, & Mostofsky, 2008; Ormerod, 2005; Pennequin, Sorel, & Fontaine, 2010). However, few articles have been found that have explored the teaching of planning skills. As

Catroppa and Anderson (2006) point out, few interventions that use direct instruction of planning have been studied.

Planning and writing

"Forming intentions means planning carefully in order to create an effective text that has clarity and impact. Teachers need to provide focused instruction on how to identify purposes and audience for writing, how to choose a text form that aligns to the purpose for writing, and how to gather, select, and organise ideas and information for writing"
(Ministry of Education, 2006, p. 154).

The description above of what constitutes "forming intentions" has many elements that are pertinent to this study's understanding of planning. It places purpose into the pre-writing planning stage, along with decisions about genre and organisation. It also states that effective text has clarity and impact, two difficult to define descriptors. The quote above also defines forming intentions as synonymous with planning. For this study, however, planning is prompted by the intention (purpose) but is not synonymous with intention. The model that is being proposed is that purpose drives the decisions about genre and content, and planning provides the structural process components that those decisions are placed onto.

Some clarity is found through the e-asTTle Writing marking rubrics. For example, the element termed "organisation" lists a skill focus as "the organisation of ideas into a coherent text", followed by:

"(Coherence): the way ideas are linked to each other and to the broader context of the writing and/or the wider world, to produce a text that is meaningful to the reader. When the text is coherent, the relationships between ideas are clear and the writing 'flows'. When assessing a text's coherence, look for clear connectives, consistency of

verb tense, and accuracy of referring words (e.g. pronouns) across the text as a whole"
(Ministry of Education, 2013, p. 3).

If the purpose of a text is to recount an event, then the planning will involve decisions about what event could be used in order to meet the criteria of a recount. Organisation, as described in the e-asTTle Writing marking rubric, would see evidence of the decision making that happened in the planning process. The evidence would include linking between ideas, paragraphs or events that allow the reader to understand the order of events, and verb tense that allows a reader to understand the time of the event as being in the past. These features of writing fall into the structure and language element.

Conclusions drawn from the review of literature

Planning has been discussed as a metacognitive skill that is induced by a purpose or need, and applied using procedural and declarative knowledge as a self-regulating process. Planning is seen as having significant overlap with the construct of conditional knowledge in that this knowledge drives the “where, when, and why” decisions prior to taking action (Harris et al., 2010). While planning itself is a metacognitive skill that describes the goal, the process of achieving the goal and the resources needed to move toward the goal, self-regulation is needed to both guide and monitor the progress towards the goal. Self-regulation is also recognised as being the mechanism to increase motivation and affect control through providing greater control of procedural knowledge.

SRSD has a strong theoretical base and continues to be supported and explored by researchers in writing instruction (Brunstein & Glaser, 2011; Graham et al., 2012; Hauth, 2013; Winne, 2014; Zumbrunn & Bruning, 2013). The strategy development

aspect to the SRSD construct is very much focused on specific strategies for each genre or purpose (Harris & Graham, 2009; Hauth, 2013). This is a reasonable instructional approach to take, and allows for the development of a writing instruction programme by using different genre as a guide for progression and development. What is missing, however, is a structure that allows students to regulate their learning in a more general way around writing. There are glimpses of a general structure offered in the frameworks that are used throughout *Effective Literacy Practice in Years 5 to 8* (Ministry of Education, 2006), for example, moving students from a shared, to guided, to independent learning experience. This framework is still very much placed onto the teacher to be responsible for the students, rather than being an instructional model that is given to students to then apply to their own learning.

There appears to be a possible avenue for exploration in the area of supplying students with a framework into which they can place the specific strategies for each genre or each new experience they have. The term “generic planning strategy” has been coined to fit this construct. Teaching a generic planning strategy to 11-year-olds has merit as a study because 11-year-olds are generally ready to begin the move from simple knowledge telling to knowledge transforming (Bereiter & Scardamalia, 1987; de Milliano, van Gelderen, & Slegers, 2012). They have also, generally, gained sufficient transcription skills to have significantly reduced the cognitive load on them as they write (Temple et al., 2013). In other words, 11-year-old students will generally have sufficient declarative and procedural knowledge to then be able to gain value from being taught a conditional knowledge strategy.

As a conditional knowledge strategy will target the where, when and why questions, instruction in such a strategy will need to provide access to self-regulatory strategies to match. Such a strategy would make use of cognitive strategies of self-

reinforcement, resource identification (both tangible and linguistic) and goal orientation. These strategic themes are sufficiently justified in the literature on both writing and planning (Ardila, 2013; Graham et al., 2012; Haberkorn, Lockl, Pohl, Ebert, & Weinert, 2014; Negretti, 2012; O'Brien-Moran & Soiferman, 2010).

A hierarchy is being proposed for this study: purpose generates the need for planning, which includes identification of and preparation of resources, an identification of strategies and a clarification of the end goal. Without purpose, planning becomes less focused on the end goal and may become more reliant on processes or strategies. A writer finds it more difficult to know when they are finished if the purpose is unclear. However, a writer who has practised using a variety of strategies for writing, such as those SRSD strategies proposed by Harris and Graham (2009), is able to generate more cohesive and proficient text. Supplying students with a generic planning strategy should provide them with a self-regulated framework into which to place the specific genre strategies they already have available to them.

This review of the literature has explored how writing and planning are linked. Definitions of key terms are offered, followed by a discussion on the literature on writing over the past four decades. This wider view of writing research leads towards constructs of metacognition, specifically a hierarchy of strategies in declarative, procedural and conditional knowledge control, and in self-regulation. The chapter closes with a discussion on the possible intervention types or structures that could be applied. The main findings of the review are that planning is a metacognitive skill that fits in a hierarchy below purposes and goals, and above self-regulation. Planning is what describes the goal in terms of actions, strategies and resources, where self-regulation monitors progress towards the goal. SRSD has been shown to increase the speed at

which students improve their writing skills. This study will test the theory that teaching a generic planning strategy will improve the writing skills of intermediate age students.

CHAPTER THREE

METHODS

A review of the relevant literature indicates that there are limited studies on the use of direct instruction of generic planning strategy. This study is therefore framed to test the use of a generic planning strategy. The study will use writing as the dependent variable, or the variable that will be affected. As writing is considered to be applied metacognition, instruction in a planning strategy seems likely to reveal an effect on writing. This chapter describes the questions that were formulated and used to guide the study. The central portion of the chapter details the methods used to identify participants, administer measures and gather data. The final part of the chapter describes the intervention in detail.

Aims

The aim of this study was to explore the effect on students' writing when they are taught a generic planning strategy. Subsumed in that aim are the goals of: testing a particular intervention for effectiveness as a metacognitive tool; and testing the hypothesis that writing quality can be affected through the teaching of planning strategies that are not directly linked to writing.

Research question

To achieve the aim of exploring the relationship between writing and planning, the following question was posed: "What effect does teaching a generic planning strategy have on student writing?"

There are a number of assumptions behind this question:

- It is possible to teach planning to children
- Teaching planning is effective in altering self-regulation behaviours in children
- Change in self-regulating behaviours of students can be identified through analysis of their writing.

Overview of administrative procedures

The following section describes the steps taken to obtain access to students for the study including identification and recruitment of a school, teachers and students. They also include a discussion on some of the ethics involved in the administration of this study.

Recruitment of school

The researcher approached three intermediate schools (schools serving year 7 and 8 students who are generally aged 11 to 13 years) in a provincial city and small provincial town in New Zealand. One of the schools indicated an interest in participating in the research, as they were already involved in a professional development programme targeting literacy. In November 2013, the researcher gained agreement from the school principal to consider the possibility of participating. In March 2014, the researcher met with the school principal and a senior staff member who had a designated role of “literacy leader”. The meeting resulted in the school confirming its interest, and agreeing to begin forward planning about how it could participate. In April, when the study was given consent to proceed from the Massey University Human Ethics Committee (MUHEC), further plans were negotiated.

Recruitment of teachers

Information about the study was supplied to the literacy leader, who told the staff about the study at a staff meeting. Staff were then invited to talk with the literacy leader about participating, if they were interested. As a result of this information sharing, and subsequent conversations between the various staff members, two teachers agreed to participate in the study. I then met with the two teachers and we discussed the expected commitments, timeframes and options. They agreed on which roles they would play, as either TG or control group.

Recruitment of participants

The school uses a system of grouping whereby the class is in one “home” room for most of the instruction, and in particular for core curriculum areas of literacy and mathematics, and the research sought to cause minimal disruption to normal scheduling of classes. Once the selection of teachers had been made, the students were recruited from the class groups that these teachers had responsibility for.

Participants

A convenience sample was chosen. The students were in naturally occurring groupings of classes. This grouping was carried out by the school. Two classes with a similar demographic were chosen to provide a TG and control group.

A total of 12 of the 24 students in the treatment class returned consents to participate. Of the control group class, 22 of 25 returned consents to participate. The consenting students were allocated ID numbers on return of the consent form. The remaining students did not consent to have their data collected. All students in the treatment class were expected by the school to participate in the intervention. This was made clear by the principal, and agreed to by the MUHEC. The study was examined and approved by the MUHEC and designated number 14/8.

Design

Design refers to the model used to collect and analyse data. The research question has placed writing as a dependent variable. I anticipated a change would be found in the writing produced by the students. The data collected from the participants was in the form of writing samples and questionnaires. Both these data sources were able to be analysed with statistical methods as quantitative data, and analysed with qualitative methods as text. A mixed methods sequential design was identified as the best way to answer the research question (Creswell, 2003). A further instrument, a brief questionnaire, was used to collect data from the teachers. This questionnaire was also available for qualitative analysis.

Creswell (2003) points out that knowledge is never without assumptions. In this case two differing approaches have been used to test the research question: a constructivist approach that assumes that knowledge enables people to make sense of their world through negotiated and “constructed” realities; and a positivist approach that assumes that knowledge is an objective reality that can be tested as true. Both these approaches have value to this study. The e-e-asTTle Writing tool is an attempt at finding real knowledge about the students by measuring their writing against a verified test. The qualitative analysis of the written texts seeks to understand more about the metacognitive and self-regulatory processes of the students by analysis of their texts.

Taking a qualitative approach to data that has been collected for another purpose, in this case an empirical test, presents challenges. Other research designs might approach students and their writing activity with an open view, eg in an ethnographic approach (Bishop, 1999). This present study is attempting to reduce

the interactions between the students and the researcher to just the presentation of an intervention so that the focus of the study is the intervention. This design sits uncomfortably with recent work in formative assessment that places assessment firmly into the role of impacting learning, in a interactive and iterative partnership between teacher and student (Wyatt-Smith & Klenowski, 2013). The formative assessment process is aimed at improving learning. One of the limitations of this research design is the limited capacity for partnership to be formed with the students, and therefore there is limited capacity for *teaching* to happen as a reiterative interaction. However, one of the strengths of the design is in the pre-test/post-test controlled experimental design, which provides the possibility that the results may be valid in them.

Ethical considerations

The first ethical consideration was the treatment of the control group. Through negotiation with the school it was agreed that the school would be offered the option that the control group would have access to the same teaching as the intervention group. In this way, the control group were not disadvantaged by being in that group, if the intervention proved to be effective. They are referred to herein as the waitlist group (or WG).

The second ethical concern was the way in which teachers were recruited. It was clear that there would be extra workload for the teachers as they were to be the markers and moderators of the writing samples. The teachers would also be expected to alter their programme for the duration of the intervention and be available for interview. I was very careful to ensure staff were not forced to participate. Specifically: the principal was encouraged to be open in inviting any staff to participate, the literacy leader was

encouraged to brief staff in full, and the I ensured that the staff who volunteered were given the opportunity to withdraw from the study. The principal was the first contact person at the school. He introduced me to the literacy leader as the ongoing contact person for the school. It was agreed that all contact with the school prior to the start of the intervention would be made through the literacy leader rather than directly to the teachers.

Also considered was the relationship between researcher and students. I negotiated that the classroom teacher would be present in the class at all times. This arrangement kept continuity of relationship between the class and their teacher. The teacher was willing to participate in the intervention sessions by reminding the students of material she had already taught, particularly any writing strategies. The teacher also agreed to be actively involved in each session as a resource for any students who were struggling with the material or were in some other way distracted from the lesson. This arrangement also allowed me to enter into a short-term relationship with the class as a visiting tutor. This description was chosen as one that the students would very likely understand.

Theoretical framework

The theory of behavioural change and social cognitive theory of learning proposed by Bandura (Bandura, 1977, 1989) is the most relevant theory to use as the basis for this study. As seen in the literature review, there is room in this theory for measuring behavioural change, for inferring cognitive change, and assuming that environmental factors can be manipulated to effect change in both cognition and behaviour.

Role of the researcher

The ideal experimental study is one in which the researcher is a detached observer (Fraenkel & Wallen, 2009). In this present study, however, the researcher is also the person implementing the intervention. As a result, in the role of tutor I altered the intervention as the context changed and the participants revealed more of their metacognitive preferences and tendencies.

Measures

asTTle and e-asTTle

The Assessment for Teaching and Learning Tool (Ministry of Education, 2012b) is a suite of tools designed to assess a student's achievement against a progression-based model of learning. The suite includes measures for mathematics, reading and writing. The word "e-asTTle" is used to describe the addition of an online tool for accessing resources, preparing assessment materials, marking and analysis of each of the curriculum area assessments (Ministry of Education, 2012b).

E-asTTle Writing has four parts and is offered as an online tool. The four parts are:

1. A set of writing prompts. The prompts are statements or questions that encourage the students to write about a particular topic and genre.
2. A rubric of descriptors to support the marking and grading of the writing samples.
3. A table of score conversions for statistical description of the scores.
4. An individualised reporting system.

A technical manual, exemplars and further marking rubrics with comments specific to the genre of the prompt are also available as support materials.

The process of assessing and reporting on a piece of writing using e-asTTle begins with the e-asTTle website: www.e-e-asTTle.tki.org.nz. A user ID and password is required to proceed. Schools in New Zealand are given access as part of the Ministry of Education's package of curriculum support materials. Once the teacher has logged into the site, there is a relatively straightforward process to produce the necessary test materials. A series of steps guides the teacher through choosing a genre, and a prompt.

The prompts

E-asTTle includes 21 prompts that are organised by genre and difficulty, allowing for a teacher to choose two similar genre prompts at differing difficulty levels to make comparisons between start of year and end of year skill in that genre. The prompt genres that are available are: describe, recount, explain, persuade and narrate.

The elements

The marking rubrics provided are specific to the element being assessed. These seven elements are: ideas (I), structure and language (SL), organisation (O), vocabulary (V), sentence structure (SS), punctuation (P) and spelling (S). Each element is described using a rubric identifying lower order (or novice) writing examples, and likely responses, through to a more mature or expert response or example. The elements are marked R1 through R6 for ideas, structure and language, vocabulary and sentence structure, and R1 through R7 for organisation and spelling. Across all elements there is a lowest score of 7 and a highest score of 44. The *e-asTTle Writing: The Technical Report* (Ministry of Education, 2012) gives full detail of how these raw scores are processed to get the graded scores.

Selection of prompts and considerations for this study

For the purpose of this study, the prompt genre of recount was chosen. The choice was made for two reasons. First, for the purpose of test/retest variable control, the two very similar prompts, “Whānau and Family Time” and “Time with Friends”, were chosen. Time with Friends is a slightly more difficult prompt. No other genre prompts offered two such closely related topics. Secondly, the genre of recount and the topic of time with family and friends gave the greatest likelihood that all the students had topic or content-related knowledge that was easily accessible.

This choice to use two different prompts has complicated the experimental nature of the design. The decision to use the two prompts was informed by the needs of the school to have the assessments as a natural part of their reporting process.

Reliability and validity of the e-asTTle Writing instrument

The e-asTTle Manual (Ministry of Education, 2012b) discusses reliability across four areas: inter-marker reliability, internal consistency, parallel form reliability and reliability of model parameters. Of most interest for this study is the area of inter-marker reliability, as it is an indicator of the reliability of the writing prompts and rubric. The prompt used for sample one, or the pre-treatment sample, was Whānau and Family Time. This prompt is reported to have had markers give an exact matching score 55% of the time, and to have been within one rubric score 94% of the time. The inter-marker reliability scores for the post-treatment prompt, Time with Friends, was 53% exact match and 94% within one rubric score. This implies that the teachers marking the writing samples are likely to have given a mark within one rubric score of each other for any given sample. One key assumption that the manual explicates is that these inter-marker reliability scores are reliant on the markers using extensive reference to the rubrics and exemplars for guidance.

The other reliability factors are not reported here. They are pertinent to the way in which e-asTTle's online marking system and grading system treat the raw data to produce the e-asTTle Writing scores (aWs) and New Zealand Curriculum level.

Validity for e-asTTle Writing lies in its application as a measure for assessment against national norms, national curriculum levels and age norms. To meet statistical validity for these purposes the online tool, e-asTTle, is available to process marker-generated raw scores into aWs. These scores have been developed to normalise the e-asTTle Writing raw score data into a progression that has a good fit to observed maturation and development across year groups (Ministry of Education, 2012b). Teachers using e-asTTle Writing are encouraged to make use of the online tool for that very purpose.

In this study, however, the raw scores taken from the markers will be used in all the analysis rather than the derived aWs. At one point, the aWs will be used to compare the participants against national norms. This step is taken purely to compare the sample with population norms as an aside from the main research focus of identifying change in scores after an intervention.

Discussion on the use of e-asTTle

E-asTTle is one of a number of possible ways to grade the writing samples of students (Westby and Clauser, 2009). E-asTTle has utility for this study as it: is being used by the school that has agreed to participate; is a New Zealand Ministry of Education developed and proffered programme that is easily accessible to a school in New Zealand (e-e-asTTle.tki.org.nz/e-e-asTTle-writing); has acceptable levels of validity and reliability in its quantification properties; and has a built-in mechanism for managing the variation in teacher marking tendencies (Ministry of Education, 2012b).

The e-asTTle Writing suite has been developed by the New Zealand Council of Educational Research (NZCER). The NZCER found that the e-asTTle tool has sufficient reliability and validity to be used as the main nationally sanctioned assessment of writing in New Zealand.

The questionnaire

The researcher adapted the attitude rating scales available from the e-asTTle Writing online tool. The e-asTTle Writing attitude rating scales used a variety of questions to encourage students to self-report their attitudes. However, no one pre-designed rating scale questionnaire gave the variety of information on preferences for working alone or in a group, attitude towards writing, and self-evaluation of problem solving skills. As a result, the researcher designed a questionnaire with two parts (Appendix B) using adaptation from the e-asTTle Writing Attitude Domains and additional questions. The first part of the questionnaire used a five-point rating scale to capture a response to 10 self-report statements. The rating used a 1 (not true at all) to 5 (always true) scale. Question 3 “I get frustrated with my school work” was included as a reversal, and Questions 6 and 9 are opposing views. This design has been chosen to minimise the effect of response bias. Table 1 shows the items numbers, statements and domains that each question is exploring. The items were adapted from rating scales available from the e-asTTle Writing online tool.

The comments section of the questionnaire asked students to: “Write down some ways that you know can help you do your writing better”. As much of the literature in SRSD shows a link between quality of student writing and self-regulated strategy use, it seemed likely that the students most able to describe or name the strategies they knew or use would be the students who had the best quality writing.

Table 1

Questionnaire Rating Scale (QRS) items

Item	Statement	Domain
1	I am good at writing	Self-concept
2	I know how I will solve problems in my writing	Strategy use
3	I get frustrated with my school work	Self-awareness
4	I listen to the instructions	Strategy use
5	I ask for help if I am stuck	Strategy use
6	I like to sit by myself	Self-regulation
7	I use strategies to get my work done	Strategy use
8	I know how to use my time well	Strategy use
9	I work best in a group	Self-awareness
10	I like solving problems	Self-concept

The teacher questionnaire

A questionnaire was designed to capture perceptions of the teachers (Appendix C). The questionnaire is simply four questions asking the teachers to consider the strategies and skills they have already taught to their students.

Setting

The school classroom where the intervention was administered was typical of many New Zealand senior primary school classrooms, in that a sole teacher makes use of the space to carry out teaching and learning activity with the class of students. The

classroom had evidence of prior learning on the walls as displays to refer to. Some of these displays were related to writing, specifically to language features and parts of speech (nouns, verbs, similes, metaphor etc).

The intervention

Choosing an intervention

The research question that has developed through a review of the literature is: “What effect does teaching a generic planning strategy have on student writing?” This question led to the need to find a classroom-based intervention that could test the idea that planning strategies could incorporate many aspects of writing that were proposed by Harris et al. (2011). To be a conditional knowledge level intervention it would need to target: purpose identification, goal setting, self-instructions, self-reinforcement, self-monitoring and self-evaluation. Ideally the intervention would form a structure into which multiple strategies could be taught and placed.

A search of intervention models in the literature on planning, cognitive behavioural therapy, strategy development and children revealed few such interventions. However, a programme to increase children’s resilience was discovered. The FRIENDS for Life Programme (Barrett, 1998, 2010a; Dadds, Barrett, Rapee, & Ryan, 1996) uses a set of strategies that draw on all of the recommended components that Harris et al. (2011) identified.

The FRIENDS for Life Programme and The Coping Step Plan

The FRIENDS for Life programme (Barrett, 2010a; Henefer & Rodgers, 2013) is so named for the cognitive behavioural therapy process that is used throughout the programme: Feelings, Relaxation, I can, Explore other options, Now reward yourself, and Don’t forget to practice. It is the combined effect of the physiological (Feelings and

Relaxation), Cognitive (Strategic Cognitions, Planning and Problem Solving), Reinforcements (Reward yourself) and Mastery (Don't forget to practice) that appear to generate an effective programme. The Planning and Problem Solving module of the programme uses a planning system that combines many of these components. It is this system, called The Coping Step Plan, which has been used as a model to develop a planning intervention.

Barrett (2010b) prescribes using helpful self-talk, self-reward, problem solving, exposure and experiential learning as strategies and instructional techniques. In the *Group Leader's Manual*, Barrett recommends spending two sessions on The Coping Step Plan module, each of approximately one-and-a-half hours. This is noted as being a significantly shorter quantity of intervention time than that found by Harris et al. (2010) to be effective. Harris et al. recommended that a minimum of 6.3 hours of instruction over 10 weeks be offered in order to be effective. This discrepancy was resolved through the decision to use Barrett's recommendation. The solution was to provide three sessions of one-and-a-half hours. Unfortunately, the way in which the school programme was organised impacted on the availability of the TG, and each session was reduced to just one hour per session.

Procedures and sequence

Initial meeting with teachers and literacy leader

A meeting was held involving the literacy leader, both teachers and the researcher. At this meeting final decisions were made about session times, how the e-asTTle Writing samples would be collected, what other data would be collected, and how consents would be collected. At this meeting the literacy leader provided access to

the e-asTTle Writing online tool and generated the prompts for printing. The teacher questionnaires were handed to the two teachers, and a copy of the student questionnaire was given to each teacher. They were also supplied with copies of the consent forms and parent information forms (Appendices E, F, G)

Agreement was also made that the teachers would administer the e-asTTle Writing sample collection, and ask the students to fill in the questionnaire at the same time. It was also agreed that the teachers would keep the writing samples and questionnaires from students who had not consented, and pass onto the researcher the data from the students who had consented.

Writing sample

The e-asTTle Writing administration guide was followed by the teachers. The protocols included: reading out the instructions, ensuring that the students do not have access to dictionaries or other writing aides, and that the students do not share any information between them. Figure 1 is an excerpt from the instructions given to the students.

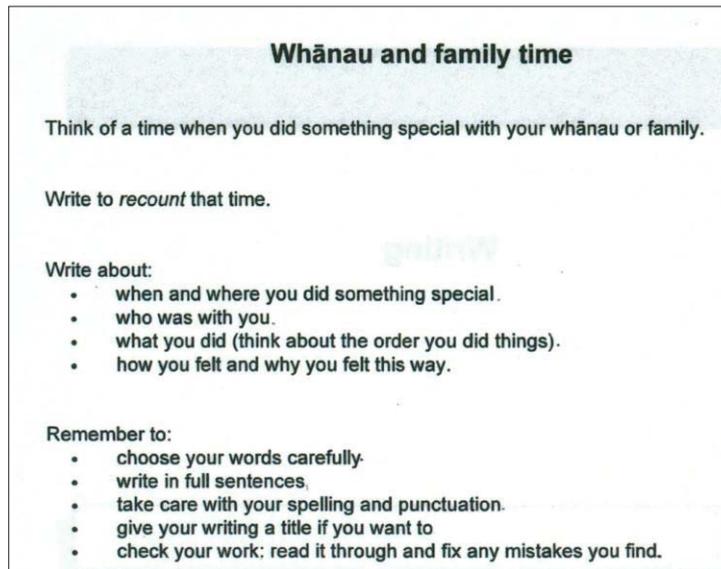


Figure 1. Image of instructions generated by the e-asTTle Writing online software that students are given

Intervention processes and administration

Session 1 was scheduled to happen between 10.30 am and 11.30 am on Wednesday 28 May 2014, Session 2 a week later on 4 June, and the final session on 11 June. The classroom teacher remained in the class as a facilitator and had overall responsibility for the class.

A number of events and interruptions to the schedule had the effect that the total time of implementation for the intervention was further reduced to just 2.5 hours.

Session times and arrangements

Session 1

Wednesday 28 May, 10.30 – 11.30 am

Session 1 had two overall aims: presenting to the students that planning is a widespread and useful human activity; and introducing the group to the planning template title MyPlan (Appendix H).

By using an iPad and the projector, the students were shown the results of a search for “planning” using the Google search engine. Approximately 340,000,000 references were found by that means. A second search for “planning templates” returned 50,100,000 references. The group agreed that planning must be a fairly important idea if so much is written about it. A look at the images associated with the references for “planning template” revealed that there were many ways in which planning was organised, from weekly planning calendars to sophisticated pieces of software for planning large projects.

A short discussion about what kinds of events the students might plan returned examples like birthday party, camping trip, and having a friend over to stay the night.

A copy of the MyPlan template was handed out to each student. They were given the three events above to choose from and to record the “goal” for the plan. They were challenged to put in some steps that might be taken to reach that goal, ie to carry out the planned activity of birthday party, camping trip or overnight stay.

Session 2

Wednesday 4 June, 9.07 – 9.50 am

The students were reminded of the work done the previous session. They were asked to retrieve the copy of the MyPlan template they had stored in their desks. All students present successfully did this.

A discussion was held about how a camping trip might be planned. The iPad and projector were used to show the template and to write directly onto it to model the use of the template. The researcher checked with the group in a general way if there were any students who did not understand the MyPlan template. There were some students who showed they were uncertain. The researcher gave some more explanation and

another demonstration using the camping trip idea. Once it seemed to the researcher that most of the class understood how the template worked, the class was split into groups of six. One person was responsible for each of the columns in the template, with one group member having the task of recording the decisions. The students were handed out “role” cards (see Appendix H for MyPlan resources). The groups were given some space, a large piece of paper and coloured markers to write out plans for a camping trip, as this had been modelled by the researcher.

Unfortunately, the process of splitting the groups and of explaining the roles took far longer than anticipated (12 minutes). As the session both started late and finished early this activity was cut short and the groups barely progressed past discussions about where and when they would want to have a camp. Of note was one student (ID 820) who was determined to not work with a group. He was able to describe and write in more detail the plans he would make than any of the other groups. One of the design decisions made for this session was to increase the use of group interaction and peer support. This incident indicated that a group interaction was not the most effective method for all of the students.

The session ended with the researcher presenting each group’s work (instead of the planned presentation by each group) and a quick recap of the use of the planning template.

Session 3

Wednesday 11 June, 10.30 – 11.30 am

The session began with showing the large pieces of paper with their previous plans on them.

A discussion was held about preferences. The students were asked: “Would you prefer to solve a problem or set a goal?” Students were given multiple examples of goals and problems and asked to choose which they preferred to deal with. Some students recognised that their preference would alter depending on the context, and others spotted that even a goal would lead to problems to solve. The discussion ended with an agreement that it did not matter whether the starting point was a goal or a problem, because a plan would be needed either way.

Students were asked if there was any aspect of the school work that they thought that planning could be used for. One student’s immediate response was “writing”. The researcher picked up on this and said, “Right, let’s have a look at how we could use the template to plan some writing”.

Each student was given a copy of the template and asked to put “Write a story” in the goal section. A brief discussion was held about whether writing a story is a goal or a problem. Many students were able to declare their preferences. Once again, preferences for each viewpoint were acknowledged.

Column 1, Steps, was looked at. “What is the first step to writing?” Various answers were returned and the researcher guided the class towards “Negotiating what the purpose is” or “Finding out what you need to do”. Column 2, Thoughts that help, was looked at. Discussion covered ideas like “I am good at remembering” and “I can ask for help with spelling”. The column, People Who Help, was covered very quickly as “teacher” and “friends”.

The Powerful Strategies column required much more discussion. The teacher was invited to describe strategies that she had already taught the class for spelling, for proofreading and for planning a story. The class, according to the teacher, had already

been introduced to using a mind-map and a list of events as a strategy for planning a story. She pointed to the “Parts of Speech” wall display and reminded the students that they had been looking at the recount genre earlier in the year.

The Rewards that Help column presented the greatest difficulty for the class, the teacher and the researcher. The researcher had in mind that the student’s might find reading their writing to another student, or having their writing displayed, rewarding. These ideas were not responded to with enthusiasm. This is one area that needs a great deal more thought about how to make it operational in this setting.

Post-intervention processes and administration

As with the pre-intervention writing sample, the literacy leader produced a writing prompt from the e-asTTle Writing online tool for the teachers to distribute and the students to use as their writing task. A second copy of the student questionnaire (Appendix B) was given out prior to the writing prompt, and each teacher read through the questions so that all the students could respond to the questionnaire. The writing prompt was distributed to students as per the instructions from e-asTTle, and the teachers used the same conditions for the post-test as the pre-test.

Each teacher marked their own class’s samples, as with the pre-test, and collated the marks. A second moderation was carried out involving the literacy leader, the researcher and the teachers, to establish consensus on the marking and the results. This moderation looked at three samples, the highest marked sample, the lowest marked sample and a mid-range sample from each group (six samples in total). During this moderation a considerable amount of discussion was held and some marks were altered. What became clear was that the TG teacher tended to be one mark over, while the WG teacher tended to mark students lower than the moderation team agreed to. As

discovered with the pre-test, and discussed in the e-asTTle Manual, any change was within an expected range of +/- 1 point in the rubric score (Ministry of Education, 2012b, p. 29). No further moderation was deemed necessary, as the moderated results were within the expected range of variation.

Analysis of data

The e-asTTle Writing data and the QRS data were entered into SPSS v. 20 (Software Package for Social Sciences version 20).

The hypothesis of this study was tested by means of a repeated measures analysis of variance (ANOVA). This method of analysis was chosen to test the two-by-two nature of the design. Two groups were involved (treatment and control), and there were two samples taken across time (pre- and post-treatment). Group by time interaction effects were able to be analysed, as well as change over time within each group and comparison between each group. A significance level of .05 was used.

Data collected from the QRS were treated using the same ANOVA with repeated measures design.

Data collected in the comments section of the questionnaire were considered to be qualitative, and were treated using qualitative methods.

Qualitative data

The research question enquired about the effect *on writing* of the planning intervention. The literature review has led to an understanding that the writers and the writing are both of interest, as writing can be viewed as evidence of a writer's thinking. A study of the writing samples and questionnaire comments is expected to reveal meaningful insights into the thinking of the participants. These thinking events ought to

withstand some scrutiny and be available for comparison over time, particularly as the TG will have experienced the intervention. This process of uncovering the thoughts of the participants can be regarded as a qualitative analysis (Bishop, 1999; Creswell, 2003; Saldana, 2013; Taylor- Powell & Renner, 2003). It also has similarities to literature on discourse analysis (Bloome, Power Carter, Otto, & Stuart-Faris, 2005).

Analysis was carried out in steps as suggested by Taylor-Powell and Renner (2003), Saldana (2013), and Berg (2009), all of whom advocate interacting with the data as an initial exploration rather than approaching it with a fixed mindset. More specifically, a content analysis approach was taken to sift through the data and generate counts of words and themes, then the use of categories for coding, and then use known research and the research question to guide analysis of the categories.

Writing sample analysis

Stage 1: Administrative descriptive coding

The writing samples were coded using surface level, or descriptive categories of group, condition, word count and presence of a written or sketched plan. The samples were typed verbatim into digital form and the word count was generated (see Appendix D for an example of this process).

Stage 2. Content descriptive coding

Writing samples were coded using a broad description of event such as *holiday*, *celebration* or *special event*, or *unspecified* which described the primary activity in the story.

Further descriptors were added with iterative coding. For instance, "time" became a code as many of the students used precise time to mark the progress through the day (for example, *at 2.00 pm we went to ..., at 4.40 pm we did ...*).

Stage 3. Categorisation of descriptions

A set of description codes was then formed into codes that could then be analysed. These codes centered around goodness of fit to genre requirements (see Chapter 4 Results in this document for a table of these codes).

Stage 4. Analysis of categories

A situated analysis was carried out – a view that supposes that the text produced is a result of the context it was written in – an “event” (Bloome et al., 2005, p. 5).

Questionnaire comments were coded in a similar analysis. They were treated as self-reports and examined for similarities to themes or definitions in the literature on writing and the teaching of writing. The steps mentioned above for content analysis were followed (see Chapter 4 Results for a display of these data).

The mixed methods sequential model (Creswell, 2003) is an attempt at first finding out what the empirical data have to say about the effectiveness of the intervention, followed by an exploration of the qualitative data as a way to interpret this data. As such, the categorisation of the comments is an attempt to view the data as linked to the research into writing. The data were viewed as being of positivist value, in that a measure had been taken using psychometrically validated methods (e-e-asTTle), and constructivist, in that the writing was considered to reveal information about the social, cultural and linguistic context that the writers were in.

Concluding statements on methods

The present study has set out to test the hypothesis that instruction in a generic planning strategy will have an effect on the writing of intermediate aged students. The study has been designed to use a mixed methods sequential model. A pre- and post-test questionnaire was administered to and a control and intervention group. Questionnaires and writing samples were also used to collect data about student self-concept and identify any change in this. The students were recruited using a convenience selection of students in a naturally occurring grouping. They all had an opportunity to opt into the study and to opt out of it as well. The chapter has covered the administrative process of data collection as well as given a detailed explanation of the intervention. The data analysis has also been described in detail.

CHAPTER FOUR

RESULTS

This results chapter describes how the data were treated and what the findings were from the data. The instruments for data collection are described in detail, and the processes used for analyses of the data are described. The first section of the chapter reports on the quantitative analysis, while the latter part describes the qualitative analysis. The chapter concludes with a description of the thematic findings of the qualitative analysis.

The TG and the WG were similar in their writing skills in the pre-treatment condition, as measured by the e-asTTle Writing assessment instrument. The TG increased their scores post-treatment while the WG did not. The writing samples and questionnaires were analysed using content analysis qualitative methods (Berg, 2009). Qualitative analysis using both manifest (observable as surface feature, eg spelling) and latent content (deep structural features such as adherence to genre constraints) revealed that three elements brought about the most change: the choice of event to recount, the use of organisational features and the use of vocabulary. Through exploration of manifest content analysis, broad themes regarding evidence of purpose, roles and resources were drawn out of the data. This chapter will present the data in more detail.

Instruments

Two instruments were administered to the two groups of students as pre-intervention measures and post-intervention measures. The e-asTTle Writing suite was used to gain a quantifiable score, and a questionnaire was used to gain insight into the

perceptions the students had of their own needs and capabilities. Table 2 displays a representation of this basic design.

A questionnaire was administered to the teachers of the classes prior to the intervention being presented. An informal interview, as part of the moderation process, was carried out post-intervention.

Writing samples and scores

The researcher hypothesised that there would be: a shift in the mean scores of the TG over time; no shift in the mean scores of the WG over the same time; and evidence found in the QRS, the questionnaire comments (QC), and the writing samples (WS) that would offer explanation as to why the shift had occurred.

Table 2

Design representation

Group	Pre-test		Post-test	
Treatment	WS	Q	WS	Q
Waitlist	WS	Q	WS	Q

(Note: WS = writing sample, Q = Questionnaire)

An initial calculation of means and standard deviations of the raw e-asTTle Writing scores revealed a noticeable change in the TG means and no obvious change in the WG means (Table 3). The pre-treatment means and standard deviations are similar, where the post-treatment means are noticeably different.

Table 3

Raw total scores from e-asTTle Writing

	TG		WG	
	Mean	SD	Mean	SD
Pre	24.91	4.76	24.28	3.68
Post	27.45	3.73	24.39	4.15

Raw e-asTTle Writing data were analysed using SPSS in a repeated measures analysis of variance (Table 4). The results revealed a significant main effect for treatment over time in the vocabulary element, $F(1, 27) = 8.606, p = .007$, a significant main effect for group in the structure and language element, $F(1, 27) = 6.871, p = .01$, and a significant interaction effect in the vocabulary element $F(1,27) = 6.337, p = .02$. Calculated effect size for the difference between post-test means on the vocabulary element was .87

The effect size was calculated using Cohen's d (Salkind, 2014) in this formula:

$$d = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{\frac{s_1^2 + s_2^2}{2}}}$$

Table 4

ANOVA with repeated measures results showing post-treatment means, standard deviations, and F ratios (with p values) for the group x time interaction effect

	<u>Treatment</u>		<u>Waitlist</u>		F	p
	M	SD	M	SD		
e-asTTle Writing Total	27.45	3.72	24.39	4.15	6.4	.22
Ideas	4.00	.632	3.61	.608	1.5	.24
Structure and language	3.91	.539	3.11	.9	.52	.48
Organisation	4.36	.809	4.06	.998	1.5	.23
Vocabulary	4.00	.894	3.22	.647	6.3	.02
Sentence Structure	3.82	.934	3.5	.707	2.5	.12
Punctuation	3.64	.809	3.33	.686	0	1
Spelling	3.73	.786	3.56	.616	1.1	.3

*Interaction effect

e-asTTle Writing norms for year 7 students – third quarter

Raw e-asTTle Writing total scores were also then translated into aWs according to the instructions in the manual (Ministry of Education, 2012b). Table 5 shows the aWs scores for this study. This conversion is used to calculate how the sample of students in this study compare with the normed scores used by the e-asTTle marking system. Of note is that the mean score used as the norm for year 7 students was for a third quarter score. As both these measures were taken during the second quarter of the year, we would expect the scores gained from both WG and TG to be below this norm for both pre- and post-treatment.

Table 5

e-asTTle normed mean (year 7 students third quarter) and standard deviation compared with samples (year 7 students second quarter)

Norm	e-asTTle norm		Treatment		Waitlist	
	Mean	SD	Mean	SD	Mean	SD
Pre	1535	100	1494.91	92.96	1482.67	76.38
Post	1535	100	1549.18	69.75	1478.17	82.03

Teacher questionnaire

Each class teacher was asked to complete a brief questionnaire prior to the study beginning (Table 6). The WG teacher placed more emphasis on idea generation and pre-writing strategies than the TG teacher. The TG teacher thought that a generic planning strategy would not have any direct effect on the writing, as the students are not able to transfer their learning.

Table 6
Teacher questionnaire pre-study responses

Question	WG Teacher	TG Teacher
What are the difficulties that your students are currently facing?	Fear of writing. Not knowing what to write about. Elaboration. Sentence structure. Spelling. Punctuation. Word confusion (eg where/were/we're).	Elaboration of relevant ideas. Structure. Punctuation.
What strategies for self-regulation have you taught directly this year to this class?	Proofreading skills. Write in silence so all can use their imagination. Brainstorming. Re-reading – does it make sense? Hamburger effect. Keywords.	Read your writing back to yourself. Does it make sense? Have you got same ideas in the same paragraph? Check the checklist. Have you covered everything?
Are there particular genre or forms of writing that the students are less capable with?	Non-fiction (all).	Non-fiction – persuasive argument, information (have not taught yet).
Do you think that teaching a generalised planning strategy will improve the writing skills of the students?	Yes. Students need to know a basic structure then I would have specific planning based on their needs.	No. Children at this age have difficulty transferring knowledge from one application to another.

Questionnaire Rating Scales – self-reporting

An analysis of variance with repeated measures was carried out to compare the pre- and post-mean scores on the QRS. The results revealed no significant main effect for change over time, $F(1,27) = 2.260$, $p=.144$, and no significant time by

group interaction effect $F(1,27) = 1.544, p = .225$. No further statistical analyses were carried out. Observation of the data suggests that there was a tendency for students to answer around the mid-point of the scale.

Questionnaire comments

WG pre-treatment (WG-pre) had significantly more comments to make than TG pre-treatment (TG-pre) had. WG-pre had an average comment count of .53 and average count of .39 post-treatment (WG-post), where TG-pre had an average count of .23 and .35 post-treatment (TG-post).

Variation was noted in the number of comments that were offered. For example, one WG-pre student made 10 separate comments and numbered them. Another student had one comment "*you using my own iders*" pre-treatment, and no comment at all post-treatment. There was also variation between groups in the types of comments made. Half of WG mentioned that working with another person was a useful method for improving their writing, where 10% of TG mentioned it. Overall, 30% of TG offered a comment indicating personal responsibility for their writing, where 10% of WG expressed a personal responsibility comment. Only one student showed significant change in comments type over time. This student's pre-treatment comments (*I can have a dictionary by me. I can ask for help. I could ask the person next to me for help. I could just ask mum to make me study.*) indicated external supports and resources as the main source of improvement. This student's post-treatment comments (*try not to get frustrated, try to get good and try not to talk*) indicated a set of internal monitoring as the main source of improvement.

The comments were categorised into broad themes, as shown in Table 7, and were quantified by count. The TG-post offered four comments about preparation in the pre-treatment response. As there were 11 students in the group, the calculation made was $4/11 = 0.36$. Table 8 presents the quantified category themes.

WG-pre made significantly more comments about the mechanics of writing than any other category. These comments were almost entirely to do with punctuation. The WG-pre score in the preparation category was generated by the number of comments about brainstorming and finding a quiet place to work. TG-post increased in the number of comments about preparation. This was the result of an increased use of the keyword "brainstorm".

Writing samples qualitative analysis

The writing samples were coded in four levels: form, topic, category and analytic (Saldana, 2013). Briefly, these levels looked at:

Form	Length, mechanical accuracy and presentation
Topic coding	Topic, key ideas, goodness of fit to genre
Category coding	Thematic codes from identified patterns in the text that pointed towards control of organisation, structure and language
Analytic coding	Final analysis of patterns looking at how the samples expose the metacognitive skills of the writers, specifically role and purpose

Table 7

Themes, examples and definitions

Theme category	Examples from study	Researcher's explanation
Preparation	<i>have a brainstorm, in a quiet place, problem solve</i>	Activity that prepares for the task of the mechanics of writing, prior to any writing being done
Resources	<i>dictionary, thesaurus, encyclopedia, examples</i>	Physical resource for reference during the writing process
Mechanics	<i>spelling, punctuation, capitals, handwriting, sentences, full stops</i>	Transcription level task of putting marks on paper
Revision	<i>editing, proofreading</i>	Revision phase of writing (note that this is often recursive through writing process)
Monitoring of self	<i>fluency, independent, self, alone, calm, listen, elaborate</i>	Keywords that indicate a self- focused expectation of monitoring through the writing phase
Monitoring by other	<i>teacher, ask, buddy, help, group, mum, talk, teacher</i>	Keywords indicating a social support, or monitoring by another person in part of the writing process
Language and structure	<i>paragraphs, sequence, simile</i>	Structural aspects of written language formation, including language features, that add to the meaning of a reader gains from the text
Idea generation	<i>creative, ideas, knowledge, comprehension, imagination, vocabulary</i>	Keywords indicating a need for ideas, recognition of the importance of ideas, or strategies for the generation of ideas

Table 8.

Broad themes for questionnaire comments – mean number of the comments for each category in each condition

Themes	TG-pre	TG-post	WG-pre	WG-post
Preparation	0.36	0.82	1.17	0.56
Resources	0.09	0.00	0.89	0.61
Mechanics	0.45	0.64	3.17	0.61
Revision	0.09	0.09	0.72	0.17
Monitoring –self	0.36	0.09	0.06	0.61
Monitoring –social	0.55	0.55	0.83	0.50
Language/ Structure	0.55	0.45	0.33	0.28
Ideas/ Generation	0.27	0.00	0.44	0.72

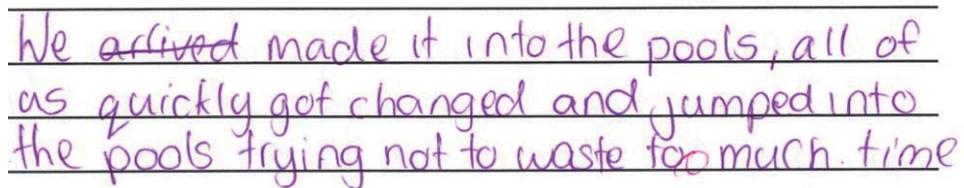
Analysis of surface features

Surface features were investigated in terms of the mechanical skills of spelling, punctuation and handwriting, and in the measure of word count.

Scores on the e-asTTle Writing (Table 4) elements of spelling and punctuation revealed little change in either group across time. The writing samples were varied in mechanical skill level, as would be expected from the range of scores in these e-asTTle Writing elements. Some samples were difficult to decode due to the misapplication of spelling rules, while others required flexible thought to read past the punctuation errors. A few samples had high levels of control of the mechanics of spelling, handwriting and punctuation. Figures 2 to 4 show a selection of excerpts taken from across the groups and condition. Note: the samples have been marked by the teachers, the names are pseudonyms, and where names are used with samples are in the form name (group and

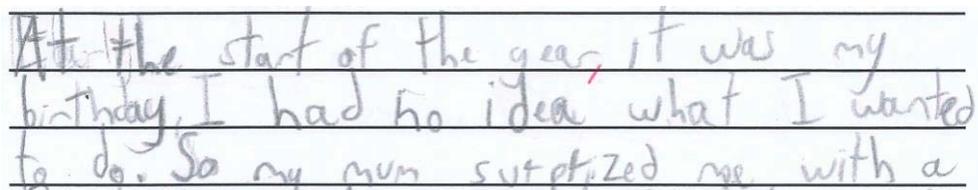
condition), for example, Taylor (WG-pre) refers to Taylor, who is in the WG and this sample is from the pre-intervention data set.

The samples that showed the most control of the mechanics tended to be the samples that had more control over the structure of the story as well. Taylor's (WG-pre) excerpt also showed some skill in monitoring during the writing phase, in that she made an alteration mid-sentence. Jo's (WG-post) sample here tends towards low handwriting control, but displays a developing structural understanding. In this case, Jo made three statements that orientated the story: start of year, birthday, therefore no idea what to do, mum surprised me. The reader is prepared for a story about a surprise birthday.



We arrived made it into the pools, all of us quickly got changed and jumped into the pools trying not to waste too much time

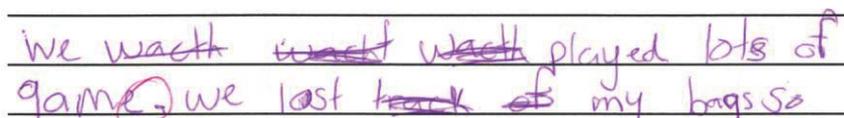
Figure 2. Taylor (WG-pre)



At the start of the year, it was my birthday, I had no idea what I wanted to do. So my mum surprised me with a

Figure 3. Jo (WG-post)

Nora (WG-post) was clearly unable to settle on the spelling of “watched”, and chose instead to write about playing a game.



we watcht watcht watcht played lots of game. we lost track of my bags so

Figure 4. Nora (WG-post)

This is a useful example of how poor mechanical skills impact on the composition process.

Analysis of event coding

Event coding was carried out and it explored the content and surface meaning of the texts as they were presented. Event was defined as the main idea of the story.

The samples fit into four broad categories of event: holiday, celebrations, organised events and unspecified. Holidays included trips to other towns or countries for an extended period of time. Celebrations included Christmas, birthdays and a wedding. Organised events included outings, sports events and funerals. The key to this event category was evidence or inference of preparation for the activity by people other than the author. These included a trip to the beach or to the museum, but not sleep-overs that the students organised on the day. The unspecified category represented stories that described a day with no clear structure. These stories tended to involve food, wandering around town, video games and sleep-overs that were organised on the day. If there was no evidence of preparation for the activity, the story was allocated this category. As can be seen in Table 9, the proportion of unspecified stories increased significantly when the prompt was Time With Friends, the post-treatment prompt.

Table 9.

Percentage of group by prompt, topic and condition

Topic	WG Family (%)	WG Friends (%)	TG Family (%)	TG Friends (%)
Holiday	17	0	18	0
Celebration	17	23	27	18
Organised event	61	44	36	27
Not specified	5	33	18	55

Analysis of coherence coding

Categories are considered to be broad themes found within the texts. As this study is interested in changes to the writing samples that might be evidence of changes in metacognition, the categories are those that relate to where these changes might be seen. Two categories have been identified: process and genre conformity.

Overall, the category analysis reveals that these samples fit the genre of recount and have similar features and elements to those described in the recount literature, exemplars and the e-asTTle Writing marking rubrics (Gill & O'Neill, 2005; Ministry of Education, 2013; Westby & Clauser, 2005). As this study is most interested in the effect of a planning strategy on the writing of 11-year-old students, the analysis is focused on evidence of organisational changes, structure and language changes and vocabulary changes. These are the areas identified in the literature as more likely to be affected by a change in planning strategy use (Harris et al., 2011; Zumbrunn & Bruning, 2013). In addition to the evidence from the text, evidence from around the text can be used, for example, pre-writing diagrams, revision of text (crossing out or correcting), notes to the reader as asides. These additional data have been termed “para-textual” (Chatsiou, 2014) to indicate their presence in the data. Para-textual also indicates that these data are different from the text that has been overtly left for a reader to identify as relevant to the recount. For example, a word that is crossed out and looks to be replaced with another is considered para-textual. Categories were found to match the requirements of the genre and evidence of process.

WG and TG improved over time in the element of organisation (Table 4). The organisation element, as described in e-asTTle Writing, covers the inclusion of paragraphing, linking phrases, sequencing and grouping of ideas, and coherence. Three measures of coherence are used in e-asTTle Writing: paragraphing, consistent tense, and linking phrases (for example, *After we had played at the pool, we went home*). The reader is better able to follow the story and understand the sequence of events when there is consistent use of these features. The WG group had a wider variation in scores for each of these features. For example, WG-pre had a range of 1-11 paragraphs (1 is the lowest available count), WG-post a range of 1–12, TG-pre a range of 1-2, and TG-

post a range of 1-7. Although the range of counts for paragraphs was similar for WG-pre and WG- post, the mean number of paragraphs increased from 1.81 to 3.53. The mean paragraph count for TG-pre was .55 and for TG-post was 2.45.

Tense errors were counted. An error was scored for each verb that was in a tense that did not fit the genre requirement. TG-pre had a mean tense error of 0, TG-post a mean tense error of 0, WG-pre a mean tense error of .57, and WG-post a mean tense error of .42.

Linking phrases were counted. Linking phrases are described as phrases that lead the reader from one activity to another, or from one idea to another. It is usual for linking phrases to be placed at the start or end of a paragraph (Ministry of Education, 2013). WG-pre had a mean count of 3.05, WG-post a mean count of 2.88, TG-pre a mean count of 1.91, and TG-post a mean count of 4.00.

Vocabulary was examined. The e-asTTle Writing rubrics describe this element in terms of “range, precision and effectiveness” (Ministry of Education, 2012a). This study took a count of vocabulary that was noted because of the specific topic relevance, for example *Kontiki*, *reel* and *longline*, were included in a story where fishing off the beach was the main event. WG-pre had a mean count of 2.9, WG-post a mean count of 2.95, TG-pre a mean count of 1.91, and TG-post a mean count of 2.55. As can be seen, TG increased the use of specific vocabulary.

Structure and language features of writing are described in the e-asTTle Manual. Structure refers to the goodness of fit to genre requirements, in this case the basic items of a recount, for example, orientation, sequence, linking phrases. Language refers to similar features with a focus on tense, descriptive words and time relevant phrases. The key features of this element were orientation, sequence

and nouns that indicate specifics of place and activity. I noted that the data on organisation had a close match to the definitions of structure and language offered by the e-asTTle Manual.

The para-textual features were also observed and counted (Table 10). A count was made of students showing a strong match between the planning notes they made on their assessment paper and the content of their story. A match was identified if the items listed in the planning notes were evident in the story. One example of seeing no match, despite planning, was the student who planned to write about going ten pin bowling with her friends, yet wrote about going to the beach. No match was also identified when there was no evidence of planning, or if the planning notes had no keywords showing a match between notes and story. WG had a percentage match of 61% for both pre and post samples. TG-pre had 100% planning match to story in their samples and TG-post an 81% match in their samples.

Another para-textual feature is the use of crossed-out marks, or evidence of alteration or insertion during the act of writing. These alterations generally fit into three categories: spelling corrections, sentence alterations, and asides. An aside is counted when the writer has added information about the story, but not included that information into the body of the text. One example of this was the writer who used asterisks to direct the reader to refer to a footnote. These features are seen as evidence that the writer was monitoring the mechanics, process or output of their metacognition.

Table 10
Para-textual evidence

	WG-pre	WG-post	TG-pre	TG-post
Corrections	15	17	9	6
Alterations	13	13	6	4
Asides	5	2	3	1

Note: the count is of each student who made a para-textual mark rather than each incidence of a para-textual mark.

The combination of the elements and para-textual features has been assessed as indicators of process. This analysis allows for judgements to be made about the goodness of fit to genre and for some inferences to be made about the level of metacognitive awareness shown by the writers.

Abstract analysis

An abstract analysis has linked the category codes back to the literature on metacognition (Berg, 2009). Abstract features of the texts have been coded into strands: features that are associated with awareness of role and features that are associated with a resource. For example, a piece of text that refers to not knowing where the event took place reveals that the writer (conditional level operator) was unable to gain the (declarative) knowledge from the memory of the participant. The role of the writer is to manage that lack of information. This management was seen in Figure 5, where Nora (the writer) chose to find another way to progress the narrative despite being unable to access the correct spelling of “watch” (a declarative knowledge resource). These two strands are explored using genre requirements and evidence of metacognitive awareness. The combined analysis of these interwoven features leads to the exploration of purpose.

The genre requirements of recount imply three realms of activity: the event being recounted, the recalling of the event, and the writing about the event (Rowe, 2008; Tardy & Swales, 2008). Tardy and Swales describe writers as “double agents” (p. 572), who negotiate between competing their desire to communicate and the requirement of genre. In each of these realms of activity the student has a role: participant, recaller and writer. Each of these roles can be inferred by analysis of the

written product. This study has used a school-based assessment tool, which assumes that the writers are also students.

The samples of writing were studied using the constructs of resources, roles and processes, and described in terms of the varying roles that the students played in revealing those constructs. These constructs reflect the discussion by Torrance and Galbraith (2006) on the process requirements of writing. These constructs also echo the three strands of metacognition discussed by Schneider (2010) (Table 11). However, for this analysis I have chosen to use descriptors that place the students and their processes in terms of roles. By doing this, I was able to conceptualise interaction between the three constructs, and then broaden the discussion out to include another metacognitive descriptor used by Harris et al. (2010): those of declarative knowledge, procedural knowledge and conditional knowledge.

Table 11
Suggested comparison chart of metacognitive terms used by Schneider (2010)

Term	Descriptor	Writer's self-awareness	Role
Metacognitive knowledge	Declarative knowledge	I know what I know. I know who I am and what I remember.	Recaller of events, archivist of knowledge
Metacognitive experiences	Effect, internal process awareness, procedural knowledge	I have a feeling about what I am doing, what I am wanting, and what my goal is. I know how to use what I know to keep moving.	Goal-keeper, motivator
Metacognitive skills	Strategies controlling cognition, conditional knowledge	I know how to use what I know to solve problems and reach goals.	Monitor of process, negotiator

The students involved in this study had purposes for completing the task that, by inference, were aligned to school-based expectations and social norms within a school

context. Children are expected to do what they are told, particularly if the instruction fits with the norms of schooling.

TG-post had more success in meeting genre requirements because they used more organisational items and more vocabulary items that fitted the genre. To do this, each writer had to metacognitively control the recaller/archivist, as the entity that was available for interrogation about the events and gain relevant information about the past event, then present that information. Tardy and Swales (2008) offer explanation for how genre and identity are linked. Their view is that genre is only available (in this case the genre of recount) if the writer has experienced events that have formed their identity.

Writers are also constrained by the resources that are available to them. The event being described is a resource, and the quality of that resource has an impact on the writer's ability to produce text from the raw resource. For example, an exciting event that has a clear progression and end point will be easier to derive a recount from than a routine day or an ambiguous series of incidents. By inference, the writers who had access to structured events had a better chance of writing a successful recount. The resources available to the recaller, both in terms of the event and in their wider knowledge of how the world works, will make the writer's job more or less difficult.

The thinkers who could recall a plane trip and a swim at a beautiful beach had different resources to offer the writer than the thinkers who recall borrowing a scooter to go to the dairy. The writers who could interview recollections about the myriad physical sensations included in leaving one country, sitting in an aeroplane, and playing in the hot sun on a beautiful beach had more resources available to meet their purpose of writing a recount than those who had the mundane physical sensations of a visit to the corner dairy.

Purpose has been placed at the inception level of the writing process in this study. Purpose has been linked to a goal state, or end product. Purpose is what gives both guidance of what the finished product looks like, and motivation for completion. The writer needs to interact with their metacognitive experiences/affective monitor to access the vision of the end state.

Another formulation of roles has been developed from the recounts. In this model, the student is viewed as invoking separate entities to create a form of social interaction. The student is viewed as being: (a) the participant who was there at the time of the event; (b) the thinker who is making sense of the memories about the event; and (c) the writer who is composing a recount about the event. Table 12 illustrates the purposes found in the writing samples from this study. The writers had a purpose to meet genre requirements. This purpose is met to varying degrees of success.

A writer has a role to play – they are the representative of the thinker and the participant. It is the writer's job to form a recount that tells the story in a way that the reader will enjoy, empathise with and understand. Some of the writers in this study took liberties with this role, for example, some exaggerated the facts or the emotional reflections. Other writers poorly represented their participants through having inadequate mechanical skills or producing texts that were too short to allow any empathy or understanding to develop. The role of the thinker was to recall details and also to infer details that were not noticed. When the text reveals missing information, the writer has allowed the thinker to talk directly to the reader. At least two recounts included phrases that admitted to the reader that there was missing information. A more controlled writer would not let this admission appear in the text.

Table 12
Roles-based analysis of writing samples

	Participant	Thinker	Writer
Purpose	Social: belonging, enjoyment, task completion (sporting events)	To accurately recall events	To meet genre requirements with increasing levels of control
Role	Friend, child, participant, observer	To recollect, to reflect, to answer questions by using the recollection	Explain, clarify, sequence and present a written text that the reader can understand
Resources	Time, money, relationships, external organisation,	Memory, linguistic skills, cognitive skills	Genre knowledge, mechanical skills, metacognitive skills
Metacognitive (Schneider, 2010)	No metacognitive awareness	Metacognitive knowledge	Metacognitive experience and skills
Knowledge (Harris et al., 2010)	Declarative	Procedural	Conditional

Conclusion

These broad themes of role, resource, process and purpose have been distilled through a content analysis of both manifest and latent content. Latent content was analysed using a discourse analysis. Links have been made back to the quantitative data analysis based on the e-asTTle Writing marking rubric through reference to the requirements of genre. The results indicate that the TG and the WG were similar in their writing skills in the pre-treatment condition, as measured by the e-asTTle Writing assessment instrument. TG increased their scores post-treatment while the WG did not.

CHAPTER FIVE

DISCUSSION

The following chapter will discuss the findings from the analyses above with reference to the literature on writing, planning and self-regulation. Specific reference will be made to the construct of conditional knowledge. Knowledge becomes the main cognitive component, while a model of roles and interactions is used to describe how knowledge is used by writers. The model of roles and interactions is reviewed in relation to what is known of metacognition and self-regulation. The chapter describes how the components of the MyPlan intervention may have affected the knowledge, metacognition, and self-regulation skills of the students. This effect is then discussed in relation to the observed change in writing quality.

Purpose of present study

The current study undertook to examine the hypothesis that teaching a generic planning strategy would have an effect on the writing quality of the students involved.

There are a number of assumptions behind this hypothesis:

- It is possible to teach planning to children
- Teaching planning is effective in altering self-regulation behaviours in children
- Change in self-regulating behaviours of students can be identified through analysis of their writing.

Throughout this thesis, planning has been constructed as the intentional forecasting of a future state and identification of the resources and steps necessary to achieve that state. As such, planning is a way to structure metacognition and to enable self-regulation. One description of metacognition has closely matched this model of

planning is conditional knowledge. Harris et al. (2010) state that conditional knowledge allows a writer to know what the right conditions are to use the various strategies they have. They are drawing on a model of cognition that separates out declarative, procedural and conditional knowledge as being *the what, the how, and the why/when/where* of a task. Specifically, they state “conditional knowledge enables writers to, for example, critically consider a specific task, determine what skills and strategies will best scaffold achievement of the goals for that task, identify when and why to employ various compositional processes, and modify environmental conditions” (Harris et al., 2010, p. 228). Clearly, the construct of conditional knowledge has a large overlap with the construct of planning.

Harris et al. (2010) also describe how they would expect increased metacognitive skill, especially at the level of conditional knowledge, to affect writing quality. They propose that increased knowledge about writing increases the quality of writing. They also propose that instruction in strategies at the declarative and procedural knowledge level will effect change in the conditional knowledge level. The purpose of this study, when viewed in terms of conditional, procedural and declarative knowledge, has been to present a conditional knowledge strategy in order to increase writing quality. This approach seems to have been effective for this group of students.

The analysis of variance applied to the scores returned from the e-asTTle Writing instrument shows that the TG increased their mean scores over time. The change in scores for the vocabulary element is statistically significant, and has an effect size of .87, which is considered to be large (Salkind, 2014). While it was anticipated that there might be a significant change in the e-asTTle Writing scores for organisation

and for structure and language, it was not anticipated that a significant change would be found in the vocabulary element.

The analysis of form, topic and category revealed that the writing samples were a good fit for the recount genre. Exploration of what a recount requires, and simple counts of the presence of the features of a recount, found that the TG increased their use of recount specific features. Further exploration of the events and categories suggest that the choice of event to recount had an effect on the level of genre-specific control. It became clear that the students who chose to write about a specific event were more likely to have control over the genre features (for example, paragraphing, linking and sequencing). This finding suggests that an effect on writing is the quality of the event. However, another argument is that the quality of the memory of the event may be a more useful explanation. The construct of metacognition as three levels of knowledge would suggest that the quality of the conditional knowledge would dictate how well the memory of the event was made available for the recount. By separating the writer from the event they were recounting, we begin to see the role that metacognition plays in the recount genre.

The qualitative analysis above has applied different terms to the constructs of conditional, procedural and declarative knowledge in the context of a recount. Table 15 displays a proposed model of how metacognition can be discussed in terms of roles and interactions between roles. These roles appeared out of the inductive process of the analysis. Future exploration into the use of these roles, and the model of interaction between them, could be beneficial. The idea of scripted roles can be found in literature on covert private speech in self-regulation (Zimmerman & Risemberg, 1997) and in

strategy use (Winsler & Naglieri, 2003). The construct of entities that interact is also used in literature in memory replacement and cognitive behavioural therapy (Eskin, 2013). Private speech is also a core component of the MyPlan planning strategy, in the form of “Thoughts That Help” and, to a lesser extent, “People Who Help”. Both positive thoughts and imagined interaction with other people are declarative knowledge, but are chosen through the use of conditional knowledge. To use the terminology of roles and entities, the writer calls upon the recaller to find examples of memory that will fit the purpose that is required in that future. The recaller interrogates the (declarative memory) participant for any such memories.

Once the qualitative analysis identified roles, and resources as the broad abstract themes, it became possible to view vocabulary as a resource. Resources are, in the present study, the tangible resources such as books, pens, wall displays and written prompts. Resources can also be memory of tangible resources, for example, a student may be able to access a mental representation of a wall display that showed the steps to take to write a recount. Resources can be defined as being tangible or knowledge: knowledge of facts and opinions, knowledge of processes or procedures, and knowledge of how to carry out procedures. The resources available to the writers are constrained by both the genre and by the recollections of the recaller. To put this in another way: the increased use of specific vocabulary can be viewed as the outcome of a writer who has chosen a topic that they have prior knowledge about, and that fits the genre of recount, and that they, as a participant, had an awareness of at the time. To phrase it again in the negative: a writer cannot use specific vocabulary to describe an event they had no role in, or an event they had no understanding of. While this can appear obvious, it also has implications for what is meant by applied metacognition. The application of metacognition is revealed in the more cohesive use of specific vocabulary.

Hacker et al. (2009) used the term “applied metacognition” to describe the way in which text can be viewed as the evidence of metacognitive control. I am suggesting that this control can be understood also in terms of entities who interact and fulfill roles within the writing process. Outside of the writing event, a student interacts with their peers and environment to access social, knowledge and tangible resources. The MYPlan intervention actively encourages students to view their memory of social interactions as a knowledge resource. These interactions are memory that the student can access during writing. This resource was identified through the session on “ People Who Can Help”. The students were actively encouraged to imagine that they were discussing their composition with a favourite teacher who was guiding them and giving them feedback. This imagined interaction can be viewed as metacognitive, and the memory of the teacher, the imagined responses and imagined interaction can be viewed as cognitive resources that become available through the imagined interaction. This is metacognition played out using a model of entities. The same process has been described in terms of memory and metamemory Schneider (2010).

Other data

The QRS was used to find some of the self-perceptions that the students held. While there was some variation in the responses across the groups, statistical analysis of the QRS returned no statistically significant change in the views expressed by the students. What can be observed is a tendency towards neutrality. The QRS was developed from a mixture of sources, including the e-asTTle Writing.

The e-asTTle Manual describes the Time with Friends prompt as being more difficult than the Time with Family prompt (Ministry of Education, 2012b). There was some evidence of this greater difficulty in the current study, as many of the students

wrote about an unspecified event, and as a result struggled to keep genre conventions for sequence and structure. One of the central arguments of this study is that the resources that become available to a writer at the moment of composition are limited if the recollections of the event are limited, and that the recollections will be limited in their usefulness to a writer if the participant was experiencing a limited range of sensory inputs. I contend that the Time with Friends prompt is more difficult because of the limited experiences that the children are likely to have had when they are with their friends compared with the experiences they would have with their families. However, the TG increased their scores despite this predicted effect. The explanation I am offering is that the planning strategy was effective in allowing the writer to gain more information from the recollections, despite the limited experience.

Ornstein, Grammer, and Coffman (2010) found a linkage between teachers' mnemonic style and children's memory skills. They also found that the effect of junior class teachers using the language of memory and metacognition continued to be evident in later grade levels. The data presented by Ornstein et al. indicated that teachers who talked about strategy were providing the students with both strategy and an explicit instruction to remember the strategy. What is of interest to this study is that the effect of teacher talk was clearly apparent in the shift in questionnaire comments from the WG class. Analysis of the questionnaire comments showed a marked increase in the focus on preparation of the TG, while the WG shifted their attention from establishing a quiet work environment to a focus on punctuation. The slight movement by the TG towards being more planned could be part of the explanation for an increase in the writing scores. Preparation, as one aspect of planning, is a major focus of this study. The use of a brainstorm is considered to be evidence of planning. The use of a brainstorm is considered to be a strategy for reducing the working memory load during the writing

and monitoring phase. It is noted, however, that the teacher questionnaires gives some explanation to the questionnaire comments. Most obvious is that the WG's teacher reported that she had specifically instructed her students that working in silence is important. There is a strong correlation between this comment and the high proportion of comments about working in silence. These comments are included in the preparation category (Table 9). It is also likely that the WG students were able to articulate so many strategies for improvement because the teacher had directly instructed them in these.

The questionnaire comments instrument also revealed that the students were aware of their own processes and felt constrained by these. For example, many comments were made that implied the students found difficulty with generating ideas. When the writing genre is recount, idea generation is directly linked to declarative memory, which is inferred to be linked to the level of interest or affective attachment the student had to events that could be recounted. We know from the work of Waters and Kunnmann (2010) that memory organisation is one measure of metacognitive skill. They also revealed that a high cognitive load makes recall more difficult. If we place idea generation into the category of recall, as it is in a recount genre, then we can understand that students with well-organised memories will find composition to be easier. As mentioned above, however, students who have a strategy for examining their memories will also find it easier to generate ideas through the interaction with that entity. We also know that memory becomes more accurate as a child ages (Schneider, 2010). Recounts that are of an event from the more distant past may become less well organised as a function of the effect of less organised memory structures in the younger child.

Bereiter and Scardamalia (1987) took the view that the act of writing had the potential to transform the knowledge of the writer. In their model of moving a writer from knowledge telling (reporting declarative knowledge) through to knowledge transforming (altering conditional knowledge), a writer who can fit their declarative knowledge to a genre requirement is more advanced than a writer who tells what they know without structuring the knowledge into a genre. In this present study, all the writers were advanced enough to structure their knowledge into a recount form. Furthermore, the qualitative analysis indicated that the students' ability to meet genre conventions was correlated with the level of control of their role as a writer. There was evidence in the way information was organised in the TG-post stories that indicated an increase in control over sequence for the TG group. The model of writing development offered by Bereiter and Scardamalia (1987) is applicable to these findings. The students who are able to keep to genre requirements are those who can control the knowledge they are using, and the purpose for using it.

Instructional practices

De La Paz (2009) tested the SRSD model through translating the descriptions in assessment rubrics into what she termed heuristics. Her proposal was that the descriptors in writing marking rubrics were available for the same treatment that (Harris, Graham, Friedlander, & Laud, 2012) describe with their POW and TREE mnemonics. De La Paz admits that her intention was to prepare students for high stakes testing contexts during which they would be alone, under pressure and without any tangible resources to draw on. She developed a series of strategies for various genre demands, and taught those strategies using the SRSD model. This present study has attempted to do the reverse. Where De La Paz took the view of placing strategies into

declarative memory, the MyPlan planning strategy has attempted to place a structure for further use into the conditional knowledge – or directly to the writer.

The model of instruction outlined by the New Zealand Ministry of Education (Ministry of Education, 2006) is a modern learning theory, in that there is evidence of instructional techniques using a social constructivist approach (shared, guided, independent), and techniques from social cognitive (modeled behavior) and constructivist approaches (provide multiple opportunities to practice skills in experimental ways). The instructional model that the MyPlan used was based on these same premises: the intervention provided a model, used a peer sharing approach, followed by a guided approach followed by an independent approach.

Conclusion

The research question was "What effect does teaching a generic planning strategy have on student writing?" The empirical data showed an increase in scores for the TG after treatment. A qualitative analysis has been able to explain some of the change in scores by exploring the genre requirements of a recount and finding that the TG were more able to organise their recounts after treatment. Specifically, the TG were able to access more specific vocabulary and were able to sequence their recounts more cohesively (Ministry of Education, 2013). I am proposing that these two changes are the result of an increase in metacognitive skills. As described in the literature review, metacognition control includes both increased knowledge of cognition and increased control of cognition (Tobias & Everson, 2009). Metacognition has also been described as control of knowledge in the declarative, procedural and conditional levels (Harris et al., 2010). The increase in awareness of purpose is a conditional knowledge change. Increase in control over the process of writing is a change to procedural knowledge, and

change to negotiation of access to memory resources is a change in the use of declarative memory – a change that is evidence of altered conditional knowledge use.

The two reasons for this study were: 1. Evidence that intermediate age children are becoming less interested in texts outside of their social and digital purpose; and 2. Some New Zealand schools are developing agency as a construct for self-regulated learning. The study has been designed to explore some of the issues that may be involved in those two ideas. The literature on self-regulation has shown a close link with metacognition and with knowledge. Metacognition has also been linked to planning. Planning has been defined in this study as *the activity of envisaging a goal state and identifying actions or resources that would be needed to achieve that goal state*. Planning has also been described as a structure that allows for metacognitive control to be altered at the conditional knowledge level. Instruction in the use of a generic planning strategy appears to have altered the writing of the participants in ways that can be viewed as metacognitive. The intervention that was used seems to have been effective. How this intervention might have affected the students in the constructs of purpose and agency is a topic for further study. Instruction that includes purpose is also a worthy topic to explore, and may more clearly answer the question of how to enhance intermediate age students' use of writing for wider purposes.

CHAPTER SIX

LIMITATIONS, IMPLICATIONS, RECOMMENDATIONS AND CONCLUSIONS

The present study has attempted to test the hypothesis that a change in writing quality can be made by teaching a generic planning strategy. A mixed methods model has been used, with some interesting results. The findings and interpretation of these data indicate that there is an effect on student writing through teaching a generic planning strategy. The effect was seen in enhanced organisation of the text and increased use of specific vocabulary. The results are promising. This chapter will outline some of the ways in which the results are limited, and offers recommendations for future research into the development of purpose as a part of planning.

Limitations

There are a number of aspects of this present study that require further examination.

The intervention

The intervention is an adaptation of part of a larger programme, the FRIENDS for Life programme (Barrett, 1998, 2010a; Henefer & Rodgers, 2013). Further exploration of any effect of this intervention on metacognition may be of benefit. Such an exploration might reveal that the MyPlan tool is more effective if delivered over more sessions.

Instructional model

Three sessions of less than an hour each may not be enough to provide the learning, reflection and feedback that could be supported by the intervention for more of the students. Although the framework of modern learning theory was used (Shell et al., 2010), more constructivist techniques could be added to the instructional model. Further use of an iterative teaching methodology may prove to be more effective than the intervention as it stands, and as it is described in the FRIENDS for Life Manual, for example, using the feedback loop described by Zimmerman (1997) to increase the understanding of the concepts being taught might be more effective.

The measures

The e-asTTle Writing Manual required that two different topic prompts be used. This requirement has utility for the collection of data to report on progress using the e-e-asTTle Writing online tool. This study was designed to fit with the school's assessment processes, and so the decision to use the two different topics was made. However, doing so has reduced the validity of the empirical data as the pre- and post-assessments are subtly different. It is unclear what impact this might have had on the results.

There is a close similarity between the organisation element and the structure and language element in the descriptions offered in the manual and the marking rubric. This similarity has been most noticeable in the recounts of students who produce short texts.

Methodology

A number of decisions could be changed to increase the impact of the intervention:

- Greater collaboration with the classroom teacher to improve delivery of the intervention, for example, working with the teacher to differentiate aspects of the intervention to better match the skills of the students
- Use of student interview to inform the next session – this may have a positive impact on the efficacy of the intervention
- Adding a pre- and post-test use of the intervention worksheet to assess student learning of the skills being taught within the intervention.

Implications

Writing requires purposeful application of metacognitive skills. A school-based intervention that shows evidence of increasing the metacognitive skills of 11-year-old students is worth exploring further. An instructional model that provides learners with a framework for further knowledge to be added to appears to have been effective for students at the intermediate school level. Instructional models for this aged child should make use of strategies that target conditional knowledge as well as declarative and procedural knowledge.

Recommendations

There is merit in finding interventions that teach students how to become more aware of the processes they use and of the resources available to them. A term could be coined, such as “metastrategic”, to describe strategies that make use of the knowledge we already have about metacognition and metamemory. Further research could apply those understandings to strategies that span multiple genre and developmental stages.

Further research might look at the developmental or aged-related constraints of such an approach.

CONCLUSIONS

This present study has investigated what effect teaching a generic planning strategy has on student writing. Some evidence was found that the effect is to improve student writing. This improvement is found in the vocabulary use, the organisation, and the language and structure elements of the writing, but is not evident in the mechanical skills of punctuation and spelling.

Any change to the composition quality is theorised as being the result of increased metacognitive awareness and regulation. The hypothesis is that the students have responded to the intervention by becoming more aware of the resources, strategies and processes available to them. This increased awareness has resulted in greater control over the recall of the recounted event, and therefore an improvement in the quality of the writing.

Further exploration needs to be done to test the intervention for effectiveness in younger children. This exploration will add to the work being done on increasing metacognitive awareness in young children (Waters & Kunmann, 2010).

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APPENDICES

Appendix A: Table 13

e-asTTle Writing elements, brief description, and evidence of planning

Element	Description	Planning
Ideas	Text has a basic idea with some elaborating details.	The central idea of the story is an event found in long-term memory and recalled for the purpose of writing the recount.
Structure and language	Orientation sets the scene (when and who). The body outlines a clear sequence of events. Language features are appropriate: past tense, some action verbs, text connectives show sequence.	A recount will begin at a logical place. Purpose of the retelling directs the writer to choose a time prior to the event when the recount is to begin. Use of tense is evidence of control of the flow of time through the story – the writer has not become too strongly identified with the character who is living the event.
Organisation	Ideas are sequenced and cohesive.	Planning is required to cast forward through the story, to identify key places of transition or movement that must be described so the reader can understand the meaning.
Vocabulary	Mostly everyday words and phrases are used. Some precise words add detail.	Planning may be evident in the use of precise words that are pertinent to the topic.
Sentence structure	Correct sentences are simple. Structures are repeated.	Planning has no clear role in the formation of text at the sentence level.
Punctuation	Full stops and capitals, and other developmentally appropriate punctuation.	Planning has no clear role in the use of punctuation.
Spelling	High frequency words are spelt correctly. Spelling is consistent.	Planning has no clear role in spelling for individual writing events.

Note: Descriptions are taken from e-asTTle Recount Writing Prompts with Specific Exemplars (Ministry of Education, 2013).

Appendix B: Student Questionnaire

Student Questionnaire 5.2

Research Project

Thank you for agreeing to be a part of this research. Please read each statement on the left, and put a tick in the circle that best fits you on the right

1 = Never 2 = Seldom 3 = Sometimes 4 = Often 5 = Always

1	I am good at writing	1	2	3	4	5
2	I know how I will solve problems in my writing, like how to check spelling	1	2	3	4	5
3	I get frustrated with my school work	1	2	3	4	5
4	I listen to the instructions	1	2	3	4	5
5	I ask for help if I am stuck	1	2	3	4	5
6	I like to sit by myself	1	2	3	4	5
7	I use strategies to get my work done	1	2	3	4	5
8	I know how to use my time well	1	2	3	4	5
9	I work best in a group	1	2	3	4	5
10	I like solving problems	1	2	3	4	5

Write down some ways that you know can help you do your writing better.

What effect does teaching a planning strategy have on students' writing?

1

Appendix C: Teacher Questionnaire

5.1 Teacher Questionnaire

Teacher questionnaire

Teacher initials:

Date:

Question

Notes

What are the difficulties that your students currently face in their writing?

What strategies for self regulation have you taught directly this year to this class?

Are there particular genre or forms of writing that the students are less capable with?

Do you think that teaching a generalised planning strategy will improve the writing skills of the students?

What effect does teaching a planning strategy have on student's writing?

Page 1 of 1

Appendx D: Writing Sample treatment example

Pre
Comment
I don't know how to make myself better at writing
Christmas Lights
<p>19th December 2013, My family, freinds and I decided we will go on a drive around [town] to look at the Christmas lights. We needed two cars for 8 people, Jazmyn, Cheise, my sisters Jessica, sarcha, Dahria, my freinds mum, dad, my parents and I. We loaded up the cars at about six pm. Dad in 1 car, mum in the other. we started our journey following dad to Countdown, He decided he will treat me, my friends and Jazmyn tonight. Of course we were fine with that. not so long after that we were off again. we saw so may beautiful things that night It was like houses had just lit up like fairies. So we were on our way until we lost dads car. Oops! We thought we saw him go off [Name] beach road, so we thought</p>

we were following him until halfan hour later the car pulled up a drive way. The people in the car got out and made there way inside. We we pulled over and called dads cellphone. it turns out he has been home for ages. We all started laughing it was really funny. When we finally got home we made our beds, dished out the lollies and started watching the conjuring. I still don't know why we went but it was a really good, fun night anyway.

Word count: 226

Appendix E: Parent Information Letter

1.2 Information for parent

What is the relationship between planning and writing?!

INFORMATION SHEET FOR PARENTS

Researcher(s) Introduction

This research is being carried out by Andrew Salisbury, who is working towards gaining a Degree of Masters in Educational Psychology.

The project is designed to begin answering the questions: what effect does teaching a multi dimensional planning strategy have on students' writing skills.

Project Description

The research seeks to investigate if giving a child a wider selection of strategies for planning will have an effect on how well they write. Writing is a task that takes a lot of self-control, and being able to plan what to do, and when to do it, helps children with their writing.

The Principal and BOT have agreed this project can happen at this school. Your child's teacher has agreed to take part in the research as well. Are you willing for your child to take part?

Two classes will be involved in the research. One class will be taught new skills in term 1, while the other class will be taught the skills in term 2. Both classes will get the same teaching (and the term 2 class will receive the benefit of anything that is learnt from the first class). Both classes will be asked to do the same tasks in term 1.

Details of your child's involvement

Your child will receive extra tuition in planning skills.

The extra tuition will be given by the researcher, Andrew Salisbury. Andrew is a registered primary teacher with many years experience.

Your child will be asked to complete two pieces of writing. These will be kept as a normal part of the school's assessment for learning.

Both classes will do these tasks

Your child will be asked to fill in a questionnaire, twice.

The questionnaire will ask about how your child views their learning and their writing.

The wait group will receive the extra tuition later

We need to be able to compare one group of students with another. One class will have the extra tuition in planning skills during term 2. They will not have to do another piece of writing after that. The other class will receive the tuition in term 3. There will be no extra assessment for them either.

What information will be collected?

Writing Samples

The school already takes a sample of writing at the beginning of the year. This sample will be used as the starting point. The samples of student writing will be marked by the researcher and the teacher using a standard marking tool.

After the planning strategies have been taught, the children will be asked to do another piece of writing. We expect to see that many of the children use what they have learnt to improve their writing.

Questionnaires

Each child will also be asked to fill in a short questionnaire to find out how they think about their learning and their writing.

These four pieces of data (two writing samples and two questionnaires) will be marked and coded onto a spreadsheet. During this process, any information that could identify your child will be removed, and their data will be referred to by a registration number from then on. Copies of the

1.2 Information for parent

original pieces of writing will be kept by the University (see Data Management below). The original piece of writing will remain with the school as part of their usual assessment data.

What data will not be collected.

This project is very focused on writing and planning, and is not trying to find out anything about boys and girls, family background or ability in other areas.

On the consent form, you will notice that there is information about you and your child that identifies you. This information is needed to identify which child in the class has consent to participate.

Data Management

The data collected will be minimal.

The Research Supervisors will keep the consent forms that you and your child fill in, until the thesis has been written and examined.

The questionnaires will have a code on them, so that your child's name will not be used directly on any forms. One spreadsheet that identifies your child's name, and associated code, is kept by the researcher until the study is ended.

Participant's Rights

As parent/ caregiver of a child involved in a research project you have various necessary rights:

You are under no obligation to accept this invitation. If you decide to participate, you have the right to:

- decline to answer any particular question;*
- withdraw from the study (on the understanding that you will not be able to re-enter the study at a later date)*
- ask any questions about the study at any time during participation;*
- provide information on the understanding that your name will not be used unless you give permission to the researcher;*
- be given access to a summary of the project findings when it is concluded.*

Project Contacts

Researcher:

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Supervisors

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Dr Jenny Poskitt j.m.poskitt@massey.ac.nz 06 3569099 x 83070

If you have any questions about this research project, both Dr Chapman and Dr Poskitt will be very willing to advise you.

Committee Approval Statement

This project has been reviewed and approved by the Massey University Human Ethics Committee: Southern A, Application 14/8. If you have any concerns about the conduct of this research, please contact Dr Brian Finch, Chair, Massey University Human Ethics Committee: Southern A, telephone 06 350 5799 x 84459, email humanethicsoutha@massey.ac.nz.

Appendix F: Parent Consent

2.2 Parent Consent

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What effect does teaching a planning strategy have on students' writing?

PARTICIPANT CONSENT FORM – Caregiver/Parent

I have read the Information Sheet and have had the details of the study explained to me. My questions have been answered to my satisfaction, and I understand that I may ask further questions at any time.

I understand that my child will be asked to

- fill in a questionnaire twice, once before the research begins, and again after the research has ended.
- Participate in a teaching programme that is designed to increase self-management skills
- Provide writing samples for the classroom teacher, as per usual assessment collection. These samples will be used by the researcher as data.

I understand that my child's name will not be used in the research.

I understand that my child's name will be known to the researcher in order to match questionnaires and writing samples, and that my child's name will not appear on any other form or data.

I agree for _____ to participate in this study under the conditions set out in the Information Sheet.

Signature:

Date:

Full Name – printed

Relationship to the child

Appendix G: Student Consent

2.3 Student Consent

What effect does teaching a planning strategy have on students' writing?

PARTICIPANT CONSENT FORM – Students

- I understand that I will be taking part in a research project.
- I know that I will be using three (3) one hour sessions of my school time to learn some more strategies for planning.
- I know that the school will provide the Researcher with samples of my writing
- I understand that my name will not be used except to match my writing samples.

Signature: _____ **Date:** _____

Full Name – printed

Appendix H: MyPlan Intervention Overview and templates

The MyPlan planning tool for children

This template is a simple rubric for guiding children to use a staged process for planning an activity or new challenge

The MyPlan rubric uses step by step process that includes:

- Choosing, naming or acknowledging the goal or solved problem;
- identifying possible smaller goals toward the greater goal (STEPS);
- identifying inner speech/ self talk (THOUGHTS THAT HELP);
- Selecting and engaging with people who can and will support, encourage, advise, guide or critique (PEOPLE WHO HELP);
- Selecting tools/ prior learning/ processes that are known or have been advised as being useful (POWERFUL STRATEGIES); and
- Selecting ways to reward partial completion as well as ultimate completion (REWARDS THAT HELP).

Teaching the MyPlan rubric in three (3) one hour sessions:

Session 1: Introduce the rubric

- a. Give the A4 template to the students. Give a few minutes to look at it.
- b. Take group discussion ideas about how it might be used, record the ideas
- c. Discuss as a group the use of the rubric specific to preparing for a school camp. Record the ideas onto an A2 sized template.
- d. Create a bank (using post-it notes) on the whiteboard of all the ways each box could be filled e.g. "People that help" might include parents, peers, teachers, 'the man at the camping store', scout leader etc
- e. Discuss the idea of preferences – no two rubrics would look the same.
- f. Discuss thoughts that help: this is a vital part, and must be explored at a point where the students are both engaged and relaxed.
- g. Discuss and brain storm the importance of rewards - what works for rewarding themselves.
- h. Identify strategies that the students already use of some of their school day (keeping their desk tidy/playing a game at morning tea/ getting ready for the day
- i. Discuss
- j. Finish the session with a discussion of ways that the rubric could be used.

Session 2: Use the rubric

- a. Remind students of previous learning. Show the template and discuss what was presented previously.
- b. Use one of the ideas from session 1. Focus the students on the “Thoughts that Help” column. Discuss with the group what these thoughts might be. Negotiate with the students to reach agreement about positive thoughts, self-talk that offers support and encouragement etc (it is likely that some students will struggle with the idea of talking to themselves, so this may need to be modelled with play acting “Now, what was I going to do next? Oh, that’s right, we were going to talk about self-talk..”)
- c. Take 4 – 5 ideas from the previous session, group students into that many groups, giving each student a role: Recorder, Manager, Think Tank, Recruiter, Purchaser, Pay Clerk,. These roles coincide with the columns – so the manager is responsible for deciding (after discussion) what the steps will be, the Think Tank will decide what the thoughts will be and so on.
- d. Give time to the groups to generate a MyPlan using the ideas offer, the roles and the template.
- e. Finish the session by asking each group to present their MyPlan
- f. IMPORTANT: do not use a writing task as one of the ideas.

Session 3: Practice using MyPlan

- a. Remind students of prior learning. Discuss the plans they generated.
- b. Brainstorm ways that they could use the MyPlan template, and direct them towards using it to plan how to tackle a writing task. (Enlist the teacher’s help if need be)
- c. Brainstorm and generate another A2 sized MyPlan using the student’s ideas about how to plan to complete a writing task.
- d. Ask the students to attempt to write their own MyPlan for a writing task – remind them of the notion of preferences and continue to monitor their self-talk and use of strategies (Eg, do they say out loud that it is too hard, or do they ask each other for help – make these “strategies” explicit and call them strategies –“I see you decided that your friend is a person who could help – write them in!”, “Who used the rubric on the wall to remind them of what we are doing? Write that in, that’s a great strategy!” and so on.
- e. Finish the session by having students present to each other and the whole group. Share the ideas.

Recorder,



Manager,



Think

Tank,



Recruiter,

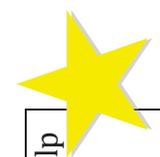


Purchaser,



Pay Clerk





Steps 	Thoughts that help 	People who help	Powerful Strategies 	Rewards that help 
Step 6				
Step 5				
Step 4				
Step 3				
Step 2				
Step 1				