Examination of an Assessment-Informed Instructional Consultation Process Implemented with Junior Primary School Teachers

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ABSTRACT

Literacy is an enabler within our society (Stanovich, 2000). The majority New Zealand (NZ) children have and are responding favourably to current teaching methods (Wilkinson, 1998). Those who continue to struggle may benefit from modified intervention methods (Fuchs & Fuchs, 2007). The current thesis used a social validity framework to examine primary school teachers’ perceptions of the instructional utility of an assessment-driven response to intervention (RTI) system, the Assessment-Informed Instructional Consultation process (A-IICp). It was hypothesised that the participants would perceive the A-IICp as acceptable, providing initial social validity support. Also, that the assessment information would inform instructional modification, providing initial support for instructional utility. Further that the teachers would, therefore, modify current instruction to better meet student needs, increasing student performance. Two studies using the A-IICp were conducted sequentially at two different primary schools. Over a ten-week school term selected students engaged in twice-weekly progress monitoring consisting of the Dynamic Indicator of Basic Early Literacy Skills, First Sound Fluency and AIMSweb, Letter Sound Fluency. First Sound Fluency is a measure of initial phonemic awareness (Dynamic Measurement Group, 2007) and Letter Sound Fluency is a measure of grapheme-phoneme correspondence (Shinn & Shinn, 2002). The students’ teachers were provided with the progress monitoring information to aid intervention decision-making at two time points within the term. The majority of the teachers indicated instructional modifications in light of the assessment information and appeared to gain a greater understanding of their students’ early literacy difficulties. The Behavioural Intervention Rating Scale was used to assess the teachers’ perceived
effectiveness, acceptability and time-to-effort of the progress monitoring measures. Across both schools the teachers indicated a moderate to high level of acceptance of the A-IICp and time-to-effort, however, perceptions of effectiveness were relatively neutral. The Child Intervention Rating Profile was used to capture students’ perceptions of the process, which were generally positive. Across both schools, the students made statistically significant improvements on the progress monitoring measures over the term. Students at School A showed educationally significant improvements at the end of year on both researcher administered literacy assessment and school criterion book level. The students at School B showed educationally significant improvements on school criterion book level. Overall, the teachers indicated that the process undertaken was warranted for the target problem, but that perceived time constraints hindered instructional implementation. This raised issues of school readiness support systems necessary for engagement (Adelman & Taylor, 1997), suggesting the need for further consideration of factors influencing transportability of evidence-based assessment systems from consultation research to school settings.
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Olga

Mike

David

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Taylor

Zinzan

Joshua

Ivan

Owen

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**ABBREVIATIONS**

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<th>Description</th>
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<tr>
<td>A-IICp</td>
<td>Assessment-Informed Instructional Consultation process</td>
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<tr>
<td>NZ</td>
<td>New Zealand</td>
</tr>
<tr>
<td>RTI</td>
<td>Response to Intervention</td>
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<tr>
<td>EBA</td>
<td>Evidence Based Assessment</td>
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<tr>
<td>CBM</td>
<td>Curriculum Based Measures</td>
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<tr>
<td>CBM-R</td>
<td>Curriculum Based Measures - Oral Reading Fluency</td>
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<tr>
<td>DA</td>
<td>Dynamic Assessment</td>
</tr>
<tr>
<td>DIBELS</td>
<td>Dynamic Indicators of Basic Early Literacy Skills</td>
</tr>
<tr>
<td>NCRTI</td>
<td>National Centre on Response to Intervention</td>
</tr>
<tr>
<td>FSF</td>
<td>First Sound Fluency</td>
</tr>
<tr>
<td>LSF</td>
<td>Letter Sound Fluency</td>
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<tr>
<td>Y0</td>
<td>Year Zero</td>
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<td>Y1</td>
<td>Year One</td>
</tr>
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<td>Y2</td>
<td>Year Two</td>
</tr>
<tr>
<td>MoE</td>
<td>Ministry of Education (New Zealand)</td>
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<tr>
<td>BIRS</td>
<td>Behaviour Intervention Rating Scale</td>
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<tr>
<td>CIRP</td>
<td>Child Intervention Rating Profile</td>
</tr>
<tr>
<td>RT:Lit</td>
<td>Resource Teacher of Literacy</td>
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<tr>
<td>AoC</td>
<td>Agent of Change</td>
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<td>AoI</td>
<td>Agents of Information</td>
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<td>AoF</td>
<td>Agent of Facilitation</td>
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<td>LNF</td>
<td>Letter Naming Fluency</td>
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<tr>
<td>Acronym</td>
<td>Description</td>
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<td>ISF</td>
<td>Initial Sound Fluency</td>
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<td>CTOPP</td>
<td>Comprehensive Test of Phonological processing</td>
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<td>WJPEBRC</td>
<td>Woodcock-Johnson Psycho-Educational Battery-Revised Readiness Cluster</td>
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<td>TEL</td>
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<td>Intervention Implementation Form</td>
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<td>PM</td>
<td>Progress Monitoring</td>
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<td>IC</td>
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<td>GT</td>
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CHAPTER 1. INTRODUCTION

“Reading failure begins early, takes root quickly, and affects students for life”

- Moats (2001, p. 1)

Our children are our future, our greatest asset, our responsibility. One place our responsibility rests is with their education. Here we can foster their creativity, spirit, minds, and socialisation to the world. One fundamental skill that we need to foster in our children is their ability to understand and interpret their world through written language.

Within our symbol-driven societies, access to the world of literacy is an enabler that allows individuals to become increasingly adaptable throughout their lives (OECD, 1997; Stanovich, 2000). The enabling power of literacy can be seen in everyday tasks, from finding the fire exit to fulfilling one’s dream of becoming an accomplished lawyer who is able to untangle complicated legal jargon.

Literacy can be defined as “the ability to understand, respond to, and use those forms of language that are required by society and valued by individuals and communities” (Ministry of Education, 2007, p.18). Poor literacy is often disadvantageous within our society with ten-to-fifteen percent of struggling readers not receiving any high school qualifications and only two percent gaining a university degree (Scarborough, 2001). Furthermore, a survey conducted in America by the National Institute of Child Health and Human Development (NICHD, 2000a) found that half of the respondents with a criminal record or a history of substance abuse had reading difficulties. Sixty-five to seventy-five percent of struggling readers identified early in school continue to experience reading difficulty throughout their lives (Scarborough, 2001). This highlights the importance of understanding the process of reading acquisition and the need for more effective intervention methods.
There has been much debate over the most effective way to teach children how to read (Ravitch, 2001; Soler, 1999). Many children have and are responding favourably to current teaching methods used in New Zealand (NZ) (Wilkinson, 1998). Those children who continue to struggle may benefit from modified intervention methods (Fuchs and Fuchs, 2007). The point to keep in mind is that all the individuals involved with children, from their parents, to their teachers, through to the politicians, want the same outcome, whereby all children receive the most effective opportunities to learn and have a fulfilled life.

Through the effective assessment of early literacy components that enhance teachers' understanding of areas of increased reading difficulty for our children, we may be able to maximize our teaching methods (Good and Kaminski, 1996). With a response to intervention (RTI) framework (detailed more fully below) (Gibbons and Silberglitt, 2007) teachers may have a more specific running guide of their students' early literacy development. This is because students’ progress in response to instruction is effectively and regularly monitored, and where needed, instruction is modified to stimulate students' reading development.

The following section will outline the important skill components thought to contribute to successful reading acquisition. Special emphasis is placed on phonemic awareness, due to its ability to predict future reading success within the first year of schooling (Gillon, 2004). The next section addresses appropriate assessment for children in their first school year with the aim of informing effective interventions through progress monitoring systems, as employed in the present thesis, with the underlying philosophy of RTI. Finally, the importance of teachers' and students’ perceptions of utility of the process, as assessed through considerations of social validity (e.g., treatment acceptability) will be discussed.
The studies to be described in this thesis aimed to provide the teachers with a process for assessing and interpreting struggling students' early reading component skills through Evidence Based Assessment (EBA). It was hypothesized that the teachers would perceive the Assessment-Informed Instructional Consultation process (A-IICp) undertaken to be acceptable and effective, providing initial support for instructional utility – usefulness for informing instruction - from a social validity perspective (e.g., did the teacher perceive the process to be targeting a meaningful issue, for example, poor literacy? Did they perceive it would help reduce the issue, that is improve literacy?).

1.1 The Process of Literacy Acquisition and its Teaching

1.1.1 Components and Hierarchy of Literacy Acquisition

The process of literacy acquisition has been reviewed by several national initiatives including Australia (National Inquiry into the Teaching of Literacy, 2005), United States of America (US) (National Reading Panel, 2000) and NZ (Literacy Experts Group, 1999). These reviews reached similar conclusions regarding the important elements of beginning reading acquisition and the developmental paths of these early literacy skills. By understanding the components of reading acquisition and stages of their development, we may be better able to create appropriate and meaningful assessment tools to monitor and enhance children’s reading by informing differentiated instruction.

Five early literacy skills termed the “Big Five”, have been hailed as potential fundamental stepping-stones of reading acquisition that follow a hierarchical developmental path (Department of Education, Science and Training, 2005; Goswami, 2001; National Reading Panel, 2000; Scarborough, 2001; Whitehurst and Lonigan 2001). The “Big Five” components
identified include 1) **alphabetic principle** (i.e., knowing that words are constituted of letters that represent sounds and an awareness that this letter-sound correspondence can be used to pronounce printed words or spell unfamiliar words), 2) **phonemic awareness** (i.e., ability to hear and manipulate the sounds in spoken words, along with an understanding that words and syllables are made up of sequences of speech sounds), 3) **fluency of word recognition** (i.e., accurate and seemingly effortless, automatic text processing), and 4) **comprehension** (i.e., extracting meaning from text), including that of individual words (e.g., vocabulary). Closely aligned are the skills required for 5) **written language** (i.e., spelling and written expression; Department of Education, Science and Training, 2005; Foorman and Togesen, 2001; National Reading Panel, 2000).

The focal point of this thesis is reading acquisition, and more specifically the early literacy skills of phonemic awareness and alphabetic principle. Therefore, this review will focus on reading acquisition rather than skill development in writing.

To better understand how an individual becomes literate we must review the process of literacy acquisition, which begins in emergent stages. Emergent literacy refers to an individual’s literacy development prior to school entrance (Whitehurst and Lonigan, 2001).

Phonological awareness refers to an individual’s ability to hear and then manipulate the sound units of spoken language (National Research Council, 1998). Phonological awareness at the phoneme level (i.e., phonemic awareness) has been found to have the strongest predictive power for future reading success (Gillon, 2004). The current thesis highlights the importance of phonemic awareness and aspects of the alphabetic principle. These early literacy skills can be used as markers for assessment, indicating potential targets for needed support to increase the likelihood of successful reading acquisition. Upon school entry, the importance of phonological
awareness is strengthened as children with a higher ability for detecting individual phonemes (e.g., individual sound units within words) learn to read more quickly (Gillon, 2004). This pattern holds even when IQ, vocabulary, memory, and socioeconomic status are controlled (Bryant, McLean, Bradley and Crossland, 1990; McLean, Bryant and Bradley, 1987; Raz and Bryant, 1990; Wagner and Torgesen, 1987; Wagner, Torgesen, Laughon, Simmons and Rashotte, 1993).

Two interrelated elements within the broader concept of phonological awareness have been identified: phonological sensitivity and phonological naming (Wagner and Torgesen, 1987). The first, phonological sensitivity, refers to an individual’s ability to detect and then manipulate the sound structure within oral language (Coyne and Harn, 2006; Hintze, Ryan and Stoner, 2003; Juel, 1988; Kaminski and Good, 1996). Understanding the sound structure of language begins to occur readily without exposure to written text (e.g., oral acquisition during emergent literacy). Once children enter school, their understanding of sound structure may be emphasized through phonics instruction. Phonics refers to the teaching method of emphasizing the grapheme-phoneme (i.e., letter-sound) correspondence both in its oral and written forms (Coyne, Kame’enui and Simmons, 2001; Whitehurst and Lonigan, 2001).

A developmental progression within the component skill of phonological sensitivity has been noted, in which the individual’s understanding becomes increasingly sophisticated (Gillon, 2004). The progression moves from understanding concrete units of sound (i.e., whole words and syllables) to an understanding of smaller units (i.e., initial onset sound and the final sound cluster, the rime). The last stage of phonological sensitivity is the understanding of individual units of language known as phonemes (e.g., /p/; Adams, 1990; Anthony, Lonigan, Burgess, Driscoll Bacon, Phillips et al., 2000; Fox and Routh, 1975; Longan, Burgess and Anthony,
Without this understanding of sound structure, students are more likely to have greater difficulty understanding the concept that a written letter corresponds to a spoken sound (Whitehurst and Lonigan, 2001), and therefore, successful reading is less likely to occur (Coyne et al., 2001).

The second element, phonological naming, has two components (i.e., short and long term phonological memory). The first, short-term phonological memory, refers to one’s short-term memory to repeat sounds just heard (Whitehurst and Lonigan, 2001). For example, a teacher states the sound /b/ and the child is asked to immediately repeat the sound heard. The second, long-term phonological memory, refers to one’s ability to retrieve from memory phonological information. For example, the child might retrieve the long term knowledge of what sound the letter /b/ makes (Whitehurst and Lonigan, 2001).

Phonological sensitivity and naming are foundational skills related to decoding (i.e., breaking a word into its subsequent parts), which allows an individual to read previously unknown words (Burgess and Lonigan, 1998). Overall, it has been found that if children are struggling with phonological awareness, and do not receive appropriate support, their reduced literacy trajectory will likely remain stable (Burgess and Lonigan, 1998; Wagner, Togesen and Rashotte, 1994).

Prior to school entrance, a child's understanding of the alphabet (e.g., letter knowledge) has been found to be the single best predictor of later reading success and the higher order skill of decoding (Adams, 1990; Stevenson and Newman, 1986; Bond and Dykstra, 1967). A longitudinal study found that a child’s level of letter knowledge in their first two years of school significantly relates to their phonological awareness (Wagner, Torgesen, Laughon, Simmons and Rashotte, 1993). Burgess and Lonigan (1998) found that alphabet knowledge was a unique
predictor of growth in phonological awareness, strengthening the argument for the importance of alphabet knowledge in the emergent literacy stages and also literacy stages prior to fluent reading once attending school (e.g., pre-reading stage).

Within the emergent literacy stages, oral language also plays an important role in preparing a child for formal literacy learning. A child’s vocabulary, for example, which in infancy is acquired through spoken language, is also linked to a child’s later phonological awareness (Fowler, 1991; Metsala and Walley, 1998). Children with a larger vocabulary display more sophisticated phonological awareness before formal schooling (Wagner et al., 1993; Burgess and Lonigan, 1998; Chaney, 1992). Children with limited vocabulary have been found to understand words globally (e.g., sunshine), compared to children with larger vocabularies who begin to understand words as segments (e.g., sun – shine; Whitehurst and Lonigan, 2001). As a child moves from being a pre-reader to a fluent reader within the classroom the important elements of reading acquisition shift to higher order literacy components (e.g., decoding). However, these higher order component skills rely on the mastery level of skills gathered during emergent and pre-reading stages (e.g., elementry alphabet knowledge and vocabulary).

As can be noted from above, learning to read is a complex task. It requires individuals to become familiar with letters, and their corresponding sound(s), both within auditory and visual domains. In addition, early literacy skills require individuals to be able to conceptualise that single letters combine to produce syllables, words, sentence, and stories (Beck, 2003). In order for a word, a sentence or a story to be meaningful, a child must learn higher-level literacy skills. This include the ability to comprehend each word’s meaning and their meaning in relation to other words. Without the beginning fundamental understanding of letters, and their
corresponding sounds, it is less likely that an individual will reach the stage of fluent reading and comprehension.

1.1.2 Hierarchy of General Learning and its Relation to Literacy Acquisition

Research has also been conducted to examine effective teaching techniques to aid reading acquisition (National Inquiry into the Teaching of Literacy, 2005; National Reading Panel, 2000). One overarching element of such teaching is the order in which the component skills are acquired (the acquisition of literacy skills has been illustrated in the above). A further important element to teaching a skill is the understanding that learning a new skill also goes through a progression of phases.

In 1978, Haring, Lovitt, Eaton, and Hansen described an instructional hierarchy of learning, posited to be relevant to all learning, that consists of four levels (i.e., acquisition, fluency, generalisation, and adaptations). The aim of this model is to help inform teachers of the level at which instruction should be targeted.

The instructional hierarchy model postulates that skill acquisition occurs prior to fluency, generalisation and adaptation. Acquisition refers to learning how to perform the skill and fluency to an individual's ability to perform the skill swiftly and with minimal-to-no effort. Generalisation refers to the ability to use the skill in novel situations or text (e.g., being able to decode an unfamiliar word, in a previously unread book). Adaptation refers to the ability to modify one’s response based on a novel situation (e.g., not just using phonemic awareness skills to decode a unfamiliar word, but to also use it to spell an unknown word (Haring et al., 1978).

Given the understanding of the hierarchical nature of learning many students who are experiencing reading difficulty in their first year of schooling might be expected to show
deficits in their accuracy and/or fluency of a given literacy component. This could in turn lead to a reduced ability to generalise and adapt their reading skills (Daly, Lentz and Boyer, 1996; Daly, Martens, Kilmer and Massie, in press). For instance, a child who does not possess the alphabetic principle may be able to read perfectly their favourite book that they have read a thousand times, but when asked to read a novel book, may stumble at many words due to their lack of decoding skills. Therefore, the target for early reading interventions often includes increasing a child's accuracy and fluency.

Based on the literacy and instructional hierarchy research reviewed – that is, considering the nature of both reading and learning, the current thesis proposes three elements of reference to assess a student's current performance. The first refers to the developmental progression of literacy skills: at what stage of literacy development is the student performing (e.g., what is the student’s current level of performance in the domain of alphabetic principle? Is she learning grapheme-phoneme correspondence or has she moved on to begin to decode words?). Second: at what level in the instructional hierarchy is the student currently performing (e.g., is she in the acquisition phase in which she is still learning individual letters and letter sounds, reflected in slow, effortful, and sometime inaccurate performance, or are these skills beginning to become automatic?). The last refers to the learning target indicated for the student: at what level should they be performing for their age and length in school, and how can we get them there? When the teacher has identified these three facets, aided by EBA, they can then set forth a theoretically effective intervention in an effort to help the student achieve the learning target in a timely manner.
1.2 Effective Assessment, a Stepping Stone to Effective Intervention

Early identification and intervention for students suspected to have poor reading trajectories is now seen as best practice (Elliot and Tollefson, 2001; Ministry of Education, 2007). Such early identification usually occurs in the pre-literacy stage (e.g., at school entrance) when a student's literacy skills are emerging. Traditionally used measures for assessing reading achievement may be insufficient for assessing these emerging literacy skills (Elliot and Fuchs, 1997; Shapiro and Elliott, 1999; Shapiro, Keller, Lutz, Santoro, and Hintze, 2006; Wayman, Wallace, Wiley, Tichá and Espin, 2007). For example, they may inform the teacher that the student is not yet competently reading (e.g., interpretation at a global level), but may not adequately describe the student’s developmental progress in pre-literacy skills (e.g., interpretation at a component level). This highlights the need to consider and vigorously evaluate the purpose of an intended assessment tool and, in light of this, whether the tool is appropriate for the intended purpose.

There are two overarching reasons for assessment: 1) **summative evaluation** and 2) **formative evaluation**. Summative evaluation refers to assessment that occurs following instruction (Gibbons and Silberglitt, 2007). For example, when students are assessed to evaluate their overall knowledge and level of competency for system level accountability purposes, such as reports prepared for the Educational Review Office or Ministry of Education.

Formative evaluation refers to assessment that is conducted as instruction occurs (e.g., assessment during the year for instructional purposes) (Gibbons and Silberglitt, 2007; Kaminski, Cummings, Powell-Smith and Good, 2008). Formative evaluation helps to identify when a student is not responding to the current teaching practice, signaling the potential need for added attention or modification of the current teaching methods. In this way effective interventions or teaching styles may be maintained and ineffective ones may be modified (i.e.,
evaluation of response to intervention, RTI) (Gibbons and Silberglitt, 2007). As such, formative assessment can be viewed as an educationally important measurement form, as its purpose is to aid student learning and early identification of additional learning needs (Kaminski and Cummings, 2007). The focus of this thesis is on assessment at the formative level, in which the aim is to enhance individual interventions for students considered to be ‘at-risk’ for reading difficulties (e.g., early identification and prevention focus; Ministry of Education, 2007).

1.2.1 The Evolution of Early Literacy Assessment Measures

As literacy assessment measures have evolved, the need for stringent psychometric evaluation has also been acknowledged. Traditionally research and practice have focused on the evaluation of the performance of the static score or level of performance at one point in time (Fuchs, 2004, Fuchs and Fuchs, 2007; Kaminski et al., 2008). As research and practice have advanced, along with demands for accountability, the importance of additional technical adequacy considerations has been emphasized (Fuchs, 2004).

Three stages of measurement development have been set forth for evaluation of educational assessment measures for use in evaluating RTI (Fuchs, 2004; Technical Review Committee, 2007). Stage One of measurement development includes evaluation of the reliability and validity of the static score; these are used to confirm that a student’s score on a test, at a given point in time, reflects their true skill level. If a measure is intended to be readministered to monitor developmental progress over time or evaluate RTI it is important that the progress monitoring measure be able to effectively capture change in a student’s performance that reflect student skill (Croft, Strafford and Mapa, 2000; Technical Review Committee, 2007). Therefore, Stage Two measurement development research should be
conducted to evaluate effectiveness of the tool to reflect that growth (e.g., reliability and validity of slope).

Given that an intended outcome of an RTI framework is modification of instruction when a student is not adequately responding, Stage Three measurement development should also be conducted. Stage Three measurement development specifically considers whether the measure demonstrates instructional utility (Fuchs, 2004). Instructional utility refers to a measure's ability to inform teacher instruction leading to enhanced student learning (Fuchs, 2004). If a measure has been found to be reliable and accurate in measuring a student's performance level and growth over time without the ability to aid teacher decision-making, its use is limited (Fuchs and Fuchs, 2008). However, if the measure can also be used to modify current practice to enhance student growth, its value is enhanced. If measurement development research provides support across all three stages, the measure can be more confidently used for formative as well as summative purposes, monitoring progress (e.g., growth over time), and informing intervention (instructional utility) (Fuchs and Fuchs, 2007; Good and Kaminski, 1996).

Daly, Lentz, and Boyer (1996) wrote that one potential reason for continuing reading difficulties is because assessment measures were not refined enough to effectively inform individualised interventions based on an individual student’s literacy weaknesses. To further refine measures for assessing beginning academic skills of young children, it has been recommended that measures should be grounded in developmental theory, and research within the domain (e.g., language and literacy development). In addition they should be related to important outcome measures (e.g., successful reading acquisition), and be able to measure growth over time (US Department of Health and Human Services, 2002). The measure must
also be appropriate for the culture in which it is to be used, and be efficient (e.g., low time demands) in recognition of limited attention spans of young children and constraints on professional time.

1.2.2 Limitations of Traditional Measures for Assessing Pre-Literacy Skills

Traditional assessment tools used to measure literacy development have been found wanting within the realm of early literacy (due to elements specified below). Traditional tools have been typically developed to describe a child’s level of performance, often \textit{vis a vis} a standard score that describes performance relative to a normative sample (Shapiro, Keller, Lutz, Santoro, and Hintze, 2006). Curriculum-Based Measurement (CBM) is an example of an alternative measurement approach, designed to allow for repeated assessment throughout a school year (Shinn and Hubbard, 1992). For example, CBM for reading may include assessment of a student’s skill in reading accurately and fluently from text, of an appropriate level, for a one-minute period. The number of correct words is measured and hypothesised to reflect a student’s general reading proficiency (Wayman, Wallace, Wiley, Tichá and Espin, 2007). This type of assessment measure informs the teacher of whether the child can perform the task (e.g., general outcome measures) (Deno, 2003; Fuchs, 2004). It does not explicitly aid the teacher in identifying why a student is struggling (i.e., instructional utility) (Daly et al., 1996). In addition it does not inform teachers about what a child, who cannot yet read, can do. Therefore, although these measures may have been found to hold strong psychometric properties pertaining to the first two stages of measurement development for students who have acquired some reading skills, they may not be sufficient to inform instruction for young struggling readers.
Reading measures that entail passage reading, as in the case of CBM-R and many other forms of reading assessment, are limited because they require a student to have some level of reading proficiency that many pre-readers do not have. Although this approach may be considered to be evidence-based for monitoring the reading progress of older readers (Fuchs and Fuchs, 2008), this approach may be inadequate for assessing pre-literacy skills; this is because it is aimed to assess a skill developmentally more advanced (i.e., reading in connected text). As a result, floor effects are often found as early readers generally have limited text-reading skills (Caffrey, Fuchs and Fuchs, 2008). Consequently, passage reading tasks may be less sensitive to depicting developmental progress of pre-readers or struggling students who may be showing progress in early literacy skill development, but are not yet showing progress on passage reading (Good and Kaminiski, 1996; Fuchs and Fuchs, 2007).

1.2.3 Pre-Literacy Assessment Tools

Although few measures of pre-literacy skills have been developed (Missall, et al., 2007), two such measurement tools have been developed in the US. These are the Dynamic Indicators of Basic Early Literacy Skills (DIBELS; Kaminski and Good, 1996) and Tests of Early Literacy (TEL) distributed by AIMSweb (Shinn and Shinn, 2000). Within the US, reviews have concluded that reliability and validity evidence generally supports the use of DIBELS and AIMSweb’s TEL as formative measures (Technical Review Committee, 2007).

DIBELS were developed in the US as a suite of measures designed to be used to identify children struggling with the early reading component skills, to aid in early identification and intervention (Kaminski, et al., 2008). DIBELS were developed as indicators
of basic early literacy skills (Kaminski, et al., 2008) and are considered to be among one of the “most widely cited and empirically validated progress monitoring tools” (Hagans, 2008, p. 36).

DIBELS were originally developed as downward extensions of the CBM approach (Kaminski and Good, 1996). As with CBM, DIBELS were developed to be economical and efficient in measuring students’ progress toward general outcomes in the school curriculum (i.e., text reading). Consistent with the recommendations outlined above, DIBELS are based on early literacy skills identified to be associated with successful reading acquisition and to be used as indicators of developmental progress in those early literacy skills (Kaminski et al., 2008).

Within the US context, DIBELS have withstood numerous studies undertaken across states (VanDerHeyden, Snyder, Broussard and Ramsdell, 2007), socioeconomic tiers (Hagans, 2008), and age groups (Kaminski and Good, 1996). DIBELS have been found to have good reliability and validity of static scores and slope, as well as having the ability to inform teachers about students’ risk level and required intervention intensity (VanDerHeyden et al., 2007). They have also been found effective in helping teachers monitor intervention programs and assess effectiveness through student responsiveness (Hagan, 2008; Good, Simmons and Kame’enui, 2001). In addition to strong empirical support, DIBELS are also inexpensive, require little time for administration, and the majority of measures have multiple alternative forms for repeated measurement.

AIMSweb’s TEL is another suite of measures designed to assess children’s phonological awareness and letter-naming skills using four short measures (Shinn and Shinn, 2000). As with DIBELS, these measures are inexpensive, efficient and have alternative forms. The use of AIMSweb’s TEL as progress monitoring tools has also been positively evaluated, as have the static scores derived from these measures for use as screening instruments (Technical
Assessment-Informed Instructional Consultation (A-IIC) 16


This thesis will use DIBELS First Sound Fluency (FSF) and AIMSweb Letter Sound Fluency (LSF) to capture student growth in phonemic awareness and grapheme-phoneme correspondence. The next section details research undertaken within NZ to evaluate DIBELS for use with NZ school children, as well as preliminary evidence supporting FSF and LSF use as progress monitoring tools within the NZ context.

1.2.4 Pre-Literacy Assessment Validation and Use in New Zealand

At present the validity of DIBELS for the use in NZ is being assessed. In 2005 researchers based at the University of Otago began to assess the technical adequacy of the DIBELS measures within NZ’s educational system and cultural milieu. Before this the use of DIBELS within NZ had not been evaluated (Schaughency and Suggate, 2008). Given the differences between the language and educational systems in the US and NZ, it was important to empirically evaluate whether these measures were culturally appropriate for use in the NZ context.

Review of DIBELS item content for new entrant students were independently reviewed by research groups in NZ (Schaughency and Suggate, 2008) and Australia (Galletly and Kinght, 2006). Minor instances of content that would be familiar to children in the US context, but less likely so in the NZ or Australian contexts required adaptation. For instance, the word “dime” used
in one test item of the US version is not a common word within NZ or Australian vernacular. Therefore, an adaptation was required and the word “coin” substituted for this item, as it is contextually appropriate (Suggate, personal communication).

Beyond the need to consider the transferability of test content, technical adequacy of assessment results in the NZ context also need to be evaluated, following the three stages of measurement development outlined above. Moreover, before US based normative data were used for educational decision making in NZ, the transferability of such norms to the performance of NZ students, or whether NZ specific normative data were needed, required empirical evaluation (Croft et al, 2000; Smith and Elley, 1997).

A “small-scale field trial” was undertaken by Schaughency and Suggate (2008, p. 99) to evaluate the reliability and validity of static scores for NZ school children. They found that for Year One (Y1) students’, DIBELS tasks (i.e., Letter Naming Fluency, Initial Sound Fluency, Phoneme Segmentation Fluency and Nonsense Word Fluency) significantly correlated with all school used indices of literacy performance. It was further found that the DIBELS tasks administered at the middle of Y1 strongly predicted student outcome at end of Y1 (i.e., school criterion book level) and beginning of Year Two (Y2) DIBELS assessments. Therefore, DIBELS static scores have the ability to predict reading outcomes for Y1 NZ students, giving initial support to the validity and reliability of DIBELS static scores in NZ. It was concluded that further investigation of DIBELS efficacy in the NZ context was supported (Schaughency and Suggate, 2008). It was reported that although research regarding the static score was promising, it did not produce sufficient evidence for DIBELS use for progress monitoring or its ability to inform instruction. As such further studies were required, including further evaluation of static scores (Schaughency and Suggate, 2008).
Two early literacy tasks, DIBELS First Sound Fluency (FSF) and AIMSweb Letter Sound Fluency (LSF), have been identified as potential options for progress monitoring tools for NZ Y1 students. FSF is a measure of a student’s phonemic awareness skills in identifying the onset sounds of spoken words (Dynamic Measurement Group, 2007). LSF is a measure of grapheme-phoneme correspondence (Shinn and Shinn, 2000). The selection of these two measures was based on the students’ literacy developmental stage (which centres on phonemic sensitivity and letter-sound correspondence in Y1), a review of assessment results to date with NZ Y1 students (Schaughency and Reese, in press), and correspondence with the test authors (Good, 2007 personal communication; Shinn, 2007 personal communication).

In two Stage One studies examining predictive validity evidence for Y1 performance on FSF it was found that FSF administered at the beginning of Y1 predicted attainment of the Ministry of Education (MoE) recommended book level at six months in school (Clarke, 2008; Struthers, Schaughency, Meredith, Reese, Clarke and Thurlow 2009). Building on these results, using local norms and a back-mapping approach from reading outcomes in Year 4 to performance on early literacy tasks in Y1, Struthers, Schaughency, Clarke, and Thurlow (2010) found further support for a link between performance on FSF and later reading success.

Clarke (2008) conducted preliminary Stage Two research examining FSF and LSF as progress monitoring measures for Y1 students. Progress monitoring was undertaken in two NZ primary schools using FSF and LSF twice a week for 10 weeks (the second term of the school year). Consistent with results reported by Struthers et al., (2009; 2010), the study concluded that the two measures' static scores held concurrent and predictive validity with NZ used literacy measures (i.e., book level). Moreover, the two progress monitoring measures could reliably discriminate between readers who were and were not considered to be on-track for meeting
MoE achievement targets. In support of use for progress monitoring, Clarke (2008) found evidence of alternate forms reliability. Clarke also found children’s performance on the tasks increased across the term reflecting growth. This indicates further evidence for reliability of slope as an index of growth across time, and incremental validity of level and slope in predicting end of term book level targets. Therefore, in NZ, the first two stages of measurement development have been demonstrated to a level sufficient with children in the target age range to warrant an initial study of the third stage of measurement development (i.e., evaluation of instructional utility).

1.2.5 Current Practice of Literacy, and its Assessment in New Zealand

Within NZ’s diverse population, both in terms of cultural and literacy needs, concerns regarding NZ primary schools’ current early literacy assessment practices were summarised by Schaughency and Suggate (2008). They synthesized the concerns into three areas common across many early literacy measures. First, current measures used may not fully evaluate important emergent literacy skills identified in research (Anderson, Lindsey, Schulz, Monteur and Meiers, 2001; Croft, Strafford and Mapa, 2000). Second, although current measurement tools may have static score technical support involving interpretation of a score at one point in time (e.g., screening), their use as progress monitoring measures or for intervention evaluation is less well empirically established (Denton, Ciancio and Fletcher, 2006). The final concern raised was that the administration time combined with the current levels of time demands for teachers may create a barrier to use of current measurement tools (Dewar and Telford, 2003). Due to these limitations of current measures, Schaughency and Suggate (2008) concluded that, “New Zealand educators may benefit from the availability of additional evidence-based yet
efficient measures in their armamentarium” (p. 86). With the growing evidence that DIBELS and AIMSweb assessment measures can be used appropriately within NZ, these time limited and early skill component focused assessment tools may be viable as a new assessment tool.

An additional reason for the need to evaluate DIBELS and AIMSweb's ability to effectively operate as progress monitoring measures to help aid teacher decision making is the MoE literacy standards legislated to come into effect across all NZ primary schools by 2011 (MoE, 2009). In 2007, the MoE described literacy targets for children to reach at specified points in schooling (Literacy Learning Progressions: Meeting the Reading and Writing Demands of the Curriculum, draft for consultation). This document also set out guidelines for teachers to help them establish the level of competency at which a student should be performing and the subcomponents of that performance level.

NZ school children generally enter school at five years of age and the MoE set literacy targets for six months and one year after school entrance (see Table 1.1). As can be seen in the table, in addition to descriptions of desired competencies at these time points, the MoE also operationalised achievement targets vis a vis instructional book level. Instructional book level is deemed to be the level of familiar text that a student can orally read with 90% accuracy (MoE, 2007). Book level targets set by the MoE are that after six months in school children should be reading at an instructional book level of Red (i.e., 3 - 5) and that by the end of their first year at school book level Green (i.e. 12+-).
Table 1.1 Ministry of Education (2007) Student Literacy Targets Description for Six Months, and One Year of Schooling.

<table>
<thead>
<tr>
<th>Guidelines</th>
<th>6 Months Book Level</th>
<th>1 Year Book Level</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Red</td>
<td>Green</td>
</tr>
<tr>
<td>• Largely be able to read by themselves;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• text that has up to six lines with a simple language structure;</td>
<td></td>
<td></td>
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<tr>
<td>• text has a close match to the pictures</td>
<td></td>
<td></td>
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<tr>
<td>• core of high-frequency words;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• core of high interest words;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• familiar straightforward context</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall End of Y1 Guidelines</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• A full understanding of print concepts</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• The ability to automatically recognise 100 to 200 high frequency words</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Full phonemic and phoneme-grapheme understanding, including understanding that there are multiple sounds for one letter</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• The ability to effectively decode words</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Use their vocabulary for meaning and be able to understand various punctuation features</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• The ability to use self-correction, answer factual questions about their reading and make simple inferences, and use comprehension strategies to respond to age-appropriate text</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

With these literacy targets, the MoE (n.d., 2007, 2009) appears to have embraced the notion of early intervention. As described by the MoE (2009), the National Standards are envisaged as reference points or sign posts to assist school personnel in early identification for providing deliberate instructional support planning. Acknowledging the rationale for early identification and instructional support for children at-risk for learning disabilities such as dyslexia while at the same time acknowledging the risks of false positives, the MoE (n.d.) has specifically recommended progress monitoring of children at-risk for reading difficulties. The aim of this recommendation is to help school personnel discern the continued need for instructional support. Thus, the system begins with the assessment of students’ skills at school entrance and continues through to progress monitoring, intervention, and RTI. In addition to
this, although the outcome targets are described in terms of level of text difficulty, within these documents, the MoE acknowledges need for mastery of component literacy skills (e.g., phoneme and grapheme-phoneme understanding).

1.2.6 Response to Intervention (RTI)

The concept of RTI implies that an intervention should be assessed at regular intervals to ensure it is effective and if it is not, modifications be made (Canter, Klotz and Cowan, 2008). The inherent nature of the RTI model is the “explicit focus on improving the quality of literacy intervention” (Justice, 2006, p. 286). The NZ MoE appears to be embracing the ideals of RTI in its conclusions regarding early identification and progress monitoring for struggling students with the goal of enhancing reading performance (MoE, n.d.).

Within the realm of educational practice in NZ and elsewhere (Gibbons and Silberglitt, 2007) there has been a shift away from diagnostic assessment to assessment for the purpose of informing effective intervention. In light of this shift in ideology, the RTI model is a framework that may add incremental validity to prevention and intervention initiatives. As such the RTI model, when used effectively, has been shown to be a means for organising reading interventions for struggling pre-readers (Justice, 2006). Furthermore, this framework encompasses all students struggling with reading, not just those with a diagnosable learning disability. It has also shown a decrease in the overrepresentation of minorities identified as having learning disabilities in US (National Joint Committee on Learning Disabilities, 2005). It has also been shown to be more likely to identify those with brain activation patterns associated with dyslexia (Fletcher, Francis, Morris, and Lyon, 2005). These findings potentially signal its utility as an approach for reducing the likelihood of false positive identification and increasing
the likelihood of accurate identification of those with learning difficulties. For RTI to be effective, empirically sound and developmentally appropriate assessment measures are needed, as those described above.

There are two assessment approaches that have been described for use in RTI: *progress monitoring*, described above, and *dynamic assessment* (DA). Caffrey et al. (2008) proposed that DA might be an approach that may have the ability to aid teachers in distinguishing pre-readers' readiness to read. They pose the example of two pre-readers receiving scores of zero (i.e., floor effects) on an assessment of reading in connected-text and ask: “is such a score indicative of an unskilled reader not yet ready to acquire beginning reading skills, or does it signal a currently unskilled reader ready to learn after pertinent instruction?” (Caffrey, et al., 2008, p. 254).

The concept of DA has been present within literacy research since the 1970s (Budoff, Meskin and Harrison, 1971). Two types of DA have been developed. The first of these, *clinically oriented*, focuses on a “non-standardized method of assessing and treating the cognitive deficiencies of children with learning problems” (Caffrey et al., 2008. p. 260). In contrast the second method, *research-oriented*, was created to be a standardised assessment framework (Caffrey et al., 2008). Due to the standardised nature of research-oriented DA, assessment protocols are created to ensure standardisation. Within this thesis, research-oriented DA was used to assess pre-readers’ early literacy skills (i.e., phonemic awareness, phonemic segmentation of nonsense, and high frequency whole word reading).

One way that DA differs from traditional assessment is in the role of the examiner. DA views the examiner as an interactive component of the assessment process, whereas in traditional assessment systems the examiner acts as an objective recorder of student performance (Caffrey et al., 2008). In DA, the examiner gives corrective feedback and also
models the skill for the student throughout testing, creating a test-teach-test process. The level of information that can be gained through this process is much greater than traditional assessments (Caffrey et al., 2008). What is important is that the process is not just interested in the student’s response, but also the process of gaining that response (e.g., with modeling the student could learn the letter sound or given sufficient time they could produce the answer independently). Due to this, there is greater scope for identifying where in the developmental progression of skill development the child is currently performing and how best to scaffold instruction, thereby potentially helping to inform intervention (i.e., increasing instructional utility).

Furthermore, DA allows the assessor the opportunity to explore the nuances of the child’s skill deficit (e.g., are apparent difficulties a reflection of phonological sensitivity or naming?), and other factors that may impede performance (e.g., is the child able to perform the task with support and structure from the assessor, but not perform the task independently without support?). DA can be viewed, then, as a measure, not only of student performance, but also of students’ ability to change and learn (e.g., learning potential assessment) (Budoff, Gimon and Corman, 1976; Budoff, Meskin and Harrison, 1971). Therefore, the emphasis is placed on establishing the best conditions that heighten students’ learning capacity (Caffrey et al., 2008).

Caffrey et al., (2008) assessed the predictive validity of the DA process through a review of 24 studies with an aim to “synthesize evidence on the predictive validity of dynamic assessment” (p. 266). Overall, it was found that DA predicted future achievement with similar accuracy as traditional literacy measures. It was also found that although DA predicted future performance to the same extent as traditional measures, it also had incremental validity within
the predictive process. Incremental validity refers to a measure's ability to add information greater than that already known through the use of current measures (Anastasi and Urbina, 1997). One notable study found that DA “accounted for an additional 9 to 21% of the variance…[above traditional achievement tests]…in phonemic awareness and reading achievement for students in kindergarten” (Y1 NZ equivalent; Byrne, Fielding-Barnsley and Ashley, 2000). Caffrey et al. (2008) concluded that DA practices have the potential to predict a distinct type of achievement not accounted for by traditional measures. Therefore, the place for DA may not be as a replacement for traditional testing, but as an additive, shown to provide unique information related to a student's potential capacity for future achievement.

1.3 Perception Can Be Everything

1.3.1 Definitions and Models of Social Validity

When introducing a new assessment and intervention system not presently used within a school, school personnel perceptions regarding the relevance and acceptability of the process are likely paramount (Thomson, 2003). Wolfe (1978) introduced the concept of social validity. Social validity refers to stakeholders’ subjective evaluation of psychological work (Wolfe, 1978). When engaging in indirect service delivery (e.g., educational consultation), in which services to the student are implemented by another individual (e.g., the classroom teacher), the aspect of social validity that is importance is intervention acceptability (Elliott, 1988; Thomson, 2003). Without considerations of social validity, all the best technical adequacy evidence, efficiency, and developmental relevance could be made redundant. This is because the individuals targeted to implement the assessment and intervention system may refuse to undertake the task, thus reducing intervention integrity through poor implementation.
Social validity is the degree to which the purpose of the intervention has social significance. This includes questions about the appropriateness and acceptability of the procedures (Kazdin, 1977; Wolfe, 1978). Social validity can be separated into three core elements (Wolfe, 1978). The first element is the social significance of the intervention's aim and goals. This can be understood as whether the targeted behaviour is deemed socially important and change is necessary. The second element refers to the social appropriateness of the procedures employed to change the behaviour (e.g., not punitive). The third element is the extent to which the outcome is viewed as holding “meaningful clinical significance” (Finn and Sladeczek, 2001, p. 177). Clinical significance refers to an intervention's ability to meet its goals (e.g., increase literacy skills) that signals the intervention as successful benefiting the individuals involved (Jacobson and Truaz, 1991). Therefore, social validity is a multifaceted concept, which focuses on the humanistic interpretation of a posed intervention or assessment system.

Another important component of social validity, termed treatment acceptance (Kazdin, 1981) or intervention acceptability (Thomson, 2003), aims to assess individual's acceptance of treatment procedures (Gresham and Lopez, 1996). Kazdin (1981) defined treatment acceptance as “judgements of lay persons, clients, and others of whether the procedures proposed for treatment are appropriate, fair, and reasonable for the problem or client” (p. 493).

Witt and Elliott (1985) appear to be the first to have proposed a potential interactive model of the variables affecting teacher acceptability of a classroom based intervention. They postulated that treatment acceptability, use, integrity and effectiveness are four interrelated factors that work in a sequential and reciprocal manner affecting overall treatment acceptance and uptake. They further posited that initial perceptions of an intervention method will
influence the likelihood that a procedure would be implemented and the level of subsequent treatment integrity (e.g., intervention undertaken as intended). These initial interpretations will then fundamentally mediate the effectiveness of the intervention (e.g., if treatment integrity is low, reflecting poor quality or limited implementation, the intervention is less likely to be effective). The last element, treatment effectiveness, can also be an important mediator because if an intervention is perceived as effective, initial perceptions of effectiveness will be strengthened, thereby increasing intervention acceptance and, subsequently future implementation, treatment integrity, and actual effectiveness.

Reimers, Wacker and Koepple (1987) extended Witt and Elliott's (1985) model to capture their hypothesised importance of the teachers' level of knowledge of the proposed intervention. Reimers et al. (1987) postulated that a teacher’s initial knowledge level is the first element encountered that mediates an intervention’s acceptance, as seen through fidelity with treatment protocols. If a teacher has a high level of knowledge of the intervention and the rationale for its use, and their overall understanding of how to implement the intervention is good, there is an increased likelihood that it will be accepted, and in turn will be perceived as effective. After the initial element of knowledge is considered, the model follows the same pattern of the four interrelated elements (i.e., treatment acceptability, use, integrity and effectiveness) described above.

Elliott (1988) identified several psychologist and teacher variables that had been found to mediate perceived acceptability of an intervention. With regard to psychologist variables, Elliott (1988) reported that the level of jargon used when describing an intervention option, as well as the rationale for its use, affects teachers' perceptions. Psychologists’ descriptions of effectiveness of the treatment prior to treatment implementation has been found to mediate the
acceptability to teachers. The reporting of negative side-effects from an intervention affects perceived acceptability to a greater extent than reports of positive effects (Elliott, 1988). It was further noted that teachers' initial perceptions of an intervention's potential effectiveness significantly affected its perceived effectiveness following implementation.

Elliott (1988) also synthesized several important teacher variables shown to influence treatment perceptions. These included the severity of the problem identified for modification. Greater severity increased the acceptance of an intervention. Problem severity has also been found to interact with the type of treatment endorsed. If a problem was deemed severe greater acceptance for treatments that involved greater teacher time was found compared to mild problems for which teachers endorsed treatment options that required less time. Therefore, Elliott (1988) concluded that teachers were "time conscious, but not time obsessed" (p. 72).

Teacher background variables were also noted to affect perceptions of acceptability of an intervention. It was found that teachers with greater teaching experience often had an increased knowledge base regarding an intervention and rated acceptability more highly (Elliott, 1988). This is of importance and highlights Reimers et al., (1987) model whereby knowledge mediates acceptance. Elliott (1988) further reported that Witt, Moe, Gutkin and Andrews, however, found that teachers who had more teaching experience appeared to find all interventions less acceptable overall. Therefore, greater initial understanding of an intervention gained through experience increases acceptance, but greater experience also reduced a teacher's overall general acceptance of any intervention options. Elliot (1988) postulated possible reasons for this finding including evolution of teaching training over time, changes in expectations placed on teachers and their previous experience with interventions undertaken in the classroom.
Therefore, many variables have been identified that can influence teachers' perceived treatment acceptance, implementation and potentially an intervention's overall effectiveness. However, caution must be used when interpreting the above variables in light of the models presented as little empirical evidence exists supporting their validity. Despite this, they are helpful heuristics that can be used to highlight the potential ways in which social validity and treatment acceptance can ultimately mediate the success or failure of an intervention regardless of the intervention’s own power (Calvert and Johnston, 1990).

1.3.2 Measuring Social Validity

When assessing individuals' perceived level of social validity, specific questions are asked that relate to the three elements stipulated above (i.e., goals, procedures and outcomes) (Foster and Mash, 1999). Questions commonly assessed regarding the targeted behaviour and selected goals relate to the behaviours' importance for change (e.g., is working towards the targeted goals justifiable?) and their acceptability (e.g., are the goals worthwhile and a desirable outcome?). When assessing the procedures selected for reaching the treatment goals, questions mainly pertain to treatment acceptability (e.g., is the procedure/intervention selected appropriate?). With regard to the assessment of the outcome of a selected intervention, the questions often asked related to the clinical or educational significance of any noted change (e.g., is the degree of change enough to represent an improvement that is socially meaningful – do the students targeted now match their normal performing peers?) (Foster and Mash, 1999).

Aspects of social validity have traditionally been measured using questionnaires, where respondents are asked to rate their perception of fairness and expected outcome (i.e., perceived effectiveness) on a Likert scale (Finn and Sladeczek, 2001; Gresham and Lopez, 1996). One
such measure, the Behaviour Intervention Rating Scale (BIRS) (Von Brock and Elliott, 1987), was adapted for the context of the current thesis. The questionnaire was used to assess the teachers’ perceptions of the procedure employed. The BIRS has been found to reliably discriminate between treatment options and validly measure the underlying constructs (i.e., perceived effectiveness, acceptability and time-to-effort) (Elliot and Treuting, 1991; Von Brock and Elliot, 1987). Moreover, the BIRS has been used successfully across adult stakeholder groups including teachers, parents and educational psychologists (Finn and Sladeczek, 2001).

The students’ perceptions of social validity and treatment acceptability are also important as they are participating in the intervention process. The Child Intervention Rating Profile (CIRP) (Witt and Elliott, 1985) was used for this purpose in the current thesis. As with the BIRS, the students are asked to indicate their perceptions of fairness and expected outcomes of the procedure. The CIRP has traditionally been used with students in Year 6 and upward because the questions are phrased at a Year 6 reading level. For students in Year 6 this measure has been found to have good internal consistency (Witt and Elliott, 1985) and discriminant validity (Turco and Elliott, 1990; Wass and Anderson, 1991).

Other methods for assessing the social validity of an intervention's outcome have also been recommended. These include social comparison (Kazdin, 1977) and subjective evaluation by stakeholders (Gresham and Lopez, 1996). Social comparison refers to the use of normative data of the target behaviour to interpret if at the conclusion of an intervention or at follow-up a student performance is comparative to their peers (Gresham and Lopez, 1996). Within the current thesis, student performance on both researcher administered literacy assessment and school criteria (described in Chapter 2) were assessed for educationally significant improvement based on normative data. Subjective evaluation refers to gaining stakeholders’ (e.g.,
teachers) evaluations of improvement. The BIRS and Goal Attainment Scaling (GAS), within the current thesis, were used as measures of subjective evaluation. Therefore, emphasis is given to both student literacy improvement (i.e., social comparison), as well as how the teachers' viewed any improvements (BIRS and GAS) (Gresham and Lopez, 1996).

The importance of the social validity of the assessment process cannot be overlooked as it can mitigate the effectiveness of an intervention. Within school-based interventions, in which teachers are generally the agents of change (e.g., the professional who implements the instructional intervention), their acceptance of a new strategy is likely integral to its adoption and potentially its success. Research has shown that general acceptability is maximised when interventions are perceived as positive, in that they are not punitive in nature, use time efficiently and are minimally intrusive to the current classroom routine (Albers, Elliott, Kettler and Roach, 2005). Therefore, efforts were made to maximize these elements in the current thesis.

1.4 Bringing it All Together

1.4.1 Aims and Hypotheses

Overall, this thesis aimed to follow best practice recommendations for professional child psychological services. Specifically, it is postulated that students who are not responding favourably, to the learning opportunities that are effective and appropriate for most students, they may benefit from further specialised intervention (i.e., RTI). Further, specialised intervention should be informed by strong EBA that is developmentally and theoretically relevant. Finally, for instructional utility to be met, the assessment undertaken should be able to
guide teachers’ interventions by adding to their understanding of the students’ current strengths and weaknesses.

The primary purpose of the studies conducted, as part of this thesis, was to undertake a preliminary evaluation of instructional utility of progress monitoring with two early literacy tasks. As the process is intended to lead to individualised instructional interventions, this poses challenges for evaluating the utility of the procedure undertaken because the interventions implemented may vary considerably between students (Hughes, Hasbrouck, Serdahl, Heiderken and McHaney, 2001). Therefore, in line with suggestions by Friedman (1997), these studies are implemented to gain preliminary evaluations of teacher perceptions of the process and initial outcome results.

In this thesis, two studies were conducted that used the DIBELS FSF and AIMSweb LSF early literacy assessment measures to inform a consultation process with teachers of struggling readers. The current studies aimed to assess the following questions in evaluating the Assessment-Informed Instructional Consultation process (A-IICp) employed: (i) Was the process perceived as socially valid by the teachers and students? (ii) Did the process of providing the assessment information to the teachers lead to instructional modification and implementation? (iii) Did students’ performance on the tasks increase across the study? (iv) If increases occurred, did they reflect educationally significant improvement – did the students match their peers for reading performance and system level expectations at the end of the year? These questions were asked to assess initial perceptions of instructional utility of the two literacy assessment measures and the informed consultation procedure.

It is hypothesised that the teachers and students would perceive the A-IICp undertaken and measures used to be socially valid, reflecting their initial perceptions of instructional utility.
The teachers would, therefore, modify their current instruction to better meet student needs, leading to increased performance over the course of the study and educationally significant improvements at the conclusion of the school year.

1.4.2 Participants

Two primary schools situated in a small NZ city participated. The studies were conducted in the context of instructional consultation undertaken within the wider junior education curriculum pre-established by each school. The first study was undertaken as a pilot study, with refinements made to the procedure before the second study’s commencement. The studies were conducted with Year Zero (Y0) and Y1 students' pre-identified as at-risk for reading difficulties by their classroom teachers and the Resource Teacher of Literacy (RT:Lit) who served both schools.

The students’ classroom teacher/s were utilised as the main agent of change (AoC). They identified the students, discussed and specified interventions, initiated and maintained interventions, and subjectively evaluated progress towards goals, which they identified for each student. The researchers were agents of information (AoI). They monitored the students' progress and provided this information to the teachers and RT:Lit to aid in goal setting, intervention planning and evaluation. The RT:Lit was an agent of facilitation (AoF) as she helped to highlight developmental norms for pre-readers and provided ideas for interventions.
1.4.3 Rationale for Progress Monitoring Measurement Selection

As teachers’ time is a finite resource, it must be used appropriately and efficiently. The question regarding perceived and actual incremental validity of additional assessment measures is paramount. As such, the three data forms selected, researcher administered wider literacy assessment, DA (adapted from Daly et al., in press), and progress monitoring, were chosen because they have been shown to meet the definition of incremental validity in various studies conducted in the US and add instructional utility (Hagans, 2009; Fuchs and Fuchs, 1986; Fuchs, Fuchs and Hamlett, 1989; Shinn and Hubbard, 1992). Further, none of these assessment forms were currently employed by the schools as part of their literacy curriculum.

The two measures used for progress monitoring were DIBELS FSF (2008 Beta) and AIMSweb LSF (Shinn and Shinn, 2002). These were selected due to the nature of what they assess: oral-auditory initial phonemic awareness and phoneme-grapheme correspondence, respectively. As discussed above, international research has shown that phonemic awareness is a strong component of reading acquisition and correlates more highly with reading success than general intelligence or other cognitive abilities (National Reading Panel, 2000). The two tasks may also reflect differing levels of difficulty in developing literacy skills. More specifically, FSF is viewed as a developmentally easier skill than LSF. The reason for this is that the words are auditorily presented to the student; therefore, the student does not have to understand the visual relationship between letters and the sounds they represent.

By using these two tasks, there may be an increased ability to identify and distinguish where a student’s reading weaknesses and strengths may lie. For instance, if a student is performing poorly on LSF, they may also show poor performance on FSF; therefore, the level at which intervention should be targeted is at the prerequisite level of FSF (e.g., auditory onset and
rime). In contrast, if a student is performing poorly on LSF, but is reaching a high level on FSF, it can be reasoned that the student requires intervention targeted at the visual phoneme-grapheme level. Once a student has mastered these two skills, they may be more ready for scaffolded instruction for blending together individual letter sounds and syllables to make whole words (e.g., decoding skills) (Kaminski and Good, 1996; Kaminski, Cummings, Powell-Smith and Good, 2008). It is highly important to note that although these two skills are predictors of successful literacy acquisition, they are not the only skills needed to be fluent and effective readers, but are tools that may aid strongly in the acquisition of reading (Missall et al., 2007). All measures and materials are presented in Chapter 2.

1.4.4 Research Design

The NZ school year is separated into four terms of approximately 10 weeks. The first study was undertaken in Term Two at School A. The second study was undertaken in Term Three at School B. The design of the present studies was a multiple-baseline single subject A(baseline)/B(consultation1)/C(consultation2 – modification or continuation of consultation1) design across teachers (Bailey and Burch, 2002; Kennedy, 2005). This design has been found to be effective in detecting changes due to intervention (Daly, Barnett, Kupzyk, Hofstadter, and Barkely, in press), while providing replications to increase confidence that observed changes are associated with implementation of the intervention (Christ, 2007).

In keeping with a multiple-baseline design, the studies were designed to have staggered implementation across teachers. Therefore, the instructional consultation was provided to one teacher or set of teachers, while progress monitoring baseline data collection continued with the students of the other participating teacher(s).
1.4.5 Independent Variable

The independent variable was the consultation process that provided the teachers with progress monitoring data (i.e., FSF and LSF) across study phases to facilitate teacher interventions for identified struggling readers. The data were presented at the consultation meetings and consisted of the beginning of the year researcher-administered wider literacy assessment (i.e., DIBELS beginning of year assessment, when available), researcher-conducted DA (adapted from Daly et al., in press, informed by baseline progress monitoring results), and progress monitoring data. The data were presented in graphic form and is described in Chapter 2 and presented in Appendix A and B.

1.4.6 Dependent Variables

In order to assess subjective evaluations of social validity of the process, teachers completed a questionnaire and rated students' movement toward goal attainment, and the students also completed a questionnaire. In addition, students’ progress monitoring data were averaged, grouped and analysed for statistically significant increases in level of performance across phases. Finally, follow-up data that included end of year DIBELS assessment consisting of the Letter Naming Fluency, Phonemic Segmentation Fluency and Nonsense Words Fluency measures were compared to local normative data for social comparison. In addition student end of year book level was interpreted in light of the MoE set Standards for instructional book level.
CHAPTER 2. METHOD OVERVIEW

Ethical approval for these studies was provided by the University of Otago Ethics Committee. The research to be presented in this thesis consisted of two Assessment-Informed Instructional Consultation studies conducted sequentially in two different participating primary schools. Although a common framework was developed to guide both studies, specific aspects of the studies differed, based on recommendations in the school consultation literature, acknowledging that individual schools represent different work settings (Forman and Zins, 2008; Schaughency, Alsop, and Dawson, 2010) in which different routines and procedures are employed to meet the instructional needs of students, as is the case in NZ schooling (Mitchell, 2000). Therefore, study materials and procedures were adapted for each school for “fit” with the local context. Moreover, successive implementation of studies across schools afforded the opportunity to use evaluation results and experience in implementing the initial field trial formatively and iteratively to refine procedures for use in the second participating school. This chapter outlines elements of participant selection, materials, and procedures common to both studies. Following this, each school has a dedicated chapter outlining the specific participant and material elements employed at the school and the procedures followed.

2.1 Participants

2.1.1 Primary Schools

Two state-funded co-educational primary schools situated in a small NZ city participated in the studies. Information about the socioeconomic make-up of the communities served by the schools is provided by Ministry of Education assigned school decile. School decile is a socioeconomic indicator that denotes the extent to which the school draws its students from low
socioeconomic communities (Education Review Office, 2008a). Schools with a decile rating of 1 are the 10% of schools with the highest proportion of students from low socioeconomic backgrounds, whereas those with a decile rating of 10 are the 10% of schools with the lowest proportion of students from low socioeconomic communities. Specific decile rating and demographic information for each school is presented within the school specific chapters that follow.

2.1.2 Students

The students who were invited to participate in the Assessment-Informed Instructional Consultation studies were identified as struggling readers by school personnel. This meant that their learning trajectories, interpreted by their teachers, using school based measures and professional judgement, indicated potential reading difficulties if additional intervention options were not explored. This method of identification of student achievement is consistent with educational policy and practice in NZ, in which overall teacher judgment is used to consider a student’s progress in relation to the National Standards (Ministry of Education, n.d.). Although positive predictive value of teacher judgment is not perfect (Teisl, Mazzocco, and Myers, 2001), this method has inherent social validity (Schaughency and Suggate, 2008) and avoids the possibility of false positive identification via researcher administered measures (Fuchs and Fuchs, 2008).

There were four inclusion criteria that needed to be satisfied for student participation. First, children needed to be a student of a participating teacher at a participating primary school. Second, the students were identified by school personnel as at-risk for reading difficulties as noted above. Third, the students were in Year Zero (Y0) or Year One (Y1). The final criteria
was that informed consent (i.e., proxy consent) was obtained from the students’ parents (see Appendix C) and that assent was gained from the student. Assent was gained through discussing the types of assessments the students would engage in twice weekly over the following term. There were no additional exclusion criteria, and the students were not formally screened for any educational, physical, psychological or behavioural problems. All student's had commenced school at the beginning of the school year (i.e., Term 1).

2.1.3 Educational Professionals

All Y0 and Y1 teachers at each participating school were invited to partake in this research. Teacher participants included those teachers who agreed to participate and were teachers of student participants. The teachers provided informed consent through the signing of a consent form after reading a information handout regarding the project and their responsibilities of participation. The Resource Teacher of Literacy (RT:Lit) who served the schools was also invited to participate. RT:Lit are teachers who have completed a diploma of RT:Lit with a specialised focus on student literacy from Y1 through to Year 8. The RT:Lit works both with students who are at-risk for reading difficulties and their classroom teacher to increase the student’s reading potential.

2.2 Model of Implementation and Expected Outcomes

Figure 2.1 below provides an overview of the Instructional Utility Evaluation Process employed to capture teacher and student perceptions of instructional utility of the A-IICp.

The solid arrows represent the hypothesised direction of influence relationships between the components of the study (e.g., progress monitoring, DA and wider literacy assessment
informed the consultation, and the consultations were hypothesised to contribute to teacher instructional refinement). Consultation procedural integrity, represented by the yellow rounded square, refers to the consistency of the consultation procedure conducted by the researchers across meetings and schools (Galloway and Sheridan, 1994). Use of protocols have been recommended to enhance fidelity (Telzrow and Beebe, 2002).

**Figure 2.1** Graphical Representation of the Assessment-Informed Instructional Consultation Process Undertaken and the Measures Used to Evaluate its Instructional Utility.

The information indicated with the red rounded squares denotes the researcher collected information gathered to inform the consultation process, and the red ovals the anticipated
outcomes of the process (e.g., refined teacher instruction leading to improved student literacy). The dotted arrows link the dependent measures to the study's components they were employed to evaluated. Thus, dependent measures were included to consider: 1) social validity of the overall A-IICp, 2) instructional integrity of refined teacher instruction, and 3) student literacy performance at the end of the study and end of the year. Represented by the blue boxes are the dependent measures used to assess teacher and student perceptions of the instructional utility of the A-IICp (i.e., social validity and instructional integrity). Further, as can be seen in the blue squared oval, towards the bottom in the middle, student progress monitoring information was interpreted as a dependent measure used to assess student performance over the course of the consultation. The green boxes represent outcome measures, both teacher and researcher, administered to evaluate the educational significance of the procedure at the end of the students' first year of school (e.g., did they meet their peers for literacy performance?).

2.3 Measures and Materials

2.3.1 Independent Variables

The independent variables in the instructional utility studies refer to the presentation of the results of the measures and materials used to gain assessment information regarding the students' literacy performance. One measurement procedures was used to gain beginning static assessment data of students' early literacy skills. This was the researcher created DA. Progress monitoring tasks were then used to undertake continued formative assessment of student performance throughout the study. The assessment information was then presented to the teachers at their respective instructional consultation meetings.
Dynamic Assessment (DA)

Research oriented DA was conducted to gather further information of the student’s level of phonemic and decoding skills at the beginning of the consultation process. Each student was administered three DA conditions detailed below. The stimuli for each of the three DA phases were idio graphically developed based on baseline progress monitoring results using the protocols presented below. The development of this study-specific DA was modelled from Fuchs et al., (2007) and Daly et al., (in press). See Appendix D for the protocol employed.

Individual Letters. For each student three unknown consonants and three unknown vowels were identified from their baseline performance on Letter Sound Fluency (LSF). If a student did not produce three incorrect vowel sounds during baseline, extra incorrect consonants were selected to make the number of individual letters to six. Each individual letter was handwritten in black ink, in lower case on a 6x5inch white flash card.

Nonsense Words. Five Consonant-Vowel-Consonant (CVC) nonsense words were created for each student using their identified individual letters. The nonsense words were created by placing the student’s individual consonants and vowels face down in two separate piles and then selecting the top two consonants and first vowel. The three cards were then used to make a CVC nonsense word. The two piles were then shuffled and the process repeated. This process was repeated until five different CVC nonsense words were produced for each student. If the student had one incorrect vowel, this was used for all five nonsense words. If the student had no incorrect vowel sounds one of each of the vowels were used (i.e., a, e, i, o, u; as it was assumed
to indicate that they knew all five letters). Each of the five nonsense words was handwritten, in black ink, in lower case letters onto 6x5inch white flash card.

Real Words. Two words, ‘big’ and ‘and’ were selected from the students’ high frequency word list provided by the Junior Syndicate Leader and three, three-letter, real words were created from the student’s individual incorrect vowels and consonants. When the student’s incorrect phonemes did not permit the creation of three real words, further high frequency words were used. This was done for two students for which the word ‘dad’ was selected. Each of the five real words were handwritten in lower case letters, in black ink, onto 6x5inch white flash cards.

Progress Monitoring
The materials used for progress monitoring included the DIBELS First Sound Fluency (FSF) and the AIMSweb early literacy measure of Letter Sound Fluency (LSF). Each measure had twenty alternative forms, matched for difficulty. Each student had a scoring booklet for each task.

First Sound Fluency (FSF). FSF is another measure of a student’s initial phonemic awareness skills. It differs from ISF in that the students are not presented with any visual stimuli. During the current studies, the FSF task was undergoing psychometric evaluation to assess its potential to replace the ISF task (Dynamic Measurement Group, 2007). Preliminary evaluation in the US found that FSF had a median one-month test-retest reliability of alternate forms of .82 (Cummings, Good, Kaminski and O’Neil, 2007). Concurrent and predictive validity with other DIBELS measures was found to be greater for FSF than IFS and, more specifically, predictive
of Phonemic Segmentation Fluency (Dynamic Measurement Group, 2007). For example, FSF added greater predictive power to end of year Phonemic Segmentation Fluency and Nonsense Word Fluency scores, as well as the phonemic elements of the CTOPP (Cummings et al., 2007).

Within a NZ Y1 sample, FSF criterion validity as tested against the Phonemic Segmentation Fluency task was .72 (Clarke, 2008). Rate of growth as analysed through student slope were found to be 1.4 first sounds gained per week over the ten week period (second term of Y1) (Clarke, 2008). The average student static score at the beginning of the progress monitoring study was 30.37 (SD = 16.38) and at conclusion 42.08 (SD = 13.93; n = 49) (Clarke, 2008). Clarke (2008) also found alternate form reliability correlations across all probes ranging from 0.59 to 0.97, with an average correlation of 0.86.

For FSF, students were orally presented with a word and asked to orally reproduce the first phoneme they heard (e.g., if a student was orally presented with the word “moon” the correct response would be “/m/”). If the student did not identify a sound within three seconds, the examiner presented the next word and the student received a score of zero. The student could identify up to thirty phonemes in one minute, with a total possible score of 60.

The scoring sheet consisted of four columns and thirty-one rows. In the first column, the rows contained the single word which was presented to the student. In the second, the rows contained the initial sound of the word (e.g., “/m/” - two points). In the third, the rows presented the first two-to-three phonemes of the word (e.g., “/moo/” - one point). In the fourth, the rows contained a zero, indicating an incorrect response. If the student responded incorrectly to the first five words presented, the task was discontinued. The task took approximately five minutes to administer.
Letter Sound Fluency (LSF). LSF is a measure of grapheme-phoneme correspondence (Shinn and Shinn, 2002). LSF has been specifically identified as a potential candidate for progress monitoring with beginning school students (Fuchs and Fuchs, 2008, 2004), in part because of its potential utility as an instructional target (Fuchs and Fuchs, 2008, 2004; Marston, Pickart, Reschly, Muyskens, and Tindal, 2007). Students were presented with an A4 sheet of paper which contained lower case letters, printed in black ink. The letters were randomly organised with ten letters per row, with ten rows. The students were instructed to say as many letter sounds as they could, within one minute. If the student hesitated for three seconds the examiner informed them of the letter sound and prompted them to move to the next letter. The scoring sheet consisted of the same letters presented to the student in the exact order. The task was discontinued if the student did not correctly produce any letter sounds on the first row.

Technical adequacy evidence for LSF level and slope was reviewed by the US National Center on Response to Intervention (2009). As described by Fuchs and Fuchs (2004, 2007), reviews of research conducted in the US suggests that LSF produces reliable scores that forecast reading competence. Specific technical adequacy evidence reported by Fuchs and Fuchs (2007) include alternate forms reliability ranging from .92 - .94 and criterion validity with WJPEBRC ranging from .58 - .71. Consistent predictive validity evidence is reported by Fuchs and Fuchs (2007) and Marston et al., (2007), with correlations ranging from .48 - .59 between performance on a LSF task in the Y1 of school and oral reading fluency at the end of the first and second years of school.

A study conducted within NZ found a rate of growth as analysed through student slope of 2.35 letter sounds gained per week over the ten week period (second term of Y1) (Clarke, 2008). The average student static score at the beginning of study was 20.10 (SD = 15.57) and at
conclusion 41.85 (SD = 23.08; n = 49). The NZ study also found that for Y1 students, alternate form reliability ranged from 0.62 to 0.98, with an average of 0.88.

*Instructional Consultation Meetings Materials*

*Initial Instructional Consultation.* A hand-out regarding the assessment framework, the early literacy skills to be assessed and the developmental trajectories of early literacy skills (e.g., phonological awareness and alphabetic principle) was used to help the teachers conceptualise the study and potential literacy targets for their students. In addition, the hand-out specified the assessment to be undertaken. The teachers were also presented with the available students' results from the beginning of year researcher administered literacy assessments, DA, and baseline progress monitoring information (see Appendix A for the presented assessment information).

*Second Instructional Consultation.* A hand-out detailing the agenda, aims for the meeting and a framework for reviewing the progress monitoring data (i.e., develop clearly defined goals, determine a criteria for success and evaluate progress towards goals) was used to help the teachers interpret the progress monitoring data. The hand-out also specified how to apply the Fisher Criteria when viewing the Fisher Microsoft Excel™ graphs. The teachers were also presented with their students’ progress monitoring performance following Consultation One (see Appendix E information hand-out).

*Data Presentation Formats.* Microsoft Excel™ was used to present each student’s progress monitoring data. Each student’s data were presented individually, with one graph for each of the
progress monitoring tasks. The graphical representations were different for school A and B, therefore, data presentation style will be described in school specific chapters.

The Fisher Criteria were used as the criterion for visual analysis of the students’ data to aid interpretation of progress towards goal attainment (Fisher, Kelley, and Lomas, 2003), and was identical across both schools. The Fisher Criteria were selected to ensure consistency of interpretation across teachers. The Fisher Criteria specify the collection of minimal data points (e.g., two for baseline and five for intervention phase) and does not stipulate the need to meet any statistical assumptions (Daly et al., in press). From the baseline assessment information the Fisher Criteria programme run in Microsoft Excel™ projects predicted student trend and level lines. The Fisher Criteria then stipulates a given number of progress monitoring data points that need to fall above the level line and/or trend line that signal progress towards goal attainment. The program was run and graphs produced using Microsoft Excel™. Each student’s progress monitoring data for both FSF and LSF were subjected to the Fisher Criteria to assist visual analysis.

2.3.2 Dependent Variables

Teacher Completed Intervention Implementation Form (IIF)

The selected interventions and their implementation were recorded using researcher developed Intervention Implementation Forms (IIF). These forms were used to aid in answering the question: did the A-IICp lead to instructional modification? It also served as a measure of intervention integrity (i.e., the extent that an intervention was conducted as intended; Albers, Elliott, Kettler and Roach, 2005). For instance, although the process may have modified
teachers' intended interventions (adoptions), did this also translate into practice within the classroom (implementation)?

The forms were intended to be used by teachers as a self-monitoring tool to assess the treatment integrity (Gresham, 1989). The assessment of treatment integrity is important to analyse if an intervention is implemented as intended and also follows the design of the intended research (Galloway and Sheridan, 1994). As a result of review of the data obtained at School A and teacher feedback regarding ease of use, the format for data recording was revised prior to implementation at School B. Because the teachers from Schools A and B recorded interventions on different forms, the forms used at each school will be described in school specific chapters.

Social Validity Questionnaire. An adaptation of the Behaviour Intervention Rating Scale (BIRS) created by VonBrock and Elliott (1987) and used by Sheridan and Gallway (1994) was used to measure the perceived effectiveness and acceptability of the process (technical adequacy discussed in Chapter 1). The questionnaire consisted of three distinct scales that assessed the studies’ perceived effectiveness (seven questions), acceptability (fifteen questions), and time-to-effort (two questions). Responses were measured using a six point likert scale (1 = strongly disagree, 2 = disagree, 3 = slightly disagree, 4 = slightly agree, 5 = agree and 6 = strongly agree) and a written feedback section was also included. The BIRS is presented in the results chapters.

Goal Attainment Scaling. Goal Attainment Scaling (GAS) forms were used as a further method for gaining teacher and RT:Lit's subjective perceptions of effectiveness. GAS has been used
across a variety of settings as a structured system for identifying and measuring movement toward behaviourally operationalised goals (Kiresuk, Smith and Cardillo, 1994). It has been used to measure student performance with both teachers and parents of students having difficulty with schooling, either behavioural or educational (Hughes et al., 2001).

A hand-out detailing the purpose of using GAS and how to effectively utilise the tool was given to each teacher and the RT:Lit (see Appendix F). GAS forms were used as a facilitative process to help the teachers create individualised goals for each student. They were also used as an evaluative tool of each student's achievement level relative to the specified goal, based on the students’ progress monitoring data and teachers’ perception of the students’ reading growth. Teachers used a five point Likert scale to rate a student's levels of goal attainment: -2 = literacy performance got significantly worse; -1 = literacy performance got somewhat worse; 0 = no progress; 1 = goal partially met; +2 = goal fully met.

**Student Completed**

*Social Validity Questionnaire.* An adaptation of Child Intervention Rating Profile (CIRP) was used to evaluate the students’ perspectives of social validity (adapted from Witt and Elliott, 1985; technical adequacy noted in Chapter 1). Due to the age of the students' participating in the current thesis, two modifications were made. First, items were read to the students to avoid demands on their reading skills. Although reading items to participants could potentially increase social desirability demands, no differences were found between the two response modes in a study with students in Years 4 – 7 (Eckert, Dunn, Guiney, and Codding, 2000). Second, the usual Likert scale was replaced with three options: yes, not sure and no. This was done to reduce the likelihood that the young participants may choose extreme response options
(Chambers and Johnston, 2002). The questions assessed five areas including how the student felt the examiner treated them, whether other students teased them for participating, how helpful they found the tasks for their personal reading, whether they liked the project, and if they felt others would benefit from participating. As the CIRP has generally been used with older students, results in the current thesis should be interpreted with caution, and its appropriateness will be explored fully in Chapter 9. The CIRP is presented in the result chapters.

**Researcher Completed**

*Progress Monitoring Level Data.* The progress monitoring measures used and procedures employed are described above. The students’ mean level of performance on progress monitoring tasks collected during each study phase were used to examine whether improved performance was observed subsequent to instructional consultation sessions.

**Student Outcome Measures**

The student outcome measures described below were used as measures of educationally significant change at the end of the school year for participating at-risk students. Consistent with a social validity perspective, students' performance at the end of the year was considered relative to their peers typical performance in the local context (i.e., social comparison). Two types of outcome measures were used. The first was the school used criterion measure of book level. The second was the researcher administered wider literacy assessment conducted with the DIBELS early literacy assessment system interpreted using NZ normative data collected between 2006 and 2009 (Madigan, Struthers, Suggate, and Schaughency, 2009).
School Administered Criterion Measures. Since 1963 the Price-Milburn Book Level (PM-BL) Methven Story books have been used in NZ classrooms to aid literacy acquisition and assessment. The 700 books have traditional story structures with illustrative content. The books’ focus is on meaningful enjoyable stories, with the aim of teaching a variety of literacy skills (Shoulder, 2003). The books are ranked into 24 distinct book levels based on difficulty. The difficulty of the book is based on the words used, sentence construction, and meaning (Nelly and Smith, 2000). Teachers have traditionally used the books in conjunction with Running Records to help identify students’ accuracy and errors experienced when reading aloud to estimate students' current reading level and appropriate instructional placement (McNaughton, Phillips and MacDonald, 2000). When a student’s accuracy level reaches 90-94%, it is seen as the student’s instructional level (Nelly and Smith, 2000). The use of oral reading of connected text to measure student progress in reading is generally supported by research (Powell-Smith and Bradley-King, 2001). The teachers provided the researchers with the students’ reading levels at the beginning, middle and end of year. A large normative data-base suggests that most children educated in NZ public schools achieve a book level of 12 (Green) by the time they are six years of age (McNaughton et al., 2000), and this is the criterion identified for achievement in literacy after one year of school in the National Standards to be implemented in NZ in 2010.

Researcher Administered Wider Literacy Assessment. As described for the beginning of the year literacy assessment, DIBELS Sixth Edition (Dynamic Measurement Group, 2007) were used to assess the students' end of year performance on a range of early literacy tasks. The materials were obtained from the DIBELS internet website (https://dibels.uoregon.edu/). Each student had their own assessment booklet, which contained the standardised instructions and was used to
record the student’s responses. Each student was assessed using identical materials presented on A4 sheets of paper, in a ring binder folder. The administrator used a clipboard to secure the student’s assessment booklet during testing. This prevented the student from viewing the scoring of their responses. A stop watch was used to record the time taken by the students and to time the tasks with a predetermined time limit. As a token of appreciation, at each assessment, students were given a choice between a pencil, pen or eraser. At the end of the year, in line with DIBELS recommendations for students in their first year of instruction, LNF (presented above), Phonemic Segmentation Fluency and Nonsense Word Fluency were administered and are described below.

**Phonemic Segmentation Fluency (PSF).** PSF is a higher-order phonemic awareness task that examines a student’s skill in effectively segmenting orally presented three- and four-phoneme words into their individual phonemes (Dynamic Measurement Group, 2007). The students were orally presented with a word and asked to segment it into individual phonemes. For instance, if the student was presented with the word “hat”, the correct response would be “/h/ /a/ /t/”. After the student responded or three seconds elapsed, the examiner presented the next word. The student had one minute to effectively segment up to twenty-four words. The scoring sheet contained the words presented, twelve in each column, with the word correctly segmented. The examiner underlined each phoneme the student correctly produced and tallied the total correct to gain the student’s score. If the student did not correctly identify the first five phonemes, the task was discontinued.

Technical adequacy evidence reported by Good and colleagues in US research (2004) stipulated strong single and multiple probe reliability of .74-.88 and .99, respectively. Concurrent validity as measured against subtests and composite scores on the CTOPP ranged
from .25 to .63 (Hintze et al., 2003). Predictive validity has been found to range from .46 with the McCarthy Scale of Children’s Ability to .65 with the Metropolitan Readiness Test, Level 2 (Kaminski and Good, 1996). Furthermore, it was found to have adequate criterion validity of .54 with the WJPEBRC (Dynamic Measurement Group, 2007). Predictive validity evidence within the NZ context found that mid year PSF moderately correlated with end of Y1 book level, .45. (Schaughency and Suggate, 2008).

Nonsense Word Fluency (NWF). NWF is a measure of fluency with the alphabetic principle. The alphabetic principle consists of two parts, awareness that words are composed of letters that represent sounds and use of this familiarity with grapheme-phoneme correspondence to be able to pronounce an unfamiliar word or letter string. The materials consisted of an initial learning sheet which contained two words: “/sim/” and “/lut/”. The students were first presented with this learning page and the examiner stated “watch me read this nonsense word, I can either say the individual sounds “/s/ /i/ /m/” or the whole word “/sim/”. The student was asked to state the individual sounds in “lut” or say the whole word. If the student did not correctly identify the phonemes or word, the examiner modelled the correct response and the student was asked to re-attempt the word. The student was then presented with an A4 sheet of paper with randomly ordered Vowel Consonant, and Consonant-Vowel-Consonant words (e.g., aj, ig, riz, vej). The student had one minute to read as many nonsense words as they could. The examiner underlined each individual phoneme or word correctly produced. The task was discontinued if the student did not correctly identify any phonemes or words on the first row.

Psychometrically, research conducted in the US suggests strong single and multiple probe reliability, .83 and .94, respectively (Good et al., 2004). Predictive validity in the US research ranges from .67 to .75 and criterion validity of .36 has been found with the WJPEBRC
Assessment-Informed Instructional Consultation (A-IIC) (Dynamic Measurement Group, 2007). Within NZ mid year performance on NWF was also found to predict end of Y1 book level performance with a correlation of .58 (Schaughency and Suggate, 2008).

2.4 Acknowledgement for Participation

A personalised sticker book was given to each student as a token of gratitude for participation in the A-IICp. The book contained spaces for each progress monitoring session in which the student placed their selected sticker. The stickers were varied, some contained phrases such as “You’re a Star”, “Choice Bro”, and “Number One Reader”. Others contained images such as a silver fern, smiley faces and book worms. The teachers were also presented with a thank you note and a $25 book voucher for their participation.

2.5 Procedure

2.5.1 Student Selection Process

At both schools, in the term prior to each study’s commencement, a meeting was conducted with the Junior Syndicate Leader (i.e., teacher coordinator for all Junior school teachers), and the school’s Y0 and Y1 teachers to discuss the project and student selection. The teachers were asked to read an information handout detailing the study and, if they were willing to participate, sign the accompanying consent form. Following teacher agreement to participate they were given information packets to give to selected students' parents. The packets contained a letter detailing the study and a consent form (Appendix A).

2.5.2 Training and Interscorer Reliability
Data were collected by trained English speaking postgraduate students from the Department of Psychology at the University of Otago. One of the postgraduate students was a native speaker of NZ English, one Australian, and one South African. Initial training involved viewing the DIBELS Sixth Edition and AIMSweb training videos and reading their manuals (Dynamic Measurement Group, 2007; Shinn and Shinn, 2002). Following this, the researchers engaged in several practice trials of each task with each other. Prior to independent collection researchers shadow scored each progress monitoring and literacy assessment task. Interscorer reliability was calculated by dividing the total number of scoring agreements for each task by the number of agreements and disagreements. A coefficient above .90 was deemed acceptable. Interscorer reliability for all tasks ranged from 0.90 to 1.00.

2.5.3 Researcher Administered Wider Literacy Assessment

The procedures followed for the literacy assessment were identical for both School A and B. The beginning and end of year literacy assessments were conducted in the first and fourth term of the NZ school year. Each student was individually collected from class and taken to the assigned testing room. The examiner first introduced themselves and gained verbal informed assent from the student. If informed assent was not gained, the student was escorted back to class, and the next student invited to participate. At the completion of the tasks the student was allowed to select one item (i.e., pen, pencil or sticker) and was escorted back to class and the next student invited to partake. Testing took approximately 10 to 15 minutes for each student at both assessment time points.
2.5.4 Dynamic Assessment (DA)

Following the initial baseline progress monitoring assessment, the students were assessed using their individualised DA measures. The DA took approximately 20 to 30 minutes for each student, depending on the student’s attention, speed and willingness to attempt the tasks. The examiner first modelled the individual letter sound for a letter, then prompted the student to state the letter sound. If the student correctly produced the sound, the examiner moved to the next letter. If the student gave an incorrect response, the examiner modelled-then-promoted up to three times per letter. Once modelling was completed, the student was again prompted to produce each letter sound. The same model-then-prompt procedure was undertaken for the nonsense and real words. The detailed administration protocols are presented in Appendix B. At the end of the DA, the student was allowed to choose a pen, pencil or eraser.

2.5.5 Progress Monitoring

The procedures followed for the progress monitoring were identical for both School A and B. Progress monitoring was conducted in a quiet school room identified by the Junior Syndicate Leader. Each progress monitoring session took approximately seven to ten minutes.

Progress monitoring occurred twice a week, typically Monday and Wednesday, using the FSF and LSF tasks detailed above. Each student was tested a maximum of sixteen times. The Fisher Criteria used to measure progress towards goal attainment recommended five data points be collected between each instructional consultation meeting to effectively assess progress (Fisher et al., 2003). If due to absences on the normal progress monitoring days a student did not have five data points, an attempt was made to gain the required data points. This was not always possible.
The standardised instructions were given before each probe and the procedures followed were those described above. Some of the students became impatient with the presentation of the instructions; at this point, the student was asked what they had to do before the task was undertaken. If their answer was correct, the standardised instructions were not presented. If the student did not give an accurate answer, the standardised instructions were presented. As with the wider literacy assessment, all scoring was completed so the student could not view the examiner’s materials.

At the first progress monitoring session, each student was presented with their own sticker book as a thank you for participation. Each time the students were assessed they chose a sticker for their book and one to take home. At the conclusion of the study, students were given their sticker book to take home as a memento of participation. In addition, at the completion of the study, the students were given the choice between a pencil, pen or eraser as an added thank you for their participation. At the final progress monitoring session the students completed the CIRP.

The intended time frame for collection of assessment information and instructional consultation meetings for both School A and B can be seen in Figure 2.2 below.

2.5.6 Instructional Consultation Meetings

To facilitate consistency across instructional consultation sessions, agenda setting and hand-outs specifying the purpose and structure of the consultation meetings were utilised. Across consultation meetings and schools, each teacher was presented with the same standardised information described above and presented in Appendix C, E and F.
For each instructional consultation meeting the researchers travelled to the respective school to meet with the teachers. Following the intended multiple baseline across teachers design, the teachers were seen on separate occasions. Present at each meeting were the respective teacher/s, whose students would be discussed, the RT:Lit, the Master's student and Supervisor. Meetings began at approximately 3.30pm after the completion of the school day and went for approximately one to two hours.

Initial Instructional Consultation

The initial instructional consultation meeting was scheduled to be held within the second (Teacher A) and third (Teacher B) week of the school term\(^1\). During this meeting, the teachers were presented with a hand-out describing the purpose of the session (presented in Appendix C). Any questions regarding the information presented were discussed as were any other general questions. The available wider literacy assessment data, DA, and baseline progress monitoring results were presented and a discussion of these data prompted. The aim of the discussion was to facilitate the creation of appropriate early literacy instructional goals for each student leading to the identification of appropriate instructional strategies to meet these goals. The discussion was facilitated by the RT:Lit with the teachers. Once the goals were identified and written down, the teachers were asked to rate each student’s present progress towards that goal using the GAS rating scale. The teachers were able to ask questions at any time and seek further clarification if needed. At the end of the meeting, the teachers were given an IIF. They were asked to use the IIF to record the strategies used each day to stimulate their students' literacy acquisition before the next meeting.

\(^1\) At School A teachers attended the Instructional Consultation in groups (i.e., Teacher A and D; Teacher B, C and D). At School B only one teacher attended the Instructional Consultations (i.e., Teacher A; Teacher B).
Second Instructional Consultation

The second consultation was scheduled for three weeks after the initial consultation. At the consultation the teachers were presented with a second hand-out presented in Appendix E. The consultation followed the same procedure as that described for the initial consultation. However, only student progress monitoring data were presented. This assessment information was presented both as a standard Excel graph, as well as in Fisher Criterion graphs. Discussion and re-evaluation of each student’s goals and how to achieve these were facilitated.

Final Instructional Consultation

At the final meeting the teachers were presented with each individual student's overall progress monitoring data in the two graphical forms described above. Each student’s progress was discussed, but no further interventions were stipulated. The teachers were asked to complete the BIRS including any general written comments regarding the process. A verbal discussion of teachers’ subjective evaluation of their participation within the study and their views regarding the A-IICp was also undertaken.

2.6 Data Analysis

The data were analysed to evaluate the third stage of technical adequacy, instructional utility (Fuchs, 2004) and to answer specific questions related to the overall aim of the present thesis. The overall aim of the thesis was to assess if NZ junior primary school teachers perceived that the assessment information provided during the consultation process aided their intervention planning for struggling readers, leading to instructional utility. Instructional utility refers to a
measure's ability to inform teacher instruction leading to enhanced student learning and academic progress.

Due to the small number of participating teachers and students, the information gained through the social validity questionnaires, and goal attainment information was descriptively interpreted, separately for each school. The instructional integrity information gathered using the IIFs was also interpreted descriptively and was used to answer the two questions: 1) did the teachers indicate intervention modification, and if so, 2) did they implement their modifications as intended?

To aid in assessing instructional utility, the students’ progress monitoring data were also analysed to assess whether the A-IICp was associated with improved child performance. The students’ progress monitoring data were analysed across instructional groups separately for each school. Due to missing data points, as a result of school absenteeism, students’ individual data were first averaged across each phase. Once the data within each phase were averaged, the collective mean within each phase was analysed to consider whether assumptions were met for the use of parametric statistics (e.g., normality, as indicated by skewness and kurtosis). For each progress monitoring task (i.e., LSF or FSF) in at least one phase (i.e., baseline, consultation one or consultation two), assumptions of normality were violated and therefore, nonparametric statistical analyses were performed.

To assess differences across phases a Friedman Analysis of Variance by Ranks (i.e., nonparametric equivalent of repeated measures ANOVA) was employed and the Wilcoxon Signed – Ranked Test (i.e., nonparametric equivalent of paired samples t-test) test was used for post hoc analysis to identify between which phases any identified statistically significant difference lay.
Students’ follow-up end of year data were also analysed to assess for educationally significant improvements in literacy by the end of the students' first year in school. The students’ end of year researcher administered literacy assessment results were compared to NZ normative data collected from 2006 to 2009. School used book level data were compared to the MoE proposed reading standards for the end of first year in school.
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<th>Teacher A</th>
<th>Term Two – School A</th>
<th>Term Three</th>
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Note: BL-PM = baseline progress monitoring, DA = dynamic assessment, IC = instructional consultation meeting, PM = progress monitoring, N/T = no testing.

Figure 2.2 The Anticipated Single Subject Multiple Baseline Design Across Teachers and Time Points of Assessment at School A and B.
CHAPTER 3. SCHOOL A METHODS

3.1 Participants

3.1.1 Primary School A

Primary School A was ranked as a decile six school and had a total of 256 pupils in 2008. The school taught children from Year 0 (i.e., first year of primary school, starting at age five) through to Year Five (i.e., last year of primary school, ending at age 10). Seventy-two of the pupils were Y0 and Y1 students, allocated to one of five mixed level classrooms (i.e., Y0 to Y2) and therefore, were eligible to participate.

School A had pre-identified a need for increased specialty focus on reading and writing for struggling students prior to the initiation of the present study. To supplement their pre-established curriculum for reading and writing a specialty teacher, who was also trained in Reading Recovery, was assigned to teach a specialty class. The class was undertaken in the middle, one and a half hour period, five days a week, for the duration of Term Two. During their time in the specialty class the students were allocated to small, three-four student reading groups matched for instructional level. In addition to increased focus on reading needs, writing was also targeted as an area for improvement. Ten of the eleven participating students attended this specialty classroom. Due to this, the specialty teacher was the main Agent of Change for these ten students, with their normal classroom teacher an additional Agent of Change.
3.1.2 Students

Sixteen Y1 primary school students were identified by their teachers as struggling readers. Letters of invitation were sent home to these students’ guardians. Eleven of the sixteen students’ guardians gave informed consent and all eleven students gave assent.

Each of the participating students is described individually below. The students are grouped according to their classroom teacher and therefore, their subsequent instructional consultation meeting group. The overall group demographics are presented in Table 3.1. All the students identified themselves as NZ European and therefore the sample may not be representative of the overall school demographic.

As can be seen in Table 3.1 below, two students were female and nine male. The average age at commencement of the study was five years, eight months and fifteen days. The oldest student was six years and two days old and the youngest student was five years, eight months and twelve days old. The students had spent an average of ten months and thirteen days at school before the study commenced. The age and length in school was calculated at the time of the study’s commencement. The average reading level of the eleven students when the study commenced was 5.1. Two of the eleven children had been diagnosed with Attention-Deficit Hyperactivity Disorder (ADHD).
Table 3.1 Group, Demographics, School and Individual Variables of Students Participating in the Assessment-Informed Instructional Consultation Process at School A.

<table>
<thead>
<tr>
<th>Instructional Consultation Groups</th>
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<th>Demographics</th>
<th>School Variables</th>
<th>Individual Variables</th>
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<tr>
<td></td>
<td>Ivan</td>
<td>5.11.10</td>
<td>M</td>
<td>NZE</td>
<td>0.11.9</td>
</tr>
<tr>
<td></td>
<td>Owen</td>
<td>5.9.5</td>
<td>M</td>
<td>NZE</td>
<td>0.9.10</td>
</tr>
<tr>
<td></td>
<td>Average</td>
<td>5.8.15</td>
<td></td>
<td></td>
<td>0.10.13</td>
</tr>
<tr>
<td></td>
<td>Max</td>
<td>6.0.2</td>
<td></td>
<td></td>
<td>0.11.9</td>
</tr>
<tr>
<td></td>
<td>Min</td>
<td>5.8.12</td>
<td></td>
<td></td>
<td>0.8.11</td>
</tr>
</tbody>
</table>

Note: * = students taught by Teacher B; ** = students taught by Teacher C. Italics: the student did not attend the special class. Age and length in school = Year.Month.Days; NZE: New Zealand European; IC = Instructional Consultation; E, P and B Issues = Educational, Psychological and Behavioural issues; ADHD = Attention-deficit hyperactivity disorder; ASD = Autistic spectrum disorder.
Student Demographics for the Students Taught by Teacher A and C

Teacher A taught the first three students presented below, all of which attended the specialty reading and writing class. Teacher B taught the remaining two students, one of which, David, attended the specialty class. Unless otherwise specified the students had no behavioural, educational, mental or physical conditions, to the knowledge of the researchers and teachers. The students' ethnicity was established from the school demographic registry completed by student's parents upon enrollment. All the students are referred to by pseudonyms.

Craig. Was a male student who at the commencement of the study was five years, ten months and fifteen days old and had been in school for ten months and sixteen days. At the beginning of the study he was reading at book level 7 (i.e., Yellow 2). During testing he was noted as being very confident and always wanted to better his last progress monitoring scores.

Edward. Was a male student who at the commencement of the study was five years, ten months and seventeen days old and had attended school for ten months and sixteen days. At the beginning of the study he was reading at book level 5 (i.e., Red 3). He was prescribed Methylenidate for ADHD. When testing was undertaken before and temporally close to his lunchtime medication heightened attention difficulties and off task behaviour could be noted. In addition, the teachers speculated that he may have an Autistic Spectrum Disorder, though this had not been clinically assessed.
Olga. Was a female student who at the commencement of the study was five years, nine months and four days old and had been in school for nine months and four days. At the beginning of the study she was reading at book level 5 (i.e., Red 2).

Mike. Was a male student who at the commencement of the study was five years, nine months and twenty-five days old and had been in school for nine months and twenty-five days. At the beginning of the study he was reading at book level 3 (i.e., Red 1). It was noted during testing, that he appeared to have some articulation difficulties.

David. Was a male student who at the commencement of the study was five years, eight months and twelve days old and had been in school for eight months and eleven days. At the beginning of the study he was reading at book level 5 (i.e., Red 3).

Student Demographics for the Students Taught by Teacher B

Teacher B taught six of the identified students all of whom attended the specialty reading and writing class.

Nadia. Was a female student who at the commencement of the study was six years and two days of age and had attended school for eleven months and five days. At the beginning of the study she was reading at book level 6 (i.e., Yellow 1). Her teacher informed the researchers that her parents were separated and there were potential family issues that may have impacted her learning.
Taylor. Was a male student who at the commencement of the study was five years, eleven months and twenty-eight days of age and had attended school for eleven months and three days. At the beginning of the study he was reading at book level 5 (i.e., Red 3). His teacher reported he had articulation difficulties and had received speech therapy, but with limited success. Further speech therapy was recommended.

Various studies conducted within speech-language clinics have found that preschoolers who present with articulation difficulties are at considerable risk of future reading difficulties (Catts, Fey and Tomblin, 1997; Rescorla, 1999). Therefore, his inclusion in the current study is potentially indicative of his speech difficulties. At the end of year researcher-administered literacy assessment he informed the researcher that he had been “put on pills that help his reading” (e.g., Methylphenidate for ADHD). This medication was commenced after the A-IICp was completed. The researcher had not noted inattention during progress monitoring testing.

Zinzan. Was a male student who at the commencement of the study was five years, eight months and twenty-seven days of age and had been in school for eight months and twenty-eight days. At the beginning of the study he was reading at book level 5 (i.e., Red 3). He was considerably shy during testing and reluctant to attempt items he felt he did not know. When given additional encouragement, he was often able to correctly respond to items he would not have otherwise attempted.
Joshua. Was a male student who at commencement of the study was five years, eight months and sixteen days old and had been in school for eight months and sixteen days. At the beginning of the study he was reading at book level 5 (i.e., Red 3).

Ivan. Was a male student who at the commencement of the study was five years, eleven months and ten days old and had been in school for eleven months and nine days. At the beginning of the study he was reading at book level 6 (i.e., Yellow 1).

Owen. Was a male student who at the commencement of the study was five years, nine months and five days old and had been in school for nine months and ten days. At the beginning of the study he was reading at book level 5 (i.e., Red 3).

3.1.3 Educational Professionals
School A employed six Y0-1 teachers, all of whom were female and ranged in experience from a junior teacher to a specialist literacy teacher. Of these teachers four participated in the current study. One of the school's teachers who participated was also a specialist reading teacher and was trained as a Reading Recovery tutor.

3.2 Measures and Materials
The materials described in this chapter are those that are specific to School A. These include the data presentation format used at the instructional consultation meetings, the IIF, and the summary intervention sheets presented to the teachers following each consultation. Aspects that are identical to both schools were described in Chapter 2.
These aspects included: researcher administered literacy assessment, progress monitoring, DA, instructional consultation and the social validity measures/procedures.

3.2.1 Intervention Implementation Form (IIF)

The IIF was used to provide the teachers with a means of recording the active strategies implemented between the instructional consultation meetings. The form also provided the researchers with a description of whether the strategies discussed during the consultation session were implemented in practice. The form consisted of a table with an area to describe the intervention/s undertaken each day of the week. There was also an area for the teacher to indicate if the intervention was undertaken on a certain day over the three week period between meetings. An example of the form is presented in Appendix G.

3.2.2 Instructional Consultation Meeting Data Presentation

The teachers were presented with the students’ progress monitoring data in two line graphs. The first line graph was a standard Excel graph portraying each student’s progress compared to students within the fifth stanine range of a concurrent normative progress monitoring study, using the same measures, conducted in two local schools (Clarke, 2008). Stanines are a single digit standardised score with a “mean of five and standard deviation of approximately two” (Anastasi and Urbina, p. 63, 1997). This standardised scoring system is based on the normal percentage curve, whereby scores are ranked by size then assigned a stanine. The fifth stanine corresponds to the middle 20 percent of scores, which represent the 20 percent of students’ scores within the average scoring range (Anastasi and Urbina, 1997). Also a vertical line was imposed on the graph to indicate the point where interventions had begun. The second line graph depicted
results relative to the Fisher Criteria and was presented in the form described in Chapter 2. The progress monitoring data presented to teachers can be seen in Appendix H.

3.2.3 Intervention Summary
Following each instructional consultation meeting, the teachers were provided with a printed word document detailing who attended the meeting, the targeted early literacy skills identified for each student and the identified interventions. The document also stated the aims of the next instructional consultation meeting and a reminder to complete the IIF. See Appendix I for an example summary.

3.3 Procedure
The beginning of year researcher administered literacy assessment was undertaken at the beginning of Term One; in the first two weeks all students whose parents had provided informed consent and students their assent were assessed using the Initial Sound Fluency (ISF) and Letter Naming Fluency (LNF) (DIBELS Sixth Edition) tasks and First Sound Fluency (FSF) (DIBELS, 2008Beta). The end of year wider literacy assessment was undertaken at the end of Term Four. Participants were assessed using LNF, Phenomic Sound Fluency (PSF) and Nonsense Word Fluency (NWF) (DIBELS Sixth Edition).

The A-IICp was conducted over a ten week period beginning in the first week of Term Two. Prior to Term Two the RT:Lit observed each classroom involved in the study for approximately an hour to gain an understanding of the current teaching techniques used to aid literacy acquisition. During observation, she did not engage with the students or teacher.
Progress monitoring was undertaken twice weekly over the ten week period using the FSF and LSF tasks; with the exception of week two for Teacher A and B's students as they participated in DA, and Teacher C's students in week three. Following the final progress monitoring collection in week ten, students were verbally administered the Child Intervention Rating Profile questionnaire.

The first instructional consultation meetings were held at the school in the second week of Term Two with Teacher A and B, and in third week with Teacher C. The specialty teacher was present at all instructional meetings. Teachers were presented with the information handouts previously described and were verbally informed of the framework and process of the study. The teachers were then presented with the available beginning of year researcher administered literacy assessment data, individual student’s DA outcomes and their baseline progress monitoring (in the forms specified above). The tasks were verbally described as the data were presented, as was student performance.

A discussion of the results and elements of the students’ literacy development that required further attention and intervention was conducted by the RT:Lit with the teachers. Following this discussion, the teachers were asked to specify the literacy skills they wished to target, and to specify the instructional intervention methods they wished to implement. They were asked to operationally define the targeted skills in terms of an achievable and measurable goal using the GAS form and then rate each student’s current level of goal attainment. Each teacher was given an IIF for each student and was asked to indicate the strategies they implemented between the first and second instructional consultation meeting.
A second instructional consultation meeting was originally scheduled for three weeks after the initial meeting. However, Teacher B was unable to attend at this time due to a scheduling conflict. Therefore, the meeting was rescheduled for the following week. Due to the change in the second instructional consultation time for Teacher A and B, Teacher C's second meeting was rearranged to be two weeks after her initial meeting, instead of three. This was done due to the limited time frame of the study (i.e., ten weeks).

The second instructional consultation meeting for all teachers followed the same general procedure as the first. Although, different handouts were provided, as previously specified in Chapter 2 and only progress monitoring data were discussed. The aim of the discussion of each student's progress monitoring data, during the second instructional consultation, was for the teachers to consider whether their previous intervention strategies had been effective and, if not, to modify their interventions appropriately. Following all instructional consultation meetings the teachers were provided with the summary of the meeting and their intervention plans.

A final meeting with all teachers and the RT:Lit was undertaken in Term Three. At this meeting each student’s overall progress monitoring data were presented. Following this, the teachers completed the Behaviour Intervention Rating Scale questionnaire, as did the RT:Lit. A verbal discussion regarding the teachers' perception of the process was also undertaken. The actual implementation timing of all the study's components and meetings is depicted in graphic form in Figure 3.1.
### Figure 3.1 Time Line of the Assessment-Informed Instructional Consultation Process Implementation at School A.

<table>
<thead>
<tr>
<th>Teacher</th>
<th>Week 1</th>
<th>Week 2</th>
<th>Week 3</th>
<th>Week 4</th>
<th>Week 5</th>
<th>Week 6</th>
<th>Week 7</th>
<th>Week 8</th>
<th>Week 9</th>
<th>Week 10</th>
<th>Week 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>A and C</td>
<td>BL-PM</td>
<td>DA and IC</td>
<td>PM</td>
<td>PM</td>
<td>PM</td>
<td>PM</td>
<td>PM</td>
<td>PM and IC</td>
<td>PM</td>
<td>PM</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>BL-PM</td>
<td>N/T</td>
<td>DA and IC</td>
<td>PM</td>
<td>PM</td>
<td>PM and IC</td>
<td>PM</td>
<td>PM</td>
<td>PM</td>
<td>PM</td>
<td>Final meeting</td>
</tr>
</tbody>
</table>

*Note: The RT:Lit and specialty were present at all meetings. BL-PM = baseline progress monitoring, DA = dynamic assessment, IC = instructional consultation meeting, PM = progress monitoring, N/T = no testing.*
CHAPTER 4. SCHOOL A RESULTS

4.1 Did the Teachers’ Perceive the Process to be Socially Valid and Acceptable?

Four sources of information inform the response to this question: Teacher and RT:Lit ratings on the adapted Behavior Intervention Rating Scale (BIRS) and Goal Attainment Scaling (GAS), written comments provided at the conclusion of the consultation process (prompted by the statement *additional feedback*), and comments made during a group debriefing session conducted following collection of other evaluation information. All teachers ratings are based in subjective interpretation of student progress based on the data presented across the term.

The teachers and RT:Lit’s ratings of perceived social validity and acceptability of the A-IICp as assessed by the adapted BIRS are presented below in Table 4.1 (perceived effectiveness), 4.2 (acceptability ratings) and 4.3 (perceived time-to-effect). Ratings of perceived effectiveness as indicated by GAS are presented in Table 4.4. The overall collective mean for each of the three scales of the BIRS and each question within the scale were calculated by summing the teachers’ responses and then dividing them by the number of questions answered (Galloway and Sheridan, 1994). Also presented is each teacher’s response to each question and her individual mean for each scale. Written and oral comments are also summarised below. The students’ perceptions of the assessment process were also assessed using an adaptation of Child Intervention Rating Profile (CIRP).

4.1.1 Perceived Effectiveness of the Early Literacy Skills Assessment Information to Inform Instruction leading to Improved Literacy Outcomes

When looking at Table 4.1, it can be seen that the teachers and RT:Lit collective mean perceived effectiveness of the A-IICp fell between slightly agree and slightly disagree,
suggesting relative neutrality (M = 3.89, SD = .48). Two of the teachers and the RT:Lit mean perceptions of effectiveness were congruent with the overall group mean. Teacher B and Teacher C indicated a higher level of perceived effectiveness, which was moderate (M= 4.14, SD = .45; M = 4.57, SD = .38, respectively).

When looking at the teachers’ mean responses to the individual questions within this section, they endorsed a moderate level of perceived effectiveness for the following statements: the assessment information led to the development of interventions which had lasting positive effects for the students’ literacy, their literacy skills will remain at the improved level, the process led to improvements of both targeted literacy skills and other literacy areas (e.g., generalisation across situations) and that other literacy skills related to the targeted area also improved (e.g., generalisation across literacy skills). Conversely, the teachers’ indicated that the students’ reading ability continued to deviate markedly from their peers and that the students’ reading difficulties remained, but showed no deterioration.

Teacher A indicated that she strongly disagreed (1) with the statement that the process improved the students’ reading ability to a level where no difficulties remained. She also disagreed with the statement that the process improved the students’ reading ability to a level equivalent (2) or more alike (2.5) other students, as did the RT:Lit (i.e., 3 and 3, respectively). Teacher D also indicated disagreement with the statement that the students’ performance did not continue to deviate markedly from other students (2). She did, however, slightly agree that the students’ reading difficulties were no longer a problem following the consultation process. The remaining two teachers, B and C, slightly agreed-to-agreed with all the questions they answered regarding the perceived effectiveness of the A-IICp. Their answers implied a mild to moderate level of perceived effectiveness.
### Table 4.1 School A Teachers' and RT:Lit’s Perceived Effectiveness of the Assessment-Informed Instructional Consultation Process.

<table>
<thead>
<tr>
<th>Perceive Effectiveness of the Early Literacy Skills Assessment Information</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>RT:Lit</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The assessment information led to development of an instructional plan that produced a lasting improvement in the student’s early literacy skills</td>
<td>4</td>
<td>5</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>4.4 (.55)</td>
</tr>
<tr>
<td>2. The instructional plan improved the student’s early literacy skills to the point that it would not noticeably deviate from other children’s early literacy skills</td>
<td>2</td>
<td>4</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>3 (1)</td>
</tr>
<tr>
<td>3. The student’s early literacy skills will remain at an improved level even after the study is discontinued</td>
<td>5</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4.4 (.55)</td>
</tr>
<tr>
<td>4. Using this model of assessment informed consultation not only improved the student’s performance of early literacy skills in the target setting (e.g., instructional lessons), but also in other early literacy activities</td>
<td>4</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4.2 (.45)</td>
</tr>
<tr>
<td>5. When comparing the student targeted in this assessment informed consultation process with peers not targeted before and after consultation, their early literacy skills were more alike after consultation</td>
<td>2.5</td>
<td>4</td>
<td>4</td>
<td>n/a</td>
<td>X</td>
<td>3.5 (.87)</td>
</tr>
<tr>
<td>6. The instructional plan derived through this model of assessment informed consultation produced enough improvement in the student’s early literacy skills so that the previous difficulties no longer are a problem</td>
<td>1</td>
<td>4</td>
<td>4</td>
<td>3</td>
<td>4</td>
<td>3.2 (1.30)</td>
</tr>
<tr>
<td>7. Other early literacy difficulties related to the specific area identified as a concern are likely to be improved by the instructional plan derived through the assessment informed consultation procedures</td>
<td>5</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4.4 (.55)</td>
</tr>
</tbody>
</table>

*Note:* Likert Scale: 1 = strongly disagree, 2 = disagree, 3 = slightly disagree, 4 = slightly agree, 5 = agree, 6 = strongly agree. X = question was unanswered. n/a = individual noted the question did not apply. () = Standard deviation. *Italic* = mean score for individual respondents for the overall section and questions. **Bold** = individual question responses and overall means 5 or greater. Teacher A and D taught students: Craig, Olga and Edward; Teacher B and D taught students: Nadia, Taylor, Zinzan, Joshua, Ivan and Owen; Teacher C and D taught: David and; Teacher C taught Mike.
4.1.2 Acceptability of Assessment-Informed Instructional Consultation Process

As can be seen in Table 4.2 the teachers and RT:Lit’s overall acceptability of the A-IICp was high (M = 4.96, SD = .49). Teachers B, C and the RT:Lit indicated high levels of acceptability of 5.4 (SD = .41), 5.2 (SD = .51) and 5 (SD = .75), respectively. Teacher A and D also indicated moderate acceptability of the process with overall means of 4.13 (SD = .72) and 4.77 (SD = .70), respectively. The collective mean acceptability level, for each question, in this section was also moderate to high. All the teachers strongly agreed with the statement that the process did not result in negative-side effects for the students (6). They also indicated that the students’ targeted did require this level of targeted assessment and intervention process, and that the process was reasonable for the targeted problem. Further, their ratings suggested that they perceived the A-IICp as fair way to help the students, that overall it was a beneficial process, and that a variety of students could benefit from the process.

Teacher A indicated a slight agreement with the majority of questions. She did, however, indicate that she had not used such a model of A-IICp previously. She indicated slight disagreement with the statement that she would recommend the procedure to other teachers and that most teachers would find the procedure suitable for students with reading difficulty.

In contrast, Teacher B and C showed an overall high level of acceptability for the process with all their responses indicating agreement to strong agreement. Teacher C indicated that she liked the procedure (6) and that she found it appropriate and beneficial for the students. Teacher D also showed a high level of acceptability of the model with her responses ranging from slightly agree (e.g., most teachers would find this procedure appropriate) to strong agreement (e.g., the students targeted warranted this use of this procedure).
Table 4.2 Acceptability Level of the Assessment-Informed Instructional Consultation Process as Indicated by the Teachers at School A and the RT:Lit.

<table>
<thead>
<tr>
<th>Acceptability of the Assessment-Informed Instructional Consultation Process</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>RT:Lit</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>8. This was an acceptable model of assessment informed consultation for the identified problem</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>5</td>
<td>4</td>
<td>4.8 (.84)</td>
</tr>
<tr>
<td>9. Most teachers would find this model of assessment informed consultation appropriate for problems in addition to the one addressed</td>
<td>4</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>4</td>
<td>4.6 (.55)</td>
</tr>
<tr>
<td>10. The assessment informed consultation model was effective in changing the identified problem</td>
<td>4</td>
<td>5</td>
<td>5</td>
<td>4</td>
<td>5</td>
<td>4.6 (.55)</td>
</tr>
<tr>
<td>11. I would suggest the use of this assessment informed consultation model to other teachers</td>
<td>3.5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>X</td>
<td>4.6 (.75)</td>
</tr>
<tr>
<td>12. The student targeted had early literacy difficulties severe enough to warrant use of this assessment informed consultation</td>
<td>5</td>
<td>6</td>
<td>6</td>
<td>5</td>
<td>6</td>
<td>5.6 (.55)</td>
</tr>
<tr>
<td>13. Most teachers would find this model of assessment informed consultation suitable for the early literacy problems addressed</td>
<td>3.5</td>
<td>5</td>
<td>5</td>
<td>4</td>
<td>X</td>
<td>4.4 (.75)</td>
</tr>
<tr>
<td>14. I would be willing to use this model of assessment informed consultation again</td>
<td>4</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>4.8 (.45)</td>
</tr>
<tr>
<td>15. The assessment informed consultation model did not result in negative side-effects for the targeted student</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6 (0)</td>
</tr>
<tr>
<td>16. The assessment informed consultation model would be appropriate for a variety of children</td>
<td>5</td>
<td>6</td>
<td>5</td>
<td>6</td>
<td>4</td>
<td>5.2 (.84)</td>
</tr>
<tr>
<td>17. This assessment informed consultation model is consistent with those I have used before</td>
<td>3</td>
<td>5</td>
<td>X</td>
<td>5</td>
<td>5</td>
<td>4.5 (1)</td>
</tr>
<tr>
<td>18. This model of assessment informed consultation was a fair way to handle the student’s early literacy instructional needs</td>
<td>4</td>
<td>5</td>
<td>5</td>
<td>6</td>
<td>5</td>
<td>5 (.71)</td>
</tr>
<tr>
<td>19. This assessment informed model of consultation was reasonable for the early literacy skills addressed</td>
<td>4</td>
<td>6</td>
<td>5</td>
<td>6</td>
<td>5</td>
<td>5.2 (.84)</td>
</tr>
<tr>
<td>20. I liked the procedures used in this assessment informed model of consultation</td>
<td>4</td>
<td>6</td>
<td>5</td>
<td>5</td>
<td>4</td>
<td>4.8 (.84)</td>
</tr>
<tr>
<td>21. This model of assessment informed consultation was a good way to handle the identified early literacy instructional needs</td>
<td>4</td>
<td>5</td>
<td>5</td>
<td>6</td>
<td>4</td>
<td>4.8 (.84)</td>
</tr>
<tr>
<td>22. Overall, the assessment informed consultation procedures were beneficial for the children</td>
<td>4</td>
<td>6</td>
<td>5</td>
<td>6</td>
<td>5</td>
<td>5.2 (.84)</td>
</tr>
</tbody>
</table>

Note: Likert Scale: 1 = strongly disagree, 2 = disagree, 3 = slightly disagree, 4 = slightly agree, 5 = agree, 6 = strongly agree. X = question was unanswered. n/a = individual noted the question did not apply. () = Standard deviation. Italics = mean score for individual respondents for the overall section and questions. Bold = individual question responses and overall means 5 or greater.
The RT:Lit also indicated a good level of acceptability with her responses ranging from slight agreement (e.g., the consultation procedure was effective in changing the identified problem) to strongly agree (e.g., the model was a good way to handle the identified literacy difficulties).

### 4.1.3 Perceived Time-to-Effect

When looking at Table 4.3, overall the teachers indicated that they perceived the students to show an improvement of the instructionally targeted early literacy skills swiftly after intervention implementation (M = 4.3, SD = .45).

<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>RT:Lit</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>23.</td>
<td>The instructional plan based on the assessment informed consultation procedures quickly improved the children’s rate of progress in developing early literacy skills</td>
<td>4 (0)</td>
<td>4.5 (0)</td>
<td>4 (0)</td>
<td>5 (.71)</td>
<td>4.3 (.45)</td>
</tr>
<tr>
<td>24.</td>
<td>Soon after implementing the instructional plan based on the assessment informed consultation, a positive change in targeted early literacy skills was noticed</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>5</td>
<td>4</td>
</tr>
</tbody>
</table>

**Note:** Likert Scale: 1 = strongly disagree, 2 = disagree, 3 = slightly disagree, 4 = slightly agree, 5 = agree, 6 = strongly agree. () = Standard deviation. *Italics* = mean score for individual respondents for the overall section and questions. **Bold** = individual question responses and overall means 5 or greater.

The individual teachers’ responses also reflected this, with their overall individual mean section responses ranging from slightly agree to agree, implying moderate to high agreement. Their individual question scores also reflected this level of agreement. The RT:Lit
indicated agreement (M = 5, SD = .71) with both statements: that the instructional plan based on the consultation quickly improved the students’ rate of progress and that soon after implementation a positive change in targeted early literacy skills was noted.

4.1.4 Goal Attainment Scaling (GAS)

The teachers’ GAS evaluations for the students were interpreted as a further measure of subjectively perceived effectiveness. Individual student goal attainment levels were calculated by summing the teachers’ evaluations of the student’s performance across the whole consultation process. The students’ summed attainment level was then divided to gain their average goal attainment.

Table 4.4 Teacher Specified Student Literacy Goals and Teacher Perceived Student Goal Attainment over the Course of the Assessment-Informed Instructional Consultation Process.

<table>
<thead>
<tr>
<th>Teacher</th>
<th>Students</th>
<th>Goal Type</th>
<th>GA</th>
</tr>
</thead>
<tbody>
<tr>
<td>A and D</td>
<td>Craig</td>
<td>Blending</td>
<td>1.83</td>
</tr>
<tr>
<td></td>
<td>Edward</td>
<td>Letter sounds</td>
<td>1.33</td>
</tr>
<tr>
<td></td>
<td>Olga</td>
<td>Letter sounds and blending</td>
<td>1.17</td>
</tr>
<tr>
<td>B</td>
<td>Mike</td>
<td>Initial letter sounds to solve unknown words and letter sounds</td>
<td>1</td>
</tr>
<tr>
<td>B and D</td>
<td>David</td>
<td>Initial letter sounds</td>
<td>1.5</td>
</tr>
<tr>
<td>C and D</td>
<td>Nadia</td>
<td>Blending, onset/ rime</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Taylor</td>
<td>Initial sounds to try words</td>
<td>1.33</td>
</tr>
<tr>
<td></td>
<td>Zinzan</td>
<td>Unknown letter sounds and initial letter sounds</td>
<td>.4</td>
</tr>
<tr>
<td></td>
<td>Joshua</td>
<td>Initial sounds and letter sounds</td>
<td>1.17</td>
</tr>
<tr>
<td></td>
<td>Ivan</td>
<td>Initial sounds and blending</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Owen</td>
<td>Initial sounds to help attempt unknown words, letter sounds</td>
<td>1.33</td>
</tr>
</tbody>
</table>

Note: Levels of goal attainment: -2 = literacy performance got significantly worse; -1 = literacy performance got somewhat worse; 0 = no progress; 1 = goal partially met; +2 = goal fully met.
The goal types stipulated for each student were extrapolated from the teachers overall goal specified for each student. The teachers’ goals often incorporated student behavioural, motivational and attitude variables not included in the goal type detailed below. This is because the focus of the study was regarding the level of student attainment of early literacy skills. Therefore, only the literacy elements of the goals are reported below in Table 4.4.

The majority of the teachers' perceived that their students made partial to full goal attainment over the course of the study. One student, Zinzan, however, was perceived to make only slight progress. Therefore, perceived effectiveness as rated through GAS appears mild to moderate, reflecting the level identified by the teachers within the BIRS questionnaire.

4.1.5 Written Feedback

In addition to the questionnaire questions completed by the teachers, their views and perceptions regarding the A-IICp were also elicited through written comments. Overall, the written feedback was positive and reflected acceptance of the process. Teacher B wrote that it was “good to have specific data on areas of need/concern (especially for setting goals for children working with the teacher aid)” She also stated that the students were always very happy to be assessed. She did ask however, “how to decide when to use these measures/with what children?” Teacher C also reported that the process had been positive and non-disruptive to her classroom.

In contrast both Teacher A and D reported what could be termed “short-comings of the process”. Teacher A reported that she felt “that the instructional plan was already set in place from teachers own testing and ongoing formative assessment rather than results. Good to see what they…[students]…did however”. This was reflected in her level of instructional
modification reported below. Teacher D noted that it is “important to get to know a child as they are quite varied and we do not get results from some (that are true)”, reflecting her perception of the measures selected as progress monitoring tools (e.g., she believed they did not capture accurately the students’ literacy performance). These written comments will be examined in length in the following discussion, as their implications for the A-IICp are viewed as extremely important.

The RT:Lit’s written comments were more reflective of her view regarding the teachers’ approach to the process. She stated that “at times I was concerned that teachers seemed reluctant to take on board suggested changes in their teaching for these children and perceived that the ‘problem’ lay with the children. This project gave very specific information about children’s skills in the area of literacy acquisition. I felt that more use could have been made of this information, rather than focusing on behavior and other issues”. She also noted that she would have liked to have information regarding the students’ text reading ability along side these component skills to gain a greater understanding of student progress. She further commented on the general process and how this could have been improved by having meeting start times and the length of meetings negotiated.

4.1.6 Anecdotal Social Validity and Acceptability, Teacher Perceptions

In addition to completing the questionnaire, at the final meeting the teachers were asked to verbally express their views and perceptions regarding the process. The teachers’ reported that at times during the consultation process they perceived the process to be highlighting their shortcomings as teachers rather than the students’ reading difficulties. They reported that this was largely due to the use of two other local schools’ concurrent progress monitoring data
used for social comparison. These data were provided in response to an early query regarding how children should be performing on the progress monitoring tasks. The purpose of providing the teachers with the other students’ performance level at the fifth stanine was to inform the teachers’ understanding of the average performance of Y1 students on the measures within the NZ context (Schaughency et al., 2010). However, the teachers felt that the use of the other schools’ data were inappropriate as they were unaware of the other schools’ decile rankings and, therefore, these students’ performance may not have been representative of the average performance at their school.

4.2 Did the Students’ Perceive the Process to be Socially Valid and Acceptable?

The students’ perceptions of social validity and acceptability of the assessment process are presented in Table 4.5. Eleven students’ completed the questionnaire and their responses were transformed to reflect the percentage of students who endorsed an item.

**Table 4.5 Students’ Perceptions of the Assessment Portion of the Assessment-Informed Instructional Consultation Process (n = 11).**

<table>
<thead>
<tr>
<th>Question</th>
<th>Yes</th>
<th>Not Sure</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Jane was fair.</td>
<td>91%</td>
<td>9%</td>
<td></td>
</tr>
<tr>
<td>2. Jane was mean.</td>
<td>9%</td>
<td>91%</td>
<td></td>
</tr>
<tr>
<td>3. Other kids teased me because of our work together this term.</td>
<td>9%</td>
<td>18%</td>
<td>73%</td>
</tr>
<tr>
<td>4. Other things could help me learn my letter sounds and sounds in words more than the things we’ve done this term.</td>
<td>82%</td>
<td>18%</td>
<td></td>
</tr>
<tr>
<td>5. The things we’ve done this term would be good for other kids to help them learn their letter sounds and sounds in words.</td>
<td>82%</td>
<td>9%</td>
<td>9%</td>
</tr>
<tr>
<td>6. I liked the things we did together this term.</td>
<td>82%</td>
<td>9%</td>
<td>9%</td>
</tr>
<tr>
<td>7. I think that the things we did this term helped me become a better reader.</td>
<td>91%</td>
<td>9%</td>
<td></td>
</tr>
</tbody>
</table>

*Note: italic: questions are reverse scored - question 2 and 3 are positively reversed and question 4 is negatively reversed. 91% = 10 students; 9% = 1 student; 18% = 2 students; 82% = 9 students and; 73% = 8 students. Assessed using the Child Intervention Rating Profile.*
All, but one of the students who participated in the assessment process, endorsed finding the assessor to be fair and did not feel that she was mean. The student who indicated that Jane was unfair and mean, however, giggled happily – as if teasing, when giving these responses. Eight of the students’ reported that the assessment process did not lead to them being bullied by their peers, though two students were unsure and one reported having been bullied (though she reported that it was her uncle who had teased her regarding her general reading progress). Most of the students’ responses suggested that they believed that other interventions would have helped them learn their letter sounds and sounds of words more than the things they had done during the term, although the same proportion of students’ endorsed the statement that the assessment process undertaken could help others with their letter sounds and sounds in words. Most of the students indicated that they liked the things that they had done during the term with the assessor, with one student unsure and one not liking the process. Overall, all but one student believed that what we had done during the term had helped them to become better readers.

4.3 Conclusions of Evaluation of Social Validity

Overall, the teachers indicated general support for the A-IICp through the questionnaire they completed. In general the teachers and RT:Lit indicated that the process was appropriate for the students selected and that some gains in student literacy skills were made that remained stable following the discontinuation of the process. However, the teachers did indicate that the effectiveness was only mild to moderate in closing the gap between the struggling readers and their peers. The overall acceptability of the process was high, with only Teacher A indicating a lower level of acceptability. Furthermore, the teachers’ endorsed that student improvements
occurred temporally close to implementation of interventions indicated through the consultation process. In general the teachers showed mild to moderate support for the process. However, some of the teachers' written and verbal responses regarding the process were less positive, but highlighted potentially important and changeable variables that will be discussed in Chapter 5 and 9. Overall, the majority of students’ indicated that they liked the assessment process and that it did not lead them to experience any negative side effects.

4.4 Did the Assessment-Informed Instructional Consultation Process lead to Instructional Modification and Implementation (instructional integrity)?

Following the presentation of the students’ progress monitoring data, the teachers were asked, if in light of the student’s performance on the two early literacy progress monitoring measures, DA and the wider literacy assessment, did they want to implement further instructional strategies to aid a student’s reading trajectory?

Using the IIF the teachers were asked to note what instructional strategies they used, and for whom, in the period following each instructional consultation. Overall, three of the four teachers specified individualised instructional intervention plans for their students. The IIF was qualitatively reviewed at the conclusion of the study to assess if it suggested that the teachers' implemented their planned instructional modifications. Overall, the IIF suggested only modest adherence with their specified interventions. The reason for qualitative interpretation was because the teachers at School A did not reliably complete their IIF forms and therefore, the results should be interpreted with caution.

Teacher A, who taught Craig, Olga and Edward, reported that her teaching curriculum had been finalised for the term and that she believed using the curriculum already in practice
would be sufficient. She therefore, did not modify her current practices or create individualised intervention plans for her three students. At the second consultation meeting Teacher A did however, note areas in which each of her three students did require added focus and appeared to incorporate this within her current teaching methods. Therefore, following the second consultation Teacher A did show some degree of instructional modification.

Teacher B, who taught Mike and David, modified her instructional practice for her two students following the initial consultation. Teacher B especially paid increased attention to the instructional needs of Mike because he did not attend the specialty reading class. She increased her time spent with him engaging in small group (i.e., two student) reading practice with increased focus on facilitating letter sound knowledge and “stretching out words”. With regard to David she noted his general performance and used this increased awareness to focus on his initial sound fluency. Following the second consultation Teacher B continued to direct her focus on increasing Mike’s letter sounds and initial sound fluency.

Teacher C, who taught Nadia, Taylor, Zinzan, Joshua, Ivan and Owen decided to modify her teaching methods during the classroom wide morning “Newsboard” presentation following the initial consultation. She stipulated increased focus on explicitly identifying phoneme-grapheme relationships and decoding skills during this time. As with teacher A and B, she also used the information to aid her conceptualisation of her students’ difficulties to help tailor her current teaching practice to add focus to the specific areas of difficulty highlighted. Following the second consultation she further modified her individualised instructional interventions for one of her students (i.e., he was to create a letter book by cutting out pictures that started with his letters of difficulty). For her remaining students she reported she would continue her current intervention, but again noted the areas in which her students
had most difficulty and reported that she would focus on these areas within her normal teaching practice. Furthermore, Teacher C used the information provided to inform her teacher aid more specifically regarding her students’ areas of early literacy skill difficulty.

Teacher D, who taught all of the students, apart from Mike, within the specialty class reported that she would increase her focus on blending and the modeling of segmentation during the students’ reading groups. As with Teacher C during her morning “Newsboard” presentation she indicated that she would increase the explicit modeling of letter sounds and decoding.

Therefore, overall the A-IICp appeared to lead most participating teachers to identify instructional modifications to their current teaching practice to address targeted needs of their students. Overall, however, the implementation of these identified instructional interventions appears to have been minimal to moderate based on the IIF information provided.

4.5 Did the Students’ Performance Increase Across Phases?

Students’ mean performance level on each of the progress monitoring tasks (i.e., FSF and LSF) was assessed to capture any change in performance across phases. In line with the experimental design, the students’ data were analysed within two groups reflecting their teacher’s instructional consultation placing. Therefore, Nadia, Taylor, Zinzan, Joshua, Ivan and Owen’s data were analysed together across phases, with Craig, Olga, Edward, Mike and David’s data grouped together for analysis. Due to differing numbers of probes collected for each student, within a phase, students’ data were summed and then divided by the number of probes conducted to create mean performance levels per student, per phase, and task.
4.5.1 Descriptive Statistics and Statistical Analysis

**Group One**

Descriptive statistics (presented in Table 4.6) were calculated, including the skewness and kurtosis of performance on the two tasks for each phase. This allowed for the assumptions of normality required for parametric statistical analyses to be assessed. Wherever possible violations in the assumption of normal distribution occurred, nonparametric tests were conducted.

As can be seen in Table 4.6, for both FSF and LSF, assumptions of normality were violated in at least one of the study’s phases. Therefore, the data were analysed using the Friedman Two-Way ANOVA by Rank, nonparametric repeated measures ANOVA. This test requires post hoc analysis to identify between which phases any identified statistically significant differences in mean level data lie. For this post hoc analysis, the nonparametric Wilcoxon test was used.

For the FSF task Group One's performance appeared to increase across each phase of the study. The Friedman analysis indicated a significant variation in the ranking of the phases (FSF: $\chi^2 (4, 5) = 9.97, p < .05$). Post hoc analysis indicated that statistically significant increases occurred between Baseline and Consultation One, and Baseline and Consultation Two. The increase in mean performance from Consultation One to Consultation Two was not statistically significant.

Group One’s performance on LSF reflected the same pattern as that for FSF. Mean performance level increased across each phase of the study. The Friedman analysis indicated a significant variation in the ranking of the phases (LSF: $\chi^2 (4, 5) = 12.34, p < .05$). More specifically, statistically significant increases in mean performance were found between
Baseline and Consultation One, and Baseline and Consultation Two. However, as with FSF the increase in mean performance from Consultation One to Consultation Two was not statistically significant.

**Table 4.6** Descriptive Statistics for FSF and LSF Progress Monitoring Tasks: Mean Level Data for Group One at Baseline, Consultation One and Consultation Two, and Nonparametric Statistical Analysis ($n = 5$, $df = 4$).

<table>
<thead>
<tr>
<th></th>
<th>Baseline</th>
<th>Consult One</th>
<th>Consult Two</th>
<th>Friedman ($\chi^2$)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FSF</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>27.60</td>
<td>35.48</td>
<td>35.85</td>
<td>9.97*</td>
</tr>
<tr>
<td>SD</td>
<td>13.65</td>
<td>15.36</td>
<td>15.02</td>
<td></td>
</tr>
<tr>
<td>Median</td>
<td>30</td>
<td>43.22</td>
<td>40.75</td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>34</td>
<td>37.40</td>
<td>38</td>
<td></td>
</tr>
<tr>
<td>Kurt.</td>
<td>2.34</td>
<td>.34</td>
<td>.89</td>
<td></td>
</tr>
<tr>
<td>Skew.</td>
<td>-1.49</td>
<td>-1.17</td>
<td>-1.15</td>
<td></td>
</tr>
<tr>
<td>Wilcoxon (z)</td>
<td>1.41*</td>
<td>n.s</td>
<td>1.72*</td>
<td>n.s</td>
</tr>
</tbody>
</table>

|        |          |             |             |                  |
| **LSF** |          |             |             |                  |
| Mean   | 24       | 40.21       | 45.85       | 12.34*           |
| SD     | 14.18    | 24.41       | 20.46       |                  |
| Median | 21       | 38          | 40.25       |                  |
| Range  | 37       | 66          | 52.75       |                  |
| Kurt.  | 3.23     | 2.46        | 1.10        |                  |
| Skew.  | 1.65     | 1.23        | 1.11        |                  |
| Wilcoxon (z) | 1.72* | n.s | 1.72* | n.s |

*Note:* FSF = First Sound Fluency, LSF = Letter Sound Fluency, $SD =$ standard deviation, Skew. = skewness, Kurt. = kurtosis. **Bold** = indicates where possible violations of normative distribution were indicated. Friedman = Friedman Two-Way ANOVA by Ranks nonparametric statistical analysis. Wilcoxon = post hoc test of statistically significant difference between phases (BL/C1;C1/C2;BL/C2). n.s = nonsignificant. * All statistical analyses are statistically significant at $p < .05$.

**Group Two**

For both progress monitoring tasks, FSF and LSF (presented in Table 4.7), assumptions of normality were violated in at least one of the study’s phases. Therefore, statistical analysis mirrored that undertaken for Group One, described above. As seen in Table 4.6, for FSF,
Group Two’s mean level performance increased from each phase over the course of the study. The Friedman analysis indicated a significant variation in the ranking of the phases (FSF: $\chi^2(5, 6) = 18.91, p < .05$). Post hoc analysis using the Wilcoxon test indicated that statistically significant increases across phase occurred from Baseline to Consultation One, Consultation One to Consultation Two, and Baseline to Consultation Two.

**Table 4.7** Descriptive Statistics for FSF and LSF Progress Monitoring Tasks: Mean Level Data for Group Two at Baseline, Consultation One and Consultation Two, and Nonparametric Statistical Analysis ($df = 5, n = 6$).

<table>
<thead>
<tr>
<th></th>
<th>Baseline</th>
<th>Consult One</th>
<th>Consult Two</th>
<th>Friedman ($\chi^2$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FSF Mean</td>
<td>21.58</td>
<td>31.83</td>
<td>39.18</td>
<td>18.91*</td>
</tr>
<tr>
<td>SD</td>
<td>12.18</td>
<td>13.01</td>
<td>13.43</td>
<td></td>
</tr>
<tr>
<td>Median</td>
<td>24</td>
<td>32.54</td>
<td>40.48</td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>34</td>
<td>40.58</td>
<td>40.67</td>
<td></td>
</tr>
<tr>
<td>Kurt.</td>
<td>.37</td>
<td><strong>2.11</strong></td>
<td>2.00</td>
<td></td>
</tr>
<tr>
<td>Skew.</td>
<td>-.84</td>
<td>-.26</td>
<td>-.85</td>
<td></td>
</tr>
</tbody>
</table>

Wilcoxon (z) 1.91* 1.91* 1.91*

<table>
<thead>
<tr>
<th></th>
<th>Baseline</th>
<th>Consult One</th>
<th>Consult Two</th>
<th>Friedman ($\chi^2$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LSF Mean</td>
<td>16.25</td>
<td>30.28</td>
<td>41.86</td>
<td>16.32*</td>
</tr>
<tr>
<td>SD</td>
<td>9.82</td>
<td>14.50</td>
<td>10.43</td>
<td></td>
</tr>
<tr>
<td>Median</td>
<td>15.75</td>
<td>33.38</td>
<td>41.12</td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>23</td>
<td>32.25</td>
<td>29.17</td>
<td></td>
</tr>
<tr>
<td>Kurt.</td>
<td><strong>-2.32</strong></td>
<td><strong>-2.51</strong></td>
<td>.103</td>
<td></td>
</tr>
<tr>
<td>Skew.</td>
<td>.89</td>
<td>-.31</td>
<td>.59</td>
<td></td>
</tr>
</tbody>
</table>

Wilcoxon (z) 1.91* 1.69* 1.91* 1.91*

*Note: FSF = First Sound Fluency, LSF = Letter Sound Fluency, SD = standard deviation, Skew. = skewness, Kurt. = kurtosis, **Bold** = indicates where possible violations of normative distribution were indicated. Friedman = Friedman Two-Way ANOVA by Ranks nonparametric statistical analysis. Wilcoxon = post hoc test of statistically significant difference between phases (BL/C1;C1/C2;BL/C2).

* All statistical analyses are statistically significant at $p < .05$.

Group Two’s performance on LSF reflected the same pattern as that for FSF. Mean performance level increased across each phase over the study. The Friedman analysis
indicated a significant variation in the ranking of the phases \( (FSF: \chi^2 (5, 6) = 16.32, p < .05) \).

Post hoc analysis using the Wilcoxon test indicated that statistically significant increases across phase occurred from Baseline to Consultation One, Consultation One to Consultation Two, and Baseline to Consultation Two.

### 4.6 At the End of Year how did the Students’ Fare Compared to their Peers?

Although statistically significant increases in students’ mean performance, as reported above, informs us that the students in the consultation groups generally improved on skills assessed during the A-IICp, they do not inform us if participating students’ performance increased to a level equivalent to their peers (Jacobson and Truax, 1991). Measures of clinical significance however, do inform us of changes in performance to within normal functioning (Jacobson and Truax, 1991). Clinical significance, which within this thesis will be referred to as educational significance due to the educational setting and literacy focus of the study, can be defined as whether an intervention achieved its goals (e.g., increase early literacy skills to meet normative peer performance) that signal the intervention’s success and benefit to the individuals involved (Jacobson and Truax, 1991). To assess the students’ overall progress, follow-up data were collected at the completion of the school year. These data were then compared to criterion measures (i.e., book level) and NZ normative data (i.e., researcher administered wider literacy assessment) that reflected average/recommended peer performance.
At the end of year, the researcher administered a wider literacy assessment that consisted of the specified end of first year DIBELS measures: LNF, PSF and NWF. The students’ performance was compared to NZ normative data (Madigan et al., 2009: Technical Manual for Dunedin Users of DIBELS). These results are presented in Table 4.8.

<table>
<thead>
<tr>
<th>Student</th>
<th>LNF</th>
<th>PSF</th>
<th>NWF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Craig</td>
<td>60*</td>
<td>40*</td>
<td>86*</td>
</tr>
<tr>
<td>Edward</td>
<td>49*</td>
<td>51*</td>
<td>36*</td>
</tr>
<tr>
<td>Olga</td>
<td>44</td>
<td>58*</td>
<td>45*</td>
</tr>
<tr>
<td>Mike</td>
<td>49*</td>
<td>38*</td>
<td>41*</td>
</tr>
<tr>
<td>David</td>
<td>61*</td>
<td>25</td>
<td>35*</td>
</tr>
<tr>
<td>Nadia</td>
<td>49*</td>
<td>51*</td>
<td>39*</td>
</tr>
<tr>
<td>Taylor</td>
<td>65*</td>
<td>14</td>
<td>26</td>
</tr>
<tr>
<td>Zinzan</td>
<td>40</td>
<td>6</td>
<td>33*</td>
</tr>
<tr>
<td>Joshua</td>
<td>44</td>
<td>14</td>
<td>59*</td>
</tr>
<tr>
<td>Ivan</td>
<td>44</td>
<td>18</td>
<td>58*</td>
</tr>
<tr>
<td>Owen</td>
<td>51*</td>
<td>53*</td>
<td>43*</td>
</tr>
</tbody>
</table>

Note: End of year wider literacy assessment was conducted on the 13th November 2008. LNF: Letter Naming Fluency; PSF: Phonemic Segmentation Fluency; NWF: Nonsense Word Fluency. * = student’s performed equivalent or better than the 5th stanine (LNF: percentile 41-59 and range of scores 47-53; PSF: percentile 41-59 and range of scores 26-38; NWF: percentile 41-59 and range of scores 30-41). Normative data based on 286 Year One students” tested from 2004 to 2009.

Seven students were performing at an equivalent or greater level than their peers’ average performance on the task of LNF. Six of the students were performing at an equivalent or great level than the average performance by their peers on the PSF task and ten on the NWF task. Craig, Edward, Olga, Mike, Nadia and Owen’s performance was comparable to their peers’ average performance on all three early literacy skills assessed. Zinzan was the only
student not to reach his peers' average performance on any of the component literacy skills assessed. Overall, the students’ performed best (i.e., more students matched their peers) on the NWF task that required them to read, theoretically previously unseen nonsense words, accurately. Student performance was poorest on the PSF indicating that the students’ ability to affectively segment words into individual phonemes remained problematic. Half of the students’ performed below their peers' normative performance on the LNF indicating that at the end of their first year of schooling, they remained unable to fluently name the letters of the alphabet to a level commensurate to that of their typically performing peers.

4.6.2 School Measured Criterion Book Level

Table 4.9 illustrates the students’ teacher assessed book level at the beginning and end of year, and the beginning of the study (i.e., middle). At the beginning of the year, the students’ book levels reflected instructional texts typically read by students at the beginning to middle of their first year of schooling (i.e., Red). This is of note as the average length in school of the eleven participating students was ten months and thirteen days. Therefore, at this length in their schooling, guided by the MoE guidelines, they should have been reading closer to the level Green (i.e., 12+/-). However, as they were still being taught at a Y1 level this is the level of attainment that will be the age/instructional level of interpretation.

At the middle of the year, seven of the eleven students had not progressed in their reading beyond the level Red. This slow rate of progress lends support to the teachers’ inclusion of these students as at-risk for reading difficulties and identification of their need for further reading support to increase their rate of progress. With the support provided, the students’ progressed in their reading more rapidly, with all students reaching the twelve-month
school target of Green by the end of the year, with two students’ attaining literacy performance beyond this level (e.g., Orange). Therefore, at the end of their instruction at an Y1 level these students met the Ministry stipulated criterion book level set as the target for Y1 students.

Table 4.9 School Criterion Student Book Level Data taken at Beginning, Middle and End of Year.

<table>
<thead>
<tr>
<th>Student</th>
<th>Beginning</th>
<th>Colour</th>
<th>Middle</th>
<th>Colour</th>
<th>End</th>
<th>Colour</th>
</tr>
</thead>
<tbody>
<tr>
<td>Craig</td>
<td>-</td>
<td>-</td>
<td>7</td>
<td>Y 2</td>
<td>17.5</td>
<td>&gt; O1</td>
</tr>
<tr>
<td>Edward</td>
<td>4</td>
<td>R2</td>
<td>5</td>
<td>R 3</td>
<td>11.5</td>
<td>B3–G1</td>
</tr>
<tr>
<td>Olga</td>
<td>3</td>
<td>R1</td>
<td>5</td>
<td>R 3</td>
<td>11.5</td>
<td>B3–G1</td>
</tr>
<tr>
<td>David</td>
<td>3</td>
<td>R1</td>
<td>5</td>
<td>R 3</td>
<td>15.5</td>
<td>&gt; O1</td>
</tr>
<tr>
<td>Mike</td>
<td>2.5</td>
<td>M2–R1</td>
<td>5</td>
<td>R 3</td>
<td>13</td>
<td>G2</td>
</tr>
<tr>
<td>Nadia</td>
<td>2</td>
<td>M2</td>
<td>6</td>
<td>Y 1</td>
<td>12</td>
<td>G1</td>
</tr>
<tr>
<td>Taylor</td>
<td>2</td>
<td>M2</td>
<td>5</td>
<td>R 3</td>
<td>11.5</td>
<td>B3–G1</td>
</tr>
<tr>
<td>Zinzan</td>
<td>2</td>
<td>M2</td>
<td>4</td>
<td>R 2</td>
<td>13</td>
<td>G2</td>
</tr>
<tr>
<td>Joshua</td>
<td>2</td>
<td>M2</td>
<td>5</td>
<td>R 3</td>
<td>13</td>
<td>G2</td>
</tr>
<tr>
<td>Ivan</td>
<td>3</td>
<td>R1</td>
<td>6</td>
<td>Y 1</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Owen</td>
<td>2</td>
<td>M2</td>
<td>5</td>
<td>R 3</td>
<td>11.5</td>
<td>B3–G1</td>
</tr>
</tbody>
</table>

Note: reading book level: a student progresses to the next level when they are able to read correctly 90% of a book. M = Magenta; R = Red; Y = Yellow; G = Green; B = Blue and; O = Orange.
CHAPTER 5. SCHOOL A DISCUSSION

5.1 Summary of Key Findings

The presentation of the progress monitoring data and the researcher administered literacy measures led the teachers to indicate instructional modifications aimed at enhancing the students’ component literacy skills. This was also seen in the type of instructional goals the teachers indicated for their students (e.g., increased focus on letter-sound correspondence). Thus, an additional positive outcome of the data presentation was that, even when instructional modifications were not explicitly indicated, the teachers appeared to recognise their students’ performance on the component skills assessed, which may have affected current teaching practice. However, the reported implementation of the identified instructional modifications was minimal to moderate across the teachers.

Over the course of the study both groups of students showed improvement on the progress monitoring tasks across all phases, and educationally significant improvements at the conclusion of the school year. Group One, taught by Teachers A (Olga, Craig and Edward), C (David and Mike) and D (Olga, Craig, Edward and David), showed statistically significant improvements on the FSF and LSF tasks between Baseline and Consultation One, and Baseline and Consultation Two. Group Two, taught by Teachers B (Nadia, Zinzan, Owen, Ivan, Joshua and Taylor) and D (Nadia, Zinzan, Owen, Ivan, Joshua and Taylor), showed statistically significant improvement across both tasks for each phase of the study. These results suggest that students in both groups showed improvement in the early literacy skills across the term in which the study was conducted.

We cannot directly implicate the A-IICp as the mechanism of change (Daly et al., in press) that caused the observed skill development. This is because the school had instituted
their own literacy intervention for all but one of the students in the study. Therefore, the results may reflect a combination of the school based initiative and the A-IICp. Due to the short length of the baseline and the use of level data rather than growth rate, it is unknown if the growth during the study was greater than that otherwise experienced by these students. However, given their inclusion within the specialty classroom and their selection for participation in the study, their progress prior to Term 2 was considered to have lagged behind their peers as evident from their book level attainment.

By the end of the school year the majority of the students were matching their peers' performance on the researcher administered NWF task, which is predictive of future reading achievement in NZ (Struthers et al., 2010). The students had made considerable progress on the school criterion book level from the beginning of the study to the end of the year. All the students for whom follow-up book level data were available reached the MoE (2009) recommended reading level.

The teachers’ and students’ perceptions of social validity were also encouraging. The teachers reported that the A-IICp was a socially acceptable means for addressing the struggling readers’ literacy difficulties. They indicated that the intensity of the procedure was warranted for the problem area and that, importantly, there were no negative side effects. Although the acceptability of the procedure was moderate to high, its perceived effectiveness, that is, its ability to improve student literacy, was relatively neutral (i.e., falling between slightly disagree and slight agree). Two teachers indicated the highest perceptions of effectiveness, which were moderate, with the remaining educators relatively neutral. As discussed below, perceived effectiveness varied across the teachers and appeared to be associated with a teacher’s reported level of identified instructional modification and their
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subsequent implementation of identified modifications. The teachers did, however, indicate a good level of subjective effectiveness as indicated through the teachers GAS ratings. Furthermore, the teachers also indicated that their students' showed improvement within the areas targeted by instructional modifications temporally close to the consultation meetings.

5.2 Interpretation of Key Findings

5.2.1 Perceived Acceptability

The students generally indicated a high level of acceptance of the assessment process. They indicated that the process had been helpful for aiding their reading and that it did not lead to bullying. The students' perspectives of the process are important, but must also be considered with caution due to their age; this aspect is discussed in Chapter 9.

The teachers generally endorsed a moderate to high level of acceptability of the process. The teachers, however, raised the caveat of the amount of time required to engage in this process and implement their selected interventions. This is of interest because although the teachers reported that they were unable to undertake specified interventions due to classroom time constraints, they still reported the process as acceptable. This is in line with Elliott’s (1988) comment that teachers are sensitive to time demands, but when the identified problem is severe enough, as the teachers indicated, they are generally willing to accept intervention methods that have higher time demands. Therefore, the constraints on the teachers to undertake their interventions may not have been due to beliefs that the process was ineffective or unacceptable per se, but because at a systems level the intervention was not supported with the appropriate amount of resources required. This element is related to the preparation required to instil readiness of change within a given environment (Adelman and
Taylor, 1997), as well as goodness of fit within the broader culture, and current school systems (Forman and Zins, 2008, Schaugency et al., 2010). Readiness and fit within the broader school culture will be discussed more fully below in relation to perceived effectiveness.

Within the NZ context there are limited resources available for teachers to call on to help with students who are having difficulty grasping educational concepts such as reading. Literature supporting the use of data-informed intervention systems often refer to educational or school psychologists as providers of the assessment information and instructional support for teachers (e.g., Schaugency et al., 2010; Ervin and Schaugency, 2008; Ervin and Schaugency, 2006). However, within the NZ educational environment, educational psychological services are often limited to tertiary services provided to students with severe developmental and physical disabilities. Secondary consultation services are provided by Resource Teachers: Learning and Behaviour (RT:LB) (Thompson, 2003) and RT:Lits, with classroom support provided by teacher aids. Access to both educational psychologists and Resource Teachers within NZ is often difficult due to limited numbers and limited financial resources. In the present study, teachers were provided with specialist support, but still found implementing change within their classrooms difficult without added classroom support. It may be that at the system level (i.e., school and/or Ministry) recognition of logistical and practical supports for implementation is needed if processes such as the A-IICp are to be transported to classroom settings. To achieve this recognition, additional readiness activities (e.g., discussion and allocation of resources) will likely need to be undertaken to foster internal alignment with the activities and priorities within a school and external alignment with Ministry policies and initiatives (Sugai and Horner, 2006), such as meeting accountability demands of the National Standards (MoE, 2009).
5.2.2 Perceived Effectiveness

Perceived effectiveness ratings on the BIRS appear to be associated with the individual teacher's reported level of instructional modification following consultation. The teachers who indicated the lowest level of perceived effectiveness (i.e., slight disagreement) were also those who indicated the least (i.e., little to no) instructional modification based on the assessment information presented. One potential explanation for these teachers' relatively low levels of perceived effectiveness may have been related to their conceptions of why any identified changes in student performance occurred (Daly et al., in press). Other school based intervention options were implemented concurrently with the study, therefore, any increase in student performance may have been attributed to these teacher efforts rather than any effect of the consultation procedure. Also, both of these teachers may simply have not perceived that the students showed notable improvement over the course of the study.

Conversely, those teachers who appeared to engage in the process and reported using the specific information provided to tailor their instruction to meet student needs perceived the process to aid student improvement. For example, they indicated that it added instructional utility to their intervention decision making. Subsequently, they reported the highest levels of perceived effectiveness.

The RT:Lit gave a neutral response regarding the efficacy of the process in improving student outcomes. When discussing this with the RT:Lit, in conjunction with her written statements regarding the process, she said that the information was useful in informing her understanding of students' difficulties in reading acquisition. She commented that her ratings were a reflection of her evaluation of effectiveness of the overall process in facilitating the
teachers to focus on literacy instructional targets and their implementation of appropriate instructional modifications to address those targets.

There are several potential factors that may have affected the use of assessment information to modify instruction, and the level perceived effectiveness of the process. First, the syndicate (i.e., all of the junior primary school teachers) had recently implemented a new universal curriculum targeting phoneme-grapheme correspondence and secondary specialist reading support for students' struggling with reading acquisition (provided by Teacher D). Second, teachers’ previous experience with the school used measures and personal judgment as experienced teachers had probably served them well in the past, as had their pre-identified instructional plans. Therefore, without a strong rationale that increased teachers' understanding and knowledge of the A-IICp, their engagement within the process may have been reduced and the teachers may not have seen the merit of diverting their time (Reimers et al., 1987). Furthermore, they had not had previous experience with the assessment methods used to inform decision making (e.g., DA, FSF and LSF). As a result, they may not have 'trusted' the information provided.

The timing of the school implemented intervention (i.e., the specialty reading class) and the researcher-led A-IICp may have reduced engagement. As such, the capacity of the assessment information to be used as an evaluation tool to further refine intervention (Schaughency, Alsop and Dawson, 2010) may have been reduced due to the timing, framing and fit of the study within this school environment (Forman and Zins, 2008, Schaughency et al., 2010). The engagement with an data-informed system, such as the current consultation process, to inform instruction and monitor its effectiveness (i.e., RTI), may have been increased if the study was framed as aiding the teachers to enhance their current strategies,
rather than for them to choose ‘new’ intervention options. This may have led to the process being viewed as more consistent with current practices rather than an add-on, which may have increased implementation likelihood (Ervin and Schaugency, 2008). In this sense, there was room for improved communication of the functionality (Schaughency et al., 2010) of the information within the ongoing instructional environment to aid decision making.

The model of a working instructional team is potentially relevant to implementation in this context, as there appeared to be a level of diffused responsibility for instructional decision making and implementation between the classroom teachers and the specialty classroom teacher. For example, one teacher taught two participating students, one of whom was also taught by the specialist teacher. As a result she only identified instructional modifications for the student for whom she provided the primary literacy instruction in her classroom and not the student attending the specialty classroom. For the other students who received literacy instruction in the specialist classroom setting, their teachers commented that they had difficulty finding time for the identified supplemental activities within the school day. A reduced urgency to ‘make’ time within their current classroom activities may have been reduced due to the knowledge that the students were already receiving supplemental support within the specialty classroom.

Last, readiness to implement new practices may not have been achieved, decreasing likelihood of implementation of the A-IICp (Adelman and Taylor, 1997). This may have heightened the effect of the above elements in reducing engagement. Adelman and Taylor (1997) posited three elements involved in the creation of readiness for adopting new practices. First, interest and a united will to engage in the process should be created through supplying information regarding the practice. This step is in line with the social validity model outlined
by Reimers et al. (1987) that posited that an individual’s initial understanding, and hence interest, in a process mediates its acceptance as a method for addressing a socially valid goal. Second, Adelman and Taylor (1997) proposed that formal discussions regarding how the change will occur should be undertaken and consensus regarding this process reached. Last, they propose that supports to aid the adoption or and engagement with the new practice should be put in place.

Within the study undertaken at School A, it appears that the three readiness steps were not fully achieved. This could be seen through the anecdotal process perceptions of the teachers and the level of reported intervention implementation. The teachers verbally reported that they perceived that the students' assessment results were a reflection of their teaching effectiveness rather than students' individual responsiveness to instruction. The intention of the assessment data was to aid teachers' understanding, not to make them feel vulnerable as teachers. This highlights the need for a collective understanding of the process and its intentions (Adelman and Taylor, 1997).

Furthermore, although the process and researcher expectations of teacher participation were discussed and apparent consensus of needed input reached, once the process had begun it was recognised that the teachers had limited time for consultation meetings and also for implementing identified interventions. Therefore, a consensus regarding first, how change would occur (e.g., modified literacy interventions when required and implementation of these modifications) and second, the appropriate level of support (e.g., relief time to participate in consultation meetings, as well as teacher aid time when needed) to help implementation were not fully met. As a result, readiness to engage in the A-IICp may not have been sufficiently achieved potentially moderating engagement in the process.
The readiness process also encapsulates the need to understand and consider the setting in which the practice is to be adopted (Ervin and Schaughency, 2008). Although increased intervention intensity seemed appropriate for the students at School A, there were other measures that had already been established to achieve this. This may have reduced the perceived need, and therefore readiness and engagement in the ‘new’ practice.

In summary, to facilitate readiness, increased discussion regarding the benefits from engaging in the process should likely have been undertaken (Ervin and Schaughency, 2008) to better establish a shared understanding of the process and desired outcomes (Curtis and Stollar, 2002). Through heightened emphasis on creating readiness, misconceptions regarding the process (i.e., A-IICp) may have been avoided or voiced sooner – such as those voiced and addressed with teachers at the group debriefing session.

5.2.3 Intervention Implementation and Instructional Integrity

The majority of teachers indicated planned instructional modifications during the consultation, but reported implementation of the interventions was only minimal to modest, suggesting possibly low instructional integrity. The IIF, which was provided as a means for daily recording of implemented strategies, was not consistently completed or completed as intended. For example, one teacher completed her form retrospectively at the second meeting after not having completed it for three weeks. Therefore, the reliability of the instructional integrity information may be limited and should be interpreted with caution. However, the teachers who perceived the process to be more effective and socially valid appeared to also implement more instructional modifications and record these efforts. In this sense the level of intervention
implementation and integrity may also be viewed as a marker of acceptability of the process (Gresham and Lopez, 2006), as well as effectiveness.

The issue of instructional integrity is important within school consultation research and its enhancement is essential when attempting to assess the effectiveness of a selected intervention method (Gresham 2004). If a previously effective intervention is poorly implemented, its efficacy may be reduced, and the observed poor outcome may be inappropriately interpreted as indicating that the intervention did not work and that further or different services are needed, when consideration of barriers to implementation may be more appropriate. Overall, the collection of instructional integrity/implementation information was poor. As a result the ability to objectively interpret the effectiveness of the A-IICp is reduced. Given the aim of the study was to gain the teachers’ perspective through a social validity framework this was not detrimental to the study per se. However, poor implementation may have reduced the teachers' subjective (i.e., social validity) ratings of the A-IICp. This is because with increased implementation greater student improvement may have occurred increasing teachers' subjective social validity ratings of effectiveness.

To aid in accurate intervention evaluation, procedures could be employed to facilitate the measurement of instructional integrity (Schaughency et al., in press). For instance, internet facilitated assessment systems have been recommended as a means of reducing the effort involved in regularly collecting requested data (Pliszka, Lopez, Crismon, Toprac, Hughes, Emslie, and Boemer, 2003). This type of data collection system may have been superior within School A’s environment as each teacher had a classroom laptop for their use.

In addition to the need for instructional integrity information to accurately identify if an intervention is effective, it can also be used as a measure of acceptability. It has been
hypothesised that if an intervention is not implemented as planned there must be some aspect of that intervention that was not acceptable to the implementer (Gresham and Lopez, 1996). Through the BIRS the teachers indicated a moderate to high level of acceptance of the process and therefore, low levels of acceptance do not appear to have been the reason for poor implementation. Therefore, it appears that the IIF used may have been onerous to complete reducing recording.

5.3 Teacher Conceptualisation of Students’ Difficulties

During the A-IICp, the teachers noted factors other than literacy skill deficits that they perceived to be hindering the students’ literacy performance. The teachers often noted behavioural, personality or home environment variables that they perceived to be affecting student performance. Consideration of such factors may have also influenced adoption and implementation. If the teachers did not perceive deficient literacy skills as the primary cause for the struggling students’ literacy problems, then using an intervention method with a primary focus on teaching literacy skills may not have been viewed as helpful, possibly contributing to reduced implementation.

5.4 Learning from Experience: Considerations and Modifications Undertaken before Implementation at School B

In light of information gained from the participating teachers at School A and researcher observation of the study’s implementation, modifications were made to increase consultation and instructional integrity, and to further promote readiness. The study's intended purpose, use of local normative comparison data, and the IIF used to assess instructional integrity and teacher interventions were highlighted as three aspects which could benefit from modification.
5.5.1 Use of Local Comparison Progress Monitoring Data

As noted in Chapter 4, when presenting the results for School A at the conclusion of the study, the teachers raised concerns regarding the use of two other local schools’ Y1 progress monitoring data (i.e., students performing within the fifth stanine) as comparative information for goal setting. The teachers reported that the use of this information was inappropriate as they were unaware of the other schools’ decile rankings and, therefore, these students’ performance may not have been representative of the average performance at School A. Furthermore, the teachers noted that at times they felt their teaching ability was being assessed rather than student performance, due to the use of the comparison data. This was highly concerning because it appeared to reduce the teachers’ implementation integrity and reduce their positive engagement with the researchers.

Local comparison data that was aggregated across schools was not used with School B. Instead, because the Y1 students at School B had participated in a progress monitoring study across Term 2 (Clarke, 2008), information was available regarding the average level of performance of School B students. This information, in conjunction with DIBELS (Fuchs, 2004) and AIMSweb (Fuchs and Fuchs, 2007) average growth rates for the two progress monitoring tasks for the US samples, was used to project continued growth of these skills during Term 3. This was aimed at helping teachers understand the average rates of growth for students within Y1, and, therefore, how much progress their students may need to make, per week, to reach average performance.

5.5.2 Framing of the Study
The manner in which the A-IICp was introduced to the teachers and the explanation of its intended purpose was iterated more explicitly. Teachers were informed that the aim of the study was to help them increase their understanding of the struggling readers' component literacy skills deficits in order to help them create effective and tailored intervention plans. It was emphasised that the majority of their students, within their classroom, were making good progress in literacy, as illustrated by school-used book levels and progress monitoring data from Term 2. As such, the teachers ability to teach their students effectively was high, but for those students not responding the A-IICp was there to help the teachers create increasingly specialised intervention options aimed at stimulating student literacy.

5.5.3 Intervention Implementation Form

To increase accurate recording of the interventions undertaken and reduce burden, the IIF was simplified for use at School B and made to be more ‘user friendly’. First, the form was modified so that at each consultation the teachers could write their goals for each student, and the intended intervention methods to achieve these directly on the form. This was so that they had an immediate record of their intended plan. As such, the teachers did not require a summary of the interventions discussed at the consultation. Also the interventions were numbered so that if an intervention was undertaken the teacher simply had to write the number beside the corresponding day, rather than detailing their interventions each time.
5.5 Conclusions from School A

Overall, the preliminary subjective social validity results coupled with student performance indices provide some support for the instructional utility of the A-IICp. These results are preliminary and further refined studies, detailed in Chapter 9, are recommended to further assess instructional utility.

Several changeable variables were encountered at School A that highlight the need to consider recommendations in school consultation research to promote greater implementation of intervention processes (overview Ervin and Schaughency, 2008). The social validity literature stipulates that good communication and understanding of an intervention method leads to higher acceptance and initial perceptions of effectiveness, and, therefore, adoption and implementation of an intervention method (Elliott, 1988; Reimers et al., 1987). To this end, special emphasis should be focused on creating readiness through quality communication of the process, ideas and any concerns leading to a shared vision and understanding (Adelman and Taylor, 1997; Curtis and Stollar, 2002). As a result of the outcome and teacher comments from School A the modifications outlined below were made before commencement of the second study at School B with the aim of rectifying the barriers to implementation encountered at School A.
CHAPTER 6. SCHOOL B METHODS

6.1 Participants

6.1.1 Primary School B

Primary School B was ranked as a decile four school and had a total of 228 pupils in 2008. School B taught children from Y0 through to Year Five. Thirty-two of the pupils were Y0 and Y1 students and therefore were eligible for participation in the current study. The Y0 and Y1 students were allocated to one of two mixed level classrooms (e.g., Y0 to Y2). One of the classrooms was specified as a ‘new-entrants’ classroom and constituted of students who were newest to the school. As students progressed in age and skill they were transferred into the second junior classroom.

6.1.2 Students

Seven Y1/Y0 primary school students were identified by their teachers as ‘at-risk’ for reading difficulty and were potential participants. Letters of invitation were sent home to these students’ guardians. All seven students gave assent and their guardians informed proxy consent.

Each of the participating students is described individually below. During the course of the study two students were moved from the ‘new-entrants’ classroom into the junior school classroom. Due to this school determined decision the research design used for the School A (e.g., teachers as the single subjects) did not hold. Therefore, the students are the single subjects distinguished by the time when intervention was commenced across Term Three (e.g., students are grouped according to when interventions were delivered).
Table 6.1 Group, Demographics, School and Individual Variables of Students Participating in the Assessment-Informed Instructional Consultation Process at School B.

<table>
<thead>
<tr>
<th>Instructional Consultation Group</th>
<th>Teacher</th>
<th>Students</th>
<th>Demographics</th>
<th>School Variables</th>
<th>Individual Variables</th>
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<tr>
<td></td>
<td></td>
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<td>Age</td>
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<td>B</td>
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Note: * = students taught by Teacher B; ** = students taught by Teacher C. Italics: the student did not attend the special class. Age and length in school = Year.Month.Days; NZE: New Zealand European; IC = Instructional Consultation; E, P and B Issues = Educational, Psychological and Behavioural issues; DD: developmental disability.
The overall group demographics are presented in Table 6.1 above. All of the students identified themselves as NZ European and therefore, the sample may not be representative of the overall school demographic.

The average age at the commencement of the study was five years, six months and seventeen days. The oldest student was five years, eleven months and twenty-four days old and the youngest student was five years, two months and eleven days old. The students had spent an average of six months and eighteen days at school before the study commenced. The age and length in school was calculated at the time of the study’s commencement. The average reading level of the six students when the study commenced was 1.8. One of the students had a noticeable cleft palate and a second student was suspected of having a diagnosable developmental disability, though no formal diagnostic evaluation had been undertaken at the start of the study.

*Intervention Start A – Instructional Consultation Student Demographics*

Intervention Start A consisted of one student who is presented below. He remained in the new-entrants classroom throughout the course of the A-IICp and Teacher A was his Agent of Change. There was three weeks between his teacher's first and second consultation. Unless otherwise specified the students had no behavioural, educational, mental or physical conditions, to the knowledge of the researchers and teachers. All the students are referred to by pseudonyms.

*Duke.* Was a male student who at the commencement of the study was five years, two months and eleven days old and had been in school for two months and eleven days. At the beginning of the study he was reading at book level 1 (i.e., Magenta 1).
**Intervention Start B – Instructional Consultation Student Demographics**

Intervention Start B consisted of two students presented below. At the beginning of the instructional consultation study both students were in the new entrants classroom, but were transferred into the junior classroom approximately two weeks after the initial instructional consultation. Therefore, their second progress review was held with Teacher B at her second scheduled instructional consultation meeting five weeks after the students’ initial review with Teacher A.

*Jackson.* Was a male student who at the commencement of the study was five years, four months and twenty-three days old. He had been in school for four months and twenty-three days. At the beginning of the study he was reading at book level 1 (i.e., Magenta 1). Jackson had a reconstructed cleft palate, but to the knowledge of the teachers and researchers he had no known behavioural, educational or mental conditions.

*Sean.* Was a male student who at the commencement of the study was five years, three months and thirteen days old and had attended school for three months and thirteen days. At the beginning of the study he was reading at book level 1 (i.e., Magenta 1).

**Intervention Start C - Instructional Consultation Student Demographics**

Intervention Start C consisted of three students. All three students were in the junior classroom for the entirety of the A-IICp, therefore their Agent of Change was Teacher B.
Michael. Was a male student who at the commencement of the study was five years, eleven months and twenty-four days old and had been in school for eleven months and twenty-four days. At the beginning of the study he was reading at book level 2 (i.e., Magenta 2). The teachers were concerned about his progress in school and overall developmental level. As a result of these concerns at the conclusion of the study the teachers, in discussion with the school principal, were considering requesting he be referred for a cognitive assessment.

Divine. Was a female student who at the commencement of the study was five years, nine months and twenty days old and had been in school for nine months and twenty days. At the beginning of the study she was reading at book level 4 (i.e., Red 2).

Dharma. Was a female student who at the commencement of the study was five years, eight months and eleven days of age and had attended school for eight months and eleven days. At the beginning of the study she was reading at book level 1 (i.e., Magenta 1).

6.1.3 Educational Professionals

Two Y0/Y1 teachers participated, both of whom were female and ranged in experience from a junior teacher to a highly experienced teacher.

6.2 Measures and Materials

The materials described in this chapter are those that are specific to School A. These include the data presentation format used at the instructional consultation meetings and
the IIF. The researcher administered literacy assessment, progress monitoring, DA, instructional consultation and the social validity measures/procedures, which were identical to both schools are described in Chapter 2.

6.2.1 Instructional Consultation Meeting Data Presentation

The teachers were presented with the students’ progress monitoring data in two types of Excel graphs. The first type of graph was as a standard Excel bar graph, one for each progress monitoring task. Imposed upon each graph was a horizontal line depicting at which level the student should be performing based on normative data by the next instructional consultation. This was based on the understanding that for the LSF task students on average gain 1 letter sound per week and for the FSF task they gain 1.8 initial letter sounds. Therefore, for each task and student the level at which they would achieve if they gained the average letters per week was also written beside the horizontal line. A vertical line was also imposed on the graph which represented the points where intervention/s began. The second graph, a line graph, depicted the progress monitoring data relative to the Fisher Criteria and was presented in the form described in Chapter 2. The progress monitoring data presented to teachers can be seen in Appendix K.

6.2.2 Intervention Implementation Form (IIF)

The IIF was used to provide the teachers with a means of recording the active strategies implemented between the instructional consultation meetings. The form also fulfilled the function of an intervention summary, as teachers wrote their selected intervention on the form as the discussion was undertaken. The form consisted of an area to write the overall
literacy goal/s identified for the student, as well as a summary of the plan created to attempt to achieve the goal/s. There were five numbered bullet points set out for the teachers to write the intervention steps intended to be undertaken, though all five steps were not required. There was also a table with a space to detail the instructional activities undertaken on each day. The form also provided the researchers with a description of whether the strategies discussed during the consultation session were implemented in practice. An example of the form is presented in Appendix J.

6.3 Procedure

The researcher administered literacy assessment followed the same time frame and procedures described in Chapters 2 and 3. The A-IICp was conducted over a ten week period beginning in the first week of Term Three. Progress monitoring was undertaken twice weekly over the ten weeks using FSF and LSF. DA was undertaken for all students over the first week of progress monitoring. The DA was conducted at the same time point as the students’ second baseline progress monitoring. Following the final progress monitoring collection in week ten, the students were verbally administered the Child Intervention Rating Profile Questionnaire.

The first instructional consultation meeting was held at the school in the second week of Term Three with Teacher A and in the third week with Teacher B. The teachers were presented with the information handouts previously described and were verbally informed of the framework and process of the study. Due to feedback gathered from the teachers at School A, added emphasis was given to the the framework of the project. Specifically that the focus of the project was the students and that the teachers'
performance or competence was not being monitored or assessed. Furthermore, it was iterated that the use of normative data were to aid understanding of normative performance and as a tool to assist goal setting and not to emphasise students' poor performance.

The teachers were then presented with the individual students' DA, available beginning of the year researcher administered wider literacy assessment and their baseline progress monitoring in the first Excel format. The tasks were verbally described as the data were presented. A discussion of the results and elements of the students’ literacy development that required further attention and intervention was conducted by the RT:Lit with the teachers. Following this discussion, the teachers were asked to specify the literacy skills they wished to target and instructional intervention methods they wished to implement. As an intervention was identified the teacher handwrote the method onto the student’s IIF. They were also asked to operationally define the targeted skills in terms of an achievable and measureable goals using the GAS and rate each student’s current movement towards the identified goal.

During Teacher A’s first instructional consultation she informed the researchers that two of her students, Jackson and Sean, were going to graduate into teacher B’s classroom two weeks after her consultation. As a result of this, at the point of classroom transition, the IIF was to be passed to Teacher B and the students’ performance would be reviewed at Teacher B’s second instructional consultation meeting. The teachers' second instructional consultation meetings were scheduled for three weeks after their initial meeting and followed the same procedure specified in Chapter 2.
A final meeting with both teachers, the RT:Lit and the school's principal was undertaken in the second week of Term Four. The progress monitoring data collected throughout the study was presented for each student. Following this, the teachers completed the Behaviour Intervention Rating Scale and a verbal discussion of the process was undertaken. The actual implementation timing of all the study components and meetings is depicted in graphic form in Figure 6.1.
### Figure 6.1 Time Line of the Assessment-Informed Instructional Consultation Implementation at School B.

<table>
<thead>
<tr>
<th>Intervention Start</th>
<th>Teacher</th>
<th>Students</th>
<th>Term Three</th>
<th>Term Four</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Week 1</td>
<td>Week 2</td>
</tr>
<tr>
<td>A</td>
<td>A</td>
<td>Duke</td>
<td>BL-PM DA and IC</td>
<td>BL-PM DA and IC</td>
</tr>
<tr>
<td>B</td>
<td>A/B</td>
<td>Jackson Sean</td>
<td>BL-PM DA and IC</td>
<td>BL-PM DA and IC</td>
</tr>
<tr>
<td>C</td>
<td>B</td>
<td>Divine Michael Dharma</td>
<td>BL-PM DA and IC</td>
<td>BL-PM DA and IC</td>
</tr>
</tbody>
</table>

*Note:* The RT:Lit was present at all meetings. BL-PM = baseline progress monitoring, DA = dynamic assessment, IC = instructional consultation meeting, PM = progress monitoring. Teacher A/B refers to the students who were originally taught by teacher A, but then progressed into teacher B’s classroom during the course of the study, the time these students spent in teacher A’s classroom is indicated by the *italics.*
CHAPTER 7. SCHOOL B RESULTS

Unless otherwise specified, the data analysis methods used to interpret the results of dependent measures are identical to those used at School A presented in Chapter 4.

7.1 Did the Teachers' Perceive the Process to be Socially Valid?

As with School A, sources of information used to respond to the research question included teachers’ ratings on the Perceived Effectiveness, Acceptability, and Time-to-Effect scales of the BIRS, teachers’ subjective ratings on GAS, and written and oral comments regarding the A-IICp.

7.1.1 Perceived Effectiveness of the Early Literacy Skills Assessment Information to Inform Instruction leading to Improved Literacy Outcomes

When looking at Table 7.1, it can be seen that the teachers and RT:Lit collective mean perceived effectiveness of the A-IICp was neutral (M=3.52, SD=.43). The two teachers and RT:Lit’s mean perceptions of effectiveness ranged from slight disagreement (M= 3.14, SD=1.1) to slight agreement (M= 3.57, SD=.58; M = 4, SD=1.27) that the process was effective in improving student literacy skills.

When looking at the respondents’ mean responses to the individual questions within this section, they endorsed a moderate level of effectiveness for the following statements: the assessment information led to the development of interventions which had lasting positive effects for the students’ literacy, the students’ literacy skills would remain at the improved level, and that other literacy skills related to the targeted area also improved. Conversely, the
Table 7.1 School B Teachers' and RT:Lit's Perceived Effectiveness of the Assessment-Informed Instructional Consultation Process.

<table>
<thead>
<tr>
<th>Perceive Effectiveness of the Early Literacy Skills Assessment Information</th>
<th>A</th>
<th>B</th>
<th>RT:Lit</th>
<th>Mean(SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The assessment information led to development of an instructional plan that produced a lasting improvement in the student’s early literacy skills</td>
<td>4.33</td>
<td>4.33</td>
<td>3.33</td>
<td>4.33 (.58)</td>
</tr>
<tr>
<td>2. The instructional plan improved the student’s early literacy skills to the point that it would not noticeably deviate from other children’s early literacy skills</td>
<td>3.33</td>
<td>2.00</td>
<td>2.00</td>
<td>3.33(1.16)</td>
</tr>
<tr>
<td>3. The student’s early literacy skills will remain at an improved level even after the study is discontinued</td>
<td>4.33</td>
<td>4.33</td>
<td>4.33</td>
<td>4.33 (.58)</td>
</tr>
<tr>
<td>4. Using this model of assessment informed consultation not only improved the student’s performance of early literacy skills in the target setting (e.g., instructional lessons), but also in other early literacy activities</td>
<td>3.66</td>
<td>3.66</td>
<td>3.66</td>
<td>3.66 (.58)</td>
</tr>
<tr>
<td>5. When comparing the student targeted in this assessment informed consultation process with peers not targeted before and after consultation, their early literacy skills were more alike after consultation</td>
<td>3.00</td>
<td>n/a</td>
<td>4.00</td>
<td>3(1.41)</td>
</tr>
<tr>
<td>6. The instructional plan derived through this model of assessment informed consultation produced enough improvement in the student’s early literacy skills so that the previous difficulties no longer are a problem</td>
<td>2.00</td>
<td>3.00</td>
<td>1.00</td>
<td>2 (1)</td>
</tr>
<tr>
<td>7. Other early literacy difficulties related to the specific area identified as a concern are likely to be improved by the instructional plan derived through the assessment informed consultation procedures</td>
<td>4.00</td>
<td>4.00</td>
<td>4.00</td>
<td>4 (0)</td>
</tr>
</tbody>
</table>

Note: Likert Scale: 1 = strongly disagree, 2 = disagree, 3 = slightly disagree, 4 = slightly agree, 5 = agree, 6 = strongly agree. X = question was unanswered. n/a = individual noted the question did not apply. () = Standard deviation. Italics = mean score for individual respondents for the overall section and questions. Bold = individual question responses and overall means 5 or greater. Teacher B taught students: Divine, Michael and Dharma; Teacher A taught: Duke. Teacher A also taught Jackson and Sean for three weeks before they were moved to Teacher B’s classroom.
teachers indicated that the students’ reading ability continued to deviate markedly from their peers and that the students’ reading difficulties remained. They also indicated slight disagreement to slight agreement that the process led to improvements of both targeted literacy skills and other literacy areas (e.g., generalised across literacy activities).

Teacher B indicated disagreement with the statement that the process improved the students’ reading ability to a level more similar to other students (2), though Teacher A indicated slight agreement with this statement (4). Teacher A did, however, endorse disagreement with the statement that the instructional process had improved students’ performance to a level that did not markedly deviate from other students (2) and that generalisation to other literacy activities had occurred (3). Teacher A and B indicated mild to moderate agreement that the process led to the creation of instructional interventions that led to literacy improvement and that the improvement would remain stable after discontinuation of the process (5 and 4, respectively). The RT:Lit endorsed mild to moderate agreement with all items excluding the statement that the students’ literacy improved to a level that eliminated the problem, with which she slightly disagreed.

7.1.2 Acceptability of Assessment-Informed Instructional Consultation Process

As can be seen in Table 7.2, both teachers and the RT:Lit indicated high levels of individual acceptability (Teacher A: M = 5.53, SD = .52; Teacher B: M= 5.14, SD = .49; RT:Lit  M = 4.66, SD = .54, respectively). Their collective mean acceptability levels for each question in this section were also moderate to high. All the respondents showed high agreement that the method for addressing the identified problem was appropriate and that the students’ difficulties were severe enough to warrant the process. Further they endorsed that they would be willing to use the process again and that the students did not experience any negative side-
Table 7.2 Acceptability Level of the Assessment-Informed Instructional Consultation Process as Indicated by the Teachers at School B and the RT:Lit.

<table>
<thead>
<tr>
<th></th>
<th>Acceptability of Assessment-Informed Instructional Consultation Process</th>
<th>A</th>
<th>B</th>
<th>RT:Lit</th>
<th>Mean(SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>This was an acceptable model of assessment informed consultation for the identified problem</td>
<td>5.14 (.49)</td>
<td>5.53 (.52)</td>
<td>4.66 (.54)</td>
<td>5.48 (.44)</td>
</tr>
<tr>
<td>9</td>
<td>Most teachers would find this model of assessment informed consultation appropriate for problems in addition to the one addressed</td>
<td>4</td>
<td>6</td>
<td>5</td>
<td>5 (1)</td>
</tr>
<tr>
<td>10</td>
<td>The assessment informed consultation model was effective in changing the identified problem</td>
<td>4</td>
<td>5</td>
<td>4</td>
<td>4.33 (.58)</td>
</tr>
<tr>
<td>11</td>
<td>I would suggest the use of this assessment informed consultation model to other teachers</td>
<td>4</td>
<td>5</td>
<td>5</td>
<td>4.66 (.58)</td>
</tr>
<tr>
<td>12</td>
<td>The student targeted had early literacy difficulties severe enough to warrant use of this assessment informed consultation model</td>
<td>5</td>
<td>6</td>
<td>6</td>
<td>5.66 (.58)</td>
</tr>
<tr>
<td>13</td>
<td>Most teachers would find this model of assessment informed consultation suitable for the early literacy problems addressed</td>
<td>4</td>
<td>6</td>
<td>5</td>
<td>5 (1)</td>
</tr>
<tr>
<td>14</td>
<td>I would be willing to use this model of assessment informed consultation again</td>
<td>5</td>
<td>6</td>
<td>5</td>
<td>5.33 (.58)</td>
</tr>
<tr>
<td>15</td>
<td>The assessment informed consultation model did not result in negative side-effects for the targeted student</td>
<td>5</td>
<td>6</td>
<td>6</td>
<td>5.66 (.58)</td>
</tr>
<tr>
<td>16</td>
<td>The assessment informed consultation model would be appropriate for a variety of children</td>
<td>5</td>
<td>6</td>
<td>6</td>
<td>5.66 (.58)</td>
</tr>
<tr>
<td>17</td>
<td>This assessment informed consultation model is consistent with those I have used before</td>
<td>5</td>
<td>5</td>
<td>n/a</td>
<td>5 (0)</td>
</tr>
<tr>
<td>18</td>
<td>This model of assessment informed consultation was a fair way to handle the student's early literacy instructional needs</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5 (0)</td>
</tr>
<tr>
<td>19</td>
<td>This assessment informed model of consultation was reasonable for the early literacy skills addressed</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5 (0)</td>
</tr>
<tr>
<td>20</td>
<td>I liked the procedures used in this assessment informed model of consultation</td>
<td>4</td>
<td>5</td>
<td>5</td>
<td>4.66 (.58)</td>
</tr>
<tr>
<td>21</td>
<td>This model of assessment informed consultation was a good way to handle the identified early literacy instructional needs</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5 (0)</td>
</tr>
<tr>
<td>22</td>
<td>Overall, the assessment informed consultation procedures were beneficial for the children</td>
<td>5</td>
<td>6</td>
<td>5</td>
<td>5.33 (.57)</td>
</tr>
</tbody>
</table>

Note: Likert Scale: 1 = strongly disagree, 2 = disagree, 3 = slightly disagree, 4 = slightly agree, 5 = agree, 6 = strongly agree. X = question was unanswered. n/a = individual noted the question did not apply. () = Standard deviation. Italics = mean score for individual respondents for the overall section and questions. Bold = individual question responses and overall means 5 or greater.
effects. They also showed high agreement with the statements that other students could benefit from the process and that it was a fair way to address the student difficulties. In addition, they indicated a high level of agreement that the procedure was a good way to handle the identified early literacy instructional needs and that overall the process was beneficial for the students.

Teacher B indicated a high level of acceptability for the process with all her responses indicating moderate to high agreement (5 and 6). Teacher A and the RT:Lit also showed an overall high level of acceptability for the process. Teacher A endorsed moderate agreement that the process was effective in changing the identified problem, as did the RT:Lit. The RT:Lit also indicated moderate agreement that most teachers would find this process appropriate for the problem addressed and that she would recommend the process to other teachers; Teacher A and B also indicated high agreement with this statement. Teacher B endorsed strong agreement that most teachers would find this process helpful for the early literacy problems addressed, with Teacher A endorsing high support and the RT:Lit moderate. Further both teachers indicated they like the process.

7.1.3 Perceived Time-to-Effect

When looking at Table 7.3, results suggest that overall the respondents indicated relative neutrality that the students showed an improvement on the instructionally targeted early literacy skills closely after intervention implementation (M = 3.83, SD = .29). Teacher B and the RT:Lit’s responses indicated this with their overall individual section means reflecting slight agreement. This is in contrast to Teacher A who indicated slight disagreement to mild agreement. Their individual question scores also reflected their mild to moderate agreement that the instructional plans created based on the assessment informed provided quickly
improved the students’ rate of progress and that soon after implementation a positive change in the targeted early literacy skills could be noted.

**Table 7.3** Teachers' and RT:Lit’s Perceived Time-to-Effect regarding the Temporal Relationship of Consultation to Student Improvement.

<table>
<thead>
<tr>
<th>Perceived Time to Effect</th>
<th>A (0)</th>
<th>B (3.5)</th>
<th>RT:Lit (4)</th>
<th>Mean(SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>23. The instructional plan based on the assessment informed consultation procedures quickly improved the children’s rate of progress in developing early literacy skills</td>
<td>4</td>
<td>3</td>
<td>4</td>
<td>3.83 (.29)</td>
</tr>
<tr>
<td>24. Soon after implementing the instructional plan based on the assessment informed consultation, a positive change in targeted early literacy skills was noticed</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4 (0)</td>
</tr>
</tbody>
</table>

*Note*: Likert Scale: 1 = strongly disagree, 2 = disagree, 3 = slightly disagree, 4 = slightly agree, 5 = agree, 6 = strongly agree. X = question was unanswered. n/a = individual noted the question did not apply. () = Standard deviation. **Italics** = mean score for individual respondents for the overall section and questions. **Bold** = individual question responses and overall means 5 or greater.

### 7.1.4 Goal Attainment Scaling

As can be seen in Table 7.4, the teachers indicated that five of the students’ made progress towards their identified goals.

**Table 7.4** Teacher Specified Student Literacy Goals and Teacher Perceived Student Goal Attainment over the Course of the Assessment-Informed Instructional Consultation Process.

<table>
<thead>
<tr>
<th>Teacher</th>
<th>Students</th>
<th>Goal Type</th>
<th>GA</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Duke</td>
<td>Blending of onset and rhyme orally and learn letter name and sounds</td>
<td>0</td>
</tr>
<tr>
<td>B</td>
<td>Michael</td>
<td>Learn the letters of his name and increasing blending and onset sounds</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Divine</td>
<td>Learn the letter names and sounds of her name</td>
<td>1.5</td>
</tr>
<tr>
<td></td>
<td>Dharma</td>
<td>Learn the letters of her name and two further letter names and sounds</td>
<td>1.5</td>
</tr>
<tr>
<td>A and B</td>
<td>Jackson*</td>
<td>Learn more letter sounds and names, and blending</td>
<td>1.5</td>
</tr>
<tr>
<td></td>
<td>Sean*</td>
<td>Learn more letter sounds and names, and blending</td>
<td>1</td>
</tr>
</tbody>
</table>

*Note*: Levels of goal attainment: -2 = literacy performance got significantly worse; -1 = literacy performance got somewhat worse; 0 = no progress; 1 = goal partially met; +2 = goal fully met. GA = goal attainment.
One student, Duke, was perceived as making no progress towards his identified goal. Therefore, perceived effectiveness as rated through GAS appears mild to moderate, reflecting the level identified by the teachers within the BIRS questionnaire.

7.1.5 Written Feedback and Anecdotal Social Validity

Only Teacher A noted her general perception of the A-IICp. She wrote that it was “really good getting such targeted plans for each child”, but that at “times it was very difficult to fit enough in during class”, and that in light of this it would have been a “lot easier with teacher aid support”.

Overall, the teachers indicated verbal support for the process, but did indicate that time constraints made implementing instructional plans difficult. Also present at the final meeting was the school principal. The principal indicated a high level of interest in the process for its functionality to be used as strong evidence for when a student requires additional instructional support. Especially when the support needed is greater than what the classroom teacher can provide without specialist support or funding for additional support services (e.g., allocation of teacher aid time). He indicated that he perceived that having such assessment (i.e., progress monitoring) data could facilitate access to resources for students who may require specialist educational/psychological assessment, regarding the possible presence of a learning disability. In addition to aiding acquisition of supplementary instructional support services having documentation that had shown that (a) targeted instructional supports had been attempted but that (b) more intensive instructional supports were indicated. Because the Otago University research group has maintained an ongoing research partnership with School B, we were able to learn that the principal had subsequently
tested this assertion by including results of progress monitoring data to support successful requests for supplementary services for participating students’ continuing learning needs.

### 7.2 Did the Students' Perceive the Process to be Socially Valid?

The students’ perception of social validity and acceptability of the assessment process is presented in Table 7.5 below.

**Table 7.5 Students’ Perceptions of the Assessment Portion of the Assessment-Informed Instructional Consultation Process (n = 6).**

<table>
<thead>
<tr>
<th>Question</th>
<th>Yes</th>
<th>Not Sure</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Jane was fair.</td>
<td>67%</td>
<td>17%</td>
<td>17%</td>
</tr>
<tr>
<td>2. Jane was mean.</td>
<td>17%</td>
<td>83%</td>
<td></td>
</tr>
<tr>
<td>3. Other kids teased me because of our work together this term.</td>
<td></td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>4. Other things could help me learn my letter sounds and sounds in words more than the things we’ve done this term.</td>
<td>67%</td>
<td>33%</td>
<td></td>
</tr>
<tr>
<td>5. The things we’ve done this term would be good for other kids to help them learn their letter sounds and sounds in words.</td>
<td>100%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. I liked the things we did together this term.</td>
<td>83%</td>
<td>17%</td>
<td></td>
</tr>
<tr>
<td>7. I think that the things we did this term helped me become a better reader.</td>
<td>83%</td>
<td>17%</td>
<td></td>
</tr>
</tbody>
</table>

*Note: Italicized questions are reverse scores - questions 2 and 3 are positively and question 4 is negatively reversed. 100% = 6 students; 83% = 5 student; 67% = 4 students; 33% = 2 students and; 17% = 1 students. Assessed using the Child Intervention Rating Profile.*

The majority of the students who participated in the assessment process found the assessor to be fair and did not feel that she was mean. One student indicated that Jane was unfair and mean, but when queried did not identify in what way the assessor was unfair and mean. All of the students reported that the assessment process did not lead to bullying. Most of the students indicated that the interventions undertaken during the term helped them learn their
letter sounds and sounds of words. All of the students indicated that the assessment process undertaken could help others with their letter sounds and sounds in words. The majority of the students liked the things that they had done with the assessor during the term. Overall, all but one student believed that what had been done during the term had aided them in becoming a better reader.

7.3 Conclusions of Evaluation of Social Validity
Overall, the teachers’ perceptions of social validity were similar to that of School A, with the teachers indicating general support for the A-IICp. In general the teachers and RT:Lit indicated that the process was appropriate for the students selected and that some gains in student literacy skills were made that remained stable following the discontinuation of the process. However, the teachers did indicate that the effectiveness of the A-IICp was only mild to moderate in closing the gap between these struggling readers and their peers. The overall acceptability of the process was high. Therefore, in general the teachers showed mild to moderate support for the A-IICp and endorsed that they would utilise such a method again and also recommend its use to other teachers.

7.4 Did the Assessment Information Instructional Consultation Process lead to Instructional Modification and Implementation (instructional integrity)?
Teacher A identified instructional modifications following her first consultation meeting for Duke, Jackson and Sean. Due to enrolment of additional new entrant students in Teacher A’s classroom, two of her students, Jackson and Sean, were moved to Teacher B’s classroom to maintain a small class sizes. Therefore, at the second instructional consultation session, Duke was Teacher A’s only participating student. Following the initial instructional consultation,
Teacher A specified that she would increase her explicit teaching of blending, consonant substitution and onset and rhyme during book reading, as well as instituting peer tutoring of letter names and sounds using existing material for Duke. She also identified the same instructional modifications for Sean and Jackson, but in addition she requested that Sean receive a hearing test – that was undertaken and his hearing found to be normal. Following consultation two, Teacher A continued with Duke’s reading intervention instituted after the initial consultation.

Following the first instructional consultation, Teacher B, who taught Michael, Divine and Dharma for the entirety of the A-IICp identified minor modifications to her current classroom routine to provide additional opportunities to practice instructional targets for each student. Because Michael and Divine continued to display difficulty in learning their letters, the teacher and RT:Lit identified this as an instructional target. They specifically identified learning the letters in their names as a learning objective, as it was felt that this may have personal relevance for the students. Examples of practice opportunities within the classroom routine for Michael and Divine included using magnetic letters to “sign in” to the classroom upon arrival in the morning and writing their name on their sack that contained their snack for morning tea. Other daily activities were also more explicitly targeted such as writing their names on the blackboard for a portion of the day with a wet paintbrush. At the time of the A-IICp the school used the Jolly Phonics curriculum to provide instruction in grapheme-phoneme correspondence. To target instruction, Jolly Phonics lessons were selected that focussed on identified letters of difficulty. For Dharma, Teacher B likewise provided supplemental instruction using Jolly Phonics to focus on unknown letter sounds and increased focus on initial letter sounds when reading and writing. This was to provide scaffolded support in applying knowledge of grapheme-phoneme correspondence to the
reading and writing context and additional work in phonological awareness activities involving segmenting and blending of onset and rhyme. Following the second consultation meeting Teacher B continued her established interventions for Michael and Divine, but also decided to enlist the students’ parents' help by sending five known letters home to practice, each week, while adding one extra unknown letter.

At her second instructional consultation, Teacher B, specified modifications of Sean and Jackson’s literacy interventions. For Sean she stipulated that he would rejoin Teacher A’s classroom four times a week to engage in the Jolly Phonic program and that she would work one-on-one with him for five minutes before school to increase his letter sound knowledge. For Jackson she also aimed to enlist his parents' help as with Divine and Dharma, as well as increase explicit focus on cross checking during reading and locating unfamiliar words using initial letter sounds. In addition she aimed to “make him aware that what he does when writing he can do when reading”, referring to using his knowledge of letter sounds when sounding out unfamiliar words.

Overall, the A-IICp led the teachers to modify their current teaching practice to create individualised instructional plans for the identified struggling readers. However, though the information provided led to a high level of instructional adaption, implementation of specified interventions was only moderate to high because of reported classroom time constraints.

7.5 Did the Students’ Performance Increase Across Phases?

As a result of Sean and Jackson moving from Classroom A to B, leaving only one participant remaining in Teacher A’s classroom, all the participating students were grouped together for statistical analysis.
7.5.1 Descriptive Statistics and Statistical Analysis

As can be seen in Table 7.6, for both FSF and LSF, assumptions of normality were violated in at least two of the study’s phases. Therefore, nonparametric comparative procedures were used, as with School A.

Table 7.6 Descriptive Statistics for FSF and LSF Progress Monitoring Tasks: Mean Level Data for all Participating Students at School B at Baseline, Consultation One and Consultation Two, and Nonparametric Statistical Analysis (df = 5, n = 6).

<table>
<thead>
<tr>
<th></th>
<th>Baseline</th>
<th>Consult One</th>
<th>Consult Two</th>
<th>Friedman ($\chi^2$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FSF</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>21.28</td>
<td>29.65</td>
<td>32.87</td>
<td>16.92*</td>
</tr>
<tr>
<td>SD</td>
<td>13.71</td>
<td>14.67</td>
<td>14.58</td>
<td></td>
</tr>
<tr>
<td>Median</td>
<td>25</td>
<td>31.95</td>
<td>35.95</td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>34.83</td>
<td>43.45</td>
<td>41.87</td>
<td></td>
</tr>
<tr>
<td>Kurt.</td>
<td>-1.16</td>
<td>3.13</td>
<td>4.57</td>
<td></td>
</tr>
<tr>
<td>Skew.</td>
<td>-0.68</td>
<td>-1.47</td>
<td>-1.99</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1.91*</td>
<td>1.91*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LSF</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>6.64</td>
<td>11.21</td>
<td>15.52</td>
<td>14.45*</td>
</tr>
<tr>
<td>SD</td>
<td>9.11</td>
<td>11.02</td>
<td>15.68</td>
<td></td>
</tr>
<tr>
<td>Median</td>
<td>2.5</td>
<td>7.28</td>
<td>10.10</td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>23.33</td>
<td>29.07</td>
<td>41</td>
<td></td>
</tr>
<tr>
<td>Kurt.</td>
<td>3.99</td>
<td>3.7</td>
<td>2.96</td>
<td></td>
</tr>
<tr>
<td>Skew.</td>
<td>2</td>
<td>1.89</td>
<td>1.71</td>
<td></td>
</tr>
</tbody>
</table>
| Notes: | FSF = First Sound Fluency, LSF = Letter Sound Fluency, SD = standard deviation, Skew. = skewness, Kurt. = kurtosis, Bold = indicates where possible violations of normative distribution were indicated. Friedman = Friedman Two-Way ANOVA by Ranks nonparametric statistical analysis. Wilcoxon = post hoc test of statistically significant difference between phases (BL/C1;C1/C2;BL/C2). * All statistical analyses are statistically significant at $p > .05$. 

As can be seen for FSF the mean level performance increased from each phase over the course of the study. The Friedman analysis indicated a significant variation in the ranking of the phases (FSF: $\chi^2 (5, 6) = 16.92$, $p < .05$). Post hoc analysis indicated that statistically
significant increases in level performance occurred from Baseline to Consultation One, Consultation One to Consultation Two, and Baseline to Consultation Two.

The students’ performance on LSF reflected the same pattern as that for FSF with mean performance levels increasing from each phase over the study. The Friedman analysis indicated a significant variation in the ranking of the phases (LSF: $\chi^2(5, 6) = 14.45, p < .05$). More specifically, statistically significant increases were found between all phases: Baseline to Consultation One, Consultation One to Consultation Two, Baseline to Consultation Two.

Statistically significant increases in performance across the study for both FSF and LSF were also found at School A. Therefore, the studies indicate three replications of improvement on the progress monitoring tasks over their respective terms when the A-IICp was taking place.

7.6 At the End of Year how did the Student Fare Compared to their Peers?

7.6.1 Researcher Administered End of Year Wider Literacy Assessment

As can been seen in Table 7.7, at the end of year literacy assessment, only Dharma was performing at a relatively equivalent level to her peers on all three literacy assessments. She was performing within the fourth stanine on the task of LNF and NWF, and the fifth stanine for PSF. Three of the students were performing at an equivalent or great level than the average performance of their peers on the PSF. Duke, Sean and Michael did not reach their peers’ average performance on any of the three component skill areas assessed. Duke, Jackson and Sean had only been in school for seven, eight and nine months, respectively, by the end of year assessment. When the performance of these three students is compared to the middle of year normative data, which may better approximate their exposure to schooling, neither Duke or Sean matched the performance of their peers at the fifth stanine on any of the
tasks and Jackson matched his peers only on PSF. Michael, who had been in school for approximately thirteen months, did not match his peers on any of the early literacy component skills assessed.

**Table 7.7 Students' End of Year Researcher Administered Literacy Assessment Data.**

<table>
<thead>
<tr>
<th>Student</th>
<th>LNF</th>
<th>PSF</th>
<th>NWF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duke</td>
<td>19</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Jackson</td>
<td>26</td>
<td>41**</td>
<td>14</td>
</tr>
<tr>
<td>Sean</td>
<td>12</td>
<td>8</td>
<td>9</td>
</tr>
<tr>
<td>Divine</td>
<td>24</td>
<td>51**</td>
<td>9</td>
</tr>
<tr>
<td>Dharma</td>
<td>42*</td>
<td>38**</td>
<td>23*</td>
</tr>
<tr>
<td>Michael</td>
<td>11</td>
<td>9</td>
<td>0</td>
</tr>
</tbody>
</table>

*Note: Benchmark Three was conducted on the 13th November 2008. LNF: Letter Naming Fluency; PSF: Phonemic Segmentation Fluency; NWF: Nonsense Word Fluency. ** = Student’s performed equivalent or better to the end of year 5th stanine (LNF: percentile 41-59 and range of scores 47-53; PSF: percentile 41-59 and range of scores 26-38; NWF: percentile 41-59 and range of scores 30-41). * = Student’s performance equivalent to the end of the year 4th stanine (LNF: percentile 24-40 and range of scores 37-46; PSF: percentile 24-40 and range of scores 13-25; NWF: percentile 24-40 and range of scores 16-29). Normative data based on 286 Year One students tested from 2004 to 2009.*

7.6.2 School Measured Criterion Book Level

Table 7.8 illustrates the students’ teacher assessed book levels at the middle and end of year. At the beginning of the study, only Dharma had achieved the MoE target for six months in school, with four of the students not progressing beyond the beginning book level (i.e., Magenta).

At the end of the study, all but one of the students had progressed at least one book level, with Dharma showing the largest progression, increasing from book level 4 (i.e., Red2) to 10 (i.e., Blue2). When examining students’ book level performance based on length of time spent in school, Duke and Jackson were close to meeting the target for six months in school as they were reading at Red book level, but had been in school for seven and eight months respectively. Therefore, with the exception of Sean, all students' progressed in book
level, although none of the students met the MoE recommended reading book level set for students at the end of one year of schooling. However, from when the middle of the year data were collected to the end of year data were approximately six months and in this time each of these students reached the level Red. Considering that for the first six months of the school year these students had not progressed from Magenta (i.e., level 1), this increased rate of progression in the last six months of their first school year could be considered an educationally significant improvement. Furthermore, Dharm limited a progressed six levels in the second half of the school year where previously she had progressed four, therefore, this increased rate of progression may again signal a educationally significant improvement in reading ability.

Table 7.8 School Criterion Student Book Level Data taken at the Middle and End of the School Year.

<table>
<thead>
<tr>
<th>Student</th>
<th>Middle</th>
<th>Colour</th>
<th>End</th>
<th>Colour</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duke</td>
<td>1</td>
<td>M1</td>
<td>3</td>
<td>R1</td>
</tr>
<tr>
<td>Jackson</td>
<td>1</td>
<td>M1</td>
<td>3</td>
<td>R1</td>
</tr>
<tr>
<td>Sean</td>
<td>1</td>
<td>M1</td>
<td>1</td>
<td>M1</td>
</tr>
<tr>
<td>Divine</td>
<td>1</td>
<td>M1</td>
<td>3</td>
<td>R1</td>
</tr>
<tr>
<td>Michael</td>
<td>2</td>
<td>M2</td>
<td>3</td>
<td>R1</td>
</tr>
<tr>
<td>Dharm</td>
<td>4</td>
<td>R2</td>
<td>10</td>
<td>B2</td>
</tr>
</tbody>
</table>

Note: reading book level: a student progresses to the next level when they are able to read correctly 90% of a book. M = Magenta; R = Red; B = Blue.
CHAPTER 8. SCHOOL B DISCUSSION

8.1 Summary of Key Findings

As with School A, the presentation of the progress monitoring data and the researcher administered literacy measures led the teachers to indicate instructional modifications aimed at enhancing the students’ component literacy skills. The teachers at School B were confident in modifying their current practices to enhance early literacy skills deficits, as well as engage students’ parents for added help.

Over the course of the study the students, grouped for statistical analysis, showed statistically significant performance improvements across all phases for both tasks. These results can be interpreted with greater confidence than School A. This is because the interventions undertaken, in light of the assessment information, were more specifically implemented by the classroom teachers in the context of this study. In addition, School B did institute other literacy interventions, above current classroom instruction, concurrently with the A-IICp. Therefore, historical threats to the study’s internal validity (Christ, 2007) may not have been present to the same extent as at School A. As at School A, normal literacy skill maturation (i.e., growth) could potentially account for the increased performance on the progress monitoring tasks (Christ, 2007). However, as at School A, given slow student improvement prior to intervention the statistically significant increases are likely attributable to the teachers' intervention efforts. This, therefore, adds preliminary support for the instructional utility of the A-IICp and the measures selected to capture student performance.

Increased confidence in the A-IICp level of instructional utility could have been afforded if the intended experimental design (i.e., nonconcurrent multiple baseline) had held. This would have produced two replications, with three students per replication, at School B.
Replication was not possible due to school controlled variables (e.g., student classroom – movement of Sean and Jackson from Teacher A to Teacher B’s classroom after the study had commenced) that reduced student numbers to a level that required collapsing results across all students. Despite this, the two positive results from School A, coupled with the current statistical support for student improvement at School B, provided three replications of increased student performance on the progress monitoring task.

At the conclusion of their first year of schooling only three of the six students matched their peers average performance (i.e., fifth stanine) on the researcher administered PSF. Only one, Dharma, matched her peers performance in the fourth stanine for LNF and NWF, and fifth stanine for PSF. Therefore, the students’ performance, as measured using researcher administered measures, did not improve to a level commensurate with typical performance of Y1 NZ students (Struthers et al., 2010). This signals the need for further intervention to stimulate literacy development for these students.

Given the students' slow literacy progression across the first half of the year, as measured by the school criterion of reading book level, the students appeared to have made educationally significant progress over the last portion of the school year. Although the students did not reach the target level for one year of instruction (i.e., Green), they did, however, make the appropriate rate of progress (i.e., moving from level 1 to 3) over a two term period (six months). When comparing this progression to the first portion of the school year this is considerable improvement, especially give that three of the students had previously made no progress in instructional book level. Therefore, although the students may not have matched their peers' performance on researcher administered measures, when looking at their personal performance (i.e., book level) they appear to have made considerable progress, that could be deemed as educationally significant.
The students' lack of progress during the first portion of the school year, as measured using school criterion book level, may also potentially be the result of floor effects. This is because student book level is assessed by monitoring the student's ability to read connective text. This aspect of the this school criterion is important and may also signal the need for further refined component literacy skills measures such as those employed in the A-IICp. Through the assessment of these component skills a greater understanding of students' literacy abilities can be gauge and more specific and refined intervention options created to stimulate growth, as discussed in Chapter 1.

The teachers’ subjective perceptions of social validity, assessed using the BIRS were also encouraging. In addition to the indication of instructional modifications the teachers reported that the A-IICp was a socially acceptable means for addressing the struggling readers’ literacy difficulties. The teachers at School B appeared to have an overall higher level of acceptance than School A. In common with School A, they indicated that the intensity of the procedure was warranted for the problem area and that there were no negative side effects. The teachers and RT:Lit’s combined mean score was greater than five (i.e., agree) for twelve of the fifteen questions in the acceptability section. The acceptability of the process was high, whereas its perceived effectiveness, ability to improve student literacy, remained relatively neutral as with School A. The RT:Lit endorsed the highest perceptions of effectiveness, which were moderate, and both teachers gave neutral ratings effectiveness.

8.2 Interpretation of Key Findings

8.2.1 Perceived Acceptability

The students generally indicated a high level of acceptance of the assessment process. They indicated that the process had been helpful for aiding their reading and that it did not lead to
bullying. This is in line with the students' responses at School A. As with School A, the conclusions draw from the students' responses on the CIRP should perhaps be considered with caution due to the age of the students.

The teachers at School B considered the A-IICp to be highly acceptable. They indicated that they would be willing to use the process again for students who were experiencing literacy difficulties and that other teachers would consider the process acceptable. As with School A, one of the teachers raised concern regarding the amount of time involved and noted that implementing her identified interventions within her current curriculum was difficult. The other teacher at School B did not report this difficulty, but she did, however, consider ways to garner additional resources (i.e., enlisted two of her students’ parents to help with learning letter-sounds) when considering her intervention plans. This garnering of support coupled with her level of teaching experience may have increased her ability to implement her instructional plans within her curriculum.

Overall, acceptability was higher at School B. This may have been because of the modification made to the process to reduce time burden on the teachers (e.g., IIF). In addition, clarification of the purpose and intended outcomes of the process may have enhanced acceptability through increased understanding (Reimers et al., 1987) and readiness (Adelman and Taylor, 1997).

There appeared to be three main school variables that may have contributed to the differing acceptability levels. First, the teachers’ conceptualisation of the student literacy difficulties centered around literacy rather than other factors. Specifically, the teachers at School B appeared to focus on student literacy variables that were potentially amendable to increased or more specific literacy instruction in light of the assessment information. As a result, they may have perceived the A-IICp as encapsulating the problem appropriately and
therefore, a direct relationship between problem and potential solution was clear. This also speaks to the fit within the school environment (Forman and Zins, 2008, Schaugency et al., 2010). Second, School B had not instituted separate supplemental literacy instructional interventions concurrently with the study, which may have increased acceptance. Last, the principal at School B attended the consultation meetings when possible, took an active role in discussions and asked questions regarding the potential benefits from the process, and about the students’ performance. Taken together, a greater level of readiness and fit within the school culture appears to have occurred at School B, potentially leading to increased acceptance.

8.2.2 Perceived Effectiveness

The two teachers' perceptions of the A-IICp effectiveness to improve literacy performance were neutral and inline with two of the teachers from School A's perceptions. This is interesting given the higher level of acceptability and highlights that acceptance may not equate with perceived effectiveness. The teachers' at School B effectiveness perceptions, however, appear to be due to different reasons than those encountered at School A. This is because the teachers at School B both appeared to engage fully in the process during the consultation meetings, considering the assessment information, with no diffusion of responsibility evident as each classroom teacher was the only Agent of Change for their students. During each consultation, the teachers appeared to focus on their students' literacy performance and did not report attributions regarding the students' level of literacy attainment to student behavioural or personality variables. As a result, the teachers appeared to give greater emphasis to changeable teaching methods to enhance student performance.
Teacher A reported a lower level of effectiveness than Teacher B and the RT:Lit. She also reported that having specified goals for her participating students was helpful, but implementing her identified instructional modifications was difficult given limited time. Teacher A had three students for the first four weeks of the study (i.e., two weeks baseline) and then one student for the remaining portion of the study (i.e., six weeks). As such she had fewer students than the other School B teacher. One potential reason that may have contributed to her reduced ability to implement her instructional modification may have been due to her limited teaching experience. This may have reduced her ability (or confidence in her ability), to modify her current teaching plan, in light of the assessment information, while completing her set curriculum. This is understandable and with increased experience and practice her ability to flexibly change her instruction to meet varying student needs may increase, reflecting her level of experience, as well as self-efficacy (Schaughency and Ervin, 2006).

Teacher B reported a slightly higher level of effectiveness than teacher A. This is potentially important as Teacher B appeared to have implemented her identified instructional modifications with a moderate to high level of instructional integrity. This is an important element as their appears to be a relationship between instructional implementation and perceived effectiveness. Witt and Elliott's (1985) social validity model does postulate a relationship between initial effectiveness perceptions and instructional intergrity, which may have potentially interacted with the teachers' engagement with the A-IICp. It is unknown if initial pre-intervention perceptions of effectiveness influenced Teacher B's, or any of the other teachers, level of implementation and subsequently reported level of perceived effectiveness after the interventions conclusion. This is unknown because initial effectiveness perceptions were not captured before implementation of the A-IICp. Undertaking such initial
social validity assessment prior to a studies commencement may be done if future studies are undertaken to further evaluate any mediating relationship.

Although Teacher B's level of perceived effectiveness was greater than Teacher A, it was still relatively neutral. There may be several reasons for Teacher B's level of perceived effectiveness, which does not exclude the possibility that providing specific literacy information did not aid her creation of effective instructional plans. However, this method of data-informed intervention embedded within a RTI framework has been found to be a successful means of addressing students' literacy difficulties (e.g., Hagans, 2008; VanDerHeyden et al., 2007). Furthermore, the nature of a RTI system is that if a student is not responding as intended, as indicated through appropriate assessment, the intervention be reassessed and modifications instituted to increase responsiveness. Therefore, the level of perceived effectiveness may be an indication that the interventions selected were not of a sufficient intensity to ameliorate the students’ literacy difficulties. This however, may have been due to an inherent limitation within the A-IICp, related to the stage when the interventions were formulated.

A potential strength of the A-IICp was the level of autonomy afforded to the teachers, in which they identified the instructional interventions to be implemented for their students. The teachers conceptualised their intervention methods at the consultation meetings with help from the RT:Lit. These interventions, however, were not generally specified in terms of duration, intensity or frequency. It appears that by affording the teachers this level of autonomy at these stages (i.e., at the consultation meetings) within the process may have increased burden, leading to reduced implementation and effective interventions, potentially reducing the assessment informations instructional utility.
In addition, at both schools teachers commented that having specific goals for their students was advantageous, but that the major limiting factors to implementation were time and resources. These two aspects may have been seen as constraints in a context in which intervention options were created one day, with intended implementation in the immediate future. Therefore, with this process the teachers may have found it difficult to set aside time and gain the resources needed to begin their interventions in a timely and effective manner.

Several studies that have employed a RTI framework had preset the intervention methods used to help stimulate student growth based on Evidence Based Interventions (EBI) (e.g., Dowrick et al., 2006; Hagans, 2008; VanDerHeyden et al., 2007). Through presetting intervention options it may afford the teachers greater time to plan for intervention implementation. It may, however, be important that a level of autonomy remains so that the teacher retain 'ownership' within the process potentially enhancing engagement and reducing any potential diffusion of responsibility. It may be advantageous for intervention options to be created at an earlier stage in the process, for instance, within the pre-planning stage, before implementation of the A-IICp. This could also be used to create readiness, as this would be the time to formally discussion how change would occur and a consensus be reached (Adelman and Taylor, 1997).

For instance during a school term prior to implementation, the teachers could meet and discuss the types of interventions that may be appropriate and the level of intensity required (e.g., small groups), the duration (e.g., 10 minutes) and the frequency (e.g., three times a week). It would also be important that the teachers have different intervention options of differing intensity levels if a student does not show a favourable level of responsiveness to the implemented intervention. Further, as the notion behind the A-IICp is individualised interventions based on the students' personal progress monitoring results, it would be
important that the interventions are modifiable so they are able to capture the students' needs (i.e., the main focus should relate to the instructional target indicated through the assessment information). By having preplanned intervention options of differing intensity the teachers may be able to more effectively increase intervention intensity more readily potentially increasing effectiveness.

The RT:Lit reported a higher level of perceived effectiveness at School B compared to School A. This may be because the teachers at School B appeared to engage more fully with the process, responding to the data as reflecting a need for increased targeted literacy instruction. In addition, the students did show improvement on the measures and the mechanism of change at School B may have been more identifiable than at School A (Daly et al., in press). This may have increased the RT:Lit’s perceived effectiveness of the A-IICp.

8.2.3 Intervention Implementation and Instructional Integrity

As with School A the teachers at School B indicated planned instructional modifications during the consultation and there was additional evidence available to suggest a higher level of implementation of identified instructional modifications, than reported at School A. The IIF appeared to be completed more accurately and not in retrospect; therefore, the modified forms appear to be more appropriate and an easier format for teachers to complete, perhaps due to reduced burden. Implementation, as with School A, did however vary across the teachers, as identified above. Therefore, instructional integrity although higher than School A, appears only modest.

As discussed in Chapter 5 instructional integrity information can also be interpreted as acceptability information (Gresham and Lopez, 1996). The planned interventions appear to
have been recorded more accurately and their implementation higher than School A, as was School B's level of acceptability indicated using the BIRS.

As at School A, concerns regarding implementation are still present, and again do not appear to be due to acceptability of the process, but to other barriers to implementation (e.g., time). Teachers' time is a precious resource and, therefore, any methods used to facilitate effective intervention options (i.e., A-IICp) used by teachers must be efficient, as well as effective (e.g., hold instructional utility). However, childrens' ability to interpret their symbol driven world is also precious and of paramount concern. Thus, if current teaching methods are not effective for all students, for those students who are not responding, creating teacher time to plan and implement targeted interventions may be a needed step. However, there are barriers to creating teacher time such as funding. Aspects of system level supports to facilitate teachers' engagement in processes to aid decision making such as that used within the current thesis are discussed in the following Chapter.

8.4 Tool to Enhance Decision Validity

Decision validity refers to the collection of ‘evidence’ (e.g., progress monitoring data) to support educational/professional actions (Messick, 1995). This type of ‘evidence’ collection, and then use, was instituted by the principal of School B. He used the progress monitoring information gathered over the course of the A-IICp to inform external stakeholders (Schaughency et al., 2010) of Michael’s need for an educational assessment and greater support. As such, in addition to gaining evidence from the progress monitoring tools to aid teacher intervention planning (e.g., instructional utility), the measures may hold decision validity, whereby Michael benefited from research informed assessment information (Stecker, Fuchs, and Fuchs, 2005). It appears that these measures were able to illustrate more
explicitly, than current school used measures, Michael’s slow progress following increasingly individualised literacy instruction. This increased Michael's teachers' and principal's confidence that his slow progression was unlikely to be due to poor instruction or socioeconomic disadvantage, but to the potential presence of a disability that may require special educational services (Hagans, 2008).

Michael’s situation emphasises the potential use of a data-informed intervention system, such as the A-IICp, as a means of identifying students with developmental disorders that may hinder learning. This is in line with current research promoting the use of response to treatment (i.e., RTI) as a more appropriate means of identifying students with diagnosable developmental disabilities, such as specific learning disabilities (Vaughn, Linan-Thompson and Hickman, 2003). As described in the DSM-IV, a discrepancy method has been used to identify students with learning disorders, which involves assessing an individual’s difference between their IQ and academic achievement (APA, 1994). The use of this method has been criticised, however, on a number of grounds, including classification accuracy, inadequate assessment of specific instructional needs, and a tendency to attribute poor performance to disability rather than considering instructional variables (Vaughn et al., 2003).

Furthermore, it is not the job of teachers to perform IQ assessment, but that of specialist services; therefore, the question regarding when a student should be referred for such an assessment remains. At present teachers use their professional judgment based on currently used school assessment measures; however, there are also challenges for teachers when using their professional judgment, in that, their judgment is based on their level of training, experience and competence as a teacher. Also the current thesis highlighted the possibility that the currently used school measure of book level my result in floor effects for pre-readers reducing its instructional utility for decision making. By coupling professional
judgment with an evidence based progress monitoring system swifter and more accurate identification of students' unmet academic needs may potentially be achieved. This may also potentially lead to improved instruction through greater specified identification of instructional needs.

8.5 Conclusions from School B

Overall, the results from School B add further preliminary support that the A-IICp may aid teachers' decision making for struggling Y1 readers. As at School A, however, ratings of effectiveness were neutral. Given the additional evidence of implementation at School B and teacher engagement, this signals that variables inherent within the process may have created barriers to effectiveness, especially as other studies that have incorporated progress monitoring have been found to be effective at reducing student literacy difficulties (e.g., Hagans, 2008; VanDerHeyden et al., 2007).

Therefore, though several elements of the A-IICp were modified in response to the outcome and teacher comments at School A, further modification of process variables appears warranted given the outcome and teacher comments at School B. This specifically relates to the process for selection of interventions, including consideration of the evidence-base for the content of the interventions, the supports needed to implement those interventions, and the point within the process when the teachers' consider potential instructional interventions, as discussed above.
CHAPTER 9. GENERAL DISCUSSION

9.1 Overall Outcomes and Conclusions from the Assessment-Informed Instructional Consultation Studies

This thesis aimed to assess NZ junior primary school teachers’ initial perceptions of the instructional utility of the A-IICp through a social validity framework. This aim was achieved and preliminary evidence of acceptability of the process was shown to be positive, as assessed using the BIRS. Perceptions of effectiveness were neutral, as assessed using the BIRS. This neutrality may, in part, be a reflection of the participants' level of readiness to engage in the process and perceived constraints, barriers to implementation (e.g., time), and need for provision of resources from the host environment to support implementation. Teachers' personal level of self-efficacy to engage in the process and undertake identified interventions may have been a factor in reducing engagement, instructional modification and implementation, leading to modest levels of perceived effectiveness. Additionally, variables inherent within the A-IICp may have created teacher burden leading to reduced implementation and perceived effectiveness.

The students involved across the three replications of the A-IICp showed positive and statistically significant improvements on the two progress monitoring tasks across the course of the studies (i.e., 10 week period). This is encouraging due to their previous slow progress. A portion of this growth may have been due to natural maturation (Christ, 2007) of the students’ literacy skills. Student performance measured at the end of the school year at both schools also showed educationally significant improvements. The educational significance at School A encompassed both researcher administered literacy assessment and school used
book level criterion. At School B the educational significance appeared limited to an increased rate of progression on school assessed book level.

Overall, the students at School A appeared to showed greater literacy gains than students at School B. Higher levels of performance may in part reflect differences in the developmental window in which the studies were implemented for the students at these two schools. The students at School A were, on average, older, and had attended school on average six months longer than the students at School B by the completion of the school year. Therefore, it would be expected, given student exposure to schooling and the school initiated literacy intervention at School A that their students would be performing at a higher level than School B's. However, some students at both schools continued to have literacy deficits that distinguished them from their peers, given their age and length of exposure to school.

This continuing gap highlights the need for an increased focus on effective teaching methods that are able to stimulate student growth to a level that students’ trajectories are greater than their peers to reduce the literacy gap. All of the students, but Michael at School B, responded favorably to increased literacy focus, given this, it appears that the teachers have the opportunity to enhance student learning through the identification of increasingly individualised effective teaching methods (Hagans, 2008). As the level of acceptability of the A-IICp was positive, and given its grounding in EBA, it has the potential to aid teachers’ decision-making (i.e., instructional utility) through effective progress monitoring leading to such effective instruction.

This thesis highlighted elements of the measurement tools (i.e., FSF and LSF) that require further assessment for use with this population and for this intended purpose (i.e., formative evaluation). Issues of school and teacher readiness to engage in this type of assessment informed process were also raised at both schools (as discussed in Chapters 7 and
9). In addition, the studies conducted in this thesis were of a small scale, isolated to one region within NZ and constituted only female teachers. As such, the generalisability of their perceptions requires assessment. Furthermore, the current thesis aimed to assess instructional utility using a social validity framework. Therefore further research assessing 'actual' instructional utility with an increased focused on objective individualised student improvement analysis, controlling for length in school and intervention modification, is required. The use of the CIRP within the current context with Y1 students may also require further evaluation for suitability. These aspects of recommendations for further research are discussed below and are followed by a discussion of the potential use of the A-IICp within the NZ context to aid teachers in stimulating struggling readers’ literacy acquisition in a bid to attain the MoE's (2009) National Standards for literacy.

9.2 Further Research In Light of Findings and Observations

The current thesis provides preliminary evidence of acceptability from a small sample of teachers. Several methodological, procedural, and process issues were raised during the studies that warrant further consideration prior to implementation of larger scale social validity and instructional utility studies. These issues are detailed below.

9.2.1 Reliability of FSF and LSF as Progress Monitoring Tool for Struggling Y1 Readers

As specified within the introduction, both of the measures employed as progress monitoring tools have been found to reliably capture growth over time as measured by the reliability of slope both within the US (Technical Review Committee, 2009) and NZ (Clarke, 2008). Within the current thesis a high level of visual variability across progress monitoring probes was found at an individual level for the struggling readers assessed (see Appendix D, H and
J). In addition, student progress was fed back to the teachers after a minimum of three weeks and maximum of five weeks (i.e., minimum of 4, maximum of 10 probes) compared to Clarke (2008) where up to seventeen data points were analysed to assess reliability of slope. Therefore, the transferability of slope reliability calculated using seventeen probes from a normative sample compared to a minimum of four probes from a specific population (i.e., struggling readers) needs to be assessed. The importance of this is further highlighted by the knowledge that variability in student performance, as capture by slope, reduces as the number of probes increases (Hintze and Christ, 2004). Furthermore, studies conducted over long periods (e.g., one to two years) have lower levels of measurement error than those undertaken over shorter time periods (Hintze and Shapiro, 1997), such as those typically used for progress monitoring (Hintze and Christ, 2004).

The omnipresent question regarding “how many data points are enough?” is of importance both practically and technically. Practically, a teacher has limited time. Therefore, the fewer probes that need to be administered to reliably capture student performance, the better. Moreover, fewer probes also potentially reduce the response time between assessment and intervention, hastening access to implementation of more effective intervention options. Conversely, a teacher must still be confident that the number of probes taken reflects student performance, enhancing decision making through instructional utility of the measure (Hintze, Owen, Shapiro and Daly, 2000). The number of data points recommended varies across studies from 20 (Good and Shinn, 1990; Shinn, Good and Stein, 1989), to 8-10 (Hintze, et al., 2000), to 2 for baseline assessment and 6 for progress monitoring (Fisher, et al., 2003). Thus, the need to assess the appropriate number of progress monitoring points needed to capture student growth, within a given time frame (e.g., three weeks) is paramount.
It is recommended that these progress monitoring measures be further assessed, at an individual student level for their ability to accurately model growth over time for struggling readers within their first year of schooling, in line with Fuch (2004) recommendations. It is further recommended that the reliability of slope be assessed to mirror the nature of the measurement use and the population with which the measurement is aimed, in line with Barnett and MacMann (2000) recommendations. For instance, if a struggling student’s progress is to be assessed at three-week intervals, how many probes (e.g., six) are required for the student’s slope to be deemed reliable (e.g., reflecting their true performance, not measurement error).

9.2.2 Use of Fisher Criteria

The Fisher Criteria were selected to ensure consistency of visual interpretation across teachers. The Fisher Criteria set forth criteria for visual analysis of the students’ progress monitoring data to aid in interpretation of progress towards goal attainment (Fisher, Kelley, and Lomas, 2003). The Fisher Criteria specify the collection a minimal number of data points (e.g., two for baseline and six for intervention phase) and does not stipulate the need to meet any statistical assumptions (Daly et al., 2010).

Within the current thesis the use of two data points did not appear to provide stable baseline results for interpreting the struggling readers' trend and level on the two progress monitoring tasks. As can be seen in Appendix H and J, at both schools some of the students produced markedly different levels of performance across the two baseline progress monitoring probes. This resulted in what appear to have been unrealistic trend and level lines, reducing the utility of the Fisher Criteria as a tool for increasing reliability of visual analysis to assess goal attainment. Further research is recommended to evaluate the appropriate use of
the Fisher Criteria with five-year-old struggling readers to determine the needed number of baseline probes to gain reliable trend and level lines.

9.2.3 Is Reliability Generalisability?

It is understandable that young students’ performance on a progress monitoring tasks may be variable. This can be the result of several factors including environmental conditions, student variables such as fatigue, illness, or motivation, and/or examiner and administration variability, but it may also be due to the features of an assessment tool (Good and Kaminski, 1996; Hintz and Christ, 2004). The need to capture the extent to which results reflect these aspects of possible variability or student skill is important and the use of Generalisability Theory (GT) may be an advantageous analysis method for this reason. GT is a method used to assess if measures (e.g., FSF and LSF) are “dependable” across time and situation (Hintze, et al., 2000, p. 52). Such evidence would increase confident use of the measures as progress monitoring tools (Hintze et al., 2000). Fundamentally GT asks: does a set of observations capture an individual’s general pattern of performance; compared to traditional reliability analysis that asks: how well do the observations measure the underlying construct (Hintze, 2000). This is because GT helps researchers statistically account for proportion of variance, unexplained by the true score that may be attributable to other sources, through Analysis of Variance (ANOVA) (e.g., contextual variables occurring at testing such as different examiners and occasions; Burns, 1998; Hintze et al., 2000); rather than attributing unexplained variance wholly to measurement/unexplained error (Hintze et al., 2000). In addition GT aims to enhance decision making by assessing the absolute reliability of a measure (as with traditional tests of reliability), which may, in turn, increase an examiner's confidence that an individual’s scores can generalise reliably across situations especially
when using a repeated measure as with FSF and LSF (e.g., a student’s score reflects their general performance over time, across contexts, test forms, examiners and environments; Hinzte, 2000).

“A principle assumption of the theory posits that a measurement taken on a person is only a random sample of that person’s behaviour. More importantly, the usefulness of any measurement depends on the degree to which anyone measurement sample can be generalised accurately to the behaviour of the same person across a wider set of contexts” (Hinzte et al., 2000, p. 63). The need for this level of confidence in test scores to capture a student’s performance across context and time was emphasised by Teacher D’s written comment at School A: “we do not get results from some (that are true)” – this statement highlights her lack of confidence in the measures' ability to capture what she sees in the classroom. The use of GT can help explain if a portion of a student's performance variance is related to variables (e.g., examiner/situation) other than their 'true' performance potentially increasing confidence in the measurement tools. This would aid in lending support to the notion that a student's performance as captured by the measure is 'true'.

A full discussion of GT is beyond the scope of this thesis, but readers are referred to Hintze et al. (2000) and Tindal, Yovanoff’ and Geller (2010) for a fuller history and methodological discussion of GT, as well as its application and statistical computations.

Overall, where a high level of variability is found across a student’s repeated performance on a task a teacher’s ability to discern the students' true performance pattern is made difficult and can diminish a measure's utility for informing professional decisions. Further examination of this issue is recommended to determine if these measures are technically adequate to aid teachers’ instructional decision-making (Christ, 2006; Hixson, Christ and Bradley-Johnson, 2008). In addition it is recommended that the use of GT as a
means of assessing dependability and reliability of the measures be considered. This is because GT has the capacity to increase confidence in repeated measures assessed across situations (e.g., within classroom or outside within a different setting, such as with the current thesis) and examiners (e.g., normal classroom teacher, teacher aid, specialty teacher or research). In addition, variance due to maturation as the student progresses over the year can also be accounted for within the GT variance analysis (Hintze et al 2000). This last aspect would have been advantageous within the current study, controlling for the potential internal validity threat of natural maturation of literacy skills progression (Christ, 2007).

9.2.4 Further Social Validity Assessment of Teachers’ Perceived Instructional Utility

The current thesis provided preliminary support for the use of the A-IICp as an acceptable method for refining teacher literacy interventions. However, the thesis sampled the perceptions of six female teachers within one region of NZ. Positively, the teachers did range in teaching experience and specialised expertise with literacy instruction. Therefore, there is preliminary evidence that the process could add instructional utility to intervention selection across teachers with a range of base literacy and general teaching experience. Due to the limited number and demographic diversity of participating teachers (e.g., all teachers were all women) it may be advantageous to undertake a wider analogue study of the perceived social validity of the process to gain greater evidence of its acceptability, perceived effectiveness, and potential instructional utility.

An analogue study has been traditionally used to assess teachers' and students' perceptions of acceptability and perceived effectiveness of varying interventions targeted at addressing educational issues both behavioural and academic (Von Brock and Elliott, 1981). An analogue study consists of presenting information about a target problem (e.g., poor
literacy progression), and one or more intervention options aimed at improving the situation, to the individuals who are to implement the intervention (e.g., teachers). The teachers are then asked to complete the BIRS for instance, to gain an understanding of their initial levels of perceived acceptability of the treatment options and perceived effectiveness of the options, in light of the information provided (Von Brock and Elliott, 1987).

Through the use of this method, different dimensions (e.g., severity of problem, age of student, teacher time involvement, assistance from teaching aids etc) can be systematically manipulated (i.e., independent variables) to assess how they affect teachers’ level of perceived acceptability and effectiveness.

It is also important to consider the type of information that is presented with the analogue study. Von Brock and Elliott (1987) found that for problems considered severe researcher provided effectiveness information (e.g., previous studies) affected the level of perceived effectiveness indicated by respondents. Therefore, there is an interactive effect between knowledge of previous effectiveness and perceived effectiveness. This is also inline with Reimer et al., (1987) who hypothesised that a teachers’ level of knowledge mediated perceived effectiveness.

There are limitations of this technique, namely perceptions are gained without intervention implementation and are based on information provided by the researcher and teachers own knowledge. However, a high level of initial perceptions can be gained through this method and furthermore, a new assessment-informed intervention concept can be ‘softly’ introduced to teachers and an initial understanding gained. Analogue studies can also be cost effective and have the advantage of assessing a large sample of NZ school teachers across the whole of the country. A diverse range of educational attributes can also be captured through an analogue study. These include, different types of schools (e.g., low decile to high decile,
and public to private), level and type of teaching experience (e.g., teaching schooling to highly experienced teachers, and teachers with extra literacy training and those without) and teacher gender.

With this type of study it would also be of interest to assess teachers' perception of their ability to use and implement such a system within their current teaching demands. Therefore, the perceived practicality of the systems use can be examined and the system refined to meet teachers needs.

It could also be advantageous if the respondents remained anonymous so they could freely report any concerns regarding the process and their true opinions regarding the likelihood of implementation in light of their current work-load. For instance it may be found that teachers perceive the A-IICp to be acceptable and potentially effective, but that given their current practices impractical for implementation useless they are able to access extra resources (e.g., teacher aids, educational psychologists, RT:Lits etc).

9.2.5 Instructional Utility Field Study

The current thesis found that student performance increased over the course of the study and teachers found the process acceptable, but their perceived effectiveness was relatively neutral across both schools. These are interesting findings that lead to many questions: If acceptability was high why was perceived effectiveness low? – Was this because the process itself is ineffective or was it due to poor intervention integrity? – If it was acceptable and implementation was poor, why was it poor? The overarching question here is: If intervention integrity were higher, would perceived and actual effectiveness increase or would it remain neutral indicating this type of process is not effective within the NZ educational context?
The previous school specific discussion chapters outlined the issue of creating readiness (Adelman and Taylor, 1997) within the school to facilitate engagement, adoption and implementation. The initial level of readiness created at both schools may have had an impact on the teachers' engagement and subsequent implementation of their identified intervention strategies. It is recommended that further research be conducted to assess the potential benefits of a process such as the A-IICp, but that greater initial attention be devoted to promoting readiness and fit within the participating schools (Forman and Zins, 2008, Schaughency, Alsop, and Dawson, 2010), through the methods discussed in the previous discussion chapters.

Once readiness to engage in the process is developed, and pending the outcome of the research recommended above, a small-scale field study of the same manner as this thesis could be instituted. Again the participating teachers' and students’ social validity perceptions should be examined, but in addition, the study should more explicitly assess student outcome individually by slope, controlling for intervention implementation. As such, the main indicator of effectiveness should be student outcome not teacher perceived effectiveness.

A procedure similar to that used by Dowrick, Kim-Rupnow and Power (2006) could be used to assess individual growth (i.e., slope) across phases to assess student responsiveness. It could be expected that student performance might fluctuate across phases due to the refinement of instruction being undertaken inlight of progress monitoring information until the student is sufficiently responding. The analysis could consider student performance as a function of the effectiveness of the chosen intervention. In this essence effectiveness of the process (e.g., A-IICp) is not a function of student performance fluctuation throughout the study, but a function of whether the process aided teacher’s ability, in a timely fashion, to refine their instruction until an successful teaching method (e.g., small
group instruction for 10 minutes per day) is identified that stimulates students’ literacy trajectories.

Although having students respond favourably in a timely manner is important, so is giving an intervention option time to take effect and having the time to refine instruction. Within the current thesis the A-IICP was only undertaken over a ten week period, this length of time may not have been long enough for teachers to pinpoint the intensity of intervention needed. This, therefore, may have reduced effectiveness. Therefore, it is recommended that if future research is conducted using the A-IICP or a similar system, that the length of implementation is considered or possible lengthening.

The teachers assessed within the current thesis appeared to find it difficult to modify their current instruction to meet student needs. This appears to be due, in part, to limited resources, especially time. The number of participating students each teacher taught in the current studies ranged from one to six (with the caveat of the specialist teacher who had ten of the eleven students at School A). Given the amount of available resources and the numerous teacher comments regarding the difficulties of implementing intended interventions, it is recommended that participating teachers only identify one-to-two students to participate within the study; especially until they feel more confident at modifying and implementing interventions within their available resources. This may, as with the creation of readiness, lead to greater instructional integrity leading to more accurate effectiveness information regarding the process.

In addition, through the inclusion of fewer students, the participating teachers may have a more positive experience leading to increased want to engage in such a process. At times at School A, the teachers appeared to perceive that the lower performance of their struggling readers may be interpreted to reflect negatively upon their teaching without
acknowledging that the remaining twenty students within each of their classrooms were performing well. This is important because teachers have a difficult job and one of the aims of the A-IICp is to help them more effectively help struggling students increasing their positive interactions with the students and hopefully reducing teacher burnout.

9.3 Use of the Child Intervention Rating Profile (CIRP)

The use of the CIRP within the current thesis was undertaken as it is important to assess children’s views of the research with which they are participating. The CIRP has not been extensively validated for use with students within their first year of school and therefore, consideration is given to its use in the current thesis. Although the development of the CIRP was for Year 6 students, a study conducted by Galloway and Sheridan (1994) employed an adapted version, similar to that employed in the current thesis, with six students from Y1 to Y3. As with the current thesis the questions were read to the students to help ensure understanding. Therefore, it has previously been employed with children younger than Y6 with promising results, as with the current thesis.

The students appeared to give genuine responses to the questions posed. The students had spent considerable time with the examiner over the previous ten weeks, and, therefore, rapport may have facilitated honest responding. This is supported through the results from the CIRP where two students did respond with negative answers.

One limitation of the CIRP administration was that the examiner did not gauge if the students truly comprehended the questions asked. For instance, one of the questions was: “other things could help me learn my letter sounds and sounds in words more than the things we’ve done this term”. It would have been advantageous to have asked the students what letter sounds and word sounds are, because in a sense they are relatively abstract concepts. It
may also have been desirable to ask students' what things they thought would have been helpful in teaching them to learn their letter sounds.

At a broader level, students may have had an limited overall understanding of the research/programme evaluation context in which they were participating, which may have influenced their response selection. For instance one of the students reported that the assessor (i.e., Jane) had been mean and unfair during the progress monitoring assessments; he, however, giggled when giving this response and had not indicated, either verbally or through nonparticipation, that he perceived the assessor to have been mean at any of the progress monitoring time points. This response appeared to reflect his joking nature and may reflect limited understanding of the importance of his answers. Overall, the CIRP appears to effectively capture student perception, but formal assessment of CIRP use with children under six years of age is required.

9.4 Relevance to NZ Junior Primary School Teachers and their Pupils

9.4.1 A Potential Tool in Reaching Ministry of Education Standards

The school environment has been one where accountability of student progress has not often been measured in tangible terms. Due to this, such statements as “he is just a boy and will catch up” (School B), “she comes from an unsettled family environment” (School A), “they are just immature” (School A) or the child has to change to fit my teaching style (School A) have allowed educators and educational psychologists alike to avoid responsibility, to an extent, for student failure. Policy and practice guidelines suggest that such statements should no longer be considered to be sufficient explanations for student failure. Best practice in educational psychology promotes accountability through the appropriate use of formative and summative evaluation (Gibbons and Silberglitt, 2008).
With the advent of the new MoE Literacy Standards coming into affect across all NZ primary schools in 2010 (MoE, 2009) the use of early literacy component skill progress monitoring could be a potential tool in teachers' armamentarium to answer questions about accountability and to further refine their intervention methods (Gibbons and Silberglitt, 2008). Regular progress monitoring data could also help teachers and schools engage specialty services with greater ease due to increased evidence of a student’s poor literacy trajectory, despite teachers best efforts, as seen in the case of Michael. Therefore, the use of an evidence based progress monitoring system could aid teachers and schools in gaining financial support for both school initiatives (Ervin and Schaugency, 2008) and external specialty services to serve remaining instructional needs of individual students.

The issue of gaining financial, as well as political support (Ervin and Schaugency, 2008) is important for schools when attempting to meet their students’ learning needs with limited teachers, materials and time. A barrier to intervention implementation noted by the majority of the teachers at both of the schools involved in this thesis was that of limited time within the school day. The teachers have preset instructional plans for teaching their students. In addition a student's school day involves much more than just reading instruction. The current thesis highlighted the need for teachers to have an efficient and effective method for identifying and monitoring when their current instruction is not effective, as well as the potential need for greater teacher support (e.g., teacher aids) to implement the needed level of intervention intensity.

For a progress monitoring system to be used effectively within the school environment, either in the context of consultation or teacher practice, time is required to monitor the students regularly, interpret their pattern of performance in light of their current instruction and than plan required instructional interventions based on the students' pattern of
performance and growth rate. In addition other variables (e.g., motivation, illness, time of day, and hunger to name a few) also often interact with student literacy skills, affecting student performance on assessment and in the classroom. Therefore, teachers need to pay explicit attention to these variables to further aid their ability to accurately assess students’ true performance and consider contextual factors that may help or hinder students’ performance on academic tasks. Teachers may already implicitly engage in this type of situational analysis of student variables, but it would be advantageous for teachers to be encouraged to pay explicit attention to such variables and note these along side student scores. However, as with implementing the progress monitoring system, maintaining its intergrity after initiation is paramount and schools may require a level of assistance or the creation of 'teams' within school personal for this purpose.

Affording extra time initially to engage in the practices detailed within this thesis may lead to greater financial and political support from external stakeholders leading to greater resources in the future. This is because through the use of a data-informed system such as the A-IICp, teachers can explicitly map student progress against their teaching efforts and identify specific case examples of where increased teaching input led to improved results. Teachers could also detail where increased resources or teacher aids may be needed to lead to substantial, and needed, improvements in student performance. Having explicit evidence that such a process may be effective, especially in meeting the MoE Literacy Standards, could lead to external stakeholders, such as the MoE, being more willing to supply financial support leading to greater access to more resources, increasing schools' ability to maintain the practice.
9.5 General Notes

Surveys have found that data collection and data-driven interventions, within schools settings, are difficult initiatives to institute (Scott and Martinek, 2006). The experience encountered in the completion of this thesis supports these surveys findings. From an implementation and adoption standpoint, the use of data-informed decision making, such as the A-IICp, may be viewed as 'new and unknown', and at times contradictory to current views and teaching practice. This may be somewhat surprising because teachers already use assessment information (i.e., book level and reading records) to gauge a students’ performance level. The aim of using increasingly specified research based data-informed systems is simply at further refine a teacher's understanding of a student's literacy capabilities.

The importance of identifying and working through variables that may hinder engagement with a data-informed intervention system (Schaughency et al., 2010) that may affect instruction integrity cannot be stressed enough. The consultation literature has identified variables that may influence engagement, and overall adoption and implementation of new initiatives within the educational setting (discussed within each discussion Chapter e.g., Ervin and Schaughency, 2008).

The current thesis has also highlighted potential real world barriers related to these characteristics. These include that the innovation itself (i.e., A-IICp), the intended consumers of the innovation (i.e., teachers and schools), the setting where the innovation is to be adopted (i.e., the specific school and the fit within their setting) and the interactions experienced between these factors (Ervin and Schaughency, 2008). For instance, the innovation may have been perceived as time consuming within the current practice of the teachers’ classroom routine, and some teachers may have felt unable to implement interventions as planned. With
regard to the users, there were notable differences in teacher attitudes towards the program both within and across schools. This appeared to reflect teachers' personal conceptualisation of where the ‘problem’ lay (e.g., with the student or with teaching techniques). In addition perceptions of self-efficacy and experience may have affected teachers' confidence in ‘fitting’ in further instruction within their classroom. The context also appeared to play a considerable role with regard to the timing on implementation. This element was especially notable with School A as they had already engaged in an intensive literacy intervention. The situation encountered at School A also highlights issues of timing, which may pertain to the notions of the innovations fit within the school context (Aarons, 2005). Furthermore, the A-IICp was also noted to hold inherent barriers to use, which are recommended to be addressed in future research.

Overall, it has been found that “to enhance and support student outcomes, assessment – and use of assessment information – should be embedded in practice” (Ercikan, 2006). This raises an important issue regarding how to successfully introduce the use of an assessment system not currently supported by teaching practice. Specifically, is introducing such a method directly into current school practice practical and the best method of aiding adoption, implementation and sustainability of assessment-informed decision making? Or is teaching the method, rationale and research of such a systems use within teacher preparatory programmes more advantageous, increasing the likelihood that the method will be pre-embedded (Ercikan, 2006) in teaching practice? These questions are beyond the scope of this thesis, but are of importance, and should be examined if such a data-informed assessment system is found to adequately meet all three stages of measurement development for the specific population and intended use within the NZ context.
9.6 Conclusions

A preliminary evaluation of instructional utility of a progress monitoring system using two early literacy component skill tasks was the primary purpose of this thesis, which was achieved. The aim of the study was to answer the following questions: (i) Was the process perceived as socially valid by the teachers and students? (ii) Did the process of providing the assessment information to the teachers lead to instructional modification and implementation? (iii) Did students’ performance on the tasks increase across the study? (iv) If increases occurred, did they reflect educationally significant improvement – did the students’ match their peers for reading performance and system level expectations at the end of the year?

These questions were asked to assess initial perceptions of instructional utility of the two literacy assessment measures and the A-IICp. Each of these questions were answered in turn with overall positive outcomes. Specifically, the process was generally perceived as socially valid by the teachers and students. The process of providing the assessment information lead the majority of teachers to indicate instructional modification. Implementation appeared more limited than identification. Potential elements related to limited implemention were explored and potential answers to increase implemention and the recording of instructional integrity data were offered. The students' performance did improve across the study, at both schools. Furthermore, by the end of the year at both schools the students made educationally significant literacy improvement.

It was hypothesised that the teachers and students would perceive the A-IICp undertaken and measures used to be socially valid reflecting their initial perceptions of instructional utility. The teachers would therefore, modify their current instruction to better meet student needs leading to increased performance over the course of the study and
educationally significant improvements at the conclusion of their school year. This hypothesis was supported by all three replications of the A-IICp.

In conclusion through the practice of providing the teachers with early literacy component skills progress monitoring assessment information, increasingly tailored intervention methods were created and greater understanding of student literacy difficulties was gained. This coupled with the social validity information appears to lend preliminary support that the A-IICp aids teacher decision making (i.e., instructional utility). Therefore, there is preliminary evidence to support further assessment of this type of data-informed system for use with struggling Y1 NZ students.
CHAPTER 10. REFERENCES


Appendix A

Taylor

First Sound Fluency

FSF Score

Time Point

LSF Score

Time Point

-- FSF comparison range  --- FSF av.

--- LNF comparison range  ---- LNF average
Appendix A Cont.

Nadia

LSF Score

FSF Score

Time Point

Time Point

FSF comparison range
FSF average

LSF comparison range
LSF average
Joshua

![Graph showing LSF and FSF scores over time for Joshua](image)
Ivan

### FSF Score

- **Comparison Range**: 
- **Average**: 

### LSF Score

- **Comparison Range**: 
- **Average**: 

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Assessment-Informed Instructional Consultation (A-IIC)
Assessment-Informed Instructional Consultation (A-IIC) 194

Olga

![Graph showing data for Olga's FSF and LSF scores over time]

FSF Score

FSF comparison range

FSF average

LSF Score

LNF comparison range

LNF average
Craig

![Graph showing FSF and ISF scores over time with comparison ranges and averages marked.](image-url)
Assessment-Informed Instructional Consultation (A-IIC) 198

Mike

FSF Score

Time Point

LSF Score

Time Point

FSF comparison range
FSF av.

LNF comparison range
LNF average
David

![Graph showing data for FSF and LSF scores over time for David.](image-url)

- FSF Score
- LSF Score

- FSF comparison range
- FSF average

- LNF comparison range
- LNF average

Assessment-Informed Instructional Consultation (A-IIC)200
Assessment-Informed Instructional Consultation (A-IIC) 203

**Nonsense Word Fluency**

- **Raw ISF score**
- **Child's Name**
- **B2 middle percentile**

**Phoneme Segmentation Fluency**

- **Raw PSF score**
- **Child's Name**
- **B2 middle percentile**
Appendix B

Jackson’s Progress Monitoring Data

The lower horizontal line on the graph represents the average level of performance at end of Term two for the children participating in progress monitoring. The upper horizontal line represents continued projected growth, based on the data collected during Term 2 that suggested that students’ performance grew, on average by 1.5 letter sounds per week.

During baseline, on average, Jackson correctly identified 10 letter sounds/minute. Since then, his overall average performance has been 15.85 letter sounds/minute at a rate of 1.8 letter sounds gained between per week.

This graph depicts Jackson’s performance relative to his baseline level and trend. Although Jackson’s performance remains below the average level achieved by students at the end of Term 2, these data suggest that Jake has shown increases in his average level of performance over the course of Term 3 and has shown a change in his rate of growth from the middle of the term.
Jackson’s performance on this task improved on each administration during baseline, with an average performance of 35.5 sounds per minute. Since then, his performance has been somewhat variable, with an overall average performance of 46 sounds/minute and an average growth of 1.33 onset sounds gained between data points.

This graph depicts Jackson’s performance relative to his average level and trend at baseline. These data suggest that Jake has shown an increase in his level of performance in the identification of onset sounds over the course of Term 3.
Duke’s Progress Monitoring Data

At baseline, Duke obtained a zero score on one occasion and correctly identified 2 sounds/minute on the other, for an average of 1 letters sounds/minute. Since that time his performance has varied somewhat, with an overall average since baseline of 5.6 letter sounds/minute, with an average rate of growth of .59 letter between data points.

The above graph depicts Duke’s performance compared to his baseline average and trend. These data suggest that Duke has an increase in his identification of letter sounds over the course of Term 3, although his performance continues to below that of other students his age.
During baseline assessment, Duke obtained a score of 29 sounds/minute on both occasions. Duke’s performance has been somewhat variable with an overall average performance since baseline of 35.6 sounds/minute, for an average growth rate of 1.68 sounds gained between data points.

The above graph depicts Duke’s performance compared to his baseline average and trend. These data suggest that although Duke’s performance continues to be variable, he has shown an increase in performance on the phonemic awareness task of onset recognition over the course of Term 3.
Letter Sounds in Name: Duke

**Baseline**

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<td>L</td>
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+ = correct; - = incorrect; NO = No opportunity

**Post Baseline**

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</tbody>
</table>

+ = correct; - = incorrect; NO = No opportunity

At baseline Duke had limited opportunities to identify the letters of his name but did not correctly identify those presented (a and e). Since then he has had 4–10 opportunities to identify each letter. He performed best on “n” and “l”, with the remaining letters falling below 50%. At some point throughout progress monitoring Daniel did correctly identify each of the letters in his name. However, he did not do this consistently.
Sean’s Progress Monitoring Data

During the baseline assessment, Sean obtained a score of 4 on one occasion and a zero on the other. Since then, his performance has ranged from 0 – 7, for an overall average of 3.57, reflecting little average growth since baseline. Further his rate of acquisition of letter sounds between each data point is less than .5 a week.

The above graph depicts Sean’s performance relative to his baseline average and trend. In comparison to his own performance at baseline Sean did show a period of improvement, where his performance falls above both his average and trend at baseline.
During baseline, Sean obtained a zero score on one occasion and a score of 19 on the other. Since then, his scores have ranged from 19 – 40, with an overall average since baseline of 37.6, representing an average growth of 3.37 onset sounds gained between data points.

This graph depicts Sean’s performance relative to his baseline average and trend. These data suggest that Sean has shown growth in his identification of onset sounds over the course Term 3, with somewhat less variability in performance in the latter part of the term.
During baseline, Dharma’s consistently identified 3 letter sounds per minute. Since then her performance has ranged from identifying 4 to 20 letter sounds per minute, for an overall average since baseline of 10 letter sounds. This represents an average growth of 1.74 letter sound gained between data points.

The above graph depicts Dharma’s performance relative to her baseline level and trend, suggesting improvement relative to both indices. She had a dramatic improvement in letter sound naming following the second instructional consultation (from the second vertical line). Further her average performance is improving at a rate above the average letter sounds gained per week.
During baseline, Dharma’s average performance was 32 onset sounds/minute. Since then her performance has been somewhat variable, with an overall average since baseline of 37.6 sounds per week for an average growth of 1.3 sounds gained between data points.

The above graph depicts Dharma’s performance compared to her baseline average and trend. These data suggest that Dharma has increased her level of performance in identification of onset sounds over the course of Term 3, with her performance in the latter part of the term becoming less variable.
Letter Sounds in Name:
Dharma

### Baseline

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<td>0/0</td>
</tr>
<tr>
<td>E</td>
<td>-</td>
<td>+</td>
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</tr>
<tr>
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+ = correct; - = incorrect; NO = No opportunity

### Post Baseline

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<td>-</td>
<td>+</td>
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<td></td>
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</tr>
<tr>
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<td>+</td>
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<td>++</td>
<td>++</td>
<td></td>
<td>11/16 (68%)</td>
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</tbody>
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+ = correct; - = incorrect; NO = No opportunity

At baseline Dharma correctly identified the letter “n” 100%, “d” 50% and “e” 33%. However, she did not correctly identify the remaining letters of her name (a, n, l, i). Since then she has had 8 – 16 opportunities to identify each letter. She performed best on “d”, “l” and “n”, with the remaining letters falling below 50%. At some point throughout progress monitoring Dharma did correctly identify each of the letters in her name. However, she did not do this consistently besides for “d”, “l” and “n”. However, it can be seen that she was more readily successfully identifying the letters of her name for the majority of the letters in the last four data points.
At baseline, Michael’s performance ranged between 0 and 2, with an average of 1 correctly identified letter sound per minute. Since then, his performance has continued to vary, ranging from 1 to 15 letters. His overall average since baseline has been 6 letter/sounds per minute, for an average of .27 letter sounds gained between data points.

Since the last instructional consultation Michael has shown an increased rate of improvement with the last data

The above graph depicts Michael’s performance relative to his baseline average and trend. Point collected slightly above his trend line. Unfortunately Mitchell was absent for the final two data collection.
During baseline assessment, Michael obtained scores of 2 and two 0’s sounds/minute. Since then he initially continued to display a similar pattern of performance, varying between scores of 0 and 2. He then improved to scores between 4-5 and then scores of 2 – 9. Since baseline his overall average sounds/minute has been 2.9, with an average growth rate of 1.2 sounds per week.

The above graph depicts Michael's performance relative to his baseline average and trend. These data suggest that Michael has shown slight increase in average performance over the course of Term 3, although his level and rate of growth continue to fall below that of other students his age.
Letter-Sounds in Name: Michael

**Baseline**

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<td>L</td>
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+ = correct; - = incorrect; NO = No opportunity

**Post Baseline**

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<td>S</td>
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<td>NO</td>
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<td>--</td>
<td>S</td>
<td>S</td>
<td>1/12 (.8%)</td>
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+ = correct; - = incorrect; NO = No opportunity

At baseline assessment, Michael had limited opportunity to identify the letters of his name but did not correctly identify those presented (“m”, “t”, and “e”). Since then, he has had 6 – 14 opportunities to identify each letter. He performed best on “m”, correctly identifying it on 86%. However, the remaining letters fall below a 50% accuracy with three of them having 0 accuracy and one having .8%.
Divine’s Progress Monitoring Data

During baseline Divine’s average performance was 24.33 letter sounds/minute. Since then her overall average has been 38.7 letter sounds/minute for an average growth of slightly more than 3.15 letter sounds gained per data point.

The above graph depicts Divine’s performance relative to her baseline level and trend. These data suggest that Divine has shown an increase in her level of performance over the course of Term 3. In addition, it appears that she may also have shown a positive shift in trend in the latter part of the term.
During baseline, Divine’s average performance was 21 onset sounds/minute. Since then her overall average performance has been 32.3 onset sounds/minute for an average growth of 1.8 sounds gained at each data point.

This graph depicts Divine’s performance relative to her baseline level and trend. These data suggest that Divine’s level of performance has increased over the course of the term, although her performance continues to be variable.
Appendix C

Progress Monitoring to Tailor Literacy Instruction of Year 1 Students
INFORMATION SHEET FOR PARENTS

Thank you for your interest, and consideration of participation, in our project.

What is the Aim of the Project?
This project is being conducted as part of Post-Graduate Diploma research (Jane Thurlow) at the University of Otago. Children’s literacy has been identified as a priority by the NZ Government (Literacy Experts Group, 1999). To evaluate whether strategies to support literacy learning are effective, measuring progress toward that goal is key. Techniques for measuring growth and development of early literacy skills for junior primary students have been developed in the US. Given differences in the beginning school experience for students in the US and NZ, however, research is needed to determine whether these measures are useful in measuring literacy growth and development of young students in New Zealand schools. Research on this question began at your child’s primary school in 2005. From this research it has been determined that new entrants’ performance on these measures corresponds well with their performance on measures of developing literacy currently used in New Zealand schools during Year 0/1. This project aims to look at how useful these measures are in assisting teachers’ to tailor instruction to students.

What Type of Participants are being sought?
Participants will be new entrant (Year 0/1) students and appropriate school personnel from participating schools. Because the research is to be conducted within ongoing educational programming, school personnel will determine in which instructional activities the study is to be conducted and not all Year 1 students may be invited to participate.

What will Participants be Asked to Do?
Trained University graduates would administer tasks looking at early literacy skills. The tasks take about 5 minutes per pupil and include measures of basic early literacy skills such as identifying sounds in words and naming letters. The tasks are very similar to everyday school experiences for children and would be given twice weekly throughout the third term of the school year. In appreciation for their participation, researchers will prepare a “Letters and Sounds Learning Sticker Book” for participants in which they may place a sticker for each assessment session and which will be provided to them at the end of the term as a memento of participation. The researchers will work with the classroom teacher, and introduce themselves and describe the tasks to the pupils. They will work only with those children who verbally indicate their willingness to participate. Please be aware that you may decide for your child not to take part in the project without any disadvantage of any kind to you or your child.

Can Parents/Caregivers Change their Mind and Withdraw from the Project?
You may withdraw from participation in the project at any time and without any disadvantage to yourself of any kind.

What Data or Information will be Collected and What Use will be Made of it?
The information to be collected includes the measures to be administered directly to the children, information pertaining to reading performance and demographic information obtained from the school. The measures that are to be administered directly to the children are the Dynamic Indicators of Basic Early Literacy Skills (http://dibels.uoregon.edu). One of these tasks is a task in which the researcher says a word to the child (e.g. rabbit) and asks the child to tell the researcher something about that word (e.g. rabbits hop). Because it is difficult to hear, understand, and make notes about what a child says all at once, we would like to audio tape their responses to this task so that we can...
Appendix C Cont.

listen to them later on. On average one – two minutes of the child’s talking will be recorded. The recording will then be stored without identifying information in a secure, locked cabinet at the University of Otago.

The School-collected reading information includes information such as School Entry Assessment, reading book level, and Observation Survey (Six Year Net) data. In addition, we will also request demographic information that has previously been suggested to be related to literacy development. These include: ethnicity, language spoken by the family of the pupil, parent/caregiver’s occupation, and concern regarding students’ literacy progress (as reflected in consideration of referral to support services, such as Resource Teacher of Literacy, Resource Teacher of Learning and Behaviour). The purpose for attaining demographic information is to evaluate how well our measures perform for different groups of children. All information that we will collect will only be used by researchers working on this study, except as described below.

Results of our early literacy assessment will be shared with your child’s teachers and the Resource Teacher of Literacy (RTL) who works with your child’s school in program development in literacy instruction early in the school term for their use in setting goals and instructional activities during the term. We will provide parents of participating children an update on the planned focus for the term. Midway through the term, we will again meet with your child’s teacher and RTL for the purpose of reviewing progress toward goals and further tailoring of instruction. We will have a final meeting with teacher and RTL at the beginning of Term 4 to look back over Term 3 and consider general plans for the remainder of the year. We will also develop a summary for parents regarding what we learned was helpful for participating children during their participation in Term 3.

The overall results of the project may be published and will be available in the University library, but individual participants’ information will remain confidential as described below. Participating schools and families will be most welcome to request a copy of the overall results of the project in addition to receiving a parent/guardian updates described above.

The data collected will be securely stored in such a way that only the researchers mentioned below and school personnel as identified above will be able to gain access to it. At the end of the project any personal information will be destroyed immediately except that, as required by the University’s research policy, any raw data on which the results of the project depend will be retained in secure storage for five years after publication, after which it will be destroyed.

What if Participants have any Questions?
If you have any questions about our project, either now or in the future, please contact either:-
Jane Thurlow or Elizabeth Schaughency, Ph.D.
Department of Psychology Department of Psychology
University Telephone Numbers: University Telephone Number: 479 5864
479 8352; 479 7830

This project has been reviewed and approved by the University of Otago Human Ethics Committee.
Appendix C Cont.

Dear Parents/Caregivers,

Over the past several years researchers from the University of Otago have been working with the staff at your child’s school to investigate the assessment and development of literacy. This has involved giving early literacy, language, and reading measures to children at school as well as collecting school-based information. We are inviting your child to participate in Phase 3 of our research this year. This work builds upon our ongoing research and your child’s school current literacy initiatives, such as “Sounds Alive”. Participation in this phase of our research might include:

- Your child taking part in brief language and literacy tasks (taking about 5-10 minutes), twice weekly throughout the third term of the school year, at school and during school time;
- Researchers providing results of this assessment information to your child’s teacher and the Resource Teacher of Literacy who works with your child’s school in instructional planning in literacy for use in tailoring instruction to students’ skills;
- School staff providing researchers with relevant information from school archives;
- Researchers sharing their general findings with school staff and parents/caregivers of participating students;
- Researchers treating all information collected regarding individual pupils as CONFIDENTIAL;
- Prior to doing the tasks, your child being asked whether he or she wishes to participate.

Should you like to know more, an information sheet is attached. You are also welcome to contact either Jane Thurlow (479 8352; 479 7830 or Elizabeth Schaugency (479 5864) at the University of Otago with any questions or concerns. We would appreciate it if you could sign the attached consent form to indicate whether you wish you and your child to participate. We thank you for your time and hope to be working with you and your child.

Regards,

Jane Thurlow, BA/BCom
Post-graduate Diploma Student

Elizabeth Schaugency, Ph.D.
Senior Lecturer
Appendix C Cont.

Progress Monitoring of Literacy Development in Primary School Children
CONSENT FORM FOR PARENTS / GUARDIANS

I have read the Information Sheet concerning this project and understand what it is about. All my questions have been answered to my satisfaction. I understand that I am free to request further information at any stage.

I know that:

1. my child’s participation in the project is entirely voluntary;

2. I am free to withdraw my child from the project at any time without disadvantage;

3. the activities in which my child will be asked to participate present no greater risk of discomfort than typical education in early primary classrooms;

4. a small “thank you” will be offered in appreciation for his/her participation;

5. personal information will be destroyed at the conclusion of the project but any raw data on which the results of the project depend will be retained in secure storage for five years, after which it will be destroyed;

6. the results of the project may be published and will be available in the University library but information pertaining to me and my child will be stored and presented in ways that will protect our confidentiality.

I agree for my child ___________________________ to take part in this project.

I agree/disagree (please circle one) for my child’s responses to be audio recorded.

................................................................. .................................................................
(Signature of parent/legal guardian of participant) (Date)

This project has been reviewed and approved by the University of Otago Human Ethics Committee.
Appendix D

Phoneme Intervention Protocol

Materials Checklist:
- Instructions for Administration
- High frequency word flashcards
- Point Recording Sheet
- Instructional Phoneme
- Flashcards

Individual Phoneme Lesson
- 1. Shuffle all the phoneme cards.
- 2. Turn on the tape recorder.
- 3. Say, "TODAY, WE ARE GOING TO LEARN HOW TO READ LETTER SOUND AND NONSENSE WORDS. NONSENSE WORDS ARE PRETEND WORDS THAT DON'T MEAN ANYTHING. LEARNING TO READ THESE PRETEND WORDS MIGHT HELP YOU TO READ REAL WORDS. WE ARE GOING TO PRACTICE BREAKING APART AND PUTTING TOGETHER PRETEND WORDS. AFTER WE ARE DONE, WE ARE GOING TO READ REAL WORDS. DO YOU HAVE ANY QUESTIONS?"
- 4. Present each of the individual phonemes on flashcards. Model the correct response. Prompt the correct response.
  a. If the student repeats correctly, praise the student.
  b. If the student makes an error, say, "No, the correct response is ______. Say it!" Repeat three times.
- 5. Shuffle the phoneme flashcard items.
- 6. Present the phoneme flashcards individually and prompt the student to give the correct response.

Segmentation-Blending Lesson
- 1. Shuffle the five instructional cards.
- 3. Say, "NOW WE ARE GOING TO READ PRETEND WORDS TOGETHER. LEARNING TO READ THESE WORDS MAY HELP YOU TO READ REAL WORDS. WE ARE GOING TO PRACTICE BREAKING
Appendix D Cont.

- Apart and putting together the pretend words. After we are done, we are going to read real words. Do you have any questions?

- 4. Present the first flashcard, covering the word with the blank flashcard. Say, "I will show you sounds in a word, tell you the sounds and have you read the sounds."

- 5. Expose the first phoneme and say, "The sound is ___." Wait for a student response and say, "Good!" [If the student makes an error, say, "No. The sound is ___. Say the sound. Good!"] Repeat this step for all phonemes in the words, successively exposing each phoneme until the student can see the whole word.

- 6. Say, "Let's say the sounds together as a word. Say them together real fast. The word is ___."

- 7. Repeat steps 4, 5, and 6 for the second flashcard.

- 8. Repeat steps 4, 5, and 6 for the third flashcard.

- 9. Repeat steps 4, 5, and 6 for the fourth flashcard.

- 10. Repeat steps 4, 5, and 6 for the fifth flashcard.

- Model up to three times per phoneme and whole word.

- 11. Shuffle the instructional cards.

- 12. Say, "Now, I want you to read the sounds to me.

- 13. Present a flashcard to the student, exposing one phoneme at a time. If the student does not read a phoneme within three seconds, say the phoneme for the student and have the student repeat the sound (saying "Repeat after me!" if the student does not repeat the sound spontaneously).

- 14. At the end of the word, say "Put the sounds together to make a word."

- 15. Repeat steps 12 and 13 for the second flashcard.

- 16. Repeat steps 12 and 13 for the third flashcard.

- 17. Repeat steps 12 and 13 for the fourth flashcard.

- 18. Repeat steps 12 and 13 for the fifth flashcard.
High frequency word lesson

1. Say “NOW WE ARE GOING TO READ REAL WORDS. FIRST YOU ARE GOING TO SAY EACH SOUND AND THEN YOU ARE GOING TO SAY THE WORD. IF YOU ARE UNSURE OF A SOUND OR WORD I WILL HELP YOU.”

2. Lay down the first high frequency word card and point to the first phoneme and say, “THE SOUND IS ___” wait for the student response and say, “GOOD” (if the student makes an error, say, “NOT THE SOUND IS ___. SAY THE SOUND. GOOD.”). Repeat this step for all phonemes in the work, successively pointing to each phoneme until all the phonemes have been presented.

3. At the end of the word, say “PUT THE SOUNDS TOGETHER TO MAKE A WORD.”

4. Repeat steps 2 and 3 with all high frequency word cards.

5. Repeat each card prompt individual sound then whole word reading.
Appendix E

First Instructional Consultation
School A
Date 21/5/08

Attending:
Students:

Aims:
- To review assessment results for each student;
- To consider the student’s current literacy instruction and possible modifications in light of assessment results;
- To determine instructional strategies to be implemented between today’s meeting and the next data review meeting (Week 6, Thursday 12 June, 3.15 pm)
- To set expectations for achievement by next session to be considered in next data review meeting (Week 6, Thursday 12 June, 3.15 pm)

Assessment Framework:
Our assessment framework is built around the ideas that:
- There are early literacy skills that may be thought of as building blocks for learning to read.
- These early literacy skills follow developmental progressions.
- To inform the instructional hierarchy, assessment questions ask whether the child has the skills to:
  - Perform tasks accurately
  - Perform tasks fluently
  - Apply skills appropriately to novel situations

**Early Literacy Skills Assessed and Their Development**

**Phonemic Awareness**
The ability to hear and manipulate the individual sounds in words

**Phonological Awareness Development Continuum**

Source: Phonemic Awareness in Beginning Reading. Teaching phonemic awareness: sequencing phonemic awareness skills. Big Ideas in Beginning Reading.

http://reading.uoregon.edu/pa/pa_teach.php
**Appendix E Cont.**

**Alphabetic Principle**
The mapping of print (letters) to speech (individual sounds) and the blending of these letter sounds into words;

**Alphabetic Principle Tasks in Beginning Reading**

- Letter sound correspondence
- Decoding (Sounding Out Words)
- Word reading
- Reading connected text

**Easy**

To

**More**

**Difficult**

**Beginning Year Assessment**
The early literacy skills assessed and the tasks to assess them during Term 1 data collection were: Phonemic awareness (Initial Sound Fluency, First Sound Fluency), and alphabetic knowledge (Letter Naming Fluency).

**Initial Sound Fluency**

The DIBELS Initial Sounds Fluency (ISF) Measure is a standardized, individually administered measure of phonological awareness that assesses a child's ability to recognize and produce the initial sound in an orally presented word (Kaminski and Good, 1996, 1998; Laimon, 1994). The child is presented with four pictures on a page. The examiner points to each picture and simultaneously states its name for the child, and then asks the child to identify (i.e., point to or say) the picture that begins with the sound produced orally by the examiner. For example, the examiner says, "This is sink, cat, gloves, and hat. Which picture begins with /s/?" The child is also asked to orally produce the beginning sound for an orally presented word that matches one of the given pictures.

**First Sound Fluency**

FSF is similar to the ISF task in that it is assessing the child’s ability to identify the sound of the first letter of a given word. However, the word is presented in an oral form with no picture accompanying it. The child is presented with a word orally and asked to produce the first sound of the word.

---

2 Source: Dynamic Indicators of Basic Early Literacy Skills (DIBELS®). http://dibels.uoregon.edu

3 This task is currently in development from the authors of DIBELS. Used with permission of the authors at Dynamic Measurement Group, http://www.dynamicmeasurement.org.
Appendix E Cont.

Letter Naming Fluency: LNF assesses a child’s ability to name correctly the letters of the alphabet. The child is presented with a page of letters and asked to name as many of the letters they can within a one minute period. If a child comes to a letter they do not know the examiner informs the child of its name and prompts the child to move to the next. When the child misnames a letter nothing is said but the letter is marked as incorrect.

Mid-Year Assessment

The early literacy skills assessed and the tasks to assess them at the end of Term 2 data collection were: Phonemic awareness (Initial Sound Fluency, First Sound Fluency, Phonemic Segmentation), and alphabetic knowledge (Letter Naming Fluency; Letter Sound Fluency, and Nonsense Word Fluency). Tasks not administered at the beginning of the year assessment are described below:

Phonemic Segmentation Fluency: The DIBELS Phoneme Segmentation Fluency (PSF) measure is a standardized, individually administered test of phonological awareness (Kaminski and Good, 1996). A developmentally more difficult tasks than identified a word’s onset sound, the PSF measure assesses a student's ability to segment three- and four-phoneme words into their individual phonemes fluently. The PSF measure has been found to be a good predictor of later reading achievement (Kaminski and Good, 1996). The PSF task is administered by the examiner orally presenting words of three to four phonemes. It requires the student to produce verbally the individual phonemes for each word. For example, the examiner says "sat," and the student says "/s/ /a/ /t/" to receive three possible points for the word.

Letter Sound Fluency: Similar in format to Letter Naming Fluency, when administering this task, the assessor asks the child to say the sound of randomly ordered letters.

Nonsense Word Fluency: The DIBELS Nonsense Word Fluency (NWF) measure is a standardized, individually administered test of the alphabetic principle - including letter-sound correspondence and of the ability to blend letters into words in which letters represent their most common sounds (Kaminski and Good, 1996). The student is presented an 8.5" x 11" sheet of paper with randomly ordered VC and CVC nonsense words (e.g., sig, rav, ov) and asked to produce verbally the individual letter sound of each letter or verbally produce, or read, the whole nonsense word. For example, if the stimulus word is "vaj" the student could say /v/ /a/ /j/ or say the word /vaj/ to obtain a total of three letter-sounds correct. However, because the measure is fluency based, students receive a higher score if they are phonologically recoding the word and receive a lower score if they are providing letter sounds in isolation.

4 From AIMSweb® Test of Early Literacy, http://www.aimsweb.com
Appendix E Cont.

Baseline Assessment
The tasks that the children are completing during progress monitoring are First Sound Fluency to assess phonemic awareness and Letter Sound Fluency to assess alphabetic principle (letter-sound correspondence) (described above).

Instructional Assessment
This scaffolded assessment is built upon the sequence of teaching alphabetic principle described above and modelled after the educational assessment described by Ed Daly and colleagues (Daly, Chafouleas, Persampieri, Bonfiglio, and La Fleur, 2004; Daly, Le Clair, Johnson, and Sorman, 2007).

Each child’s assessment was based on his or her performance on the baseline tasks above and entailed successive teaching “trials” of (a) letter-sound correspondence; (b) letter-sound correspondence when presented with 3 letter (CVC) nonsense words; and (c) real 3 letter CVC words that contained two high frequency words and three words using the letter-sounds used in the previous teaching trials. Following each teaching condition, the child was assessed on his or her performance on the task.

---

Olga’s Baseline Assessment Results

Olga’s performance on the FSF and LSF tasks at both points fell within the range of the students who had performed at the middle percentile on phonemic awareness tasks and letter knowledge tasks during Term 1. It is atypical for a score to decrease at the second testing, however this can be reflective of motivational level and behavioural issues.

Olga’s Instructional Assessment Results

In general, Olga performed less well on the more difficult task of blending phonemes into words. Generally when taking her time she was able to self correct after originally making an error.
Craig’s Baseline Assessment Results

Craig’s performance on the FSF and LSF tasks at both points fell within the range of the students who had performed at the middle percentile on phonemic awareness tasks and letter knowledge tasks during Term 1.

Craig’s Instructional Assessment Results

In general, Craig performed less well on the more difficult task of blending phonemes into words but was able to read four real words when expectations for a response were conveyed. In particular, Craig was observed to display a possible misrule for the letter sound for ‘w’ which he pronounced as /y/. 
In general, Evan’s performance on the phonemic awareness task fell within the range of students who performed at the middle percentile on phonemic awareness tasks during Term 1. Evan’s performance on the letter sound correspondence task also fell within the range of those performing at the middle percentile on the letter knowledge task administered during Term 1.

Evan performed poorly both with regard to individual phonemes and blending even after a high level of modelling.
Appendix F Cont.

Mike’s Baseline Assessment Results

Mike’s performance on the First Sound Fluency task falls below the performance of students on these tasks who performed at the middle percentile (41 – 59, stanine 5) for both First Sound Fluency and Initial Sound Fluency during Term 1. Mike’s performance on the Letter Sound Fluency task was within the range of the performance of the students on this task who performed at the middle percentile for Letter Naming Fluency during Term 1. Although children generally perform better on this task a second administration Mike showed an atypical decrease in performance.

![Graph showing raw scores for FSF and LSF tasks]

Mike’s Instructional Assessment Results

In general, Mike performed less well on letter sound production (only identifying 3 out of 6 phonemes). Maxwell also performed less well on the harder task of blending the identified phonemes into nonsense and real words the more difficult task of blending phonemes into words.
Appendix F Cont.

David’s Term 1 Assessment Results

**Phonemic Awareness.** David’s performed below the middle percentile of students on phonemic awareness tasks (e.g., stanine 3 for ISF).

**Letter Knowledge** He performed within the range of middle percentile students on the letter naming task.

David’s Baseline Assessment Results

David’s performance on the FSF and Letter Sound tasks at both points fell within the range of the students who had performed at the middle percentile on phonemic awareness tasks and letter knowledge tasks during Term 1. However he does show a atypical decrease from time one to time two with regard to first sound fluency.

David’s Instructional Assessment Results

In general, David performed less well on the more difficult task of blending phonemes into words. He appeared to try and answer from memory as opposed to reading the word.
Appendix F Cont.

Individual performance graphs for First Sound Fluency and Letter Sound Fluency and Instructional Assessment Performance

**Zinzan**

![Graph showing performance in First Sound Fluency and Letter Sound Fluency](image)

![Graph showing raw scores](image)
Appendix F Cont.

Nadia

First Sound Fluency

Letter Sound Fluency

Time 1  |  Time 2  |  Average

Task

Correct letter sounds  |  Correct words  |  Correct letter sounds  |  Correct words

Single Letter Sounds  |  Nonsense Words  |  Real Words  |  Real Words
Appendix F Cont.

Taylor

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<tr>
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<td>Real Words</td>
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Appendix Cont.

Ivan

First Sound Fluency

Letter Sound Fluency

Task

Correct letter sounds
Correct words
Correct letter sounds
Correct words

Single Letter Sounds
Nonsense Words
Real Words

Task

Raw

Time 1
Time 2
Average

Correct letter sounds
Correct words
Correct letter sounds
Correct words

Raw

0
10
20
30
40
Owen

**Appendix D Cont.**

### Raw Score Graphs

#### First Sound Fluency

- **Task:** First Sound Fluency
- **Data Points:**
  - Time 1
  - Time 2
  - Average

#### Letter Sound Fluency

- **Task:** Letter Sound Fluency
- **Data Points:**
  - Time 1
  - Time 2
  - Average

### Task Graphs

#### Single Letter Sounds
- **Task:** Single Letter Sounds
- **Data Points:**
  - Correct letter sounds
  - Nonsense Words
  - Correct words

#### Nonsense Words
- **Task:** Nonsense Words
- **Data Points:**
  - Correct letter sounds
  - Real Words
  - Correct words

#### Correct Letter Sounds
- **Task:** Correct Letter Sounds
- **Data Points:**
  - Correct letter sounds
  - Real Words
  - Correct words

#### Correct Words
- **Task:** Correct Words
- **Data Points:**
  - Correct letter sounds
  - Real Words
  - Correct words

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**Table: First Sound Fluency**

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**Table: Letter Sound Fluency**

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Appendix D Cont.

Joshua

First Sound Fluency

Letter Sound Fluency

Task

Raw

0

10

20

30

40

35

30

25

20

15

10

5

0

Correct letter sounds

Correct words

Single Letter Sounds

Nonsense Words

Real Words

Task

Raw

0

2

4

6

8

10

12

14

16

Correct letter sounds

Correct words

Correct letter sounds

Average

Time 1

Time 2
Appendix E

Second Instructional Consultation
School A
Date 12/06/08

Attending:

Students:

Aims:

• To review progress monitoring results for each student;
• To assess if the chosen interventions have had a positive impact;
• To consider the student’s current literacy instruction and possible modifications in light of progress monitoring results;
• To determine instructional strategies to be implemented between today’s meeting and the follow-up data review meeting (*Term 3, Week 1, Thursday 24 July, 3.15 pm*)
• To set expectations for achievement by next session to be considered in follow-up data review meeting (*Term 3, Week 1, Thursday 24 July, 3.15 pm*)

Progress Review Framework
The main aim of this meeting is to review students’ progress. This affords us the opportunity to assess whether the strategies set out at our last meeting are implemented in your work with students and to modify them as needed to better meet individual student needs. It is this process of revaluation that gives our progress monitoring data meaning as it informs our professional decision making and instructional practice.

Guidelines for Reviewing Progress
Practice guidelines have been outlined to assist educators in reflecting on student progress data (Gibbons and Silberglitt, 2008). These are:

1. **Develop clearly defined goals of achievement.**
   Specific and measurable goals can be helpful to educators in a number of ways. For example:
   a. Helping to focus professional discussion (e.g., What skills do we think this student needs to develop?)
   b. Helping to gauge success and inform when to modify instruction if a student isn’t progressing.
2. Determine performance indicators of student achievement
3. **Determine a criteria for success**
4. Focus on collaboration and teamwork
5. **Evaluate progress toward goals**

---

Appendix E Cont.

Today we are addressing the three highlighted standards and modify instruction where needed in the ongoing context of #4, collaboration and teamwork.

How can we tell if intervention has been effective?
In reviewing students’ progress, we are interested in both the level at which they are performing and how they are progressing over time. Progress over time can be quantified by looking at the slope of their progress (e.g., the rate at which they are mastering skills, like building fluency, or automaticity, in letter-sounds knowledge). Questions are often useful to guide thinking about results. Two questions to think about when reflecting on progress monitoring data are: “Are students on track toward meeting literacy goals?” and “Are our efforts making a difference?” Research suggests that when teachers are provided with decision rules to help them decide whether students are making progress, it assists with instructional decision making, planning, with benefits to student progress (Fuchs and Fuchs, 2008, 2007).7 Therefore, we discuss possible decision rules

Are students on track toward meeting literacy goals? One way to reflect on progress monitoring data is through the use of ‘goal-lines’ in which the children’s individual twice weekly results are compared to target goals. The ‘goal-line’ should be regularly reassessed as with the child’s interventions. The reason for this is that the target goal must be achievable and realistic for the child as this prompts motivation both for the child and the implementer.

1. This means that if the child is repeatedly performing below the goal line the overall goal as well as the instructional strategies to achieve the goal should be re-evaluated.
2. If the child is continually out performing their ‘goal-line’, then the goal should be re-evaluated to a still achievable and realistic but higher level with consideration of instructional next steps. This prompts motivation and encourages teachers to consider how to extend the child’s literacy performance.

An example of a decision rule2 to answer for goal based decision making would be:

- If 4 out of 6 consecutive progress monitoring points fall below the goal line, progress may be inadequate.
- If 4 out of 6 consecutive progress monitoring points fall above the goal line, progress may be better than expected.

Have students’ performance on literacy performance indicators changed following implementation of [additional] instructional support strategies? To answer this question, we can compare the students’ performance after supports were implemented to their average level and pattern of performance before additional supports were implemented (“baseline”), asking the following questions:

- Does the students’ performance exceed that of his/her average baseline performance?
- Does the students’ performance exceed his/her general baseline trend?

---

If the answer to both of these questions is yes, we may conclude that the students’ performance is different from baseline (see Daly, Barnett, Kupzyk, Hofstadter, and Barkley, in press; Fisher, Kelley, and Lomas, 2003).
Appendix F

Goal Attainment Scaling Information

Attending:

What is Goal Attainment Scaling? Goal Attainment Scaling also known as GAS is an effective and efficient way to keep track of a student’s progress toward educational consultation goals across different children, with different educational needs and instructional targets.

Why is it important? An important part of today’s meeting is to reflect on students’ progress in light of their specific goals. This is important as this is how we will be able to assess if the child is showing positive gains from intervention. If the child is not progressing towards the goal, it informs us that the intervention needs modification or potentially the goal set was too ambitious for the child at their given point of reading achievement.

How do we use it? The goal decided upon is rated on a five point scale (presented below). The first step in GAS is to write down concisely and clearly the agreed upon goal for that student. From here your judgment of progress towards the goal can be rated using the GAS.

How closely did the client come to meeting his/her goal? On the following page, circle your professional role. Besides the heading GAS rating write a number using the scale below which you believe represents the child’s progress towards consultation goals.

-2; literacy performance got significantly worse  
-1; literacy performance got somewhat worse  
0; no progress  
+1; goal partially met  
+2; goal fully met
Appendix F Cont.

Teacher/RTLit/Reading Specialist GAS for

What is the student's goal for this consultation? ____________________________________________

____________________________________________________________________________________

GAS rating: 

Teacher/RTLit GAS for

What is the student's goal for this consultation? ____________________________________________

____________________________________________________________________________________

GAS rating: 

Teacher/RTLit GAS for

What is the student's goal for this consultation? ____________________________________________

____________________________________________________________________________________

GAS rating: 

Teacher/RTLit GAS for

What is the student's goal for this consultation? ____________________________________________

____________________________________________________________________________________

GAS rating: 

Teacher/RTLit GAS for

What is the student's goal for this consultation? ____________________________________________

____________________________________________________________________________________

GAS rating: 


## Appendix G

**Intervention Implementation Form**

- Each child will have a corresponding intervention plan with their individualised intervention written out.
- Each component of the intervention will be entered into the intervention section.
- Each component will be circled as completed or not for each day of the week.

<table>
<thead>
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<th>Childs:</th>
<th>Intervention:</th>
<th>Description of each intervention component for each day of the week.</th>
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<th>Week 2:</th>
<th>Week 3:</th>
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Appendix I

Summary of Interventions from First Instructional Consultation
School A
Date 19/5/08
Next instructional meeting: June 5th at 3.15

Aims for next meeting:
1. Reviewing teachers log of interventions tried
2. New student performance data
3. Plans for next session – intervention revision

Attended:
Three main target areas were identified:
1. Alphabetic knowledge (J and Z)
2. Letter sound correspondence (J, T, Z, N, and O)
3. Blending (I, O, T, and N)

Interventions C identified
- Word families – onset and rime

Interventions S identified
- Onset and rime at news board time
- Letter book with picture of things all starting with M
- Letter spotting

C suggested
- Modelling and labelling
- Breaking up and joining words
- Making explicit connections between letters and sounds with multiple examples

Please remember to write down when you use one of these interventions with the specified children. Thanks so much!!!
Appendix J

Week of: [Blank]  Child: [Blank]  
Action Plan

Literacy Goal: [Blank]

Plan Summary: [Blank]

Please list the primary steps of the plan on the lines below. Then, each day and point during the day, please write in the number(s) associated with the proposed intervention(s) used.

Plan Steps:
1.
2.
3.
4.
5.

On the grid below, please list the regularly occurring instructional activity settings in which you plan to embed the plan above. During the week, please tick the boxes for those days which you implement the plan.

Date: 3/9/08

<table>
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### Appendix J Cont.

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**Date: 24/9/08**

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Assessment-Informed Instructional Consultation (A-IIC)
Assessment-Informed Instructional Consultation