An Investigation of Phonological Processing and Reading Skills in Bhutanese Primary Students

Pema Wangmo

MSpecEd with Merit

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Declaration

This thesis contains no material which has been accepted for the award of any other degree or diploma in any university or other tertiary institution and, to the best of my knowledge and belief, contains no material previously published or written by another person, except where due reference has been made in the text. I give consent to this copy of my thesis, when deposited in the University Library, being made available for loan and photocopying subject to the provisions of the Copyright Act 1968.

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(Signed): ................................................................................................... (Candidate)

Date: 6 March, 2013
Dedication

I dedicate this study to my son Jigme Singye Tobden (you are my heart), to my nephew Tandin Phub and the Children of Bhutan (you are my inspiration).

I would also like to dedicate this work in honour of my father, Sonam Wangchuk, whose passion for teaching children became mine and my mother, Pem Dechen, whose love for children is undeniably present in her daughter.

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Chapter 1: Introduction to the Study

1.1 Introduction

Learning to read in the English language can be a problem for students whose first language is English and even more-so for students for whom English is not their first language. English has become the dominant international language and increasing numbers of children from non-English speaking countries around the world are now required to study in schools where English is the language of instruction. These students, who are being taught in English but for whom English is not their first language, are often referred to as English Language Learners (ELLs), while students who live in English-speaking countries and who come from English-speaking homes are usually referred to as native English speakers. Although, learning in a different language offers diverse prospects, it is not devoid of challenges. Some students struggle to overcome the language barrier and consequently face problems in literacy acquisition. In addition, while the research on the identification of, and interventions for, reading difficulties in native English speaking students is prevalent, the research on reading problems in ELLs is limited (Rosenman & Madelaine, 2012).

Research on reading in native English speakers emphasizes importance of the comprehensive model of the reading acquisition process such as the phonological processing skills that have been shown to be key pre-requisites to efficient word reading, in turn, leading to reading comprehension (Ehri et al., 2001; Share & Stanovich, 1995; Wagner & Torgesen, 1987). The key role that phonological processing problems play in causing and contributing to reading difficulty is now virtually undisputed in the research literature (Spear-Swerling, 2004). However, research on reading difficulties in ELLs is relatively new and researchers have only recently begun to examine whether the same model of reading acquisition for native English-speaking children applies to ELLs as well (August & Shanahan, 2006;
Rosenman & Madelaine, 2012; Woolley, 2010). Therefore, it is important to look at the acquisition of the various components that make up reading including phonological awareness, decoding, and comprehension in students for whom English is a second language (Akamatsu, 2003).

1.2 The Research Problem

Exploring the component skills that contribute to reading across various groups of English Language Learners could prove useful in assisting children with reading difficulties, particularly in a developing country such as Bhutan. In Bhutanese schools, English is the medium of instruction for the learning of all subjects. The only subject not taught in English is Dzongkha, the native and national language of Bhutan. Bhutanese students who have problems in speaking, reading and writing in English typically have problems in other areas of learning. Furthermore, in Bhutanese schools, below average performance and poor exam results are often interpreted by teachers as laziness on the part of the student rather than a language problem or learning difficulty. In most cases, if a student cannot achieve the expected level for a certain grade he/she is asked to repeat the same grade for one or sometimes several years (Anderson, Jimerson, & Whipple, 2005).

The large number of students repeating grades and dropping out of school has emerged as a major concern for Bhutan. Data from UNESCO (Singh & Pessoa, 2003) relating to grade retention in South and East Asia indicate that the countries with the highest repetition rates are Bhutan and Macao (11%, each), followed by Nepal (9%) and the Islamic Republic of Iran (8%). According to the efficiency indicators of the Bhutan Ministry of Education, in 2008 there were a total of 9,204 students repeating various grades and 4,064 students who left school before the end of year 10. This represents an overall total of 10% of Bhutanese students who were experiencing difficulties or dropping out of school altogether (General Statistics, 2008). This problem has also been observed in subsequent annual
education reports (General Statistics, 2008, 2009, 2010). Grade Four has the highest repetition and dropout rates. In 2010, out of the total of 16,363 students enrolled in Grade Four in the country there were 1,347 repeaters and 460 who dropped out of school (Bhutan Annual Education Statistics, 2011). In other words, nearly 13% of Grade Four students did not graduate to the next year level. It is commonly observed in native English speaking countries that reading difficulties are often identified in Grade Four as this is when the reading demands become greater and children start to demonstrate more generalised learning difficulties in other subjects (Kame'enui, Adams, & Lyon, 1996). However, the concept of reading difficulties or learning disabilities is poorly understood in Bhutan, perhaps because this additional need is not noticeable like physical handicaps, and so is most unlikely to receive support of any kind. Although there has been some recent progress in achieving the goal of the Education Ministry of Bhutan’s Tenth Plan to reduce grade repetition and school drop-out rates, repetition in grades Four and Seven remains undesirably high (Bhutan Annual Education Statistics, 2011) and no studies to understand possible reasons for the spike in repetition and dropout in Grade Four have yet been conducted (Bhutan Annual Education Statistics, 2011).

Given the lack of professionally qualified teachers in Bhutan to deliver education to children with special needs, and a lack of adequate curricula and specific skills programmes for children who have to repeat grades (Bowe, 2004; Tejeda-Delgado, 2009), it is important to examine whether reading difficulties may be one of the underlying reasons for the high repetition rate in fourth grade students. The main aim of the present study was to examine the reading profiles of Bhutanese students who were repeating fourth grade to see whether they were experiencing greater difficulty with reading than their successfully graduated peers and their current classmates.
This chapter of introduction describes the fundamental elements related to the research questions of this PhD research. First, the context and background of the study will be explained through a brief overview of the context of Bhutan and its education system. Second, the medium of English instruction in Bhutan and the high rates of students repeating Grade Four are explained. Third, the conceptual framework for the study will be introduced with some research background on reading and phonological processing skills. Fourth, the potential significance of the research and implications for the practice of teaching are discussed as a justification for this study. Finally, the structure and sequence of the thesis will be described.

1.3 Background to the Research

Bhutan is a small Himalayan kingdom between Tibet (China) in the north and India in the south. Bhutan covers an approximate area of 38,394 square kilometres, and measures roughly 170 km north to south and 300 km east to west (Statistical Year Book of Bhutan, 2009). The population of the country is estimated at 671,083 (Statistical Year Book of Bhutan, 2009). It is the only country in the world that has Gross National Happiness (GNH) as a constitutional aim (Ura & Galay, 2004). GNH measures people’s quality of life and helps ensure the integration of material development and psychological well-being (Ura & Galay, 2004). Bhutan has been ranked as the happiest country in Asia, and the eighth happiest country in the world (Business Week, 2006, October).

Bhutan has adopted a seven year primary education cycle, followed by six years of secondary education leading to tertiary education. The basic education level has been defined to include eleven years of free education, that is, seven years of primary plus four years of lower and middle secondary or until the end of Grade Ten. It is important to know how students in Bhutan learn to read in English because they are taught in English and have to learn to read, write and speak in a second language in order to access the curriculum.
Education has contributed significantly to Bhutan’s rapid development, in line with its philosophy of GNH. Being educated in English has enabled Bhutanese students to study in all parts of the world, earning degrees in many areas from accounting to medicine to engineering, and to return to Bhutan to apply their knowledge and skills. However, the high repetition and drop-out rates in schools are of great concern in a country dedicated to the happiness of its people. Research shows that children who cannot read or who have difficulties reading often have low opinions of themselves and their abilities which may undermine their confidence and motivation (Ziolkowska, 2007). Consequently, reading is important for a child’s social and emotional development. For example, a child who cannot read and participate in related classroom discussions at school may feel inadequate and experience problems with self-esteem (Lorence & Dworkin, 2006). Furthermore, a child who struggles with reading can develop a poor attitude towards school and ongoing academic and social difficulties are associated with higher drop-out rates (Colthearta & Priorb, 2006; Leckrone, & Griffith, 2006).

1.4 Rationale of the Study

By the time children reach fourth grade, if efficient reading skills are not established the path is impeded to almost every subject they encounter in their school life because schooling gets more complex and demands higher-order thinking skills (Kame'enui, et al., 1996). In addition, there is strong evidence that most students who fall behind in reading never catch up with their peers to become fluent readers (Carnine, Silbert, Kame'enui, Tarver, & Jungjohann, 2006; Torgesen, 2000). They are likely to fall further and further behind in school, become frustrated, and eventually drop out at much higher rates than their classmates (Kame'enui, et al., 1996). On the other hand, 90 to 95% of children with reading difficulties can overcome their difficulties if they are identified early (August & Shanahan, 2006; Case & Taylor, 2005) and receive effective instruction (Gibbon, 2008) or appropriate assistance at an
early age (Torgesen, 2000). Intervention for reading difficulties can make a difference in addressing learning underachievement, grade repetition, school dropouts, drug abuse and rising crime rates among young people (Bock, 1998; Leckrone & Griffith, 2006; Mims, Stock, & Phinizy, 2001). To facilitate the educational success of all students many fundamental skills need to be taught early. Reading in English is clearly among these essential skills as it influences all subsequent knowledge acquisition for children in Bhutanese schools (Jimerson & Kaufman, 2003).

The rationale for selecting Grade Four as a population in which to explore factors associated with reading difficulty is because in Bhutan, Grade Four has the highest repetition rate (Annual Education Statistics of Bhutan, 2011). Unfortunately, literacy difficulties impact on other areas as students advance through school and are exposed progressively to more complex concepts and courses (Torgesen & Hudson, 2006). Further, according to a report from the Office of English Language Acquisition in the U.S., identification and provision of services are exacerbated for ELLs because identification of ELLs with learning difficulties increases in Grades Four and Six (McCardle, Mele-McCarthy, Cutting, Leos, & D'Emilio, 2005). This is about two to three years after the time at which most English-language-proficient children with learning difficulties are identified. Therefore, attention should be given to the means of identifying children who need additional support at later stages of reading development, and to the means of determining the most important factors which contribute to poor reading.

1.5 Focus of the Study

Most research on reading supports the view that phonological processing skills are essential for early reading success. However, previous research has paid more attention to early reading skills and less attention has been focused on older readers, particularly those for whom English is a second language and who have to access the school curriculum in English.
In the case of struggling readers in Grade Four in Bhutanese schools, where students are required in learn in English, poor exam results are often interpreted as laziness by teachers or as a lack of ability on the part of the student rather than a reading or learning difficulty. The current study was conducted to examine how phonological skills are related to reading skills in primary age Bhutanese children and to compare the reading performance and subjective well-being of repeating Grade Four children with their current and previous peers. Research on reading supports the relationships between phonological skills, word level reading and reading comprehension but there is a need to examine these relationships in children for whom English is a second language. It was also important to investigate student satisfaction with school and feelings of well-being as these aspects also affect academic performance and students repeating a grade may be at greater risk of experiencing social isolation.

1.6 Conceptual Framework

The conceptual framework for this research is that reading comprehension is the ultimate goal of successful reading and is supported by two main types of word-level reading (i.e., word recognition and word attack), and that word-level reading is supported by phonological processing skills.

1.6.1 Reading comprehension.

Reading comprehension refers to the ability to obtain meaning from words and to interpret the meaning of sentences and longer text (Neufeld, 2005). There is an abundance of research evidence confirming the relationships between phonological skills, word level reading and reading comprehension in English speakers (Betourne & Friel-Patti, 2003), but there is a need to examine these relationships in children for whom English is a second language. Research shows that word level reading or word identification is critical to reading comprehension (Floyd, Keith, Taub, & McGrew, 2007; Nation & Norbury, 2005).
1.6.2 Word level reading.

The underlying components that contribute to reading competence are word recognition and word attack skills. Word recognition refers to the capacity to automatically retrieve the spoken equivalent of a written word that has been seen before and has been stored in a mental dictionary (or lexicon). Efficient word recognition is the foundation of reading success - fluency and reading comprehension are dependent on it (Snowling & Hulme, 2006). Word attack, or decoding, is a skill that requires a reader to sound out unfamiliar words by making use of letter-to-sound knowledge. Poor readers have trouble sounding out unknown words if they have inadequate phonological awareness (McNeil & Johnston, 2004).

According to Ricketts, Bishop, and Nation (2008), poor readers have difficulty in word identification, especially words with irregular spelling patterns. This problem occurs when the students don’t have much reading experience and is exacerbated by a lack of effective decoding skills (Westwood, 2008a). Word recognition and word attack skills are dependent on phonological processing skills.

1.6.3 Phonological processing skills.

Among the phonological processing skills, phonological awareness (the structure and composition of spoken words that are made up of individual sounds and combinations of sounds) is the most thoroughly researched and accentuated skill (Wagner & Torgesen, 1987). The growing consensus in research is that difficulties in reading and spelling stem from weaknesses in alphabetic and phonological coding (Vellutino, Fletcher, Snowling, & Scanlon, 2004). Many researchers have reported that poor readers perform below the level of normal readers on phonological awareness tasks (Hulme, Snowling, Caravolas, & Carroll, 2005). When readers have difficulties in acquiring phonological awareness, in many cases, their skill in alphabetical coding is weak (Griffiths & Snowling, 2002; Johnston & Morrison, 2007; Westwood, 2008).
In addition, two other phonological processes are reported to be necessary for reading competence in addition to phonological awareness. These processes include rapid automatized naming (Wolf, Bowers, & Biddle, 2000) and verbal working memory (VWM) (Swanson, Howard, & Sáez, 2006b). Rapid automatized naming (RAN) is the retrieval process that refers to the speed at which one can produce a verbal label for familiar visual stimuli (Uhry & Clark, 2005). This ability of being able to retrieve information about sounds, letters, and words is necessary to become a proficient reader. When a reader is able to retrieve a word instantly and automatically from memory that means the word is available within a reader’s sight vocabulary, which aids in reading fluency. Inefficient retrieval processes lead to poor reading fluency which can in turn cause reading comprehension problems (National Reading Panel-NRP, 2000).

The third phonological processing skill, verbal working memory (VWM) is the ability to store, analyse, articulate and rehearse verbal material within a short period of time, as in sentence recall (Gathercole & Baddeley, 1993). Studies on reading have found that reading comprehension also depends on verbal working memory (Cain, Oakhill, & Bryant, 2004; Swanson, et al., 2006b).

1.7 Aims of the Study

The first aim of the present study was to examine whether the model of reading and the underlying phonological skills that has been established for native English speaking beginning readers was also evident in Bhutanese students reading in English as a second language. In order to carry out the first aim, the relative influences of the different types of phonological processing skills on the two types of word level reading (word recognition and word attack) were examined. The indirect effect of phonological processing skills on reading comprehension through word level reading was also checked. The second aim of the study was to explore whether students who were repeating Grade Four had poorer reading skills
than their peers. This second aim was achieved by comparing the reading skills of Grade Four Repeating students (Grade Four Repeaters) with their current peers who were in grade four for the first time (Grade Four) and previous peers (Grade Five students). The third aim was to explore whether Grade Four repeaters were experiencing greater social and emotional problems than students who had not been retained. This third aim was carried out by comparing the responses across the three groups of students on a subjective well-being scale.

1.8 Research Questions

In order to achieve the stated objectives of the study, and following a review and analysis of the relevant literature, the specific research questions are:

1. What are the relationships among phonological processing skills, reading skills and subjective well-being in Grade Four and Grade Five Bhutanese Children?

2. What contributions do phonological processing skills make to reading skills in Grade Four and Grade Five Bhutanese children?

3. Are there Significant differences between Grade Four Repeaters, Grade Four and Grade Five students in phonological processing skills, reading skills and subjective well-being?

1.9 Significance of the Present Study

This study will investigate whether phonological processing skills contribute to word-level reading and reading comprehension in a sample of Grade Four and Grade Five ELL children. The study also examines whether difficulties in phonological processing or reading skills may be associated with fourth grade children repeating the same grade. This study will help to determine what skills are important for older children who are at risk of poor reading performance. This study will attempt to identify factors which may contribute to poor reading skills and which can therefore be a target for intervention. The research will have strong implications for ELL instruction in general and Bhutanese primary students in particular.
1.10 The Structure of the Thesis

The thesis contains six chapters as shown in Figure 1.1. The logical connections between each chapter are summarized.
The Structure of the Thesis

Figure 1.1 The Structure of the Thesis
Chapter one, as an introduction to the research, identifies the research problem in the social and cultural context of learning in English in schools in Bhutan. The purpose of the first chapter has been to outline the aims of the research, to define the research questions, to point out the potential significance of the research, and to describe the framework of the study.

Chapter Two will present a critical literature review. The review begins with a brief discussion on reading and the three aspects of reading skills that are important for successful reading (i.e., word recognition, word attack and reading comprehension). Following this, the three types of phonological processing skills (i.e., phonological awareness, rapid naming, and verbal working memory) and their relationship to reading are discussed. Then the review will explore the reading problems confronting English Language Learners (ELLs). The final section discusses the effects of school retention and subjective well-being of students.

Chapter Three describes the research design and the process of obtaining the data required to answer the research questions, beginning with an explanation of the rationale for undertaking a mixed methods design. It also outlines the details of the sampling strategies and research instruments, explains the ethics clearance and validation processes, and concludes with an overview of the plan for the data analysis.

Chapter Four and Chapter Five will report the outcomes of the two aspects of field work. Chapter Four will focus on the quantitative results from the individual assessment of students on phonological processing skills and reading measures as well as their ratings of subjective wellbeing based on the Children’s Overall Satisfaction with Schooling Scale (COSSS). Chapter Five will concentrate on the findings from students’ responses to open ended questions on the COSSS.

Chapter Six provides a discussion of the research findings reported in the previous two chapters and is structured around the research questions followed by a discussion of the
contribution of this research to existing knowledge and practice. The chapter concludes with a discussion of the limitations and implications of the study and offers some recommendations and suggestions for future research.

1.11 Summary

This chapter has introduced the background information relevant to the current study. It has provided an overview of the thesis and justified the aims of the research study. The next chapter will focus on a critical review of the literature in the areas of reading measures, phonological processing skills, English language learners, grade retention, and the subjective well-being of students.
Chapter 2: Literature Review

The first section of the literature review begins with a brief discussion on reading and the three aspects of reading skills that are important for successful reading (i.e., word recognition, word attack and reading comprehension). Following this, the three types of phonological processing skills (i.e., phonological awareness, rapid naming, and verbal working memory) and their relationship to reading are discussed. Then the review describes the reading problems confronting ELLs. The final section discusses the effects of school retention and the subjective well-being of students.

2.1 Introduction

In order to be able to obtain meaning from reading, it is essential for learners to know how to convert (decode) the written representation (letters of the word) on a page into sounds (spoken representation). Previous research has given much attention to the skills that young children need to become skilled readers. However, less emphasis has been placed on examining reading difficulties in older children and those who are taught to read in English, but for whom English is a second language. Students in Bhutan have to learn to read, write and speak in a second language (English) to access the curriculum. Most Bhutanese students come from rural backgrounds where English is not spoken at home. In most cases, if students cannot achieve the expected level for a certain grade they are asked to repeat the same grade for one or several years. Bhutanese teachers typically interpret below average performance and poor exam results as laziness, or lack of ability on the part of the student, rather than a reading or learning difficulty.

The present study was conducted to examine how phonological skills are related to reading skills in primary age Bhutanese children and to compare the reading performance and well-being of repeating Grade Four children with their previous and current peers. The
conceptual framework for this research is that reading comprehension is supported by the two main types of word-level reading (i.e., word recognition and word attack), and that word-level reading is supported by phonological processing skills. There is an abundance of research evidence confirming the relationships between phonological skills, word level reading and reading comprehension in English speakers (Betourne & Friel-Patti, 2003; Griffiths & Snowling, 2002; Johnston & Morrrison, 2007; Westwood, 2008; Wise et al., 2007), but there is a need to examine these relationships in children for whom English is a second language. It is also evident from research that students with reading problems, including ELLs, are more likely to repeat a grade at school (National Association of School Psychologists, 2011). It is also necessary to investigate whether the reading skills of repeating Grade Four students in Bhutan are weaker than their current and previous peers so that appropriate instructional and intervention programs can be developed. Because students repeating a grade may be at risk of experiencing social isolation, student well-being was also investigated.

2.2 Importance of Reading

Reading is a crucial skill because it helps us to learn as well as assist in the development of a positive self-image. It is difficult to live in the information age if one cannot read (Ogilvy, 2006). Research shows that children who cannot read or who have difficulties reading often have low opinions of themselves and their abilities which may undermine their confidence and motivation (Ziolkowska, 2007). Further, reading skills are important not only in the language arts, but in all the other subjects such as being able to read a map in social studies, following laboratory procedures in science, and problem-solving in maths.

Similarly, reading is important for social skills. For example, a child who cannot read and participate in the classroom discussions at school while everyone else in the class can
may feel inadequate and may experience self-esteem problems (Lorence & Dworkin, 2006). Furthermore, a child who struggles with reading can develop a poor attitude about school. Cobb (2001) argues that "children who continue to struggle with reading after grade three will often develop negative attitudes toward reading, may suffer from low self-esteem, and will be likely to internalize faulty literacy habits" (p. 155).

By the time children get to fourth grade, if efficient reading skills are not established the path is blocked to almost every subject they encounter in their school life since the content in most subjects is presented in a written form (Dally, 2006). There is strong evidence that most students who fall behind in reading skills never catch up with their peers to become fluent readers (Carnine, et al., 2006; Francis, Rivera, Lesaux, Kieffer, & Rivera, 2006). Such students are at risk of becoming frustrated and of dropping out of school (Coltheart & Prior, 2006). All things considered, reading is important for school success and it is therefore essential to develop students’ reading skills.

2.3 Views of Reading

According to most researchers, reading does not develop naturally (Stanovich, 2000). Research on reading reveals two views: the Simple View of Reading which sees reading from a cognitive psychological perspective (Hoover & Gough, 1990; Myers & Botting, 2008; Tan, Wheldall, Madelaine, & Lee, 2007) and the social and cultural perspective view of reading. While the social and cultural perspective may help teachers understand how learners’ environmental background, beliefs, expectations and value systems impact upon literacy practices and motivation (Luke & Carrington, 2002), in this study the Simple View of Reading perspective is emphasised. This is because this view is more applicable to teaching and intervention approaches for poor readers (Tan, et al., 2007; Wren & Biggers, 2003).

The Simple View of Reading argues that reading involves two essential components which are decoding and comprehension (Hoover & Gough, 1990; Myers & Botting, 2008;
Decoding is the process of producing the spoken equivalent of a written word and in the early stages of reading, decoding depends on the acquisition of phonological skills and understanding of the relationships between letters and their respective sounds. Beginning readers who have good phonological skills can recognize familiar words quickly and make sense of words they haven’t seen before. Decoding which consists of two subcomponents, accuracy and automaticity, is important for reading fluency. Being able to decode with accuracy and automaticity will enhance fluency in word recognition (Grabe, 2004; Kuhn & Stahl, 2003). If a child cannot decode with accuracy and automaticity it will interfere with their ability to understand what they read because if the flow of reading is constantly interrupted due to effortful word decoding then reading comprehension is compromised (Carlise & Rice, 2002; Nation & Norbury, 2005; Westwood, 2008a).

To learn to decode and read English text, children must be aware that spoken words are composed of individual sound parts. This awareness is essential since learning to read requires making connections between written words and speech sounds in order to get meaning out of reading (Donnel, 2007; Snowling & Hulme, 2006). However, if beginning readers have difficulty perceiving the sounds in spoken words (e.g., if they cannot hear the /at/ sound in sat and mat and cannot perceive that the difference between these words lies in the first sound), they will have difficulty decoding or sounding out new words. This difficulty will affect accuracy in word identification and extend to the development of reading fluency, resulting in poor reading comprehension. Substantial evidence shows that children with reading difficulties need to learn effective strategies for accurately and efficiently identifying words in print and for comprehending text (Pressley, 2006; Snowling & Hulme, 2006; Rickets, Nation & Bishop, 2007; Woolley, 2010).
2.4 Components of Reading

According to numerous researchers comprehension is the ultimate goal of reading and the underlying components that contribute to reading comprehension are word recognition and word attack skills, which are in turn dependent on phonological processing skills (Adams, 1990; Nation & Norbury, 2005; Reed & Vaughn, 2012). The relationships between these four major components of reading are discussed in the next section.

2.4.1 Reading comprehension.

Reading comprehension refers to the ability to obtain meaning from words and to interpret the meaning of sentences and longer text (Neufeld, 2005). Comprehension involves understanding the text’s subject matter, narrative and syntax, in addition to the ability to recognize familiar words and decode those that are unfamiliar. Therefore, in addition to good word recognition skills, readers need to have good general language comprehension as well as the ability to accurately and fluently identify words in print for effective comprehension of written material. For many poor readers, comprehension difficulties are caused by accuracy and fluency problems (Chan & Dally, 2000; Myers & Botting, 2008; Nation & Norbury, 2005; Westwood, 2008a). Children in this group often have average to above average general verbal or language comprehension skills, but their ability to comprehend text is hampered by their limited ability to read words accurately and fluently. When their word-level reading problems are remediated, their reading comprehension skills tend to improve to a level that is more consistent with their general verbal skills (Snowling, 2000; Torgesen, Alexander, Wagner, Rashotte, & et al., 2001; Westwood, 2008a).

Reading comprehension is complex because it involves a broad range of abilities including cognitive and linguistic abilities (McCardle, et al., 2005). It is both a cognitive and an affective activity (Torgesen, 2000), which means that readers need to have an active thinking process in order to constantly monitor their reading by constructing meaning. This
requires the reader to be able to understand text information beyond factual information (for
example, names of characters, places and events), but also to be inferring details (for
example, to determine what may be occurring when the information is not explicitly stated in
the text) (Westwood, 2008b). Research shows that other factors including good vocabulary
knowledge, good subject knowledge, and adequate use of reading strategies, good verbal
reasoning, and good recall of information after reading are essential for comprehending text
(Cain & Oakhill, 2006; Chan & Dally, 2001; Kemple et al., 2008; Pressley, 2006).

Students who are good comprehenders have adequate word recognition and cognitive
skills (Floyd, et al., 2007). They not only read with accuracy and fluency, but they also use
cognitive skills such as visualising scenes, actions, and characters. Good comprehenders
constantly monitor their reading (metacognition) by checking the relevancy of the
information, answering questions, checking if given facts are true and evaluating their
understanding as they read, for example, by pausing, re-reading a particular sentence, looking
up the word meaning in a dictionary, summarising, forming opinions, drawing conclusions
and anticipating what may come next (Cross & Paris, 1988; Smith, Borkowski, & Whitman,
2008). On the other hand, poor readers tend not to use these metacognitive skills- in other
words they do not monitor their reading. They are not careful with what they are reading and
they do not check if what they are reading makes sense (Cross & Paris, 1988; Smith, et al.,
2008). In summary, poor comprehenders typically do not make attempts to self-correct by re-
reading a particular sentence or paragraph or by looking up word meanings (Sencibaugh,
2007).

2.4.2 Word recognition.

Word recognition (sometimes used synonymously with word identification) is the
process students use to pronounce unknown words and to identify word meanings within the
context of a sentence. It also includes phonic analysis, use of word parts (structure of words),
and the awareness of how to use context clues. Poor readers often resort to guessing words by sometimes substituting a similar-looking known word for the target word (e.g., reading \textit{marrying} for \textit{marriage} or \textit{immortality} for \textit{immorality}). If they are reading a text on a familiar topic, readers can sometimes correct their mistakes when they come to the end of the sentence or the end of the paragraph. It is fortunate when learners are able to self-correct based on context, but guessing is an inefficient strategy and is extremely unreliable, especially when reading unfamiliar topics (Westwood, 2008b). Resorting to letter by letter decoding strategies proves useful only if readers have good phonic skills (especially blending skills). Nevertheless, letter by letter decoding makes the decoding process very slow for poor readers, which in turn overloads their working memory and results in poor comprehension. This problem is well illustrated by Chan and Dally (2000, p.165):

\begin{quote}
...good readers become fast and accurate at recognizing words without context while poor readers often remain dependent on context. The use of context to identify unfamiliar words and the labour-intensive efforts of poor readers to decode words, due to deficits in either phonological or orthographic processing, tax the limited resources of working memory. When the lower-level skills of word recognition are not automatic less attention is available for comprehending the meaning of text. The problem of reading fluency (demands on working memory to hold the words of a sentence long enough to derive its meaning) and effortful recognition of unfamiliar words compromise higher order processes such as comprehension and learning from text.
\end{quote}

Therefore, efficient word recognition is the foundation of reading success - fluency and reading comprehension are dependent on it (Snowling & Hulme, 2006). Poor readers are characterized as slower than normal in developing a vocabulary of words they can read fluently and automatically. Ultimately, rapid word recognition skills allow readers to focus on the meaning of what they are reading, rather than overtaxing their working memory by trying to identify the words (Adams, 1990).
Poor readers are not skilled at rapid word recognition, particularly in identifying words with irregular spelling patterns (Ricketts, et al., 2008). Irregular words which cannot be decoded by using letter to sound correspondence have to be learnt as a whole unit known as a ‘sight word’ (Westwood, 2008a). Research has demonstrated that one of the primary factors that limit poor readers’ fluency is the high proportion of words in primary grade texts that the reader cannot recognize at a single glance (Jenkins, Fuchs, van den Broek, Espin, & Deno, 2003; Norman & Wood, 2008; Torgesen & Hudson, 2006). This is in part due to lack of reading experience and effective decoding strategies. Resorting to guessing the word from context can be unreliable, and trying to decode the word letter by letter without skills in blending sounds can often make the decoding process slow and inaccurate. This overloads the working memory, which impairs comprehension (Jenkins & O’Connor, 2001). While being able to read words that are familiar to one’s environment, it is also important to engage in decoding unfamiliar words or word attack processes.

2.4.3 Word attack.

Word attack, or decoding, is a skill that requires a reader to sound out unfamiliar words by making use of letter-to-sound knowledge. Word attack strategies help students decode, pronounce, and understand unfamiliar words. This helps children to become independent readers when they utilize knowledge about root words and, from there, to develop an understanding of unfamiliar words.

Poor readers have trouble sounding out unknown words if they have inadequate decoding strategies (Ricketts et al., 2008). In a study conducted by McNiel and Johnston (2004), it was found that poor readers were slower than a control group of average readers to learn to read a set of non-words accurately. Thus, the poor readers were slower to establish phonological representations for the non-words. Decoding unfamiliar words also referred to as phonological recoding, is important for reading accuracy and poor readers in late
elementary school typically have problems with reading accuracy (Stanovich & Siegel, 1994; Torgesen & Hudson, 2006). Inefficient word attack skills can impede comprehension because the extended time needed to decode single words increases the burden on working memory which impairs comprehension of the materials that have been read (Armbruster, Lehr, & Osborn, 2001).

2.5 Phonological Processing Skills

As described above, when a beginning reader comes across an unknown word, he or she is faced with some interrelated tasks in order to reliably recognize the word. For example, the reader has first to be able to recognize all the letters, know the sounds of letters or combination of letters, and be able to differentiate these from other letters and sounds which may be phonetically confusing. Then, all of the phonemes (individual sounds) must be stored in working memory in their exact order of presentation, and the entire set of phonemes in working memory has to be blended together to form a phonological representation or spoken version of the whole word. Finally, this phonological representation of the word is used to gain access to the meaning of the word. To be able to accomplish all the aforementioned tasks, a reader requires phonological processing skills (Bishop & League, 2006; Castles & Coltheart, 2004; Hulme, Muter, Snowling, & Stevenson, 2004; Vellutino, et al., 2004).

The phonological system in language refers to our ability to hear and discriminate the smallest sounds (phonemes) in words. This awareness of the individual sounds in words is fundamental in learning to read and difficulty with processing sounds (phonological processing) is a reason why some children have difficulty learning to read (Fletcher, Lyon, Fuchs, & Barnes, 2007). Phonological processing skills, which include phonological awareness, verbal working memory, and verbal retrieval, have all been found to be related to reading development (Daly, Chafouleas, & Skinner, 2005; Torgesen & Mathes, 2000; Vukovic & Siegal, 2006; Wolf & Bowers, 1999). A student with poor phonological
processing may have difficulty in one of the many different discrimination tasks involving speech sounds in words. This difficulty can be detected through errors in speech production or errors in spoken language. In school, such students often have difficulty associating speech sounds to letters when reading and spelling. Many researchers agree that the presence of phonological awareness is the assurance of a good reader, whereas its absence is one of the more consistent characteristics of a poor reader (Daly, et al., 2005; Vellutino, et al., 2004).

2.5.1 Phonological awareness.

Phonological awareness refers to the ability to produce and discriminate the specific sounds of a given language or the phonological system of a language. It means the general awareness that words are composed of constituent sounds and involves the ability to perceive, understand and manipulate the sounds within words (Ehri, 2004; Storch & Whitehurst, 2002). It is essential for beginning readers to understand that words are made up of sounds that can be sequenced, segmented, blended and rearranged. If they are not aware of that, then they are unlikely to learn the mapping of the letter-sound patterns and may face difficulties when they come across unfamiliar words. Phonological awareness is one of the key essentials for the development of automatic word recognition. Familiarities due to repeated matchings of correct sound and letter patterns help to build up the young reader’s vocabulary and their mental lexicon or dictionary of words in long term memory (Torgesen, et al., 2001). This in turn leads to automatic word recognition and reading mastery. Lack of automaticity will prevent students from becoming independent readers and will impact on their reading comprehension.

Phonological awareness has been advocated as a critical component for learning any alphabetic writing system that can facilitate reading across languages (Ehri, 2004; Troia, 2004). It is considered important regardless of the relevant language and writing system (Deacon, Wade-Woolley, & Kirby, 2009). Phonological awareness can appear to develop
naturally in some children through experience with oral language games, such as rhyme and exposure to written language. For others however, phonological awareness requires explicit and intense teaching.

At a general level, phonological awareness involves an awareness that words can be broken up into syllables (hos-pit-al). Syllables can then be segmented into two parts: the onset which consists of the initial consonant or consonant blend, and the rime which consists of the vowel and any final consonants. Thus, in the word stop, /st/ is the onset and /op/ is the rime. The capacity to blend an onset and rime to form a word or to segment a spoken word into its onset and rime division predicts early progress in learning to read (Hulme, et al., 2004). The capacity to manipulate phonemes in words is an even stronger predictor of later reading success. Also, the specific understanding that each letter within a word represents an individual sound or phoneme is known as phonemic awareness (Snowling & Hulme, 2006).

Phonological awareness is the most potent predictor of the ease of initial reading acquisition and subsequent reading progress (Coyne, Kame'enui, Simmons, & Harn, 2004; Nichols, Rupley, Rickelman, & Algozzine, 2004). Many studies have shown that children with reading difficulties have a deficit in phonological awareness skills (Dally, 2006; McCardle, et al., 2005; Torgesen, 1999; Wise et al., 2010). When students lack phonological awareness, they will have little understanding about how the alphabet is generated and may lack decoding skills, which are essential for identifying words which are not familiar to them. However, teaching students how to listen to different sounds in a given word may help them to overcome their deficit in phonological skills for decoding words (Ehri, Dreyer, Flugman, & Gross, 2007; Nichols, et al., 2004), including explicit and direct instruction in letter-sound correspondence (Wise, et al., 2010).

Across languages phonological awareness skills develop in a predictable pattern progressing from larger to smaller units of sound (that is, from words to syllables to onsets
and rimes to phonemes), (Lonigan, Burgess, & Anthony, 2000). Tasks used to demonstrate awareness of these sounds have their own developmental sequence. For example, tasks involving the detection of similar or dissimilar sounds (e.g., oddity tasks) are mastered before tasks requiring the manipulation of sounds (e.g., deletion tasks), and blending tasks are mastered before segmenting tasks (Anthony, Lonigan, Driscoll, Phillips, & Burgess, 2003). Blending, being a phonological synthesis task is considered to be relatively easier than analysis tasks such as deletion since the latter task requires segmenting a word into its constituent sound units (Yopp, 1998). However, it should be noted that the acquisition of phonological awareness skills does not progress in a linear sequence; rather, children continue to refine skills they have acquired while they learn new skills (Anthony, et al., 2003).

Studies have also shown that training in phonological awareness has an impact on reading acquisition (Coyne, et al., 2004; Nichols, et al., 2004). This is particularly so when phonological awareness instruction is combined with letters. However, whilst phonological awareness is seen by many to be an essential ingredient of early reading instruction, it is not sufficient on its own to enable children to read (Nation & Snowling, 2004). According to researchers such as de Jong (2011) and Frost, Madsbjerg, Niedersøe, Olofsson, &Sørensen (2005), there are other phonological processes that are reported to be necessary for reading competence in addition to phonological awareness. These include rapid automatized naming (Wolf, et al., 2000) and verbal working memory (Swanson, et al., 2006b).

2.5.2 Rapid automatized naming.

In addition to poor phonological awareness, inefficient retrieval processes are thought to be another source of reading difficulties (Wolf, et al., 2000). Retrieval processes refers to the speed at which one can produce a verbal label for familiar visual stimuli (Uhry & Clark, 2005). This skill is typically measured by rapid automatized naming (RAN) tasks which
require the person to name as quickly as possible visually presented familiar symbols such as letters, digits, colours, and objects (Lervåg & Hulme, 2009). This skill mirrors the efficient retrieval of phonological representations from long-term memory in reading (Denckla & Cutting, 1999; Lervåg & Hulme, 2009). Research shows that children's performance on RAN tasks correlates with variations in early reading skills both concurrently and longitudinally, even after variations in phonological awareness, verbal IQ, and earlier reading skills have been accounted for (Compton, 2003; Parrila, Kirby, & McQuarrie, 2004; Schatschneider, Fletcher, Francis, Carlson, & Foorman, 2004). This ability of being able to retrieve information about sounds, letters, and words is necessary to become a proficient reader. This is supported by research where differences between good and poor readers have been consistently found on tasks that require rapid retrieval of names for common, serially presented letters, numbers, colours, and simple objects. When a reader is able to retrieve a word instantly and automatically from memory that means the word is available within a reader’s sight vocabulary, which aids in reading fluency. Inefficient retrieval processes lead to poor reading fluency which can in turn cause reading comprehension problems (National Reading Panel-NRP, 2000).

Some researchers suggest that rapid naming speed shows long term predictive power for measuring reading proficiency which is independent of phonological awareness. Other researchers such as Neuhaus and Swank (2002), Wolf (1997) and Wolf et al., (2000) argue that phonological awareness and rapid naming are separate cognitive variables. Wolf (2000) suggests a double deficit theory of reading disability by reasoning that in many disabled readers there are common co-occurrences of deficits in rapid naming and phonological awareness. While some researchers support her argument (Schatschneider, et al., 2004), other researchers highlight the need for studies that more clearly explicate how naming speed and phonological awareness may affect different aspects of literacy (Vukovic & Siegel, 2006).
Despite debate about the independence and relative importance of rapid automatized naming, performance on RAN tasks has been shown to distinguish average from poor readers during childhood even after statistically controlling for IQ (Cornwall, 1992), reading experience and articulation rate and phonological awareness (Kirby, Parrila, & Pfeiffer, 2003; Savage, 2006).

2.5.3 Verbal working memory (VWM).

Verbal working memory is defined as a processing resource of limited capacity, involved in the preservation of information while processing the same or other information (Unsworth & Engle, 2007). It is the ability to store, analyse, articulate and rehearse verbal material within a short period of time (Gathercole & Baddeley, 1993), as in sentence recall. To measure verbal working memory, tasks that assess an individual’s ability to maintain task-relevant information in an active state and regulate controlled processing are carried out. For example, an individual performing verbal working memory tasks is required to remember some task elements but ignore other elements when they complete task-relevant operations. Studies on reading have found that reading comprehension depends very much on verbal working memory (Cain, et al., 2004; Swanson, et al., 2006b). These studies suggest that verbal working memory plays an important role because it holds recent processed information to make connections to the latest input of information and maintains the gist of information for the construction of an overall representation of text.

Verbal working memory has been linked to reading comprehension difficulties independent of word recognition difficulties (Conway, Kane, & Engle, 2003; Oakhill, Cain, & Bryant, 2003; Swanson, et al., 2006b). Phonological working memory skills including working memory capacity is often accessed through digit span tasks and verbal rehearsal speed is often accessed by speaking rate (Alloway & Gathercole, 2005; Cain, et al., 2004).
Research on reading acquisition processes for Native English speakers is widespread and the role that phonological processing plays in contributing to reading difficulty is now virtually undisputed in the research literature. However, research on reading difficulties in ELLs is relatively new and is quite limited.

2.6 English Language Learners (ELLs)

In the United States, almost 20% of students come from a home where a language other than English is spoken (Planty et al., 2009). While many ELL children demonstrate significant success in English, there is considerable evidence that some learners struggle, particularly with the demands of academic language (Hammond, 2008). For example, studies show that a significant number of these ELL students are not meeting grade level academic expectations (Carrasquillo, Kucer, & Abrams, 2004; U.S. Department of Education, 2006). It is evident from studies on America’s ELL student population that the ELL student group has the highest dropout rate and lowest academic achievement compared to America’s native English speaking student population (U.S. Department of Education, 2004). Further the National Center for Education (1999) has demonstrated that there is a large gap in reading skills between ELL and English as first language students. In 2003 only 15% of Hispanic students, 37% of Asian/Pacific Islander students, and 16% of American Indian/Alaska Native students in fourth grade read at proficient levels or above, in contrast to 41% of Native English speaking students (McCardle, et al., 2005; U. S. Department of Education, 2004).

2.6.1 Primary issues related to acquisition of language for ELLs.

Research shows that the identification of reading difficulties in ELLs is not only a topic of recent discussion but also a complex one (Shore & Sabati, 2009). This is because it is an area that addresses issues such as first language acquisition, second language acquisition and literacy, and English language learning and reading. Most studies on ELLs address a number of related skills that need to be considered. These include prior exposure to the
English language (Al Otaiba et al., 2008; Bialystok, Luk, & Kwan, 2005), cross linguistic transfer (Lems, 2005; Shore & Sabati, 2009), and language proficiency (Thomas & Collier, 2003; Vellutino, et al., 2004). In addition, other reading skills that are essential for native English readers include phonological awareness, decoding and working memory (Chiappe, Siegel, & Wade-Woolley, 2002; Swanson, Saez & Gerber, 2006); oral vocabulary, oral proficiency, and comprehension (Verhoeven, 2007; Denton, Wexler, Vaughn & Bryan, 2008); as well as effective classroom instructions and interventions (Gibbons, 2008; Hammond, 2008; Shore & Sabati 2009; Tangen & Spooner-Lane, 2008; Woolley, 2010).

2.6.1.2 Prior exposure to English language.

One important issue influencing the acquisition of reading skills in the English language for ELLs is that the length, quality and amount of exposure to English for the ELLs is likely to be less than for native English speakers (Al Otaiba et al., 2008; Bialystok, Luk, & Kwan, 2005). Children’s prior exposure to the English language and their literacy experiences before starting school predicts their English language proficiency and their reading in later grades (Weigel, Martin, & Bennett, 2006). ELLs are less exposed to the English language and to reading and writing in English before they enter school and they are more likely to have parents at home with limited English language proficiency (Cheng & Koblinsky, 2009; Krashen, 2003). Thus, ELLs are more likely to start school with weaker phonological skills in the English Language and with a reduced vocabulary in the English language (Bialystok, Luk, Peets, & Yang, 2010). The ELLs may face greater challenges than native English Speakers because ELLs have to learn a new language (English), while at the same time perform in content areas. Because the mental requirement of reading in a second language is compounded by the need to pronounce words accurately and rapidly, ELLs tend to have a slower oral reading speed and this may impact their reading comprehension (Birch, 2007).
2.6.2.1 Cross-linguistic transfer.

Cross-linguistic transfer is that an ELL’s native language (L1) may positively or negatively transfer to his/her non-native language (i.e., second language, L2) (Shore & Sabati, 2009). This means that similarities and dissimilarities of the characteristics of the ELLs’ native language may impact on the English language acquisition of ELLs. For example, one study of literate adult ELL students from mixed language backgrounds found a significant correlation between English oral reading and silent reading comprehension for Spanish or Polish Speakers but no correlation for students whose first language was Chinese, even though the students did equally well on measures of reading comprehension (Lems, 2005). This negative cross language transfer problem in Chinese students was related to the greater orthographic distance between the English alphabet and the logo-syllabic Chinese alphabet, while Spanish and Polish have the same alphabet as English. Students from languages with more written closeness to English found it easier to decode words in English because it looked more like their native language. Sometimes there can be interference of the first language (L1) with the second language (L2). Therefore, ELLs may make an error in English due to the influence of his/her L1 structure. For example, in Dzongkha, “Choegi ming gachimo” means “what is your name?” However, an exact translation would be “Your name what?” When cross-linguistic transfer is negative, as illustrated in the aforementioned examples, it is sometimes referred to in the literature as cross-linguistic interference (Lems, 2005; Shore & Sabati, 2009). This happens when an individual uses their L1 to make decisions about an L2, leading to an error due to the direct influence of an L1 structure. On the other hand, other studies suggest that cross-linguistic transfer does not happen immediately and that sufficient time needs to be allocated to literacy development in L2 (Branum-Martin, Foorman, Francis, & Mehta, 2010; Dixon, et al., 2012).
2.6.2.3 Language proficiency.

One of the basic questions in language acquisition research is how long does it take to learn a second language? Research with ELL children has shown that reading performance in L2 may be affected by the speaker’s proficiency and language preference. For example, Harris, Cullum, and Puente (1995) compared 44 bilingual adults with 22 English monolinguals on their memory rates and found that the bilinguals had lower English scores, yet there were no differences when ELLs were compared on their dominant languages. Further, ELL students tend to be overrepresented in speech-language impairment (Donovan & Cross, 2002). Therefore, students who do not succeed in quickly mastering English are likely to continue to have difficulties learning. This is evident from longitudinal studies which show that ELLs often require 1-2 years or even longer developing cognitive academic language proficiency skills in the second language in order to catch up with native speakers (Thomas & Collier, 2003; Vellutino, et al., 2004).

Regardless of language and culture, research shows that there are students who experience difficulties learning to read when exposed to the regular literacy curriculum at school. The identification of reading difficulties in ELLs is complex since it is difficult to distinguish whether a student is experiencing reading difficulty because of a learning disability other than the process of language acquisition (Shore & Sabati, 2009). However, the question is what reading difficulties might look like in ELLs. For this reason it is important to look at an individual’s acquisition of a second language across various components that make up reading including phonological awareness, decoding, oral vocabulary and comprehension (Akamatsu, 2003).
2.6.2.4 Phonological awareness.

Phonological awareness and particularly phonemic awareness, is considered one of the essential components of reading across languages and provides insight into reading acquisition in both first and second languages. This is evident from research showing that phonological awareness is a significant contributor to word recognition and spelling within and across languages (Durgunoglu, 2002; Woolley, 2010). A study comparing the reading acquisition process in ELLs and native English speakers found that the ELL children performed more poorly than native English speakers on most measures of phonological and linguistic processing in kindergarten (Chiappe, et al., 2002). Chiappe, et al., (2002) explained that the relative disadvantage of ELL children on phonological tasks such as rhyme detection and rapid naming may be owing to the challenge of having to learn a new phonology with new phonemic contrasts. These authors reported that a structured approach to learning sound-symbol correspondence, which was implemented as part of the regular kindergarten teachers instructional program, assisted the linguistically diverse children to catch up to the same levels of literacy and phonological competence as their native speaking peers by the end of first-grade.

Chiappe, et al., (2002) also investigated whether ELLs utilise the same component processes in reading acquisition as native English speakers and found that although the ELL children were not as fluent in manipulating and interpreting English oral language, the acquisition of basic literacy skills for children from both language groups developed in a similar manner. The same underlying skills, that is, letter knowledge, spelling and phonological processing were strongly related to word reading in English for all children. There was a broad range of language backgrounds among the 131 ELL children in this study including Chinese, Farsi, Korean, Japanese, Spanish, Tagalog, Arabic, Bulgarian, Dutch, Finnish, French, German, Greek, Hindi, Italian, Kurdish, Norwegian, Polish, Punjabi,
Romanian, Russian, Serbocroation and Swedish. Chiappe, et al., (2002) concluded that the same instructional methods can foster the development of decoding and spelling for children from a wide range of language backgrounds, although ELL children may also benefit from greater instruction in oral communication in English.

2.6.2.5 Decoding.

Another important finding in L1 and L2 reading research across languages can be seen on work conducted on decoding. Research indicates that there is a strong correlation between decoding in L1 and an L2 (Geva, 2001; Loeng & Cheng, 2003). Other studies across languages found that word attack skills in L1 (Hebrew) and L2 (English) were highly correlated and that children with poor phonological processing skills tend to be poor readers (Geva, 2001). It is apparent that this poor level of reading may present as errors in decoding and word recognition in languages with inconsistent spelling-to-sound correspondence, like English, or simply slower but accurate word reading in transparent languages, like Spanish (Wimmer, Mayringer, & Landerl, 2000).

2.6.2.6 Working memory.

According to Swanson et al. (2006) the executive functioning of the working memory system might also underlie reading problems in ELL children’s reading skill development, meaning lack of compensatory processing may reflect a working memory system that is not contributing enough information to the phonological system to provide an adequate monitoring of cognitive resources. Further, other research findings maintain that working memory deficiencies are often associated with below average performance in decoding and comprehension reading skills (Jeffries & Everatt, 2004; McNamara & Wong, 2003).
2.6.2.7 Oral vocabulary and oral proficiency.

Research also shows that oral language is an important aspect of reading. Durgunoglu (2002) reported that poor linguistic proficiency, such as vocabulary knowledge, may slow the development of phonological awareness. This means that ELL students frequently struggle in the area of vocabulary, which limits their ability to learn about and discuss academic topics (Francis, et al., p. 14). Similarly other studies have supported that vocabulary mastery in L1 helps predict reading comprehension in ELLs (Bialystok, 2002; Manis, Lindsey, & Bailey, 2004a; Verhoeven, 2007; Denton, Wexler, Vaughn & Bryan, 2008). Therefore, examining the possible use of oral vocabulary in a student’s L1 and L2 can assist in the determination of reading difficulties (Gottardo, 2002). Gottardo (2002) maintains that oral vocabulary in L1 and/or L2 helps account for variance in reading difficulties.

2.6.2.8 Comprehension.

Comprehension is another area of difficulty for ELL students, particularly in the ability to make inferences, and in comprehending and analysing text. This is likely due to low vocabulary levels that hinder the ability to develop adequate reading comprehension and writing skills (Francis, et al., 2006, p. 14). On the other hand, reading achievement explored through reading comprehension outcomes across investigations in various languages, including Chinese, French, Hebrew, Italian, Persian, Spanish, and Turkish, suggest that good readers in one language tend to be good readers in another. This is because literacy skills transfer from one language to another and that English L2 oral proficiency, L1 language and reading, and English L2 reading appear to be positively related (Gottardo, 2002; Manis, et al., 2004a; Manis, Lindsey, & Bailey, 2004b). Although this finding is helpful it is not entirely conclusive. Even though word-level reading in ELLs and L1 learners often reach a similar average range (Durgunoglu, 2002; Lesaux & Siegel, 2003), other studies (e.g., (August, Carlo, Dressler, & Snow, 2005) have shown that elementary school aged Spanish
ELLs lag behind native English speakers on reading comprehension. Similar findings were also shown in studies by Verhoeven (2000) in Dutch L2 learners. Further, other studies argue that the best predictor of English reading varies according to levels of grades because although native language reading ability was the best predictor of English reading in Grades 3 through 5, oral proficiency was the best predictor of English reading in Grades 6 through 8. Calderón and Minaya-Rowe (2007) suggest that this may be due to the greater demand on academic language in higher grades. However, assuming reading delays in ELLs may be due to the learner not being a Native English speaker and waiting for it to develop naturally may prolong identification of ELLs and delay timely interventions (Durgunoglu, 2002), often resulting ELLs in becoming less skilled readers compared to their Native English speaking counterparts (Hahn-Howitz, Shimron & Sparks, 2006; Vellutino et al., 2004).

2.6.2.9 Effective classroom instruction and intervention.

Studies on ELLs are quite recent and effective intervention for ELLs is very limited. However, the emphasis is that many ELLs with reading difficulties can achieve normal grade levels as a result of appropriate instruction (August & Shanahan, 2006; Snow, 2008). Appropriate instruction includes explicit support in language and literacy as well as more systematic vocabulary instruction in order to help comprehension of English text. This can be achieved by providing learners with both definitional and contextual information about the meaning of new words (August & Shanahan, 2006; Snow, 2008). In addition, many other interventions that have been found to be effective include explicit instruction in other aspects of literacy. For example, having students extend their knowledge and elaborate their understanding through questioning and summarising at the end of a reading lesson (Paris, 2005). An absence of appropriate intervention and effective classroom instructions for ELLs who have difficulty with reading English are often reported as some of the reasons for grade retention and school dropout (Vaughn et al., 2006). This notion is supported by other research
findings that ELLs are five times as likely as native English Speakers to drop out of school (August & Shanahan, 2006).

2.7 ELLs and Grade Retention

According to Editorial Projects in Education (2006), school dropout is closely linked with poor academic performance and with grade retention (U.S. Department of Education, 2006). The term retention or repetition with regards to school is the practice of requiring a student who has been in a given grade level for a full school year to remain at that level for a subsequent school year (Jackson, 1975). Research conducted in the U.S. reports that failure to meet grade level expectations in reading in the early grades is the main reason why ELLs are retained (U.S. Department of Education, 2003, 2006). Although the idea of giving a child another year to catch up and develop necessary skills sounds like a positive alternative to promoting a child with inadequate skills to more challenging work in a higher grade (Anderson, Jimerson, & Whipple, 2005), a considerable amount of evidence suggests that the academic and social outcomes for children who are retained are not always positive and may even be detrimental (Bowman, 2005; Eide & Goldhaber, 2005). According to Bowman (2005), the accumulated research offers little or no support for retaining students.

2.7.1 Academic outcomes.

Research shows that retention does not improve student achievement (Merrow, March 21, 2004). For example, in a longitudinal study conducted by McCoy & Reynolds (1999) with 1,164 eighth grade students who were enrolled in a Chicago Public School, retained children scored nine standard-score points lower (about eight months of performance) on average than their never retained peers at age 14. Several studies which were made prior to this also showed that retained children scored about eight standard points lower than their never retained peers (Jimerson & Schuder, 1996, June). Any benefits to retaining students in the same grade have only been short term (Alexander, Entwisle, & Dauber, 2003; Jimerson &
Ferguson, 2007)). This means that the gains that retained students showed were short lived and over time the students either do no better, or sometimes do worse, than similarly low-achieving groups of children who were not retained (Alexander, et al., 2003).

Research examining the academic achievement of students over time has revealed that, within two or three years, the achievement of these students was no better than before retention. Moreover, the academic output of these students was still poorer than those of their peers in the general population who were not retained (Jimerson & Ferguson, 2007; Roderick & Nagaoka, 2005). Similar results were reported by Willson and Hughes (2006) who investigated predictors of grade retention for 283 first grade Hispanic students, with below-grade level literacy performance. These researchers found that the retained students were less engaged in instruction, achieved at lower levels than their peers, were less resilient and had less support from their teachers. Studies that report retention accompanied by supportive intervention maintain that without specific targeted interventions, most retained students do not catch up, whereas retained students who receive targeted interventions at individual levels show positive academic outcomes (Greene & Winters, 2009; Lawrence, 2006).

2.7.2 Social outcomes of retention.

Retention has also been found to be associated with students’ poor social adjustment, negative attitudes toward school, poor behavioural outcomes, and reduced school attendance (Mims, Stock, & Phinizy, 2001). A number of studies examining the effects of retention on problem behaviours including acting out, anxiety, rebelliousness, aggressive behaviour and internalising and externalising actions reported more problem behaviours among retained students than their promoted peers (Beebe-Frankenberger, Bocian, MacMillan, & Gresham, 2004; Jimerson & Ferguson, 2007). However, Hong and Yu (2008) reported fewer behavioural problems of retained students. Critics of retention also note that retention is expensive for school systems. Requiring a student to repeat a grade adds one student for a
year to the school system, assuming that the student does not drop out, which is probable
given that retained students are two to 11 times more likely to drop out of school when
compared to underachieving, but promoted peers (Anderson, et al., 2005; Lawrence, 2006;
Lorence & Dworkin, 2006).

Grade retention is also reported as a possible source of stress for students. In the
1980s, when a study of childhood fears was carried out with sixth graders in the United
States, the children rated their top three fears as a parent’s death, going blind and being
retained. However, when similar studies were conducted in 2001 it was found that the
students rated grade retention as the single greatest fear; higher than the loss of a parent or
going blind (Jimerson, Woehr, & Kaufman, 2004). Moreover, empirical studies on the socio-
emotional effects of retention, including social adjustment, found that retained students
demonstrated significantly lower social skills than regular students who were promoted,
although there were no significant differences on social behavioural measures between the
retained students and low achieving but promoted students (Beebe-Frankenberger, et al.,
2004). Further, retained students have demonstrated lower emotional health, such as distress
and depression, compared to non-retained students leading to poor subjective well-being of
these students (Robles-Piña, Defrance, & Cox, 2008).

2.8 Subjective Well-being of Students (SWB)

Subjective well-being (SWB) is described as an individual’s cognitive and affective
evaluation of his or her life and, therefore, an indicator of quality of life. The construct
includes successful mastery of everyday challenges and subjective goals, and the ability to
enjoy daily pleasures (Diener & Lucas, 2000). Students’ well-being in school is an emotional
experience characterized by the dominance of positive feelings and cognition towards school,
persons in school and the school context in comparison to negative feelings and cognition
towards school life. Well-being in school represents subjective, emotional and cognitive
evaluations of school reality and can be seen as a misbalance of positive and negative aspects in favour of positive aspects (Hascher, 2003).

Recent research shows that it is vital for education to promote children’s SWB together with the promotion of educational achievement (Huebner, Oilman, Reschly, & St Hall, 2009). One of the main indicators of a positive school is one where students experience predominantly positive emotions and a strong sense of overall well-being (Huebner, et al., 2009). In addition, several other studies have also shown strong links among satisfaction with school, overall life satisfaction (Suldo & Huebner, 2006) as well as psychological well-being (Natvig, Albrektsen, & Qvarnström, 2003). Similarly, other school related factors such as teacher support (Suldo & Huebner, 2006), and perceived academic competence (Leung, McBride-Chang, & Lai, 2004), clearly play a role in students’ well-being and overall life satisfaction.

Some studies have found that positive school and life experiences enhance SWB and also facilitate future positive experiences and reduce the likelihood of negative experiences (Martin, Huebner, & Valois, 2008). This is evident from studies that have shown that students who are dissatisfied with school are more likely than their satisfied peers to exhibit negative physical symptoms such as headache and backache and psychological symptoms such as depression (Natvig, et al., 2003). Such students were also found to be more likely to engage in substance abuse, crime and suicide (Lévy-Garboua, Lohéac, & Fayolle, 2006). Research by Damon (2008) found that student well-being is promoted in school environments where students have a sense of purpose, where they can create and accomplish something meaningful and have the desire to make a difference to others. In other words, student well-being is associated with the kinds of goals and outcomes students try to achieve.

Research has shown that students’ satisfaction with school fosters classroom participation and achievement (Huebner & Gilman, 2002), while school dissatisfaction is
associated with low school achievement, disengagement, poor behaviours, high absentee rate and dropping out (Alexander, et al., 2003; Hammond, Linton, Smink, & Drew, 2007). In addition, some recent studies suggest that poor performance, low achievement and lack of motivation is associated with performance avoidance leading to negative outcomes such as lower performance, anxiety, hopelessness, low self-worth, poor self-efficacy, and disorganized study strategies (Pekrun, Elliot, & Maier, 2006; Urdan, 2004). Further cross-sectional studies on SWB have revealed that students who reported high life satisfaction were more likely to achieve higher grade point averages (GPAs) than students with lower life satisfaction (Gilman & Huebner, 2006). Those students with high life satisfaction also reported better attitudes towards school and teachers than students with lower life satisfaction.

Similarly, studies that have tested whether the subjective well-being of students predicts academic performance, and whether earning good grades predicts well-being, found that children with higher subjective well-being at the beginning of the sixth year earned significantly higher final grades throughout the entire academic year (Quinn & Duckworth, 2007). These researchers also reported that after controlling for IQ and the previous year’s GPA, higher subjective well-being of students again predicted higher grades.

Despite the importance of students’ satisfaction with schooling, both researchers and teachers tend to accentuate academic achievement over student satisfaction (Randolph, Kangas, & Ruokamo, 2010). According to Suldo and Huebner (2006) education researchers and evaluators appear to equate educational success with academic performance. Educational programs stressing importance on academic development alone may not be enough and the subjective well-being of students should not be ignored (Suldo & Huebner, 2006).

In view of this, it is important to understand what factors contribute to student satisfaction with school in order to enhance student well-being. The findings described above
suggest it is important for schools to focus not only on the academic outcomes of students but also on how students feel about school (Randolph, Kangas, & Ruokamo, 2009; Suldo & Huebner, 2006). A number of factors have been found to be related to student well-being including teacher support (Randolph, et al., 2009), student motivation (Levine & Moreland, 2004), social relationships (Verkuyten & Thijs, 2002) and physical well-being (Natvig, et al., 2003).

2.8.1 Teacher support.

Research demonstrates that supportive school and classroom environments (e.g., social support from teachers and classmates), influence students’ satisfaction with school life (Suldo & Huebner, 2006). Generally, students perceive teachers to be supportive when their teachers connect with students on an emotional level, acknowledge and encourage student academic success, and show fairness to all students (Gottfredson, Cross, Wilson, Connell, & Rorie, 2009). Gottfredson, et al., (2009) argue that it is teacher rapport and the teacher’s interactions with students which facilitate students’ feelings of school attachment. Using a survey instrument containing items that measured school enjoyment and relationships between students and their teachers, these researchers found that there was a significant interaction between students’ self-concept, school outlook and teacher expectations. Further, the survey measured students’ academic self-concept and self-appraisal of their achievement, and how strongly they believed they were capable of meeting academic challenges. Students readily perceived and conformed to the low expectations of their teachers. Similarly, in another recent study using the Children’s Overall Satisfaction with Schooling Scale (COSSS), students who liked their teachers were more satisfied with school than students who tended not to like their teacher (Randolph, et al., 2010). Other studies also support the finding that low achieving students display more negative attitudes towards school than high achieving students because low achievers, who feel overwhelmed, stressed and are unable to
meet academic demands, develop negative feelings toward school (Gottfredson, et al., 2009; McCoach, 2000, April).

In contrast, researchers claim that supportive teacher-student relationships have been associated with improved student achievement (O’Connor and McCartney, 2007) and lower rates of school dropout (Lee & Burkam, 2003). This notion is supported by other researchers suggesting that positive teacher–student relationships may foster students’ sense of belongingness in school and promote a warm school climate, which in turn may facilitate students’ academic success through their association with motivational, emotional, and behavioural factors related to students’ school engagement (Vieno et al. 2005).

2.8.2 Motivation.

Another major characteristic that is associated with students’ SWB is motivation. Research suggests that when students lack motivation they are unable to effectively engage their self-regulation (Levine & Moreland, 2004). Levine and Moreland analysed instructional practices in terms of their relevance to motivation and found that students are motivated to do things in which they have experienced success.

2.8.3 Social relationships.

Social relationships in school are important to pupils' subjective well-being. In particular, not being bullied in school is associated with high subjective well-being. According to Tuominen, Salmela-Aro, Niemivirta, and Vuori (2004) bullying is a wide social phenomenon in schools and it is associated with low subjective well-being of students. In addition, children’s peer relationships have been examined within the school satisfaction literature. Huebner (1994) found a weak correlation between dissatisfaction with friends and school satisfaction among a group of elementary students. However, these results might be more pronounced among older students as friendships become more important to students. Despite weak associations between school satisfaction and peer relationships, it has been
found that the number of friendships is associated with an increase in school liking (Natvig, et al., 2003). Studies have shown that acceptance from teachers and peers and subsequent lack of bullying are strong predictors of school satisfaction (Verkuyten & Thijs, 2002). Research also shows that students’ SWB is associated with measures of their health status and future plans.

2.8.4 Physical well-being and school environment.

Research shows that students who are dissatisfied with school are more likely than their satisfied peers to exhibit physical symptoms such as stomach ache, headache, and common colds and these symptoms are strongly associated with pupils' general subjective well-being (Konu, Lintonen, & Rimpela, 2002; Natvig, et al., 2003). Other researchers accentuate the importance of closer co-operation between educational and health promotional perspectives in schools (St. Leger & Nutbeam, 2000). Further, research on SWB also found that engaging in extracurricular activities was a reliable indicator of positive feelings toward school and that having plans for future education or employment was also associated with higher well-being (St. Leger & Nutbeam, 2000). Finally, school conditions, like ventilation, temperature, cleanliness and furniture have been shown to have a small but significant association with well-being (Opdenakker & Van Damme, 2000; Tuominen, Salmela-Aro, Niemivirta, & Vuori, 2004).

2.9 Summary of Literature Review

Reading is very important for both learning and the development of a positive self-image. Struggling learners can subsequently develop a poor attitude towards school and eventually drop-out of school. It is very important to have well established reading skills, particularly by the time children reach Grade Four, for this level of schooling requires higher order learning and children are expected to do more reading on their own.
The Simple View of Reading has been the focus of the current review because it is more applicable to teaching and intervention approaches for poor readers. This view consists of two components including decoding and comprehension. Comprehension is the ability to derive meaning from text and when children can decode letters and words with accuracy and automaticity, then word level reading is less effortful and maximum attention can be directed to comprehending the meaning of the text. Students who are good at reading have adequate word recognition as well as cognitive skills such as visualising scenes, actions and characters and inferring skills and they constantly monitor their reading. On the other hand, poor readers do not use their metacognitive skills and do not check whether what they are reading is making sense or not.

Poor readers commonly have trouble sounding out unfamiliar words because they are likely to have inadequate phonological processing skills including phonological awareness, rapid naming automaticity and verbal working memory, all of which have been found to be related to reading development. Phonological awareness refers to the ability to produce and discriminate the specific sounds of a given language. It is considered important regardless of the relevant language and writing system. It is also one of the essential components for the development of automatic word recognition for it involves the understanding that words are made up of sounds that can be blended, segmented and rearranged. Training in phonological awareness has an impact on reading acquisition, and therefore, it is believed to be a potent predictor of reading progress.

In addition to phonological awareness there are two other phonological processing skills such as rapid automatized naming and verbal working memory that are reported to be good predictors of reading ability as well. Rapid automatized naming (RAN) is the process of the efficient retrieval of phonological information or the speed at which a person can produce a verbal label for a visual stimulus, while verbal working memory is the ability to store,
analyse, and articulate material within a short period of time. Verbal working memory helps in storing information temporarily and is often assessed through digit span tasks. Both RAN and VWM have been linked to reading comprehension independent of word recognition skill.

It is evident from America’s ELL student population that reading for ELLs who come from a home where a language other than English is spoken are not meeting grade level academic expectations when compared to English as first language students. ELLs are typically less exposed to the English language at home and to reading and writing in English for they are most likely to have parents with limited English proficiency. This leads the children to enter school with weaker phonological skills and limited vocabulary in English. Research from studies on ELLs in the U.S. reveals that not having efficient reading skills is one of the main reasons ELL students are retained in a grade. This research also shows that the negative outcomes of grade retention generally outweigh any positive outcomes. Although retained students may show some temporary improvements in their scores, in the long run they were performing no better academically than before retention and the academic output of these students was still poorer than that of their peers in the general population of students who were not retained.

Research shows that education should promote the SWB of children for the promotion of educational achievement. This is because there are strong links among satisfaction with school, overall life satisfaction and with the psychological well-being of students.

2.10 Focus of current study

Most research on reading supports the view that phonological processing skills are essential for early reading success. However, previous research has paid more attention to early reading skills and less attention has been focused on older readers, particularly those for whom English is a second language and who have to access the school curriculum in English. In the case of struggling Grade Four readers in Bhutanese schools (where students are
required in learn in English), poor exam results are often interpreted as laziness by teachers or a lack of ability on the part of the student rather than a reading or learning difficulty. The current study was conducted to examine how phonological skills are related to reading skills in primary age Bhutanese children and to compare the reading performance and subjective well-being of repeating Grade Four children with their previous and current peers. Research on reading supports the relationships between phonological skills, word level reading and reading comprehension but there is a need to examine these relationships in children for whom English is a second language. It is also important to investigate student satisfaction with school as children who have repeated a grade are at greater risk of social isolation and their feelings of well-being as well as their academic performance could be compromised.
Chapter 3: Research Design and Methods

3.1 Introduction

The literature review in Chapter 2 showed that reading comprehension is supported by two main types of word-level reading (that is, word recognition and word attack), and that word-level reading is supported by phonological processing skills. There is an abundance of research evidence confirming the relationships between phonological skills, word level reading and reading comprehension in English speakers (Betourne & Friel-Patti, 2003), but there is a need to examine these relationships in children for whom English is a second language.

The primary aim of the study was to examine how phonological skills are related to reading skills in primary age Bhutanese children and to compare the reading performance and subjective well-being of repeating Grade Four students (Grade Four Repeaters) with their previous peers (Grade Five) and current peers (Grade Four). The specific research questions were:

1. What are the relationships among phonological processing skills, reading skills and subjective well-being in Grade Four and Grade Five Bhutanese children?

2. What contribution do phonological processing skills make to reading skills in Grade Four and Grade Five Bhutanese students?

3. Are there significant differences between Grade Four Repeaters, Grade Four and Grade Five students in phonological processing skills, reading skills and subjective well-being?
This chapter describes the research design and the process of obtaining the data required to answer the research questions, beginning with an explanation of the rationale for undertaking a mixed methods design. It also outlines the details of the sampling strategies and research instruments, explains the ethics clearance and validation processes, and concludes with an overview of the plan for the data analysis.

3.2 Rationale for the Use of a Mixed Methods Approach

It is argued by methodologists that a combination of methods can provide a range and depth of information otherwise unavailable to a separately conducted quantitative or qualitative study (Flick, 2002). Correspondingly, the multidimensional nature of the research topic and research questions of this study required a mixed methods design. In this study, data were collected quantitatively through individual assessments of the students’ phonological processing skills, reading skills and subjective well-being, and qualitatively through asking open ended questions about the students’ school experience.

This study employed cross sectional data collection using mixed methods with an embedded design, utilizing the strengths of both quantitative and qualitative investigation (Creswell, 2008, 2009). The purpose of the mixed methods analysis employed in this study was an embedded design where the qualitative data provides a supportive, secondary role to the quantitative data (Creswell, 2003). The design consisted of first collecting quantitative data and then collecting qualitative data to explain and elaborate on one part of the quantitative results. The rationale for this choice was to enable the researcher to first compare the phonological processing skills, reading performance and subjective wellbeing of Grade Four repeaters with two control groups, their same grade peers and their previous peers who were successfully promoted to Grade Five. Quantitative data were collected for this purpose. Second, additional qualitative data were collected in order to explore the reasons underlying the students reported levels of subjective wellbeing.
3.3 Research Participants

A sample of 120 students (40 fourth grade repeaters, 40 fourth grade first time students and 40 fifth graders) participated in the study. The students were recruited from eight public schools in Bhutan. All schools were located in semi-urban and semi-rural areas in Paro, a Western region in Bhutan. Most of the students came from rural backgrounds where English is not spoken at home and these students were likely to be disadvantaged when they started school because English was unfamiliar to them. Two schools were middle secondary, four were lower secondary and two were primary schools. The total number of public schools in Paro Dzongkhag (Western region of Bhutan) was 19, and the student population was 10,678 (General Education Statistics, 2010). The researcher selected 8 of the 19 schools (42%) through stratified random sampling. Charles and Mertler (2002) suggest 20% as a representative sample of a given population (p.154). These eight schools were selected by employing a multistage clustering sampling method and random sampling (Fowler, 2009). The schools were organised into a middle secondary school cluster, a lower secondary school cluster and a primary school cluster. Then individual schools were randomly selected from within each cluster.

The total number of students enrolled in these schools ranged from 320 to 957. As described in Section 3.7, the children in the study were selected by accepting all consenting repeating students and the Grade Four and Grade Five students were chosen by random sampling to match the number of repeating students. Each fourth grade first time and each fifth grade individual was chosen randomly such that each individual had the same probability of being chosen (Best & Kahn, 2006). In this study, for each Grade Four and Grade Five group the consenting children’s names were arranged in alphabetical order and every fifth name on the list was selected. The number of student participants from each school was not the same. The number of student participants ranged from 21 in schools 2 and
6, to 12 in schools 1, 3, 7 and 8 (see Table 4.1 p.79). Table 4.1 shows that the numbers of Grade Four, Repeating Grade Four and Grade Five students were equally distributed in each of the eight schools that participated in the study. The ages of participants ranged from 8 years to 18 years of age ($M=11.7$). There were 56 boys and 64 girls in this study.

It was calculated that a sample size of 40 students in each of the three groups would be sufficient to detect a moderate effect size in reading comprehension and word reading skills with power = 0.80 and $\alpha = .05$.

### 3.4 Research Instruments and Administration of Tasks

A battery of nine phonological processing tasks as well as three reading tasks and a scale measuring the subjective well-being of students was individually administered to each student in the study.

In the present study, nine indicator variables (see Table 3.1), provided measures of three phonological processing constructs, that is, phonological awareness, rapid naming and verbal working memory. As mentioned in the literature review, a number of studies maintain that reading acquisition is supported by phonological processing skills including phonological awareness (the awareness that words are made up of individual sounds that can be sequenced, segmented, blended and rearranged); rapid automatized naming (retrieval processes that refer to the speed at which one can produce a verbal label for familiar visual stimuli) and verbal working memory (the ability to store, analyse, articulate and rehearse verbal material within a short period of time) (Bishop & League, 2006; Castles & Coltheart, 2004; Hulme, et al., 2004; Vellutino, et al., 2004). In this study, phonological awareness was assessed by four tasks: letter names; onset-rime blending; phoneme blending and phoneme segmentation. Rapid naming was measured by four tasks: rapid naming of colours in English and Dzongkha and rapid naming of objects in English and Dzongkha. Verbal working memory was measured by one task - digit span.
3.2.2 Phonological awareness.

Phonological awareness refers to the ability to produce and discriminate the specific sounds of a given language or the phonological system of a language. It means the general awareness that words are composed of constituent sounds and involves the ability to perceive, understand and manipulate the sounds within words (Ehri, 2004; Storch & Whitehurst, 2002). Phonological awareness is the most potent predictor of the ease of initial reading acquisition and subsequent reading progress (Coyne, et al., 2004; Nichols, et al., 2004). Many studies have shown that children with reading difficulties have a deficit in phonological awareness skills (Dally, 2006; McCardle, et al., 2005).

In this study, phonological awareness was assessed using letter naming and three subtests adapted from the CIERA Early Assessment Battery. The three tasks were onset and rime blending, phoneme blending and phoneme segmentation.

3.2.4.1 Letter naming.

For the letter naming task, children were required to name the letters of the English alphabet. The letter-name task was administered individually by showing the child 26 typed letters presented in five rows in non-alphabetical order on an A4 sized page and where both the upper-case and lower-case versions of each letter were given (see Appendix J). To administer this task, the researcher pointed to each letter of the alphabet and asked the child...
to say the name of the letter. The researcher said: “Here are some letters of the alphabet. I will point to each letter one at a time. You say the name of the letter.” This task had 26 test items with a maximum possible score of 26.

3.4.2.2 Onset-rime blending.

For the onset-rime blending task, children were required to combine the beginning and end sounds of letters or groups of letters to make a word. Before administering the test items, the researcher explained to the child that words are made by putting sounds together and provided an example. The researcher orally presented the sounds /s/- /at/ and said “the sounds /s/- /at/ make the word “sat”. The researcher then said: “I will say the sounds of the letters in some words and you have to tell me the words they make. Then the researcher asked, “What word would I have if I put together the sounds /f/- /ed/? (fed). The children were given two practice items before six test items were carried out (see Appendix K). The test items were marked “+” to indicate a correct response or “-” to indicate an incorrect response. The researcher also recorded students’ exact responses on the blank lines. Tests were discontinued if the child missed three consecutive items after the practice items or if the child appeared confused and frustrated. The maximum possible score for this item was six.

3.4.2.3 Phoneme blending.

For the phoneme blending task children were required to connect sounds made by letters or groups of letters in sequence to form words.

To administer this task, the researcher first explained to the child that words are made by putting sounds together, for example, the sounds /p/- /o/- /t/ make the word “pot”. The researcher then presented the sounds of the words orally and asked the child to say the word they made by asking: “What word would I have if I put together the sounds /m/- /e/- /t/?” (met)”. The children were given two practice items before the six test items were carried out (see Appendix L). The test items were marked “+” to indicate a correct response or “-” to
indicate an incorrect response. The researcher also recorded students’ exact responses. Tests were discontinued if the child missed three consecutive items after the practice items or if the child appeared confused and frustrated. The maximum possible score for this item was six.

### 3.4.2.4 Phoneme segmentation.

For the phoneme segmentation task children were required to identify and isolate the beginning, middle, and end sounds in words.

Before administering this task the researcher provided an example. The researcher said the word “*sat*” and told the child there were three sounds in the word “*sat*”. “The first sound is /s/, the next sound is /a/ and the last sound is /t/”. The children were given two practice items before the six test items were carried out using the prompt “What sound do you hear first? The sound you hear next? The sound you hear last?” (see Appendix M). The test items were marked “+” to indicate a correct response or “-” to indicate an incorrect response. The researcher recorded students’ exact responses on the blank lines. Tests were discontinued if the child missed three consecutive items after the practice items or if the child appeared confused and frustrated. The maximum possible score for this item was six.

### 3.4.3 Rapid automatized naming (RAN).

Rapid Automatized Naming (RAN) tasks require a person to name as quickly as possible visually presented familiar symbols such as letters, digits, colours, and objects (Georgiou, Parrila, & Kirby, 2006). Rapid naming skills mirror the efficient retrieval of phonological representations from long-term memory in reading (Denckla & Cutting, 1999; Georgiou, et al., 2006). In addition, research shows that inefficient retrieval processes are thought to be another source of reading difficulty (Wolf, et al., 2000).

In this study, RAN tasks were assessed in both English and Dzongkha through the administration of tests involving colours and objects. Measures of more general indicators of processing speed (that is, colours and objects) were included in order to assess general name
retrieval processes. The serial naming charts designed for the present study were based on those used by (Denckla & Rudel, 1974) and included 50 stimuli on each chart. For each task, the stimuli consisted of five items repeated 10 times in random sequences. The colour task consisted of five colours (red, black, blue, yellow and green) (see Appendix Q), and the object task consisted of five common objects (e.g., book, flower, chair, table, and star) (see Appendix R). Each child was asked to name each stimulus as quickly as possible.

In order to administer this task, the researcher showed the top row of items on the sheet of paper to the child and asked the child to name each item. If the child could not name the item, the researcher told the child what it was called. Then the researcher said: “Now I want you to say the names of the colours (or objects) as fast as you can.” The researcher then instructed: “start here”, by pointing to the first item in the top row of the sheet and “finish here”, by pointing to the last item in the bottom row of the sheet. Then the researcher said: “o.k. start now!” The task was timed using a stop watch. The total time taken was recorded in seconds and the number of items named incorrectly was also recorded. For each rapid naming task the total number of items named correctly was divided by the total time taken to name the 50 items, to give one measure representing the number of items named correctly per second. These tasks were carried out in English as well as in Dzongkha.

3.4.4 Verbal Working Memory (VWM).

Verbal working memory, also referred to as short term memory, is defined as a processing resource of limited capacity. It involves the preservation of information while processing the same or other information (Unsworth & Engle, 2007). VWM requires the ability to store, analyse, articulate and rehearse verbal material within a short period of time (Gathercole & Baddeley, 1993). Studies on reading have found that reading comprehension is associated with verbal working memory capacity (Cain, et al., 2004; Swanson, Howard, & Sáez, 2006a). These studies suggest that verbal working memory plays an important role
because effective comprehension relies on simultaneously processing new information while making connections to stored information. Verbal working memory also helps during the process of reading to maintain the gist of information in sentences and paragraphs for the construction of an overall representation of an entire text (Cain, et al., 2004; Swanson, et al., 2006a). Further, verbal working memory deficits have been linked to reading comprehension difficulties (Oakhill, et al., 2003; Swanson, et al., 2006a). The most widely used technique of assessing a child's short-term memory is the digit span task. The digit span task used in this study was a subtest from the Stanford-Binet Intelligence Scales, 4th Edition (Thorndike, Hagen, & Sattler, 1986). In the present study the children were required to repeat strings of digits of increasing length, from 2-digit strings to 9-digit strings, giving a total of eight items (see Appendix S).

To administer this task the researcher said: “I am going to say some numbers. Listen carefully and remember the numbers. When I am finished you say them straight after me.” Then the researcher read out the numbers, for example, “3”, “1”; the child had to repeat the number string after the researcher had finished saying all the numbers in the string. The length of each number string increased by one digit with the first item starting with 2- digits, then 3- digits…, until the string length reached 9-digits. The task was discontinued if a child failed to correctly repeat an entire string. One point was given for each string repeated correctly, with a maximum possible score of eight. The task was administered in English.

3.5 Reading Measures

There were three reading measures. These were word recognition, word attack and reading comprehension. The reading measures were assessed using three subtests from the Woodcock Reading Mastery Test-Revised/Nu (WRMT) (Woodcock, 1987) Form G. For the WRMT Word Recognition, Word Attack, and Passage Comprehension subtests, the split-half
reliability coefficients were .86, .84, and .68 respectively (Woodcock, 1987). The three subtests are described below.

3.5.1 Word Recognition.

The Word Recognition Test required children to identify real words in isolation. The 106 words on the Word Recognition Test were arranged in order of difficulty. Words were presented individually to assess word recognition competence. Each child commenced the task with Item 47 (see Appendix N), which is the suggested starting point for students in Grade Four, but earlier items were administered if children did not respond correctly for six consecutive items. This procedure allowed for some success for even the poorest readers as well as catering for more advanced readers.

To administer this task the researcher said: “I want you to read as many words as you can on this list. Try to read them as best as you can. Even if you are not sure, please try to read every word.” Then the researcher placed the word list in front of the child and the words were shown one at a time by pointing to the word and the child was asked to read down each column. If a child failed to respond to a word after five seconds, the researcher continued the test by pointing to the next word and asking the child to continue the test until six consecutive items were failed or until the child reached item 106 which is the last item on the test. A score of one point was given to each word which was read correctly and zero if read incorrectly. The maximum possible score on this task was 59.

3.5.2 Word Attack/ Pseudo word reading.

The Word Attack Test (Test 4-Form G), from the Woodcock Reading Mastery Tests-Revised (WRMT-R, 1987), was used to measure skill in applying phonological knowledge in order to pronounce words that are not recognizable by sight. The Word Attack Test required the child to read aloud single nonsense or pseudo words. For example, “tat”, “op”, “bufty”.
Each child began with the sample items as outlined in the WRMT-R (1987) and then proceeded to Item 1 of the test. To administer this task, the researcher said “I want you to read as many words as you can on this list. The words don’t make any sense but try to read them as best as you can. Even if you are not sure, please try to read every word.” The words were shown one at a time by pointing and the child was asked to read down each word column (see Appendix O). If a child failed to respond to a word after five seconds, they were encouraged to attempt it once. If the child still did not respond then the researcher continued the test by pointing to the next word and asking the child to try reading it. This process was continued until the child failed to read six consecutive items. A score of one point was given for each pseudo word which was read correctly, and zero if read incorrectly, with a maximum possible score of 45.

3.5.3 Passage comprehension.

The Passage Comprehension Test (Test 6 – Form G), from the WRMT-R (1987), was used to assess reading comprehension competence. The Passage Comprehension Test measures a child’s ability to comprehend a short printed passage and identify a key word missing from it. For each blank, the child was required to supply a word that would be appropriate in the context of the passage. The Passage Comprehension (PC) Test uses a cloze reading procedure. For example, (I want you to win. Please ----------- lose. Correct: don’t, incorrect: do). The test was carried out according to the instructions and procedures given in the manual of WRTM-R (1987).

To administer this task, the researcher said “Here are some passages that have a blank space with a word missing. I want you to read them silently and say the missing word.” Then, the children were asked to read a passage silently. If a child read aloud they were given one reminder to read it silently. If they still continued reading aloud, they were allowed to continue. For each blank, the child was required to supply a word that would be appropriate
in the context of the passage. In this test, comprehension of some of the earlier passages is supported by the inclusion of picture clues. Blank spaces were arranged so that the child must read and comprehend the entire passage (see Appendix P). All the children were given the sample item and then started the test with item 25 which was the suggested starting point for Grade Four. Earlier items were administered if children did not respond correctly for the first six consecutive passages. Apart from the sample item, no corrective feedback was provided during the test. The test was continued until six consecutive items were failed. A score of one point was given to each correct word, zero for incorrect responses, with a maximum possible score of 68.

3.6 Subjective well-being of students

The English version of the Children’s Overall Satisfaction with Schooling Scale (COSSS), (Randolph, et al., 2009) was used to measure the subjective well-being of the students. The COSSS is a six item scale with a five point response option of strongly agree, somewhat agree, neither agree nor disagree, somewhat disagree and strongly disagree. For the purposes of the present study, pictures of five different facial expressions corresponding to the five point Likert-scale response options were provided. For example, the face for strongly agree was characterized by a large wide smile and the face for strongly disagree was characterized by a turning down of the corners of the mouth (see Appendix T).

In order to administer this task the researcher said “I am going to read out six items asking how you feel about school. Please look at the different facial expressions and point out the face that corresponds with your feelings.” After reading each item, the researcher asked the child to point to the face that corresponded to their feelings about that item. The items were: 1. School days are nice. 2. Learning makes me happy. 3. I like to go to school. 4. Learning is nice. 5. School is boring. 6. School lessons are fun. This test was scored by summing the values of the six individual items where strongly agree corresponded with a
value of 5 and strongly disagree corresponded with a value of 1. The possible values of the summated scale ranged from 5 to 30 and higher scores indicate higher overall subjective well-being. The Cronbach’s α was .90 across languages (Randolph, et al., 2009). Open ended questions were also used by the researcher to determine the reasons for the child’s response to each item (e.g., Why do you find school boring? Why don’t you like going to school? What makes you unhappy at school?). The researcher recorded the children’s responses by writing down the exact responses of the children on the recording sheet (see Appendix U).

3.7 Data Collection Procedures

The project was approved by the Human Research Ethics Committee (HREC) of the University of Newcastle, Australia, on August 13, 2010 (Approval No H-2010-1149) (see Appendix A).

Prior to the commencement of the study, approval to conduct the study was obtained from the Ministry of Education in Bhutan (see Appendix C), with a copy endorsed by the Dzongkhag (district) Education Officer who in turn informed all the principals of the selected schools. The researcher visited all the selected schools to distribute the information statement, both in English (see Appendix D) and Dzongkha (see Appendix E), and consent forms (See Appendix F). After three days, the researcher made a second visit to all the selected schools to collect the consent forms.

3.7.1 Research procedure.

The researcher asked the principals to make an announcement at a school assembly that gave full details of the research explaining why and how the children would be selected, what their role would be, how information would be collected from them and how anonymity and confidentiality would be maintained. The parents were present during the announcements. At the time of the announcement, information statements and consent forms were distributed to the parents of the children (see Appendix G & Appendix H). The parent
information letters and consent forms were printed in English but explained in Dzongkha (the national language of Bhutan), as it was expected that it would be more likely that there would be someone in the family or in the same locality that could read and write in English rather than in Dzongkha, which is typically used only as a spoken language.

Parents were given time to ask questions of any personnel including the school principal, the researcher, or other parents, and to discuss the information and their decisions with any others in their locality, if they wished. They were advised that their decision to participate or not to participate was voluntary. The parents of the students were also informed that they could withdraw their children from the study any time they wished to do so. If they consented to their child participating, they were asked to complete and return the consent form in a secure box on the school campus. A total of 540 consent forms were distributed and 492 parents gave consent.

Once the necessary permission and consent was obtained from the education stakeholders including the Director, the DEO, the principals and the parents and guardians of the children, the researcher then visited each of the schools and a schedule of student assessment was organised. All hard copies of the consent forms, the assessment forms and interview responses were stored in a locked filing cabinet in the researcher’s office at the University of Newcastle, Australia. The electronic records were stored on the researcher’s computer, appropriately backed up on an external hard drive, and secured with personal login name and password. Access to the data was restricted to the researcher and her two academic supervisors. The data did not contain any information that could identify any of the participants as participant’s identities on any of the records were replaced with ID codes before the data analysis began.

Children were tested in a quiet room within the school. The letter naming task was given first, followed by the word recognition task, the word attack task and then the passage
comprehension task. This section took approximately 15-20 minutes for each child. Next the phonological processing tasks starting with the phonological awareness tasks of onset and rime blending, phoneme blending, and phoneme segmentation were conducted followed by the rapid naming tasks and the verbal working memory task. The phonological tasks took approximately 15-20 minutes for each child. The six-item COSSS scale for measuring subjective well-being was administered in English at the conclusion of the session. This took about five minutes for each child. During the administration of each COSSS item, the students were asked to give a reason for their response through oral probing. The full assessment battery was administered in the same order for each participant in two sessions of approximately 20 minutes each. A break and snack was provided in between the two sessions, with additional breaks provided if needed. Participants enjoyed the sessions and were rewarded at the end for their efforts with small prizes, such as pens and stickers.

3.8 Data Analysis for Quantitative data

The data from assessing students on the phonological processing skills, reading measures and subjective well-being were analysed by means of the following statistical methods. First, descriptive statistics were examined for all of the variables. Second, a factor analysis was performed to check the characteristics of the COSSS (Randolph, et al., 2009). Third, bivariate analyses were conducted to examine the relationships between and among the tasks assessing phonological processing and reading and the total measure of student well-being. Fourth, multiple linear regression analyses utilising the data from the complete sample were employed to examine the contribution that phonological processing skills made to reading skills. Fifth, one-way analyses of variance (ANOVA) and Scheffe post-hoc tests were conducted to examine whether there were any differences between groups on the phonological processing and reading measures and subjective well-being. Finally, effect sizes were calculated to examine the magnitude of differences between groups on the phonological
processing and reading measures, as well as their subjective well-being. All analyses were completed using the Statistical Packages for the Social Sciences program (SPSS; PASW Statistics version 18.0, 2009).

3.9 Data Analysis for Qualitative Data

The analysis of the qualitative data involved the following steps. First, the researcher read through all of the student responses for the five probing questions which included: 1. Why do you like going to School, 2. Why don’t you like going to school, 3. What makes you happy at school, 4. What makes you unhappy at school, 5. Why do you find school boring? Depending on their ratings on the five point Likert-scale, all the students’ responses from the probing questions were sorted and grouped under each grade and entered into NVivo 9 software (QSR International, 1999-2011). The responses were then coded for each question in order to reduce information to categories by checking to see how often the categories occurred and how the themes related to each other. This coding and thematic development was completed following the matrix example of Creswell (2002).

3.10 Mixed Methods Integration

Incorporation of quantitative and qualitative findings occurred through subsequent separate analysis, and then combined analyses of the two sources of findings were made for “maximum integration” (Wade-Woolley & Geva, 2000; Woolley, 2009). The next two chapters describe the results generated first from the quantitative analysis of the data and second, from the qualitative analysis.
Chapter 4: Quantitative Analysis

4.1 Introduction

This chapter reports result of data obtained from 120 Bhutanese primary school children including 40 students who were repeating fourth grade (Repeating Grade Four), compared with 40 other first time fourth grade students (Grade Four), and 40 fifth grade students (Grade Five) who were previous classmates of the repeating students. Students were assessed in the areas of phonological awareness, verbal working memory, and rapid naming as well as the reading skills of word recognition, word attack and reading comprehension. The study explored the contributions of phonological processing to reading skills and examined the relative influence of three types of phonological processing (phonological awareness, rapid naming, and verbal working memory) on word identification and reading comprehension. The study also explored whether students repeating Grade Four exhibited lower levels of phonological and reading skills, as well as subjective well-being, than their Grade Four and Grade Five peers.

The chapter begins with a description of the student sample and the schools participating in the study. This is followed by a report of the descriptive statistics of the phonological processing variables, reading variables and the measure of student well-being using data from the complete sample. As there were no missing data, all the results are from the complete sample of 120 students. The next section describes the reliability analysis of a composite scale comprising the six items measuring student well-being on the Children’s Overall Satisfaction with Schooling Scale (COSSS) (Randolph, et al., 2009). The following section presents the results for the first question of the study: 1. What are the relationships among phonological processing skills, reading skills and student well-being in Grade Four and Grade Five Bhutanese children? In order to answer this question, bivariate analyses are
provided of the phonological processing variables, reading variables and the total measure of student well-being and the relationships between and among phonological processing skills, reading skills and student well-being are described. The subsequent section presents the results for Question 2: *What contribution do phonological processing skills make to reading skills in Grade Four and Grade Five Bhutanese children?* Multiple linear regression analyses were used to examine these relationships. The final section presents the results for Question 3: *Are there significant differences between Grade Four Repeaters, Grade Four and Grade Five students in phonological processing skills, reading skills and subjective well-being?* The results of one-way analyses of variance are reported and these are supplemented with effect size results.

### 4.2 School and Student Participants

A sample of 120 students (40 fourth grade repeaters, 40 fourth grade first time students and 40 fifth graders) participated in the study. The students were from eight public schools of which two were middle secondary, four were lower secondary and two were primary schools. Non-primary schools were involved in the research because Bhutan is a mountainous country, therefore, established primary schools in larger communities where lower and middle schools are located too far away for children to reach each day are upgraded to lower and middle secondary schools and in order to shorten their long trek to school. All schools were located in semi-urban and semi-rural areas in Paro, a Western region in Bhutan. The total number of students enrolled in these schools ranged from 320 to 957. The children in the study were selected by accepting all consenting Grade Four repeating students and the Grade Four and Grade Five students were chosen by random sampling to match the number of repeating students. Each fourth grade first time and each fifth grade individual was chosen randomly, such that each individual had the same probability of being chosen (Best & Kahn, 2006). In this study, for each Grade Four and Grade Five group the
consenting children’s names were arranged in alphabetical order and every fifth name on the list was selected.

As shown in Table 4.1, the number of student participants from each school was not the same. The number of student participants ranged from 12 in schools 1, 3, 7 and 8 to 21 in schools 2 and 6. Table 4.1 also shows that the numbers of Grade Four, Repeating Grade Four and Grade Five students were equally distributed in each of the eight schools that participated in the study. The ages of participants ranged from 8 years to 18 years of age (\(M=11.7\)). There were 56 boys and 64 girls in this study.

**Table 4.1 School and Student Participants**

<table>
<thead>
<tr>
<th>Schools</th>
<th>Participating students</th>
<th>No. and gender of students and age ranges</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Grade Four</td>
<td>Age</td>
</tr>
<tr>
<td>School 1</td>
<td>12</td>
<td>1M 3F</td>
</tr>
<tr>
<td>School 2</td>
<td>21</td>
<td>2M 5F</td>
</tr>
<tr>
<td>School 3</td>
<td>12</td>
<td>2M 2F</td>
</tr>
<tr>
<td>School 4</td>
<td>15</td>
<td>2M 3F</td>
</tr>
<tr>
<td>School 5</td>
<td>15</td>
<td>2M 3F</td>
</tr>
<tr>
<td>School 6</td>
<td>21</td>
<td>3M 4F</td>
</tr>
<tr>
<td>School 7</td>
<td>12</td>
<td>3M 1F</td>
</tr>
<tr>
<td>School 8</td>
<td>12</td>
<td>4M 0F</td>
</tr>
<tr>
<td>Total</td>
<td>120</td>
<td>19M 21F</td>
</tr>
</tbody>
</table>

The percentage of male students in the repeaters group (57.5%) was higher than the Grade Four group at 47.5% and Grade Five students at 35.0%. However, Chi-square analysis showed there was no significant difference between the proportion of male and female
students across the three groups. As indicated in Table 4.1, the age range for repeating students (10-18) is higher than grades 4 (9-13) and 5 (8-14) students.

4.3 Descriptive Statistics

This section reports the means and standard deviations, and values of skewness and kurtosis for the nine phonological processing variables, the three reading measures and the measure of subjective well-being using data obtained from the complete sample. The measures of phonological processing were letter naming, onset-rime, phoneme blending, phoneme segmentation, rapid naming of colours and objects both in English and Dzongkha and a digit span task. The reading measures were word recognition, word attack and passage comprehension and the subjective well-being measure was the COSS.

Table 4.2 shows the descriptive statistics for the phonological processing measures and reading measures obtained from the 120 students involved in the study. As indicated in Table 4.2, the letter naming variable was not a discriminating variable because the variable was significantly negatively skewed with values of skewness and kurtosis at -3.364 and 11.533, respectively. According to Curran, West, and Finch (1996), these values violate the assumption of a normal distribution as non-normality becomes problematic when univariate values of skewness and kurtosis exceed values of two and seven, respectively.

The performance on this task was at ceiling level where the mean score was 25.88 and the maximum possible score was 26. No children scored below 24. This result is likely owing to the fact that children would have learnt the names of the letters by the time they had advanced into their later years of primary school and before the time they reached Grade Four. Therefore, the letter naming variable was omitted from further analysis.
Table 4.2 Descriptive Statistics for Phonological Processing Variables and Reading Tasks Variables for the total sample

<table>
<thead>
<tr>
<th>Variable</th>
<th>Skewness</th>
<th>Kurtosis</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td><strong>Phonological Awareness</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Letter Naming</td>
<td>25.88</td>
<td>0.38</td>
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<tr>
<td>Onset and Rime Blending</td>
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<tr>
<td>Phoneme Segmentation</td>
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<td><strong>Rapid Naming Colours</strong></td>
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<td></td>
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<tr>
<td>English Per Second</td>
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<tr>
<td>Dzongkha Per Second</td>
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<td>0.22</td>
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<tr>
<td><strong>Rapid naming Objects</strong></td>
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<td></td>
</tr>
<tr>
<td>English Per Second</td>
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</tr>
<tr>
<td>Dzongkha Per Second</td>
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<td>0.17</td>
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<td><strong>Verbal Memory</strong></td>
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<td>Digit Span Task</td>
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<td><strong>Reading Tasks</strong></td>
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<td>Word Recognition</td>
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<td>Passage Comprehension</td>
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</table>

Table continues
Table 4.2 continued

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>SD</th>
<th>Skewness Statistic</th>
<th>Std. Error</th>
<th>Kurtosis Statistic</th>
<th>Std. Error</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>COSSS Items</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>School days are nice</td>
<td>4.24</td>
<td>1.04</td>
<td>-1.33</td>
<td>.22</td>
<td>1.27</td>
<td>.44</td>
<td>1.00</td>
<td>5.00</td>
</tr>
<tr>
<td>Learning makes me happy</td>
<td>3.99</td>
<td>1.05</td>
<td>-.87</td>
<td>.22</td>
<td>.30</td>
<td>.44</td>
<td>1.00</td>
<td>5.00</td>
</tr>
<tr>
<td>I like to go to school</td>
<td>4.07</td>
<td>1.02</td>
<td>-.91</td>
<td>22</td>
<td>.13</td>
<td>.44</td>
<td>1.00</td>
<td>5.00</td>
</tr>
<tr>
<td>Learning is nice</td>
<td>3.88</td>
<td>1.11</td>
<td>-.59</td>
<td>.22</td>
<td>-.72</td>
<td>.44</td>
<td>1.00</td>
<td>5.00</td>
</tr>
<tr>
<td>School is boring [R]</td>
<td>3.28</td>
<td>1.42</td>
<td>-.06</td>
<td>.22</td>
<td>-1.33</td>
<td>.44</td>
<td>1.00</td>
<td>5.00</td>
</tr>
<tr>
<td>School lessons are fun</td>
<td>3.63</td>
<td>1.26</td>
<td>-.52</td>
<td>.22</td>
<td>-.71</td>
<td>.44</td>
<td>1.00</td>
<td>5.00</td>
</tr>
<tr>
<td><strong>COSSS Total</strong></td>
<td>23.10</td>
<td>4.94</td>
<td>-.53</td>
<td>.22</td>
<td>-.28</td>
<td>.44</td>
<td>8.00</td>
<td>30.00</td>
</tr>
</tbody>
</table>

*Note. [R] = Scoring reversed on this item*
Phoneme segmentation was the most difficult of the phonological awareness tasks with a mean score of 1.44 items correct out of a total of 6 items for this task. This task asked children to break a word into its separate sounds such as “(p/a/t)” and out of a maximum possible score of 6, 60 children (half of the full sample) scored 0 or 1. In the case of rapid naming speed, the scores indicate the number of objects named correctly per second. Table 4.2 indicates that students named items more slowly in Dzongkha than in English. The three measures of reading performance included a word recognition task, word attack task and a reading comprehension task from the *Woodcock Reading Mastery Tests*. Word attack involved children being asked to decode nonsense words such as *bufty*. This task proved to be more difficult than word recognition which required students to identify real words in isolation. On the word attack task, the mean score was 13.63 out of a maximum possible score of 45, and 16 children scored less than 5 on this task. The reading comprehension task was conducted to measure a child’s ability to comprehend a short printed passage by identifying a key word missing from it. For each blank, the child was required to supply a word that would be appropriate in the context of the passage. For example, *(I want you to win. Please ----------- lose. Correct: don’t, incorrect: do).*

4.4 Characteristics of the COSSS Scale in this Study

Originally used to measure children’s satisfaction with school, the COSSS is a six item response set with a five point Likert scale: strongly agree; somewhat agree; neither agree nor disagree, somewhat disagree and strongly disagree. Strongly agree corresponds with a value of five and strongly disagree corresponds with a value of one. Therefore, higher scores indicate higher overall satisfaction with school. Diener and Suh (1997) argued that subjective well-being is multidimensional and should include both positive and negative emotions. The six items on the COSSS ask children their positive and negative feelings about school and this instrument was used as a proxy measure of student well-being. Randolph, et al., (2009)
reported a Cronbach’s $\alpha$ of .90 for the COSSS across Finnish and Dutch language versions. In the present study a factor analysis was conducted to see whether the characteristics of the scale items supported combining the scores on the six items of the COSSS to form a single composite scale when administered to Bhutanese children.

The six COSSS items were subjected to a principal components analysis (PCA). Prior to performing PCA, the suitability of the data for factor analysis was assessed. Tabachnick and Fidell (2007) recommend the first thing to do when conducting factor analysis is computing inter-item correlation to check for two potential problems: correlations that are very low (not related to any variables), and correlations that are too high (extreme multicollinearity and singularity). Items with correlations below .3 or over .8 should be considered for removal from the factor analysis (Field, 2009). For the data in the present study, there was no indication of extreme multicollinearity and singularity because the correlation matrix revealed that the correlation coefficients for all of the items on the COSSS were above .3 and below .8. Bartlett’s test of sphericity was then completed to obtain the Kaiser-Meyer-Oklin measure of sampling adequacy. Both Field (2005) and Kaiser (1974) regard KMO values greater than 0.8 as very good. For the COSSS items, the KMO value was 0.83 which also supported the use of factor analysis.

Table 4.3 Factor Loadings for COSSS Items

<table>
<thead>
<tr>
<th>Item</th>
<th>Factor Loading</th>
</tr>
</thead>
<tbody>
<tr>
<td>School lessons are fun</td>
<td>.75</td>
</tr>
<tr>
<td>Learning makes me happy</td>
<td>.74</td>
</tr>
<tr>
<td>I like to go to school</td>
<td>.73</td>
</tr>
<tr>
<td>Learning is nice</td>
<td>.70</td>
</tr>
<tr>
<td>School is boring</td>
<td>.69</td>
</tr>
<tr>
<td>School lessons are fun</td>
<td>.69</td>
</tr>
</tbody>
</table>
The PCA revealed the presence of only one component with an eigenvalue exceeding one. This factor explained 51.3 per cent of the variance. An inspection of the scree plot revealed only one predominant factor. To aid in the interpretation of this component, Varimax rotation was performed. The rotated solution (presented in Table 4.3) revealed that all of the variables loaded strongly (above 0.6) on only one component. Hair, Anderson, Tatham and Black (1998) regard loadings above .6 as high and those below .4 as low.

The internal reliability for the total COSSS score was analysed and a Cronbach’s alpha of .81 was obtained. Kaplan (1997) and George and Mallery (2003) consider this level of internal reliability to be good. The results of the factor analysis and the internal reliability analysis justified the formation of a composite scale for measuring student satisfaction with school. Thus, the student scores on each of the six questions were summed to give a composite total score to be used as a proxy measure of student well-being in subsequent analyses.

4.5 Correlations among Phonological Processing Skills, Reading Measures and Student Well-being

The bivariate correlations among the phonological processing skills, reading measures and the total COSS score are presented in Table 4.4. There were three reasons for examining these correlations. The first reason was to investigate the relationships among the eight different types of phonological processing tasks and among the three reading measures. The second reason was to examine the relationships of the individual phonological processing tasks with the three reading measures, and the third reason was to examine the relationships between student well-being and the students’ reading and phonological skills.

The reporting of correlations and the strengths of the correlation coefficients are interpreted according to the ranges suggested by Cohen (1988, pp.79-89). According to
Cohen (1998), correlations are considered low if they fall between the range of .10 to .29, moderate if they fall between the range of .30 to .49, and large if they are above .50.

4.5.1 Correlations among groups of measures.

Among the phonological awareness tasks, the highest correlation was between the phoneme blending task and the onset-rime blending task \((r = .47)\). This is because both tasks involve combining sounds to make words. The correlations of these two tasks with the phoneme segmentation task were somewhat lower.

Among the rapid naming tasks, the highest correlations were between naming colours in English and naming objects in English \((r = .71)\), followed by the two naming tasks in Dzongkha \((r = .55)\). Among the correlations of phonological awareness with rapid naming, the highest correlation was between the phoneme blending task and the naming colours in English task \((r = .39)\). The phoneme blending task also showed a moderate correlation with the verbal memory task of digit span \((r = .31)\). In general, apart from phoneme blending, the digit span task was only weakly related to the other phonological processing tasks \((r = .11\) to .23)\).

Among the reading measures, the correlation between the word recognition and word attack tasks was large \((r = .70)\). The correlations of these two word reading tasks with reading comprehension were also large, although passage comprehension was more highly correlated with word recognition \((r = .73)\) than it was with word attack \((r = .61)\).

4.5.2 Summary of correlations among groups of measures.

Generally, the bivariate correlations within the phonological awareness tasks were low to moderate \((r = .23\) to .47\), whereas the correlations within the rapid naming tasks were moderate to high \((r = .37\) to .71\). In contrast, correlations within the reading measures were high \((r = .61\) to .73\). The results reveal that while word recognition and word attack are good predictors of each other with a shared correlation of \((r = .70)\), word recognition \((r = .73)\)
yielded the strongest relationship with reading comprehension compared to word attack ($r = .61$).
Table 4.4 Bivariate correlations among Phonological Processing, Reading Variables and the COSSS for the full sample

<table>
<thead>
<tr>
<th></th>
<th>Phonological Awareness</th>
<th>Rapid Naming</th>
<th>Digit Span</th>
<th>Reading</th>
<th>COSSS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td><strong>Phonological Awareness</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Onset-rime Blending</td>
<td>.47**</td>
<td>.23*</td>
<td>.29**</td>
<td>.14</td>
<td>.17*</td>
</tr>
<tr>
<td>2. Phoneme Blending</td>
<td>.34**</td>
<td>.39**</td>
<td>.19*</td>
<td>.26**</td>
<td>.28**</td>
</tr>
<tr>
<td>3. Phoneme Segmentation</td>
<td>.23**</td>
<td>.30**</td>
<td>.17*</td>
<td>.22*</td>
<td>.15</td>
</tr>
<tr>
<td><strong>Rapid Naming</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Colours Eng. Per Sec</td>
<td>.43*</td>
<td>.71**</td>
<td>.42**</td>
<td>.23*</td>
<td>.40**</td>
</tr>
<tr>
<td>5. Colours Dzo. Per Sec</td>
<td>.36**</td>
<td>.55**</td>
<td>.16</td>
<td>.26**</td>
<td>.34**</td>
</tr>
<tr>
<td>6. Objects Eng. Per Sec</td>
<td>.37**</td>
<td>.12</td>
<td>.38**</td>
<td>.15</td>
<td>.36**</td>
</tr>
<tr>
<td>7. Objects Dzo. Per Sec</td>
<td>.11</td>
<td></td>
<td>.37**</td>
<td>.40**</td>
<td>.31**</td>
</tr>
<tr>
<td><strong>Verbal Memory</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Digit Span</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Reading</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Word Recognition</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Word Attack Score</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. Passage Comprehension</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**p < .01  * p < .05
4.5.2 Correlations of phonological processing tasks with reading.

The correlations between the phonological awareness tasks and reading measures were moderate to large ($r = .38$ to $.55$). Among the phonological awareness tasks, the strongest predictor for word recognition, word attack and passage comprehension was phoneme blending with a consistently moderate relationship across the three reading measures ($r = .55$, $.54$, $.54$, respectively). Phoneme segmentation showed a higher correlation with word attack ($r = .49$) than with the other two reading measures of word recognition ($r = .38$) and reading comprehension ($r = .46$). This finding suggests that the ability to break words down into individual sounds is more closely related to decoding unknown words than it is to identifying familiar words or understanding text.

The correlations between the rapid naming tasks and reading skills were generally low to moderate ($r = .15$ to $.42$). Among the rapid naming tasks, naming colours in English had the strongest relationship with the three measures of reading competence ($r = .29$ to $.42$), followed by naming objects in Dzongkha ($r = .31$ to $r = .40$).

The correlations between the digit span task and the three reading measures were also low to moderate ($r = .24$ to $r = .37$). Digit span was most strongly related to word recognition. This finding suggests that adequate memory skills are an advantage in recalling words previously seen and therefore more helpful in recalling familiar words than in decoding words which students had not previously encountered.

Overall, among the eight phonological processing tasks, the reading measures were more highly associated with the phonological awareness tasks than with the other phonological processing tasks involving rapid naming and verbal working memory.
4.5.3 Correlations between phonological processing and student well-being.

The correlations between the phonological awareness tasks and the measure of student well-being (COSSS) were generally low, apart from the phoneme blending task which shared a moderate relationship ($r = .39$). Similarly, student well-being had low correlations with digit span ($r = .25$) and with the rapid naming tasks ($r = .10$ to $r = .14$).

4.5.4 Correlations between reading measures and student well-being.

In contrast to the correlation between phonological processing skills and the COSSS described above, the correlations between the three reading measures and student well-being were generally moderate ($r = .39$ to $r = .47$) with passage comprehension having the strongest relationship with student well-being. Overall, the correlations between the reading tasks and student well-being were higher than with all the phonological processing variables, apart from phoneme blending.

4.5.5 Summary of correlations.

The examination of correlations between the eight different types of phonological processing tasks and the three reading measures allowed an investigation of the relationships between the underlying phonological skills and the different types of reading abilities.

Overall, the relationships between the individual phonological processing tasks and the three reading measures were generally significant and moderate. Of the eight phonological processing tasks, phoneme blending had the strongest relationship with word reading and reading comprehension.

Correlations of the phonological tasks and the reading measures with the COSSS showed a moderate relationship for the three reading measures and for phoneme blending. These findings suggest that children’s reading ability is positively related to their satisfaction with school and their subjective well-being.
4.6 Interaction between Phonological Processing Skills and Reading

The conceptual model in Figure 4.1, presents the general hypothesized relationships between phonological processing skills, word reading and reading comprehension.
Figure 4.1 The hypothesized cross-sectional relationships between phonological processing skills, word reading and reading comprehension.
The model depicted in Figure 4.1 illustrates how phonological processing skills (i.e., phonological awareness, rapid naming and verbal memory) interact with reading comprehension, through the two word reading skills of word recognition and word attack.

**4.6.1 Multiple linear regression analysis.**

Three multiple regression analyses were conducted to answer Question 2 of the study: *What contribution do phonological processing skills make to reading skills in Grade Four and Grade Five Bhutanese children?* In each regression analysis the phonological measures were entered simultaneously according to the standard enter method. The dependent variables were the reading measures (i.e., word recognition, word attack and passage comprehension). The independent variables were the eight phonological processing skills.

Two regression analyses were conducted to investigate the relationship between phonological processing skills and word-level reading. In the first regression analysis, eight independent variables (onset-rime blending, phoneme blending, phoneme segmentation, digit span, rapid naming colours in English, rapid naming colours in Dzongkha, rapid naming objects in English and rapid naming objects in Dzongkha) were entered as predictors and word recognition was the dependent variable. The second regression analysis was conducted entering the same independent variables used in the first regression analysis as the predictors but word attack was the dependent variable.

The third regression analysis examined the influence of word recognition and word attack on reading comprehension, whereby passage comprehension was the dependent variable and ten variables, including the eight phonological processing variables and the two word reading measures, were entered as predictors. Table 4.5 displays the standardised regression coefficients ($\beta$), $R^2$, t-value and the $p$ value for the three analyses.
Table 4.5 Multiple Regression Analysis Predicting Standardised Residual Scores on Word Recognition, Word Attack and passage Comprehension.

<table>
<thead>
<tr>
<th>Variable</th>
<th>β</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Word recognition: $R^2 = .48$</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Phonological awareness</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Onset-rime blending</td>
<td>.20</td>
<td>2.55</td>
<td>.01</td>
</tr>
<tr>
<td>2. Phoneme blending</td>
<td>.27</td>
<td>3.08</td>
<td>&lt;.01</td>
</tr>
<tr>
<td>3. Phoneme Segmentation</td>
<td>.16</td>
<td>2.15</td>
<td>.03</td>
</tr>
<tr>
<td><strong>Rapid naming</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Colours in English per second</td>
<td>.06</td>
<td>5.2</td>
<td>.60</td>
</tr>
<tr>
<td>5. Colours in Dzongkha per second</td>
<td>.05</td>
<td>5.8</td>
<td>.56</td>
</tr>
<tr>
<td>6. Objects in English per second</td>
<td>.21</td>
<td>2.13</td>
<td>.04</td>
</tr>
<tr>
<td>7. Objects in Dzongkha per second</td>
<td>.19</td>
<td>2.16</td>
<td>.03</td>
</tr>
<tr>
<td><strong>Verbal working memory</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Digit Span</td>
<td>.21</td>
<td>2.82</td>
<td>&lt;.01</td>
</tr>
<tr>
<td><strong>Word attack: Total $R^2 = .47$</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Phonological awareness</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Onset-rime blending</td>
<td>.15</td>
<td>1.93</td>
<td>.06</td>
</tr>
<tr>
<td>2. Phoneme blending</td>
<td>.31</td>
<td>3.50</td>
<td>&lt;.01</td>
</tr>
<tr>
<td>3. Phoneme Segmentation</td>
<td>.29</td>
<td>3.75</td>
<td>&lt;.01</td>
</tr>
<tr>
<td><strong>Rapid naming</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Colours in English per second</td>
<td>.00</td>
<td>0</td>
<td>1.0</td>
</tr>
<tr>
<td>5. Colours in Dzongkha per second</td>
<td>.09</td>
<td>1.03</td>
<td>.31</td>
</tr>
<tr>
<td>6. Objects in English per second</td>
<td>-.12</td>
<td>-1.22</td>
<td>.22</td>
</tr>
<tr>
<td>7. Objects in Dzongkha per second</td>
<td>.22</td>
<td>2.52</td>
<td>.01</td>
</tr>
<tr>
<td><strong>Verbal working memory</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Digit Span</td>
<td>.05</td>
<td>.69</td>
<td>.50</td>
</tr>
<tr>
<td><strong>Reading comprehension: Total $R^2 = .61$</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Phonological awareness</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Onset-rime blending</td>
<td>.08</td>
<td>1.07</td>
<td>.29</td>
</tr>
<tr>
<td>2. Phoneme blending</td>
<td>.10</td>
<td>1.25</td>
<td>.21</td>
</tr>
<tr>
<td>3. Phoneme Segmentation</td>
<td>.17</td>
<td>2.36</td>
<td>.02</td>
</tr>
<tr>
<td><strong>Rapid naming</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Colours in English per second</td>
<td>.06</td>
<td>.80</td>
<td>.43</td>
</tr>
<tr>
<td>5. Colours in Dzongkha per second</td>
<td>-.02</td>
<td>-.31</td>
<td>.76</td>
</tr>
<tr>
<td>6. Objects in English per second</td>
<td>-.06</td>
<td>-.67</td>
<td>.51</td>
</tr>
<tr>
<td>7. Objects in Dzongkha per second</td>
<td>-.02</td>
<td>-.27</td>
<td>.79</td>
</tr>
<tr>
<td><strong>Verbal working memory</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Digit Span</td>
<td>.02</td>
<td>.23</td>
<td>.82</td>
</tr>
<tr>
<td><strong>Word identification</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Word Recognition</td>
<td>.46</td>
<td>4.70</td>
<td>&lt;.01</td>
</tr>
<tr>
<td>10. Word Attack</td>
<td>.10</td>
<td>1.06</td>
<td>.29</td>
</tr>
</tbody>
</table>
The $R^2$ value, which is a measure of how much variability in the outcome is accounted for by the predictors (Field, 2009), ranged from .47 to .61. That is, between 47% and 61% of the variability of the dependent variables were explained in these analyses. The beta values (standardised regression coefficient), which explain the strength of the relationship between the dependent variable and each predictor, are examined in the next section.

4.6.2 Contribution of each independent variable to the dependent variable.

4.6.2.1 Word recognition.

In order to compare the contribution of each independent variable to the dependent variable, the beta values were examined to see whether they were statistically significant and to examine the magnitude of the relationship. Table 4.5 indicates that all of the phonological awareness tasks, two of the rapid naming tasks and the verbal memory task made a unique and significant contribution to word recognition. The only variables which did not make a statistically significant contribution to word recognition were rapid naming of colours in English ($\beta = 0.06$, $p = .60$) and in Dzongkha ($\beta = 0.05$, $p = .56$).

The beta values for the phonological awareness variables (onset-rime blending, phoneme blending and phoneme segmentation) were .20, .27 and .16, respectively, indicating that as sound blending and word segmenting skills increase, word recognition also increases. The largest beta coefficient was phoneme blending ($\beta = .27$) indicating that the capacity to blend phonemes, phonemic awareness, was the most influential of the phonological awareness skills in predicting word recognition. The second largest influence on word recognition was an equal contribution made by rapid naming of objects in English and digit span ($\beta = .21$, $p = .00$). This finding indicates that phonemic awareness had the greatest effect on children’s capacity to read familiar words, while automatic retrieval of phonological information (rapid naming) and verbal memory (as measured by the digit span task) were equally important in assisting children to recognise words.
4.6.2.2 Word attack.

As indicated in Table 4.5, only three of the eight phonological processing variables (including phoneme blending, phoneme segmentation and rapid naming of objects in Dzongkha), made a statistically significant contribution to the word attack measure. The strongest unique contribution to word attack, when the variance explained by all the other variables in the model was controlled, was made by phoneme blending with a beta coefficient of $\beta = 0.31$, closely followed by phoneme segmentation ($\beta = 0.29$). The beta value for rapid naming of objects in Dzongkha was slightly less ($\beta = 0.22$), but still made a statistically significant unique contribution to the dependent variable, word attack. The other five phonological processing variables did not make a statistically significant contribution to the word attack reading measure.

4.6.2.3 Reading comprehension.

It was anticipated that both of the word reading measures would make a significant contribution to reading comprehension and that the phonological processing variables would have an indirect influence on reading comprehension, through either word attack or word recognition. However, of the two word reading measures only word recognition made a statistically significant contribution to reading comprehension ($\beta=0.46$). As indicated in Figure 4.2, this meant that the three phonological awareness measures, as well as naming objects in English and Dzongkha and the verbal memory (digit span task), had an indirect association with reading comprehension through word recognition. However, the three variables which had a statistically significant association with word attack had no indirect association with reading comprehension through word attack. On the other hand, the phoneme segmentation task was directly associated with reading comprehension.

The significant beta values emerging from the three regression analyses are integrated into a combined path diagram to represent the hypothesized relationships in Figure 4.2.
Figure 4.2 The combined results for hypothesized cross-sectional relationships between phonological processing, word reading and reading comprehension.
4.6.3 Summary of regression analyses.

Overall, almost all of the phonological processing skills made a statistically significant contribution to one or both of the word reading measures except for naming colours in English and Dzongkha. In the case of word recognition, all three of the phonological awareness variables made a statistically significant contribution. The verbal memory variable made a statistically significant contribution only on word recognition, but not on word attack. Although rapid naming of colours in English and Dzongkha did not make a statistically significant contribution on either word recognition or word attack, rapid naming of objects in English made a statistically significant contribution to word recognition, and rapid naming of objects in Dzongkha made a statistically significant contribution to both word recognition and to word attack.

Overall, the three phonological awareness skills, verbal memory and rapid naming of objects in English and Dzongkha had an indirect influence on reading comprehension through word recognition, while phoneme segmentation had both an indirect and direct influence. In the case of the word reading measures, word recognition, but not word attack, had a direct and statistically significant association with reading comprehension.

4.7 Grade Four Repeaters Compared with Grade Four and Grade Five Students

An Analysis of Variance (ANOVA) was conducted to answer Question 3 of the study: Are there significant differences between Grade Four Repeaters, Grade Four and Grade Five students in phonological processing skills, reading skills and subjective well-being? To answer this question, the means and standard deviations for the phonological and reading measures and for subjective well-being for each group of students were first examined.

The means and standard deviations for the phonological processing and reading measures at each grade are reported in Table 4.6. As indicated in Table 4.6, the mean scores for Grade Four Repeaters were lower than the mean scores of Grade Four and Grade Five
students on all of the phonological processing skills and the reading measures. As would be
expected, the mean scores for Grade Five students were higher than Grade Four Repeaters
and Grade Four students.

Table 4.6 Means and Standard Deviations for phonological Processing, reading and Well-
being Measures for each Group.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Max. Score</th>
<th>Grade Four</th>
<th>Grade Four</th>
<th>Grade Five</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
</tr>
<tr>
<td>Phonological Awareness</td>
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</tr>
<tr>
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<td>6</td>
<td>5.35</td>
<td>.83</td>
<td>4.75</td>
</tr>
<tr>
<td>Phoneme Blending</td>
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<td>4.23</td>
<td>1.58</td>
<td>3.88</td>
</tr>
<tr>
<td>Phoneme Segmentation</td>
<td>6</td>
<td>1.63</td>
<td>1.98</td>
<td>.88</td>
</tr>
<tr>
<td>Rapid Naming (items per sec)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Colours English (10 x 5) colours</td>
<td>NA</td>
<td>1.18</td>
<td>.23</td>
<td>1.09</td>
</tr>
<tr>
<td>Colours Dzongkha (10 x 5)</td>
<td>NA</td>
<td>.69</td>
<td>.23</td>
<td>.61</td>
</tr>
<tr>
<td>Objects English (10 x 5)</td>
<td>NA</td>
<td>1.11</td>
<td>.25</td>
<td>1.07</td>
</tr>
<tr>
<td>Objects Dzongkha (10 x 5)</td>
<td>NA</td>
<td>.65</td>
<td>.16</td>
<td>.64</td>
</tr>
<tr>
<td>Verbal Memory</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Digit Span</td>
<td>7</td>
<td>4.55</td>
<td>1.04</td>
<td>4.00</td>
</tr>
<tr>
<td>Reading</td>
<td></td>
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</tr>
<tr>
<td>Word recognition</td>
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<td>46.40</td>
<td>13.45</td>
<td>39.60</td>
</tr>
<tr>
<td>Word attack</td>
<td>45</td>
<td>13.25</td>
<td>9.09</td>
<td>8.95</td>
</tr>
<tr>
<td>Passage comprehension</td>
<td>33</td>
<td>15.95</td>
<td>6.26</td>
<td>9.63</td>
</tr>
<tr>
<td>COSSS</td>
<td>30</td>
<td>24.50</td>
<td>4.81</td>
<td>19.13</td>
</tr>
</tbody>
</table>

Subsequent to the examination of means and standard deviations for phonological and
reading measures for each group of students, ANOVAs were conducted in turn with each of
the phonological processing skills, the three reading skills (word recognition, word attack,
reading comprehension) and the measure of student well-being to determine whether there
were any significant differences between the mean scores for each group of students. An
ANOVA with Scheffe post-hoc tests of difference were used to assist in comparing the
phonological processing and reading performance of students in each group. Another
ANOVA with Post-hoc tests of differences was conducted to examine whether fourth grade
repeaters exhibited lower levels of subjective well-being than first time fourth graders and
fifth graders. The results of the ANOVAs and post-hoc tests are reported in Table 4.7, along with effect size and confidence intervals with repeaters as the treatment group, and Grade Four First Time and Grade Five as the comparison groups.

4.7.1 Grade Four Repeaters compared with Grade Four.

The results of the ANOVAs shown in Table 4.7 indicate that fourth grade repeaters were no different to fourth grade first time students on any of the phonological processing skills apart from onset-rime blending. Also, there were no significant differences between these two groups of students on the two word reading measures of word recognition and work attack. On the other hand, Repeaters scored lower than their current classmates on reading comprehension and on the COSSS.

4.7.2 Grade Four Repeaters compared with Grade Five.

Repeaters performed significantly poorer than the Grade Five students on most of the phonological processing skills (six out of eight variables). The only two variables that did not show any significant differences between the two groups were rapid naming of objects in Dzongkha and verbal working memory. There were also statistically significant differences on the three reading skills of word recognition ($F(2,117) = 13.99, p<.01$), word attack ($F(2,117) = 13.16, p<.01$), and reading comprehension ($F(2,117) = 22.02, p<.01$). The comparison of responses on the COSSS revealed that Repeaters also exhibited lower levels of subjective well-being than Grade Five students ($F(2,117) = 29.59, p<.01$).
Table 4.7 One-way ANOVA, Post-Hoc Scheffe Summary and Effect Sizes for Measures of Phonological Processing, Reading and Student Well-being for the Whole Sample

<table>
<thead>
<tr>
<th>Variable</th>
<th>ANOVA</th>
<th>Grades</th>
<th>M</th>
<th>SD</th>
<th>M diff</th>
<th>p</th>
<th>ES</th>
<th>95% CI</th>
</tr>
</thead>
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<td><strong>Onset-rime</strong></td>
<td>$F=9.88$</td>
<td>Grade 4 First time*</td>
<td>5.35</td>
<td>.83</td>
<td>-.60</td>
<td>.04*</td>
<td>0.50</td>
<td>-1.18 - 0.39</td>
</tr>
<tr>
<td></td>
<td>$P&lt;.001$</td>
<td>Grade 4 Repeaters*</td>
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<tr>
<td></td>
<td></td>
<td>Grade 4 &gt; Repeaters</td>
<td>-.83</td>
<td>1.50</td>
<td>Grade 4 &gt; Repeaters</td>
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<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Grade 5 &gt; Repeaters</td>
<td>.53</td>
<td></td>
<td>&lt;.001*</td>
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<td></td>
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<td>-1.06 - 0.28</td>
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<td></td>
<td>Grade 5 &gt; Repeaters</td>
<td>-.95</td>
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<td>Grade 5 &gt; Repeaters</td>
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</tr>
<tr>
<td></td>
<td></td>
<td>Grade 5 &gt; Grade 4</td>
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<td></td>
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<td>-0.65 - 0.13</td>
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<td>.17</td>
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<td>-1.09 - 0.19</td>
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<td></td>
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<td></td>
<td>.01*</td>
<td>-0.71 - 0.05</td>
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<td></td>
<td></td>
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<td>.01*</td>
<td>-0.71 - 0.05</td>
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</tbody>
</table>

Table continues
Table 4.7 Continued

<table>
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<tr>
<th>Variable</th>
<th>ANOVA</th>
<th>Grades</th>
<th>M</th>
<th>SD</th>
<th>M diff</th>
<th>p</th>
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<td>56.63</td>
<td>18.63</td>
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<td>-10.23</td>
<td>.01*</td>
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<td></td>
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<td>-1.19</td>
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<tr>
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<td>-6.33</td>
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<td>-1.10</td>
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<td>&lt;.001*</td>
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<td>COSSS</td>
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<td>-5.38</td>
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<td>-1.19</td>
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<td>p=.001</td>
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<td>2.92</td>
<td>Grade 4 &gt; Repeaters</td>
<td>-6.55</td>
<td>&lt;.001*</td>
<td>1.80</td>
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<td>Grade 5 &gt; Repeaters</td>
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</tbody>
</table>

*Only significant mean differences are reported (p<.05)
4.7.3 Comparisons between Grade Four and Grade Five.

The results of the ANOVAs shown in Table 4.7 indicate that Grade Four First Time students were no different to Grade Five on any of the phonological processing skills apart from phoneme blending. On the other hand, Grade Four students performed significantly poorer than the Grade Five students on the word reading measures, including word recognition and word attack. However, there were no statistically significant differences between these two groups of students on the reading comprehension variable. These findings indicate that Grade Five students were able to read and decode more words than students in Grade Four, but were not demonstrating greater comprehension skills.

4.8 Effect Sizes

Finally, to further differentiate between repeating students and their current and previous peers on their phonological processing skills and subjective well-being, effect sizes (ESs) were calculated using Cohen’s $d$ for calculating mean score differences. The effect size that is presented in Table 4.7 was computed by subtracting the mean of the repeating students from that of either the Grade Four or Grade Five group and dividing the mean difference by the pooled standard deviation. The formula for calculating the Effect Size was $ES = \left| M_{group1} - M_{group2} \right| / \sigma_{pooled}$ and dividing the scores by pooled standard deviation. The pooled standard deviation was calculated by the formula $\sigma_{pooled} = \sqrt{\left( \sigma_1^2 + \sigma_2^2 \right) / 2}$ (Cohen, 1988). Cohen’s interpretation was used to explain the effect sizes where $d = 0.20$ small, $d = 0.50$ moderate, and $d = 0.80$ large effect size (Valentine & Cooper, 2003).

The effect sizes between groups of students on the each of the phonological processing skills the three reading measures and the subjective well-being of the students on the COSSS scale were examined. The separate effect sizes for the paired comparisons (i.e., effect sizes between repeaters and grades 4 and 5 as well as effect sizes between grades 4 and 5 students are reported below.
4.8.1 Effect Sizes between Grade Four Repeaters and Grade Four.

As shown in Table 4.7, a medium effect size was found for onset-rime blending between Grade Four Repeaters and Grade Four students ($d = 0.50$), whereas a large effect size was obtained for the passage comprehension ($d = -1.10$) and subjective well-being assessments ($d = -1.19$).

4.8.2 Effect sizes between Grade Four Repeaters and Grade Five.

A large effect size for two of the phonological awareness skills, including onset-rime blending ($d = 0.92$) and phoneme blending ($d = 1.19$), and a medium effect size for phoneme segmentation ($d = -0.65$) was found between Grade Four Repeaters and Grade Five students. Likewise, large effect sizes for rapid naming of colours in English ($d = -1.09$) and Dzongkha ($d = -0.81$), and medium effect sizes for rapid naming of objects in English ($d = -0.71$) were found between Grade Four Repeaters and Grade Five students. Also, large effect sizes for word recognition ($d = -1.14$), word attack ($d = -1.19$) reading comprehension ($d = -1.46$) and subjective well-being (the COSSS) ($d = -1.80$) were found between the repeating students and Grade Five students.

4.8.3 Summary of Effect Sizes

Generally, the pattern of differences between the repeaters and the other two grades was characterized by the repeater group’s poorer performance on measures of onset-rime blending skill, reading comprehension and subjective well-being assessments compared with the Grade Four students. Compared with Grade Five students, the repeater group performed more poorly on almost all of the phonological processing tasks including, phonological awareness, rapid naming, word reading, reading comprehension and subjective well-being.
4.9 Summary of Quantitative Analysis

Generally the bivariate correlations among the phonological awareness tasks were low to moderate ($r = .23$ to .47) whereas the correlations among the rapid naming tasks were moderate to high ($r = .37$-.71). In contrast, correlations among the reading measures were high ($r = .61$ to .73). The results reveal that while word recognition and word attack are strongly correlated with each other ($r = .70$), word recognition yielded a stronger relationship with reading comprehension ($r = .73$) compared to word attack ($r = .61$). Overall, among the eight phonological processing tasks, the reading measures were more highly associated with the phonological awareness tasks than with the other phonological processing tasks involving rapid naming and verbal working memory.

Generally, the performance of the repeating students was not significantly different to the Grade Four students on any of the phonological processing skills apart from onset-rime blending. Also, there were no significant differences between these two groups of students on the two word reading measures of word recognition and work attack. On the other hand, Grade 4 repeaters were poorer than their current classmates on reading comprehension and the COSSS.

In contrast, repeating students performed significantly poorer than the Grade Five students on all the reading measures and the subjective well-being scale as well as most of the phonological processing tasks apart from rapid naming objects in Dzongkha and verbal working memory. There were no significant differences between the Grade Four and Grade Five students on the phonological processing tasks apart from phoneme blending. However, even though the Grade Four students performed less well than the Grade Five students on the word reading tasks there was no difference between these two groups on their reading comprehension scores.
Chapter 5: Qualitative Analysis

5.1 Introduction

This chapter describes the findings from a qualitative analysis of the subjective wellbeing of 120 primary school children including 40 students who were repeating fourth grade (Repeaters), compared with 40 other first time fourth grade students (Grade Four), and 40 fifth grade students (Grade Five) in Bhutan. As reported in the previous chapter, the quantitative analysis of the COSSS (Randolph et al, 2009) revealed that, compared with their past and present peers, the Repeaters were less satisfied with school. The qualitative analysis reported in this chapter extends the quantitative findings in an attempt to understand the reasons why the repeating students rated their subjective wellbeing lower than their peers. As described in Chapter 3, the mixed methods analysis employed in this study was an embedded design where the qualitative data provides a supportive, secondary role to the quantitative data (Creswell et al., 2003) (see Figure 5.1).

![Figure 5.1 Embedded Design adopted from (Creswell, et al., 2003)](image)

As revealed by the ANOVA results reported in the previous chapter (see Table 4.7), the fourth grade repeaters were less satisfied with school than both their present and previous classmates with significantly lower scores on all six COSSS items. The six items were:

1. School days are nice; 2. Learning makes me happy; 3. I like to go to school; 4. Learning is nice; 5. School is boring; and 6. School lessons are fun. The researcher read each item to the students and asked the students to point to facial expressions corresponding to a five point Likert Scale of (1= strongly disagree, 2 = somewhat disagree, 3 = neither agree nor disagree, 4 = agree, 5 = strongly agree).
4= somewhat agree and 5= strongly agree). After the children had finished reporting their level of satisfaction the researcher conducted the interviews which took a maximum of five minutes for each student participant. The interviews were conducted in English and required the students to give a reason for their response to each of the COSSS items through oral probing of five open ended questions. The questions were: 1. Why do you like going to School? 2. Why don’t you like going to school? 3. What makes you happy at school? 4. What makes you unhappy at school? 5. Why do you find school boring? All the student responses were recorded in writing by the researcher.

5.3 Data Analysis

The researcher read through all the student responses and, after grouping them under each grade, entered the responses into NVivo 9 software which was used for organising the student responses under the five probing questions. The responses were then coded for each question in order to reduce information to categories by counting to see how often the categories occurred and how the themes related to each other. This coding and thematic development was completed following the matrix example of Creswell (2002) as shown in the Figure 5.2.

5.4 Interview Themes

This section reports the interview themes that emerged from an analysis of the students’ reasons for their responses to the five open ended questions. Although the codes and categorization for the themes arising from the responses to each question were not mutually exclusive, and according to McMillan and Schumacher (2006) they rarely are, the
qualitative analysis enabled an understanding of the reasons underlying the student ratings of their satisfaction (or dissatisfaction) with school. A graphic representation of responses to each of the five open ended questions is addressed below:

**5.4.1 Q. 1. Why do you like going to school?**

Nearly all students (91.7% of the total sample) reported why they liked going to school. Most responses (34.7%) were from Grade Five students, followed by Grade Four with 33.5%, and Grade Four Repeaters with 31.8%. The reasons why students liked going to school are shown in Figure 5.3 and they included learning new things, friends, future jobs, Physical Education (PE), and doing well.

![Figure 5.3](image_url)

**Figure 5.3** Student responses as to why they like to go to school.

**5.4.1.1 Learning new things.**

Nearly half of the students (45.8%) reported that they liked going to school because they can learn new things. A majority of the Grade Five students (28 students or 50.9% of this group) reported learning new things, followed by 20 Grade Four students (33.4% of that
group). One student from Grade Four responded that: “I like going to school because I can learn a lot of new things”.

In comparison, relatively fewer repeating students, only seven (12.7% of the repeating group) said that learning new things was a reason for them liking school.

5.4.1.2 Friends.

Nearly one third (32.5%) of the total sample of students reported that they liked going to school because they can meet friends. More than half of the Grade Five students (22 students or 61.6%), 10 Repeaters (27.8% of this group) and 4 Grade Four students (11.1% of that group) mentioned friends. One of the Grade Four students responded that “I like going to school because I have a lot of friends at school and I like meeting with them.” Similarly a Grade Four Repeater said that: “… because I can talk and play with my friends”.

5.4.1.3 Future Jobs.

Less than a fifth (16.7%) of the total sample said they like to go to school because they wanted to get a job in the future. However, there were some differences in the way the three groups of students responded. The Repeaters did not mention any specific profession that they would like to enter, unlike the Grade Four and Grade Five students who were more explicit about the nature of their future employment.

Grade Four Students. I like going to school because I want to study hard and become a doctor in the future.

I want to learn a lot and become a teacher.

I want to become an engineer.

Grade Five Students. I can learn a lot of things and become a doctor in the future.

Although the Repeaters were more likely than Grade Five students to give the prospect of future employment as a reason for liking school, the repeaters were vague about their ambitions and did not report any specific examples of what they wanted to be in the future.
Repeaters. I want to go to school to get a job in the future.

5.4.1.4 Physical education (PE.)

Only a small proportion of students, (13.3% of the total sample) reported PE lessons as one of the reasons why they liked going to school. Grade Four students were less likely to report liking PE, while similar numbers of Grade Five students and Repeaters reported enjoyment of PE lessons. The latter two groups accounted for 75% of the responses in this theme.

5.4.1.5 Doing well and other responses.

Very few students (6.7% of the total sample) reported doing well at school as one of the reasons why they liked going to school. No Repeaters mentioned this reason. Some other responses (10% of all students) included because school was fun, the children’s park and drawing lessons.

5.5.1 Q.2. Why don’t you like going to school?

Nearly half of the students (45.8% of the total sample) said they didn’t like to go to school. Almost all the Repeaters (92.5%) said they did not like to go to school. However, only 32.5% of Grade Four and 12.5% of Grade Five responded that they did not like going to school. The reasons students gave for not liking school included walking distance, lack of interest, bullying, no friends, teachers and feeling unwell. Figure 5.3 shows the reasons students in each group gave for not liking school.
5.5.1.1 Long walking distance.

Although only 13.3% of the total sample of students responded that they did not like going to school because of the long walking distance. The majority of these respondents were Repeaters (8 students or 50% of this group). Walking long distances to get to school is not unusual in the rural areas of Bhutan. Bhutan is a mountainous country where the terrain is undulating and rugged with scattered settlements. Many students have to walk several hours to and from school six days a week. The tiring journey becomes more difficult during harsh weather conditions, like the rainy season. Some of the school children, besides getting drenched, negotiating slippery walking paths and consequently taking considerable time to reach the school, may be late and are consequently punished by teachers. One Grade Four student said: “I feel lazy to walk to school every day” and one of the Grade Five students responded that: “I don’t like walking long distance early in the morning on rough road”. There appeared to be more distress evident in the responses of the Grade Four Repeaters, some of whom said: I hate walking long distance in the sun and getting sun burnt.
I hate walking long distance during rainy season and getting late to school because the teachers beat us for getting late to school.

I have to walk long distance to school and my legs pain a lot.

5.5.1.2 Lack of interest.

Just over a tenth of all interviewed students responded that they did not like to go to school because of lack of interest. However, the majority of these students (73.3%) were Repeaters. One of the Grade Four students reported: “Learning is not fun and there are more interesting things happening at home than at school.” Similarly a Repeater said: “I hate studying, it is not interesting and I feel very lazy to go to school.”

5.5.1.3 No friends.

Less than a fifth of the students (15% of the total sample) reported that they did not like to go to school because they had no friends. Twice as many Grade Five students responded that way in comparison to Grade Four and Repeaters who were equally represented. At least some children from all Grades reported that they didn’t have friends and felt lonely at school.

5.5.1.4 Bullying.

Only 7.5% of the total sample reported bullying as a reason for not wanting to go to school (eight Grade Four Repeaters and two Grade Four students). For example, one of the Grade Four students responded that “Most of the students are bullies, they beat me”. Among the Repeaters, one said that “The other students tease me and it is very irritating and boring.” Another Repeater mentioned “Some students force me to leave school.” While comments about bullying behaviour were evident in all eight of the schools that participated in the study, none of the Grade Five students reported bullying. This may be because Grade 5 is the second most senior grade at the primary school level and so students in this grade are less
likely to be bullied because of their seniority at school unlike the Repeaters and Grade Four students who are junior to them.

5.5.1.5 Teachers.

A small proportion of students (2.5% of all interviewed students) responded that they didn’t like to go to school because of teachers. The Grade Four and Grade Five students reported that they didn’t like it when the teachers punished them by making them do frog jumps when they had not done their homework. The Repeaters reported that they experienced more severe kinds of punishment by teachers, for example, “The teachers scold me and beat me when I don’t understand what they are teaching.”

5.5.1.6 Feeling unwell.

While none of the Grade Four and Grade Five students mentioned feeling physically unwell, three of the Repeaters responded that they did not like to go to school because they didn’t feel well. For example, one of the Repeaters responded “Learning and studying makes me get headaches”.

5.6.1 Q.3. What makes you happy at school?

Almost all of the students (95.8%) reported on what made them happy at school. All the students from Grade Four and Grade Five mentioned something that made them happy at school. However, only 87.5% of the Repeaters reported reasons for being happy.

The reasons students gave for being happy at school included friends, games/sports, reading, teachers, doing well and others. The relative proportions of students from each grade reporting these reasons are shown in Figure 5.5.
5.6.1.1 Friends.

Nearly half of the students (43.3% of the total sample) reported they like to go to school because of friends. Of this group, 50% were Grade Five closely followed by Repeaters (36.5%). However, only a few students (13.5%) from Grade Four mentioned friends as one of the reasons for being happy at school. In contrast, the Repeaters reported that friends make them happy at school. For example, most of the Repeaters responded: “Playing with friends makes me happy at school”. Similarly most of the Grade Five students responded: “Meeting with friends makes me happy at school”.

5.6.1.2 Games and sports.

Forty-four students of the total sample reported that games and sports make them happy at school of which more than half (24 out of the 44 students across the three groups) were Repeaters. Grade Four with 11 students accounted for just a quarter (25%) of the respondents and Grade Five with 9 students accounted for just less than a quarter (20.5%). Specific games were mentioned by Repeaters, for example, “I like playing football” and
Grade Four students, “Playing football makes me happy at the school”. Grade Five students were less specific about the types of games they enjoyed, for example, “I like playing games and sports”.

5.6.1.3 Reading.

Nearly a quarter of students (22% of the total sample) reported reading as one of the activities that made them happy at school. More than half (15 of 27 students or 55.7% across the three groups) were Grade Four, followed by Grade Five with 12 students (44.4% of the responses in this theme). One of the Grade Four students said that: “Reading books makes me happy at school”, as well as a Grade Five student who responded that: “I like reading books at the school.” In contrast, none of the Grade Four Repeaters mentioned reading as one of the reasons for being happy at school.

5.6.1.4 Teachers.

None of the Repeaters mentioned teachers as a reason for being happy. However, a small proportion of students, six students from Grade Five (5% of the total sample) and four students from Grade Four (3.3% of the total) reported that good teaching practices, good relationships with teachers and positive feedback from teachers were reasons for being happy at school. Some examples of how the Grade Four and Grade Five students responded are given below:

Grade Four students. When the teachers teach well, it makes me happy at school.
I like my PE teacher.

Grade Five students. When I talk with the teachers.
When the teachers are humorous and when they crack jokes.
When the teachers comment well done! Good work!
5.6.1.5 Doing well.

Small proportions of Grade Four (5% of the total sample) and Grade Five (12.5% of the total) students also mentioned doing well at school as one of the reasons they were happy at school. Examples given were getting in the top positions in the class and scoring high in tests. None of the repeating students reported ‘doing well’ as a reason for being happy at school.

Other reasons for being happy at school were provided by 17.5% of Grade Four students, 25% of Repeaters and 12.5% of Grade Five students. Other reasons given by Grade Four students included singing and dancing, playing in the children’s park and giving advice to other students. Other reasons given by the Repeaters included singing and dancing as well as painting and drawing. One of the Repeaters said “burning garbage” made him happy at school, perhaps because he can escape lessons for a while or be away from other formal activities like the morning assembly. For Grade Five students, in addition to singing and dancing and painting they liked looking at the flower garden, listening to stories, cracking jokes and doing social work (e.g., gardening, cleaning the school campus).

5.7.1 Q. 4. What makes you unhappy at school?

Almost all of the students (96.6% of the total sample) reported on what made them unhappy at school. While all the Repeaters (100%) answered this question, not all students from Grade Four (97.5%) and Grade Five (92.5%) reported on it. The reasons for being unhappy included teachers beating and scolding, bullying, quarrelling with friends and other reasons. Figure 5.6 shows the reasons students in each group provided for being unhappy at school.
5.7.1.1 Teachers beating and scolding.

Less than half of the total sample of students reported scolding and beating by teachers as one of the reasons for being unhappy at school. More than half of these students (29 out of 49 students across the three groups) were Repeaters who accounted for 59.2% of the responses in this theme, whereas Grade Five with 13 students accounted for just over a quarter (26.5%) of the total responses. Grade Four students were the least likely to report beating or scolding by teachers and accounted for 14.3% of the responses in this theme. Corporal punishment was reported by students from all eight of the participating schools. Some examples are: Grades Four and Five students. When the male teachers beat me for being naughty and scold me for not understanding their teaching (School No.2, 4 and 7) When the teachers beat me and scold me for not doing my homework (School No.1, 2, 5, 6, 7 and 8).
Repeater. When the teachers scold me and hit me when I don’t understand the lessons. It is very embarrassing when the teachers scold me and beat me for not knowing the lessons (School No.1, 2, 3, 4, 5, 7 and 8).

The teachers scold me when I can’t read in the class and they shout at me for not being able to answer their questions (School No.1, 2, 3, 5, 6, 7 and 8).

5.7.1.2 Bullying.

Interestingly, although only 7.5% of students reported bullying as a reason for not wanting to go school (see Figure 5.5), one third (32.5%) of the students reported that bullying made them unhappy at school. Nearly half of these students were Repeaters (19 out of 39 students across all three groups), followed by 14 Grade Four students (35.9%) and 6 Grade Five students (15.4%). According to the responses from across all three groups of students, bullying mostly consisted of teasing, being called names and getting beaten by bigger students and particularly by boys at school. For example, this is how one of the Grade Four students reported: “When the big students beat me, tease me and call me nick names.” Similarly, one of the Repeaters said that he was unhappy: “When the boys bully me.” One Grade Five student said: “When other students tease me saying that I am separated from my brothers and sisters because my parents are divorced.”

5.7.1.3 Quarrelling with friends and other reasons for being unhappy.

Less than a quarter (24.2%) of the total sample of students reported quarrelling with friends as a reason for being unhappy at school. More than half of these were Grade Five students (14 out of the 29 students across three groups), followed by 11 Grade Four students (37.9%) and Repeaters (13.8%). Some of the Grade Five students reported that they felt very unhappy at school when they have fights with their friends and they don’t talk with each other. One Grade Four student said: “When my friends don’t say sorry to me after quarrelling with me.” A small proportion of students across all grades reported difficulty with
homework, not getting enough time to play football, hating mathematics, and attending the evening prayer as some of the reasons that made them unhappy at school. For example, the students across all grades mentioned that attending the “evening prayer” made their trip back home from school quite difficult as it gets dark at the time of going home.

5.8.1 Q.5. Why is school boring?

Approximately 37% of the total sample (44 students) agreed with the statement “School is boring”. Out of these 44 students, more than half (25) were Repeaters followed by Grade Four (18) and Grade Five (6) students. The reasons given by Grade Four students included the school climate and student misconduct whereas the Repeaters mainly reported school climate, lesson repetition, teachers, and not understanding the lessons. For Grade Five the most common reasons were student misconduct and teachers (see Figure 5.7).

![Figure 5.7](image)

**Figure 5.7** Student responses as to why they found school boring.

5.8.1.1 School climate.

Less than a quarter of students answering this question (18.3%) reported school climate as one of the reasons why they found school boring. The Repeaters (10 out of 22
students across all three groups) accounted for 45.6% of these responses, followed by Grade Four (40.9%) and Grade Five (13.6%) students. There were similar responses across the three groups with common complaints about the classes being noisy, the lessons not interesting, the toilets and the school canteen being very dirty, the furniture at school was uncomfortable, and the campus being crowded and congested. In addition to these problems, the Repeaters also mentioned feeling very sleepy in class, not having playgrounds, and not having sufficient sports facilities or physical activities at school.

5.8.1.2 Student misconduct.

Only 12.5% of the students who answered this question reported student misconduct as a reason why they found school boring. This reason was mainly reported by Grade Four and Grade Five students, whereas only one of the Grade Four Repeaters mentioned student misconduct and this was in relation to boys quarrelling. Similar to the responses regarding bullying, students reported that boys were more likely to be involved in student misconduct.

*Grade Four students.* Boys are mischievous and bad

*Grade Five students.* The boys are very naughty they are always shouting and fighting.

5.8.1.3 Don’t understand lessons.

Less than a quarter (21.7%) of the total sample of students reported that school was boring because they didn’t understand the lessons. Most of these students were Repeaters (84.6%), whereas Grade Four and Grade Five comprised only 7.7% each. Examples of the comments made by Repeaters include: “The lessons are very tough and I don’t understand them. I don’t understand what is going on in the class.”; “Teachers scolded me when we don’t understand the lesson.”; “Learning is not nice, it is difficult.” “… punishment from Principal when I don’t understand my lessons.”
5.8.1.4 Teachers.

While no Grade Four students directly blamed teachers for making school boring, a small proportion of Repeaters and Grade Five students (9.2% combined) reported that school was boring because of the teacher being absent from the class or not doing their teaching well, the teachers being very serious and not humorous, or the teachers beating the students.

5.8.1.5 Lesson repetition.

No students from Grade Four or Grade Five mentioned that school was boring because of lesson repetition; however, nearly a quarter of Grade Four Repeaters (22.5%) reported that school was boring because they were doing the same work they had done the previous year. As indicated in the quotes below, the Repeaters comments often revealed that teachers were presenting the same lessons and the same content that students had encountered the previous year. In some cases, students had repeated Grade Four for several years as in the cases of two of the repeating students who were 17 and 18 years old. Some of the responses reported by the Repeaters were:

Reading and doing the same thing every year is boring.

Learning the same thing for two years is very boring.

They teach the same thing every year and I feel sleepy in the class.

5.9 Summary of Findings

Eight positive themes and eight negative themes emerged from this analysis of the responses to the five probing questions regarding the students’ wellbeing at school. The combined responses to the questions asking students why they liked going to school and what made them happy at school revealed eight positive themes of learning new things; having friends; the prospect of future jobs; PE lessons; doing well; playing games and sports; reading; and good relationships with teachers. The combined responses to the questions asking students why they didn’t like going to school, what made them unhappy at school and
why they found school boring revealed eight negative themes of walking long distances to school; bullying; scolding or punishment by teachers; quarrelling with friends; school climate; student misconduct; not understanding lessons; and lack of interest in the lessons. The latter two themes were especially prominent among the Repeaters who reported difficulties in learning and boredom because of lesson repetition.

5.10 Common Positive Themes

The qualitative analysis shows that generally students from across all three groups expressed positive themes including having friends, the prospect of future jobs and physical education games and sports as three important factors of why they like to go to school and what made them happy at school. Moreover, Grade Four and Grade Five students were more explicit about their future jobs whereas the Repeaters were not specific about it though they knew that going to school was an important thing in life. In addition, Grades 4 and 5 students reported on many other positive themes including learning new things; reading; teachers and doing well at school as other important factors of why they liked going to school and what made them happy at school. In comparison, relatively fewer Repeaters mentioned learning new things and no Repeaters mentioned the other positive themes such as reading, good relationships with teachers or doing well at school. However, the Repeaters were more likely than the Grade Four and 5 students to report PE lessons (see Figure 5.2) and games and sports (see Figure 5.4) as reasons for enjoying school. These activities may have been more enjoyable for the Repeaters because these physical outdoor activities, like burning garbage, and PE lessons were most likely to get the students out of class and away from their schoolwork, which they often described as ‘boring’ or ‘difficult’.
5.10 Common Negative Themes

The qualitative analysis shows that generally small proportions of students from across all three groups reported negative themes such as walking long distances; lack of interest in lessons; bullying; having no friends/quarrelling with friends; scolding or punishment by teachers; school climate; student misconduct; and not understanding lessons as eight distinctive reasons for why they didn’t like to go to school and what made them unhappy at school, as well as why they thought school was boring. The Repeaters accounted for the majority of the responses on seven out of the eight negative themes and also reported two other additional negative themes not mentioned by Grade Four or Grade Five students. These included feeling physically unwell and lesson repetition.

5.11 Analysis of Outcome for Specific Grades

Compared to the Repeaters and the Grade Five students, the Grade Four students showed the most interest in reading and also said they liked going to school because of the teachers and because they were doing well at school. Only a few of the Grade Four students reported being unhappy at school because the teachers were scolding and beating them and they got bullied by older students, particularly boys.

Grade Five students showed the most interest in learning new things and having friends. However, having no friends and quarrelling with friends were also the most reported reasons for why Grade Five students did not like going to school. Grade Five students also appeared to enjoy school because they liked their teachers and because they liked reading and doing well at school. However, the Grade Five students also reported some dissatisfaction with school owing to teachers scolding and beating them, teachers being unfair and student misconduct or bullying.

Almost all of the students repeating Grade Four (92.5%) said they did not like going to school and all of the Repeaters said they were unhappy at school. The causes of this
dissatisfaction with school were often related to problems with learning, boredom with having to repeat the same lessons they had been taught the previous year, lack of interest in their schoolwork and punishment and scolding from teachers because the students were failing to learn. Many of the repeating students also said they did not like going to school because they had to walk long distances and because they were teased and bullied by other students at school. The Repeaters also reported feeling physically unwell at school or “sleepy” in class. However, they showed more interest than their peers in non-academic activities like physical education and games and sports.

While the repeating students appeared to understand the importance of going to school so they could get a job in the future, they were vague about their ambitions and did not report any specific examples of what kind of future employment they would like. Overall, the qualitative analysis of the interviews consistently showed that in comparison to students from Grades Four and Five, the Repeaters were more likely to provide negative responses and less likely to provide positive responses. These findings support the quantitative results reported in the previous chapter; that is, that the Repeaters appeared to have a lower level of wellbeing than their current and previous peers.
Chapter 6: Discussion and Conclusion

6.1 Introduction

This chapter provides a discussion of the research findings reported in the previous two chapters and is structured around the research questions. Chapter 4 reported on the quantitative data analysis based on the assessment of the students on phonological processing skills, reading skills and subjective well-being as measured by the COSSS (Randolph, Kangar & Ruokamo, 2009). The relative influence of three types of phonological processing (phonological awareness, rapid naming, and verbal working memory) on word identification and reading comprehension was examined. The chapter also reported on whether students repeating Grade Four exhibited lower levels of phonological and reading skills, as well as subjective well-being, than Grade Four and Grade Five students. Chapter 5 reported on the qualitative analysis of the children’s self-assessment of their subjective wellbeing.

This chapter discusses the key findings in relation to the three research questions, followed by a discussion of the contribution of this research to existing knowledge and practice. The chapter concludes with a discussion of the limitations and implications of the study and offers some recommendations and suggestions for future research.

6.2 Discussion of Key Findings in Relation to the Research Questions

6.2.1 Research Question 1: What are the relationships among phonological processing skills, reading skills and student well-being in Grade Four and Grade Five Bhutanese children?

In the current cross sectional study, three constructs of phonological processing skills including phonological awareness, rapid automatized naming and verbal working memory were employed (see Figure 4.1 p.92). There were three tasks assessing phonological awareness (onset - rime blending, phoneme blending, and phoneme segmentation), four tasks for rapid automatized naming (naming colours in English and in Dzongkha and naming

objects in English and in Dzongkha) and one task for verbal working memory (digit span). The three reading skills were word recognition, word attack and passage comprehension. Student wellbeing was measured using the COSSS.

As hypothesized in the conceptual model (see Figure 4.2 p. 97), there were moderate to strong relationships between the three types of phonological skills and the word reading measures. All nine phonological awareness tasks showed moderate correlations with word recognition and word attack. Similarly, all the rapid naming tasks except for rapid naming of colours in English showed moderate correlations with the word reading measures. Finally, verbal working memory also showed moderate correlations with the reading measures.

Overall, among the three constructs of phonological processing skills, phonological awareness (i.e., the ability to blend sounds to make words and to segment words into their constituent sounds), had a stronger association with word recognition than did rapid naming and working memory. This is similar to previous findings which are consistent in emphasizing that word recognition is more strongly related to phonological awareness than it is with rapid naming and verbal memory for English speaking children (Georigiou, Parrila, & Kirby, 2006; Parrila, Kirby, & McQuarrie, 2004). These studies reported that phonological awareness was the strongest correlate of word reading ability and that this effect remained after controlling for variations in both rapid naming (Georgiou, et al., 2006; Parrila, et al., 2004), and verbal working memory (Melby-Lervag, Lyster, & Hulme, 2012). Melby-Lervag, et al. (2012) reported a high correlation between phonological awareness and word reading ($r = .57$), whereas the correlations of rapid naming and verbal working memory with reading were lower ($r = .43$ and $r = .34$, respectively).

In the present study, among the phonological awareness tasks, phoneme blending had the strongest relationship with the three reading measures ($r = .54$ to .55). Phoneme blending is a measure of phonological synthesis since it involves joining (or “synthesizing”) sounds to
make words. Phoneme segmentation, on the other hand, is a type of phonological analysis task as it involves breaking up a whole word into its component sounds. Interestingly, phoneme segmentation showed a higher correlation with word attack ($r = .49$) than with the other two reading measures of word recognition ($r = .38$) and reading comprehension ($r = .46$). This finding suggests that the ability to break words into individual sounds is more closely related to decoding unknown words than it is to identifying familiar words or understanding text. Dally (2006) also analysed the correlation of a range of phonological synthesis and analysis tasks with subsequent word reading and reading comprehension. In that study, the deletion task (a measure of phonological analysis) also showed higher correlations with word attack compared to the other reading measures.

As mentioned in Chapter 2, synthesis tasks, such as phoneme blending, are typically mastered before analysis tasks, such as phoneme segmentation, in English speaking students (Anthony, et al., 2003). Though, it should be noted that the acquisition of phonological awareness skills does not progress in a linear sequence; rather children continue to refine the skills they have already acquired while they learn new skills (Anthony, et al., 2003). In the current study, phoneme segmentation was the most difficult task among the phonological awareness tasks; more than one third of the students scored less than one out of a maximum possible score of six on the given task. This finding is consistent with results from similar studies involving English speaking students (Adams, 1990; Yopp & Yopp, 2000). However, these findings are not consistent with those of Chang and Chen (2008) who reported that for Taiwanese ELLs, phonemic segmentation was easier than phoneme blending. This difference in findings could be due to the way in which performance on the phonological tasks was measured. In the Chang and Chen study, the ratings of task difficulty were obtained from the first grade students’ reflections, whereas in the present study task difficulty was based on the scores obtained from the individual student assessments.
The results of the present study also revealed that the digit span task, which was used as a measure of verbal working memory, was more strongly related to word recognition than it was to the other two reading skills. This finding suggests that adequate memory skills are an advantage in recalling words previously seen and therefore more helpful in recalling familiar words than in decoding words which students had not previously encountered (i.e., word attack) (Ehri, 2004). This is typical of how ELLs may learn words as whole units and therefore rely on memory skills. One of the first problems an ELL encounters is how to commit a large number of foreign words to memory. Therefore, the first and easiest strategy ELLs often employ is simply repeating new words until they can be recognized (Gu, 2003). The examination of the bivariate relationships among the three reading measures indicated that the correlations among the reading measures were large ($r = .61$ to $.73$). However, passage comprehension was more highly correlated with word recognition ($r = .73$) than with word attack ($r = .61$). These findings suggest that the capacity to read familiar words helped children to comprehend text to a greater extent than did the ability to decode unknown words. These findings are consistent with a meta-analysis of correlations with reading measures that found that a task involving the reading of real words shared a stronger relationship with passage comprehension ($r = .75$), compared to pseudoword reading ($r = .61$) (Swanson, Trainin, Necoechea & Hammill, 2003).

Finally, the results from the examination of the bivariate relationships showed that the measure of student well-being had a moderate association with the three reading measures ($r = .39$ to $.47$), and with phoneme blending ($r = .39$). Further, among the reading measures, the reading comprehension variable showed the strongest relationship with the subjective well-being of students. This finding suggests that children’s reading ability is positively related to their satisfaction with school and their well-being. The finding is consistent with research by the Organisation for Economic Co-operation and Development (OECD) Programme for
International Assessment (PISA) where assessments of students from 65 countries, including developing countries, showed that skills in reading ability are more reliable predictors of social well-being than the number of years spent in school (OECD, 2011).

6.2.2 Research Question 2. What contribution do phonological processing skills make to reading in Grade Four and Grade Five Bhutanese children?

In order to study the relative influence of each of the eight phonological skills on each of the three reading measures in Bhutanese children who are educated in English, three multiple regression analyses were conducted. The findings from each regression analysis are discussed below.

6.2.2.1 Phonological processing skills on word recognition.

The first regression analysis used word recognition as the dependent variable and the eight independent variables were onset-rime blending, phoneme blending, phoneme segmentation, verbal memory, rapid naming colours in English, rapid naming colours in Dzongkha, rapid naming objects in English and rapid naming objects in Dzongkha. The results indicated that, with the exception of rapid naming of colours in English and Dzongkha, the other six phonological processing skills made a statistically significant contribution to word recognition. The two rapid naming tasks may not have made a significant contribution to word reading in this study because unlike letters or numbers or everyday objects that are regularly retrieved from long-term memory, colour naming in Bhutan may not be practiced or discussed in daily academic or social contexts. Another factor to be considered is that it may be the case that naming colours is a novel challenge for older students or those from a non-English speaking background (Li, et al., 2009).

Similar to the results from the bivariate analysis, when all of the phonological tasks were entered simultaneously in the regression analysis, the phoneme blending task made the strongest contribution to word recognition with a beta value of .27 ($p<.001$). This finding
indicated that when the influence of all the other phonological skills was controlled, it was the ability to blend phonemes to make a word that had the greatest association with students’ capacity to read words. The next highest contribution to word recognition was made by verbal working memory (digit span) (beta = .21). This finding suggests that for ELL students adequate memory skills are also an advantage in recalling words which are likely to have been previously seen.

6.2.2.2 Phonological processing skills on word attack (pseudo word).

The second regression analysis used word attack as the dependent variable and the same eight independent variables were again entered as predictors. The results revealed that most of the variables did not make a statistically significant contribution to word attack. Only three variables, phoneme blending, phoneme segmentation and rapid naming of objects in Dzongkha made a statistically significant contribution. Among these three variables, phoneme blending again made the strongest contribution with a beta coefficient of .31 ($p < .001$), with phoneme segmentation having a similar influence (beta = .29). This finding indicates that children, who were skilful in blending separate sounds to make words and breaking whole words into separate sounds, were also more skilful in decoding pseudo words, that is, correctly identifying and pronouncing words they had never seen before. While the rapid naming of colours in both English and Dzongkha did not make any statistically significant contribution to either of the word reading measures, the rapid naming of objects in Dzongkha made a statistically significant contribution to both of the word reading measures.

The finding that rapid naming in the children’s native language made a unique and significant contribution to word reading suggests that rapid naming in Dzongkha is a stronger predictor than fluency in English. This finding is supported by studies on significant associations between language processing and fluency in a second language that report
inconclusive evidence for a processing advantage or disadvantage for ELLs (Bialystok, 2002). Research with ELLs has shown that retrieval performance may be affected by the speaker’s native language proficiency and language preference (Harris, Cullum, & Puente, 1995).

6.2.2.3 Phonological processing skills and word reading on reading comprehension.

The third regression analysis employed reading comprehension as the dependent variable and the eight phonological skills and the two word reading measures were included as the predictors. As hypothesized in the conceptual model (see Figure 4.1, p. 92) it was anticipated that the phonological processing variables would have an indirect association with reading comprehension, through either word recognition or word attack. The results revealed that with the exception of the rapid naming of colours in English and Dzongkha, the other six phonological skills had an indirect effect on reading comprehension through word recognition. Contrary to the expectation that both word recognition and word attack would have a significant relationship with reading comprehension as with first language speakers (Betourne & Friel-Patti, 2003), in this group of Bhutanese primary children, word attack did not make any statistically significant contribution to reading comprehension. This may be because the students relied more on recognizing English words by sight, rather than using phonological information to decode unfamiliar words. While the three phonological processing skills of phoneme blending, phoneme segmentation and rapid naming of objects in Dzongkha had a statistically significant relationship with word attack, these same variables had no direct or indirect association with reading comprehension. This was because word attack did not make a statistically significant contribution to reading comprehension once the influence of word recognition and phonological processing skill were controlled. Nevertheless, phoneme segmentation had a direct effect on reading comprehension. This
finding suggests that children who were adept at breaking words into individual sounds were also more skilled in understanding what they read.

These findings appear to confirm Dally’s (2006) suggestion that the ability to manipulate component sounds within words may be an especially important predictor of reading comprehension in beginning readers. However, the fact that phoneme segmentation had a direct effect on reading comprehension, while word attack did not, may also be explained by the generally poor performance in this study, of all of the students on the relatively more complex word attack task of decoding pseudo words. The phoneme segmentation task, which measured emerging decoding skills, appeared to more clearly discriminate between good and poor readers than the word attack task. These findings suggest that the decoding skills of these primary students were still developing and that the children who could break single words into their component sounds had a relative advantage in reading and understanding passages. Similarly, although verbal working memory had a direct association with word recognition, it appeared to have no significant direct or indirect relationship with either word attack or reading comprehension.

The absence of a significant relationship between verbal working memory and reading comprehension supports findings from other studies which have shown that the effect of verbal memory is normally incorporated in phonological awareness when these two variables are employed as simultaneous predictors of reading performance (Dally, 2006; Rohl, 1995). This is likely due to phonological awareness tasks such as blending sounds placing a heavy dependence on the processing and storage components of working memory. As a result, these two types of tasks are likely to share some common variance. It may be the case that verbal memory stimulates phonological awareness ability and that verbal memory has an indirect influence on reading, facilitated through phonological awareness. Besides,
verbal working memory has been linked to reading comprehension difficulties independent of word recognition difficulties (Oakhill, et al., 2003; Swanson, et al., 2006).

6.2.2.4 Summary of Findings Related to Research Question 2.

The results of the combined regression analyses (see Figure 4.2, p.97) suggest that the reading comprehension skill of Bhutanese students relied more on recognizing words by sight, rather than using phonological information to decode unfamiliar words (word attack). This result is consistent with other studies examining and testing models of reading comprehension for ELLs (Proctor, August, Carlo, & Snow, 2006). Proctor, et al., (2006) explained that efficient word recognition typically involves both pronouncing a word correctly and understanding its meaning at the same time. For example, the ability to say the correct form of a written word (word recognition) and also understand the meaning of the word (vocabulary) explains the relationship between vocabulary knowledge and reading comprehension (Geva & Yaghoub Zadeh, 2006).

These inconsistent findings regarding the strength of relationships between phonological processing skills and reading measures might relate to the nature of the samples in the studies. Some studies examined ELLs as a group without differentiating among the languages, and other studies examined ELLs who spoke a specific language. Most samples were from ELLs studying within an English speaking country and not students in a country studying English as a second language, as in the present study. Therefore, it is difficult to determine if the differences in the results are due to a positive or negative transfer from a specific language to English (Lems, et al., 2010; Shore & Sabati, 2009), or a result of the different phonological processing skills of ELLs in general (Verhoeven, 2007). Although the results from the present study are based on correlational data, the regression analyses indicated that phonological awareness, verbal memory and rapid naming skills had a direct association with word recognition and word attack. This indicates that phonological
processing skills are important to learning to read in ELLs, although the level of specific skills that contribute to reading comprehension may differ.

**6.2.3 Research Question 3: Are there significant differences between Grade Four Repeaters, Grade Four and Grade Five students in phonological processing skills, reading skills and subjective well-being?**

An ANOVA was conducted to compare the performance of the Grade Four and Grade Five students and the Grade Four repeaters on the phonological processing and reading tasks. The subjective well-being scores for each group of students were also examined for differences. To further differentiate between repeating students and their current and previous peers on their phonological processing skills and subjective well-being, effect sizes were calculated using Cohen’s $d$ to determine the importance of mean score differences.

**6.2.3.1 Grade Four Repeaters compared to Grade Four (current peers).**

The ANOVA results revealed that the repeating students, when compared to their current classmates, generally had comparable phonological skills except for the onset-rime blending task under the phonological awareness component and were reading words at the same level. On the other hand, the Repeaters were poorer at understanding passages of connected text than their current classmates. These findings suggest that the Repeaters did not comprehend what they read to the same extent as their current classmates, despite similar levels of phonological skill and word reading ability.

These findings add to the existing empirical research that students who are effective decoders do not necessarily possess effective comprehension skills (Joshi, 2003; Savage, 2006). Some studies argue that this gap is more apparent in older children, and is especially prevalent by Grade Four. After the initial stage of learning to read, struggling readers are most likely to display ineffective decoding and poor comprehension abilities (Charles & Mertler, 2002). In addition, the problem of good decoding but poor comprehension is an issue of concern for it is more prevalent in ELLs (Cappellini, 2005).
A medium effect size was found for onset-rime blending between Grade Four Repeaters and Grade Four students, whereas there was a large effect size for the group differences for passage comprehension ($d = -1.10$) and subjective well-being ($d = -1.19$) measures.

**6.2.3.2. Grade Four Repeaters compared to Grade Five (previous peers).**

The results from this study show that the repeaters had similar ability in verbal memory (digit span), but were poorer in phonological awareness, rapid naming, word reading and reading comprehension. These findings confirm the proposed double-deficit hypothesis of Wolf and Bowers (1999), which suggests that some deficits in reading may be related to the speed with which one can name aloud a series of letters, objects and numbers, as well as, to deficits in phonological awareness. In other words, although the repeating students don’t have a specific verbal memory problem, their ability to attend explicitly to the phonological structure of word as well as speed in retrieval processes were generally poor. Therefore, repeaters’ deficits in both phonological awareness and rapid naming could be a possible reason for these students failing end of year exams. In addition, repeating students were generally less satisfied with school than both their present and previous classmates. These findings suggest that making failing students repeat a grade may be ineffective since repeating did not improve learning capacity (text comprehension) and may lead to decreased motivation.

Medium to large effect size group differences were found for onset-rime blending and phoneme blending. Likewise, large effect sizes for rapid naming colours in English/Dzongkha were found. Overall, apart from the phoneme blending measure the reading measure differences showed higher effect sizes (word recognition, $d = -1.14$; word attack $d = -1.19$; and reading comprehension, $d = -1.46$) compared to the three constructs of phonological processing skills, with reading comprehension ($d = -1.46$) showing the highest
effect size difference. Further, a very large effect size of \((d = -1.80)\) for the subjective well-being measure was found between the repeaters and Grade Five students.

6.3 Qualitative Findings on Subjective Well-being of Students

In addition to the statistical results, the themes that emerged from the qualitative analysis (see Chapter 5), helped to clarify why the repeating students were less happy at school compared to their current and previous peers. The themes that emerged from the analysis of each of the five open-ended questions regarding their well-being at school revealed that two themes: (1) not understanding lessons and (2) lack of interest in the lessons, were especially prominent among the Repeaters who reported difficulties in learning and boredom because of lesson repetition. These findings suggest that the repeating students were not making meaningful progress at school and felt less motivated in class compared to their current and previous peers.

The findings from the qualitative analysis showed that students from across all three groups expressed positive themes including having friends, the prospect of future jobs and physical education games and sports as three important factors why they liked to go to school and what made them happy at school. The findings also showed that Grade Four and Grade Five students were more explicit about their future jobs, whereas the repeating students were not specific about their future although they knew that going to school was important.

Overall, Grade Four and Five students reported more positive themes including learning new things, enjoyment of reading, liking their teachers and doing well at school, as important reasons why they liked going to school and what made them happy at school. In comparison, relatively fewer Repeating Grade Four students mentioned learning new things and none of them mentioned the other positive themes such as enjoyment of reading; good relationships with teachers and doing well at school. However, the Repeaters indicated a greater preference than the Grade Four and Five students for active subjects such as PE
lessons and games and sports. These activities may have been more enjoyable than classroom based lessons for the repeating students as these activities were most likely to get the students out of class and away from lessons.

Many of the positive themes reported from the findings of this study associated with the subjective well-being of children are consistent with the literature (Gottfredson, et al., 2009; Huebner, Suldo, & Valois, 2005; Randolph, 2007; Verkuyten & Thijs, 2002). Suldo and Huebner (2006) agree that student well-being is associated with a number of school experiences; particularly peer acceptance and teacher support. Support from teachers and classmates have been found to influence students’ satisfaction with school life (Suldo & Huebner, 2006). Gottfredson, et al., (2009) argued that it is teacher rapport and the teacher’s interactions with students which facilitate students’ feelings of school attachment. Students perceive teachers to be supportive when their teachers connect with them on an emotional level, acknowledge and encourage student academic success, and show fairness to all students. Similarly, Randolph, et al., (2010), using the same measure of wellbeing as was used in the present study, showed that students who liked their teachers were more satisfied with school than students who tended not to like their teacher.

In the present study, students from all three groups reported negative themes such as walking long distances, lack of interest, bullying, having no friends/quarrelling with friends, scolding and punishment by teachers, school climate, student misconduct, and not understanding lessons. However, the Repeating Grade Four students had a higher frequency of reporting these issues on seven out of the eight negative themes and also reported two additional negative themes that were not mentioned by the other groups. These were feeling physically unwell and lesson repetition. This finding supports other studies which found that students who are dissatisfied with school are more likely than their satisfied peers to exhibit
negative physical symptoms such as headache, stomach ache, and common colds (Konu, Lintonen, & Rimpela, 2002; Konu, Lintonen, & Rimpelä, 2002; Natvig, et al., 2003).

Most of the reported negative themes that were associated with student well-being in this study are consistent with findings of other studies such as bullying and not having friends at school (Suldo & Huebner, 2006; Thijs & Verkuyten, 2008), and scolding and punishment from teachers (Randolph, et al., 2009, 2010). This suggests that the degree of perceived support from friends and teachers at school may have an impact on the degree to which students like school and feel happy and safe (Thijs & Verkuyten, 2008). Similarly, not being bullied in school is associated with higher subjective well-being (Suldo & Huebner, 2006).

However, there were two negative themes which appear to be distinctive to Bhutan, which were long walking distances to school and punishment from teachers. Bhutan is a mountainous and rugged country (UNICEF, Bhutan Country Report, 2009). In the present study, students reported long walking distances, feeling lazy to walk, getting drenched in the rain, getting late to school and consequently ending up with punishments from teachers as one of their main reasons for not liking school. This confirms other studies carried out by the Youth Development Fund (YDF) under the Ministry of Education (MoE), Bhutan. It has reported that the distance to school from scattered homes located on mountains and lack of boarding facilities as main issues for students in Bhutan (Dorji & Kinga, 2005).

According to some students’, beating and scolding from the teachers was occurring to some extent in each of the eight schools, and was usually related to giving wrong answers or not understanding the lessons. Historically, corporal punishment in Bhutanese schools has been an accepted part of discipline for it was often thought of as an effective facilitator for learning. Punishment, such as beating and scolding, was used as a means to “right the wrong” so that children who did not obey teachers or did not complete their work could be better controlled and thus learn a greater appreciation for authority. However, in recent years
Bhutan has become a member of the Global Community to Child Rights and the Bhutanese Government is now putting efforts into promoting child rights and banning corporal punishment in schools. Corporal punishment is now unlawful in schools under the article 109 of the Penal Code (Royal Government of Bhutan). This was supported by a notification from the Ministry of Education in 1997 that corporal punishment should not be used (Code of Conduct for teachers, 1997), and subsequent administrative directives (Bhutan Ministry of Education, 2008). Nevertheless, from the student responses in this study, corporal punishment still seems to be prevalent in Bhutanese schools.

Overall, the findings from this study underscore the findings of other studies which reveal that low achieving students tend to display more negative attitudes towards school than high achieving students. The findings from the present study revealed that the repeating students were generally less happy than their peers and student wellbeing was moderately related to reading progress. Other studies stress that low achievers who feel overwhelmed, stressed and are unable to meet academic demands tend to develop negative feelings toward school (McCoach, 2000,). Moreover, some studies report that students will be motivated to do things in which they have experienced success in the past, compared to students who have not experienced success in the past (Levine & Moreland, 2004). Students’ satisfaction with school fosters classroom participation and achievement (Ladd, Buhs, & Seid, 2000), while school dissatisfaction is associated with low school achievement and disengagement (Hammond, et al., 2007).

6.4 Summary of Combined Findings from the Quantitative and Qualitative Analyses

Findings from this study indicated that both phonological awareness and rapid naming were moderately correlated with word recognition, word attack and reading comprehension. In contrast, while verbal working memory was moderately correlated with word recognition it was not closely associated with word attack or reading comprehension. When the
influences of phonological awareness, rapid naming and verbal memory on reading were considered simultaneously in the regression analyses, phonological awareness, and in particular phoneme blending and phoneme segmentation, had the largest unique influence on the two word reading measures and on reading comprehension. Rapid naming of objects in English and in Dzongkha as well as verbal working memory also had a small but significant influence on reading comprehension through word recognition. However, the absence of a significant association of rapid naming colours in both English and Dzongkha with reading comprehension suggests that these tasks did not account for much variance and were not strong predictors of reading comprehension, when considered with rapid naming objects.

The present study also showed that the reading comprehension skill of Bhutanese students relied more on recognizing words by sight (word recognition), rather than using phonological information to decode unfamiliar words (word attack). However, the unexpected finding that phoneme segmentation had a significant direct rather than indirect influence on reading comprehension, suggests that the phonological analysis skills of these ELL students were still developing. Thus, phoneme segmentation may have acted as a more reliable measure of decoding when its influence was considered, along with pseudoword reading (the skill required for the word attack task).

The comparison of the repeating Grade Four students to their current peers indicated that the repeating students did not comprehend text to the same extent as their Grade Four classmates, despite general comparable levels of phonological skills except for the onset-rime task under the phonological awareness component and word reading ability. Compared to their previous peers who had been promoted to Grade 5, the repeaters had similar storage processes (digit span) but were poorer in phonological awareness, rapid naming, word reading and reading comprehension. These findings suggest that the repeaters’ difficulties were specific to reading related tasks as well as low order processing, including their inability
to attend explicitly to the phonological structure of the word (phonological awareness) and retrieval process (rapid naming) when compared to their previous peers (Grade Five). The findings also showed that Grade Five students were doing better than Grade Four students on word reading, but not on comprehension. The finding that Grade Five students were reading more words but not understanding more than Grade Four students, suggests that it is likely that even these groups of students need interventions or instruction to improve reading comprehension skills.

While there was some evidence that some students across all three groups were unhappy with long walking distances between home and school, bullying, not having friends and teacher punishment, the repeating students were more likely than their peers to report these factors and also that they were bored with their lessons, less motivated and lacked interest in study.

These results confirm the findings of other studies stressing that poor performance, low achievement and lack of motivation in students are associated with performance avoidance leading to negative outcomes such as lower performance, hopelessness, low self-worth, and poor self-efficacy (Pekrun, et al., 2006; Urdan, 2004). Further, teachers' fair treatment of pupils is associated with pupils' well-being and having plans for future education is also associated with higher well-being (Randolph, et al., 2009, 2010).

The current cross-sectional study of the relationships between phonological processing, reading, and subjective well-being of Grade 4 and Grade 5 Bhutanese students, including some who had been retained in Grade 4, has provided some insight into the educational experiences of a rarely studied population of ELL students. The findings suggest the importance of three things: (1) targeting reading interventions that facilitate phonological awareness and rapid naming speed for repeating students in particular and reading comprehension across all groups of children in general; (2) conducting other studies to see if
interventions to improve the reading skills of Bhutanese students in Grade Four reduce failure rates; and (3) providing a better daily school experience for students to bring about higher subjective well-being in students. Recent years have seen the development of intervention programs focusing on and/or including multi-dimensional aspects of the school climate (Knoff, 2007; Orpinas & Horne, 2006), and these results emphasize the importance of continuing this direction. The implications of the study are listed below in order of priority.

6.5 Implications of the Study

6.5.1 Targeting reading interventions for repeating students.

The findings from this study indicated that repeating students exhibited poorer phonological awareness skills and were retrieving names of objects and colours with a lower degree of speed and accuracy compared to their previous peers (Grade Five). Repeating students were also poorer than their previous peers on word reading measures with a statistically significant difference between the two groups. All these findings suggest that targeting intervention programs facilitating phonological and RAN processing skills for repeating students as interim measures for improving their word reading levels may prove essential in order for them to catch up with their previous peers in word reading.

As discussed in the literature review, many studies on ELLs maintain that a structured approach to learning sound-symbol correspondence, including letter-sound relationships, helps focus children’s listening attention on speech sounds. Implementing this as part of the regular teacher’s instructional program can assist poor readers to catch up to the same levels of literacy and phonological competence as their native speaking peers (Chiappe, et al., 2002; Durgunoglu, 2002; Swanson, Saez & Gerber, 2006; Woolley, 2010). This is evident from research showing that phonological awareness is a significant contributor to word recognition and spelling within and across languages (Durgunoglu, 2002; Woolley, 2010). Further, other phonological training activities such as rhyming (e.g., listening to and repeating rhymes),
finding words that rhyme; generating new words to rhyme with a given word for understanding the concept of rhyme makes it easier for children to recognise word families (e.g., hand, band, land) in addition to blending and segmentation tasks.

Another key intervention that the teachers need to consider for the repeating students is with students who simply can’t quickly retrieve words that they have already stored in their memory. In this study, this was the names of common objects and colours. Research mentions that memory for words is closely associated with the meaning, pronunciation and spelling of the word, and all these three need to be stressed in order to aid memorisation and recall (Ehri & Rosenthal, 2007; Aron et al., 1999). The above interventions are essential since the combination of phonological processing difficulties with naming speed problems will make reading less automatic for the repeating students and can result in more serious reading difficulties (Vellutino et al., 2004; Wolf & Bowers, 2000).

6.5.2 Targeting reading interventions to facilitate comprehension.

The findings from this study showed that repeating students did not comprehend text to the same extent as their Grade Four or Grade Five classmates, and further, that Grade Five students were doing better than Grade Four students on word reading, but not on reading comprehension. This suggests that all primary students, not just those repeating a grade, may need interventions or instruction to improve reading comprehension skills.

As discussed in the literature review, the number of studies dealing with the essential elements of reading with ELLs is small. However, it is evident from recent research reviews and reports that reading comprehension is more difficult for ELLs than for native speakers for various reasons (August & Shanahan, 2006; Francis, et al., 2006). Three of the most important reasons are background knowledge, language level of the text and modifications to reading comprehension instructions.
6.5.2.1 Background knowledge.

Most Bhutanese students come from rural backgrounds where English is not spoken at home; therefore, reading texts that assume prior knowledge in English might be problematic. As most of the information in the reading textbooks in Bhutanese schools is not written by local authors, cultural differences and culturally based assumptions may result in a lack of background knowledge and thus a loss of comprehension.

Whatever the reasons for the lack of necessary background knowledge, before asking the students to read a particular text, teachers need to identify information that is prerequisite for understanding the text, evaluate student’s prior knowledge of these prerequisites and fill the gaps. Building background knowledge could best be done through getting students involved in manipulating language and concepts, such as role playing, previewing a reading and generating questions about it and making predictions about the answers to those questions. For example, cognitive strategies such as predicting what will happen in a story, identifying main ideas, connecting what has been read to the reader’s prior knowledge, reflecting and reviewing what has been read and asking questions will benefit ELLs (Wong & Snow, 2003).

Because good readers use their background knowledge to get meaning from what they read (e.g., by using pictures and headings), teachers in Bhutan can assist students to comprehend what they are reading by previewing the material, by asking students to provide summaries or overviews of what they read in their L1 (Dzongkha), by explaining the meaning of the vocabulary, by checking students’ accuracy as they read and by reviewing with students what has been read (Freeman & Freeman, 2004).

6.5.2.2 Language level of the text.

Most Bhutanese students come from rural backgrounds where English is not spoken at home and so unusual vocabulary, figurative language, and complex sentence structures can
be very difficult for them to understand. Therefore, the integration of intensive language developments with reading instruction (August & Shanahan, 2006) is highly recommended. For example, a number of reading interventions for ELLs with reading difficulties, or at risk of reading difficulties, have been shown to produce positive gains for ELLs (Klingner, Artiles, & Laura Méndez, 2006). These include language interventions, literacy development and instructional strategies for teachers.

The same elements of effective reading instruction for L1 students also benefit ELLs. These elements include explicit instruction in phonemic awareness and decoding skills, word recognition, reading comprehension, vocabulary instruction, oral reading fluency, spelling, and writing (Gersten et al., 2008; Gunn, Biglan, Smolkowski, & Ary, 2000; National Reading Panel-NRP, 2000). Reading skills for ELLs can also be improved by working on students’ oral language proficiency and focusing on vocabulary development (August & Shanahan, 2006).

Other interventions that benefit ELLs and that can be incorporated in reading instruction are vocabulary instruction (Vaughn et al., 2006), error correction and repeated reading (Tan, et al., 2007), use of peer and cooperative learning groupings (De la Colina, Parker, Hasbrouck, & Alecio, 2001; Saenz, Fuchs, & Fuchs, 2005), word identification (Denton, Anthony, Parker, & Hasbrouck, 2004), and error correction (Tan, et al., 2007). Teachers could also provide students with reading materials of various genres and encourage silent reading as well as the teacher modelling reading for students (Freeman & Freeman, 2004).

**6.5.2.3 Modifications to reading comprehension instructions.**

It is a normal phenomenon in the schools of Bhutan that teachers ask the students to read the textbook and expect them to answer the questions appearing at the end of the text (Sherab, 2006). Such rigid daily practices of asking students to read the text and expecting
the students to follow directions in the text without any modifications of teaching aids other than the usual textbook, chalk and chalkboard may result in frustration for teachers and failure for students (Sherab, 2006). Therefore, teachers may need to follow some general principles for modifying reading instructions for students such as providing as much nonverbal support for reading comprehension as possible through visual aids, including pictures, diagrams, graphic organizers, real objects, acting, and gestures (August & Shanahan, 2006; Freeman & Freeman, 2007). Such approaches may help students to understand a reading passage. In addition, assessment practices could be broadened to incorporate tasks where students can show what they have understood without needing to entirely depend on verbal activity (Carrasquillo, Kucer, & Abrams, 2004; Dragan, 2005).

6.5.3 Directions for policies and practices on grade retention.

Based on the findings from this study, it is suggested that the policy of retaining students in the same grade should be reviewed given the repeaters in the study may have been having reading problems rather than generalised learning problems. This is evident from the finding that the retained students had poorer performance on the reading specific tasks but their underlying memory processes were equal to their peers who had been promoted. Also in support of an argument against retention is the finding that the achievement of the retained students still lagged, compared to the achievement of their current peers on their reading performance. This finding indicates that merely repeating a grade without any additional support or tuition is not sufficient to promote the students’ learning to a level commensurate with their peers. Numerous studies have shown that retention also greatly increases the likelihood of poor motivation as well as reduced satisfaction with school (Levine & Moreland, 2004; Pekrun, Elliot, & Maier, 2006; Randolph, Kangas, & Ruokamo, 2009; Suldo & Huebner, 2006). Thus the problems facing retained students may be magnified and persist
throughout their schooling. It is timely for this policy to be reviewed to ensure that responses to academic difficulties are supportive and not punitive.

Retaining students should not be the automatic response for students who fail the annual examination. Rather than making grade repetition as the default option for underachieving students, school policies must be expanded by looking at more effective ways to support children’s learning and to allow struggling children to remain with their same aged peers. The results from this study reveal that some repeating students were as old as 18 years when the mean age for the whole sample was 11.7, indicating that some students had repeated grades more than once. The change of policy discussed here requires systematic change, requires shifts in prevailing practice, and requires sufficient resources and ongoing capacity building for such change. Continuing to maintain a policy of grade retention without changing instructional strategies denies students’ access to opportunities at the next level of schooling.

6.5.4 Subjective well-being of students.

On the basis of the current findings, some students across all three groups reported that they did not like to go to school because of teachers being unfair, or scolding and beating them. This finding emphasizes the importance of closer co-operation between teacher and students. It suggests that teachers need to extend their support through various means, for example, by being impartial, by engaging children in learning, and by providing encouragement and motivation. In addition, it is asserted that engaging children in extracurricular activities, having high expectations and plans for future education or employment among others are crucial for enhancing children’s positive feelings towards school (St. Leger & Nutbeam, 2000). Further, social relationships are important to children’s well-being. Therefore, in particular not being bullied and having friends are also found to be associated with student well-being (Tuominen, Salmela-Aro, Niemivirta, & Vuori, 2004).
Finally, school conditions, like ventilation, temperature, cleanliness and furniture have been shown to have a small but significant association with well-being (Opdenakker & Van Damme, 2000; Tuominen, et al., 2004).

6.6. Contribution of the Research to Existing Knowledge

Based on the findings presented above, this research makes a number of contributions to existing knowledge. The research contributes to existing knowledge in the field of reading difficulties for ELLs and for Bhutanese students in particular, by determining what skills are important for older children who have poor reading performance and what weaknesses they continue to experience as they encounter more sophisticated texts. The findings will also help to identify factors which may contribute to poor reading skills in ELL children and which can therefore be a target for intervention. The findings can also be used to inform the development of effective instructional and remedial strategies for ELL children being taught in a second language and learning to read in English. The successful and timely acquisition of reading skills is important because reading accuracy and fluency in English is clearly among the essential skills influencing all subsequent knowledge acquisition for children in Bhutan. Therefore, this study will contribute to a greater understanding of providing timely reading interventions to the students without waiting for failure. Furthermore, this study confirms existing notions about the relationship between academic achievement and subjective well-being of students and suggests there may be a relationship between reading difficulty and grade retention, both of which can contribute to unhappiness at school.

The findings of this study add to the long list of significant contributions of phonological awareness and rapid naming to reading ability (Kirby, et al., 2003; Manis, et al., 2004b; Parrila, et al., 2004). The present study appears to support the observations of Wolf and Bowers (1999) that performance on phonological awareness measures and performance on rapid naming measures are the results of independent processes. In this study, the
phonological awareness measures and rapid naming measures made unique and independent contributions to the word reading measures. Further, the findings from this study also suggest a double deficit theory of reading disability by reasoning that in many poor readers there are common co-occurrences of deficits in rapid naming and phonological awareness (Wolf et al., 2000).

The current research has shown the importance of children’s daily experiences at school and the association of these experiences with subjective well-being. While it is impossible from this cross-sectional study to determine causality, it is possible that there are mutual relationships between reading difficulties and grade retention and negative perceptions of school whereby, once a vicious cycle is created, all three elements continue to impact on each other. This is evident from the finding that repeating students were performing at very low levels on reading comprehension as well as on their subjective well-being compared to both their current and previous peers. This suggests that the repeating students were unhappy and less motivated to engage in school activities. This finding is consistent with the review of the professional success and happiness literature which shows evidence of association between happiness and academic achievement (Lyubomirsky, King, & Diener, 2005). Similarly, students with higher subjective well-being earn higher grades meaning school success also predicts subjective well-being. A student who performs well in school may do so because they are happy, while performing well academically may make children happier.

6.7 Limitations and Suggestions for Future Research

While this study has produced interesting findings, it does have three limitations that need to be acknowledged. The first, and perhaps the most important, is that this investigation was limited by region, scope, sample and cultural context and it may be difficult to generalize the results since this study was conducted in some semi-rural regions in Bhutan where most
parents of the children cannot speak English, unlike in Bhutanese urban areas where most
parents of the children can communicate in English with their children. The second
limitation of this study is that although the findings show that reading difficulties appear
to be associated with grade retention and poor subjective well-being of students, these
associations can go in more than one direction. This is because the analyses are based upon
cross-sectional data and thus it was not possible to test or confirm any causal relationships.
Difficulties in reading could be a cause of grade retention resulting in lower subjective well-
being. Conversely, lower subjective well-being may reduce student motivation leading to
reading difficulties and grade retention. The third limitation is that students were assessed
towards the second half of their academic year and not at the beginning of the academic year.
Assessing the repeating students in the beginning of their academic year could have given a
better understanding of their phonological processing skills and reading levels as well as their
subjective well-being, before the impact of repeating a grade.

In light of the limitations raised above, it is apparent that further studies need to look at
relationships of repeating students that have reading problems and not general learning
problems. Also studies that include interventions and strategies to effectively teach reading
should be implemented and then see if failures are reduced. Longitudinal studies are required
to tease out the direction of these relationships between reading, grade repetition and
subjective well-being of students.

6.8 Conclusions

In conclusion, the findings from the present investigation of reading skills and
wellbeing in a small sample of ELL primary students showed that phonological awareness,
rapid naming and verbal working abilities made independent contributions to word-level
reading and reading comprehension. Although both word recognition and word attack
measures were expected to have a direct relationship with reading comprehension,
unexpectedly, only the word recognition measure had a direct association with reading comprehension. Word attack did not have a significant influence on reading comprehension in this particular group of Bhutanese children. This unexpected finding of students comprehending text more through word recognition and not through word attack suggests that the reading comprehension of Bhutanese students was more reliant on recognizing words by sight, rather than using phonological information to decode unfamiliar words. Frequent exposure to print may contribute to the development of a richer vocabulary as well as general knowledge, which in turn will contribute to further development of more advanced reading skills (Huchinson, 2003). Research maintains that achievement in English reading including comprehension is considerably related to the wealth of the ELL learner’s vocabulary knowledge in English besides their understanding of underlying text structure and meaning (Genesee, Lindholm-Leary, Saunders, & Christian, 2005).

The study also showed that Grade Five students were no different to Grade Four students on their reading comprehension, while the reading comprehension of the repeating students was much poorer than both of the other groups. This suggests that all students need instruction to improve reading comprehension skills. A number of strategies to support reading comprehension in ELL students were suggested including effective instruction (direct and explicit); engaging students in listening comprehension and inference generation tasks; regular comprehension monitoring; using contextual cues and building syntactic and semantic knowledge of the students (Cain & Oakhill, 2007; Lesaux et al., 2008; Perfetti, 2007). These strategies are specifically recommended for middle and upper primary grades where students will encounter richer texts and require a higher level of text processing skills (Botting, 2007).

The finding that repeaters had similar ability in verbal working memory but were poorer in phonological awareness, rapid naming, word reading and reading comprehension
suggests that a specific reading difficulty, rather than generalized learning problems, could be a possible reason for these students failing end of year exams. This result, in conjunction with the finding that repeating students were generally less satisfied with school than both their present and previous classmates suggest that making failing students repeat a grade may be ineffective since repeating did not improve learning capacity (text comprehension) and may lead to decreased motivation. Rather than making grade retention as the default option for under-achieving students, school policies must be expanded by looking at more effective ways to help children by targeting effective interventions and creating a positive school climate where children not only feel safe and secure but also happy and satisfied. The findings and recommendations from this study provide clear directions for ways in which the government of Bhutan can take into account the learning and well-being of its own children so that the aims of Gross National Happiness can be successfully achieved.
References:


Savage, R. S. (2006). Reading comprehension is not always the product of nonsense word decoding and linguistic comprehension: Evidence from teenagers who are extremely poor readers. *Scientific Studies of Reading, 10*, 143-164. doi: 10.1207/s1532799xssr1002_2


Appendix A 3.1 Human Research Ethics Approval

HUMAN RESEARCH ETHICS COMMITTEE

Notification of Expedited Approval

To Chief Investigator or Project Supervisor: Associate Professor Ian Dempsey
Cc Co-investigators / Research Students: Ms PemaWangmo

Re Protocol: An Investigation of Phonological Processes and Reading Skills in Bhutanese Primary Students

Date: 13-Aug-2010
Reference No: H-2010-1149
Date of Initial Approval: 13-Aug-2010

Thank you for your Response to Conditional Approval submission to the Human Research Ethics Committee (HREC) seeking approval in relation to the above protocol.

Your submission was considered under Expedited review by the Chair/Deputy Chair.

I am pleased to advise that the decision on your submission is Approved effective 13-Aug-2010.

For noting: Please provide a written confirmation that the translated Participant Information Statement is a true and accurate translation of the English version. The confirmation should be signed and dated by the translator.

In approving this protocol, the Human Research Ethics Committee (HREC) is of the opinion that the project complies with the provisions contained in the National Statement on Ethical Conduct in Human Research, 2007, and the requirements within this University relating to human research.

Approval will remain valid subject to the submission, and satisfactory assessment, of annual progress reports. If the approval of an External HREC has been "noted" the approval period is as determined by that HREC.

The full Committee will be asked to ratify this decision at its next scheduled meeting. A formal Certificate of Approval will be available upon request. Your approval number is H-2010-1149.

If the research requires the use of an Information Statement, ensure this number is inserted at the relevant point in the Complaints paragraph prior to distribution to potential participants You may then proceed with the research.
Conditions of Approval

This approval has been granted subject to you complying with the requirements for Monitoring of Progress, Reporting of Adverse Events, and Variations to the Approved Protocol as detailed below.

PLEASE NOTE:
In the case where the HREC has "noted" the approval of an External HREC, progress reports and reports of adverse events are to be submitted to the External HREC only. In the case of Variations to the approved protocol, or a Renewal of approval, you will apply to the External HREC for approval in the first instance and then Register that approval with the University's HREC.

- Monitoring of Progress

Other than above, the University is obliged to monitor the progress of research projects involving human participants to ensure that they are conducted according to the protocol as approved by the HREC. A progress report is required on an annual basis. Continuation of your HREC approval for this project is conditional upon receipt, and satisfactory assessment, of annual progress reports. You will be advised when a report is due.

- Reporting of Adverse Events

1. It is the responsibility of the person first named on this Approval Advice to report adverse events.
2. Adverse events, however minor, must be recorded by the investigator as observed by the investigator or as volunteered by a participant in the research. Full details are to be documented, whether or not the investigator, or his/her deputies, consider the event to be related to the research substance or procedure.
3. Serious or unforeseen adverse events that occur during the research or within six (6) months of completion of the research, must be reported by the person first named on the Approval Advice to the (HREC) by way of the Adverse Event Report form within 72 hours of the occurrence of the event or the investigator receiving advice of the event.
4. Serious adverse events are defined as:
   o Causing death, life threatening or serious disability.
   o Causing or prolonging hospitalisation.
   o Overdoses, cancers, congenital abnormalities, tissue damage, whether or not they are judged to be caused by the investigational agent or procedure.
   o Causing psycho-social and/or financial harm. This covers everything from perceived invasion of privacy, breach of confidentiality, or the diminution of social reputation, to the creation of psychological fears and trauma.
   o Any other event which might affect the continued ethical acceptability of the project.

5. Reports of adverse events must include:
   o Participant's study identification number;
• date of birth;
• date of entry into the study;
• treatment arm (if applicable);
• date of event;
• details of event;
• the investigator's opinion as to whether the event is related to the research procedures; and
• action taken in response to the event.

6. Adverse events which do not fall within the definition of serious or unexpected, including those reported from other sites involved in the research, are to be reported in detail at the time of the annual progress report to the HREC.

• Variations to approved protocol

If you wish to change, or deviate from, the approved protocol, you will need to submit an Application for Variation to Approved Human Research. Variations may include, but are not limited to, changes or additions to investigators, study design, study population, number of participants, methods of recruitment, or participant information/consent documentation. **Variations must be approved by the (HREC) before they are implemented** except when Registering an approval of a variation from an external HREC which has been designated the lead HREC, in which case you may proceed as soon as you receive an acknowledgement of your Registration.

**Linkage of ethics approval to a new Grant**

HREC approvals cannot be assigned to a new grant or award (ie those that were not identified on the application for ethics approval) without confirmation of the approval from the Human Research Ethics Officer on behalf of the HREC.

Best wishes for a successful project.

Professor Alison Ferguson

Chair, Human Research Ethics Committee

*For communications and enquiries:*

Human Research Ethics Administration

Research Services
Research Office
The University of Newcastle
Callaghan NSW 2308
T +61 2 492 18999
Appendix B.3.2 Permission Letter

The Director General
Department of School Education
Ministry of Education
Thimphu

27th September 2010

Subject: List of ten schools to participate in the research Project.

Dear Sir,

With reference to the school information statement for the research topic: An Investigation of Phonological processing and reading skills in Bhutanese Primary students – document version 2: dated Jul/30/2010 the ten schools identified to participate in the research project under Pacho Dronkhang are as follows:

1. Drukgyel Lower Secondary School
2. Langp Lower Secondary School
3. Gapey Lower Secondary School
4. Tajo Primary School
5. Khampa Middle Secondary School
6. Shaba Primary School
7. Doteng Lower Secondary School
8. Wochha Lower Secondary School
9. Isuna Community School
10. Ramechetscha Community School

The research will take place with effect from the first week of October till the end of November (for duration of two months) with a minimum of three to four days research in each school.

If you consent to your schools participating in the study, you are asked to allow the principals in the ten schools to distribute the attached information and consent forms to the parents of Grade 4 and 5 students in their schools.

Thanking you for considering the invitation.

Pema Wangmo,
PhD Candidate
University of Newcastle
Dear Director,

Ten schools under your Ministry are invited to participate in the research project identified above which is being conducted by Pema Wangmo from the School of Education at the University of Newcastle. Ms Wangmo is conducting the research as part of her Doctor of Philosophy degree under the supervision of Associate Professor Ian Dempsey and Dr. Kerry Dally from the School of Education, Faculty of Education and Arts.

The purpose of the research is to look at how well children in Grades 4 and 5 can read in English and to see if there are some skills that help children to read better. Students will be assessed in the areas of phonological awareness, verbal working memory, and rapid naming as well as the reading skills of word recognition, word attack and reading comprehension. The study will also explore whether students repeating Grade Four exhibit lower levels of phonological knowledge and reading skills as well as lower levels of subjective well-being than Grade Four First Time and Grade Five students. The information from the study will be used to help teachers and educators design more effective ways of teaching Bhutanese children to read in English. There have been no previous studies done in this particular area in Bhutan.

The study will involve 40 fourth grade repeaters who will be compared with 40 other first time fourth graders and 40 fifth graders in ten public schools in Paro. Agreeing to let your schools participate in this research is entirely your choice. Only those children whose parents give their informed consent will be included in the project. Whether or not you decide to allow your schools to participate, your decision will not disadvantage the students or the
If you do allow the schools to participate, you may withdraw one school, a number of schools, or all schools from the project at any time without giving a reason.

Those children for whom consent is provided will be asked to participate in a reading assessment and a short interview with PemaWangmo conducted during the school day and taking approximately 40 minutes. The students will complete activities including naming pictures, identifying letters and words, reading a short story and sound games such as rhyming words and finding sounds in words. The activities will be presented in the form of games and when the activities are finished, the researcher will ask each student some questions about their school work and how much they like school.

The information from this project will be reported in a doctoral thesis to be submitted for Ms Wangmo’s PhD degree. It may also be reported in conference papers and academic publications. A summary of the findings will be sent to each participating school within six months of completion of the research. Participating in this study will help identify whether difficulties in one or both of reading skills & phonological processing skills may have possible association with Grade Four children to repeat in Bhutan, which can therefore be a target for intervention and can have long term benefits for Bhutanese students and the entire community. Should the study cause any distress to the students, the testing will be immediately terminated and the student will be returned to the class teacher or designated person (School Counselor). No-one will be able to identify the children or the schools from the results of the study. Only the researchers will have access to this information. The school’s identity and the student’s assessment results will be coded for privacy and stored in a locked filing cabinet in the Special Education Centre at the University of Newcastle for 5 years and then destroyed. The only people with access to the coded records are the researcher and the two university supervisors.

If you consent to your schools participating in the study, you are asked to allow the principals in the ten schools to distribute the attached information and consent forms to the parents of the Grade Four and Grade Five students in their schools. If the parents allow their children to participate, the parents can complete the consent form and return it to the school in the envelope provided.

If you would like any further information about the project please contact PemaWangmo or Ian Dempsey as indicated on the previous page.

Thank you for considering this invitation.
Your participation would be greatly valued.

A/Prof. Ian Dempsey  Dr. Kerry Dally  PemaWangmo
Chief Supervisor  Co-Supervisor  PhD Candidate

Complaints about this research
This project has been approved by the University’s Human Research Ethics Committee, Approval No. H-2010-1149. Should you have concerns about your rights as a participant in this research, or you have a complaint about the manner in which the research is conducted, it may be given to the researcher, or, if an independent person is preferred, to the Human Research Ethics Officer, Research Office, The Chancellery, The University of Newcastle. University Drive, Callaghan NSW 2308, Australia, telephone [+61 2] 4921 6333, email Human-Ethics@newcastle.edu.au.
Appendix D 3.4 Approval Letter

Royal Government of Bhutan
MINISTRY OF EDUCATION
DEPARTMENT OF SCHOOL EDUCATION


To,
DHO,
Dzongkhag Administration,
Paro.

Sub: Schools participating in the Research Project

Dear Ugen,

Ms. Pema Wangmo, a PhD candidate from University of New Castel in Australia would like to carry out a Research project on the topic "An Investigation of Phonological Processing and Reading Skills in Bhutanese Primary students."

The Research will take place from the first week of October till the end of November with a minimum of three to four days research in each school. The list of the schools selected to participate in the research is attached here with.

Therefore, you may kindly assist her in the process of her research work and also inform the principals help disseminate the information as well as the consent forms to the parents of Grade 4 and 5.

Sincerely,

[Signature]
(Checklist)
(Official Director General)

Approved
proposed
for
Collection of data

Tele: 325325
Appendix E 3.5 Information Statements for Principal (English)

School Information Statement for the Research Project:
An Investigation of Phonological Processing and Reading Skills in Bhutanese Primary Students
Document Version 2: dated Jul/30/2010

Associate Professor Ian Dempsey
Special Education Centre, School of Education
University of Newcastle
Callaghan, NSW 2308
Telephone: +61 49216282
Fax: +61 69216939
Ian.Dempsey@newcastle.edu.au
Pema.Wangmo@uon.edu.au

Dear School Principal,

Your school is invited to participate in the research project identified above which is being conducted by Pema Wangmo from the School of Education at the University of Newcastle. Ms Wangmo is conducting the research as part of her Doctor of Philosophy degree under the supervision of Associate Professor Ian Dempsey and Dr. Kerry Daily from the School of Education, Faculty of Education and Arts.

The purpose of the research is to look at how well children in Grades 4 and 5 can read in English and to see if there are some skills that help children to read better. The information from the study will be used to help teachers and educating design more effective ways of teaching Bhutanese children to read in English. There have been no previous studies done in this particular area in Bhutan.

Agreeing to participate in this research is entirely your choice. Only those children whose parents give their informed consent will be included in the project. Those children for whom consent is provided will be asked to participate in a reading assessment and a short interview with Pema Wangmo conducted during the school day and taking approximately 40 minutes. The students will complete activities including naming pictures, identifying letters and words, reading a short story and sound games such as rhyming words and finding sounds in words. The activities will be presented in the form of games and when the activities are finished, the researcher will ask each student some questions about their school work and how much they like school. The information letter to parents explains that it may not be possible to include all the children who volunteer to participate in the study. Whether or not you decide to allow your school to participate, your decision will not disadvantage your school in any way. If you do allow the children in your school to participate, you may withdraw the children and your school from the project at any time without giving a reason.
Participating in this study will help identify whether difficulties in one or both of reading skills and phonological processing skills may be associated with children who are repeating Grade Four in Bhutan. Insight into this issue is likely to provide long term benefits for Bhutanese students and the entire community. It is unlikely that the study will distress children. However, should the study cause any distress to the students, the testing will be terminated immediately and the student will be returned to the class teacher or designated person (e.g. school counsellor).

The information from this project will be reported in a doctoral thesis to be submitted for Ms Wangmo’s PhD degree. It may also be reported in conference papers and academic publications. A summary of the findings will be sent via e-mail to each participating school within six months of completion of the research.

No-one will be able to identify the children or your school from the results of the study. Only the researchers will have access to this information. The school’s identity and the student’s assessment results will be coded for privacy and stored in a locked filing cabinet in the Special Education Centre at the University of Newcastle for 5 years and then destroyed. The only people with access to the coded records are the researcher and the two university supervisors.

If you consent for your school to participate, you are asked to allow the attached information and consent forms to be distributed to the parents of the Grade 4 and Grade 5 students in your school. If the parents allow their child to participate, they can complete the consent form and return it in the envelope provided. I would appreciate it if you can kindly provide me with a quiet place in your school to conduct the research.

Please read this Information Statement and be sure you understand its contents before you make a decision about whether or not your school will participate. If there is anything you do not understand, or if you would like any further information about the project please contact Pema Wangmo or Ian Dempsey as indicated on the previous page.

If you agree to participate, please complete the attached Consent Form and return it to the researcher in the envelope provided. For your kind information this letter is accompanied by a version in Dzongkha.

Thank you for considering this invitation.
Your participation would be greatly valued.

A/Prof. Ian Dempsey  
Chief Supervisor  
Dr. Kerry Dally  
Co-Supervisor  
Pema Wangmo  
PhD Candidate

Complaints about this research
This project has been approved by the University’s Human Research Ethics Committee. Approval No. H-2010-1149. Should you have concerns about your rights as a participant in this research, or you have a complaint about the manner in which the research is conducted, it may be given to the researcher, or, if an independent person is preferred, to the Human Research Ethics Office, Research Office, The Chancellory, The University of Newcastle, University Drive, Callaghan NSW 2308, Australia, telephone (+61 2) 4921 6333, email human-ethics@newcastle.edu.au.

Or
Local Contact in Thimphu: Tandin, Department of School Education, tel. 02 325412
School Information Statement for the Research Project:
An Investigation of Phonological Processes and Reading Skills in Bhutanese Primary Students

Associate Professor Ian Dempsey
Special Education Centre, School of Education
University of Newcastle
Callaghan, NSW 2308
Telephone: +612 49216282
Fax: +612 49216939
Ian.Dempsey@newcastle.edu.au
Pema.Wangmo@uon.edu.au

Appendix F Information Statement for Principal (Dzongkha)
Thank you for considering this invitation. Your participation would be greatly valued.

A/Prof. Ian Dempsey  
Chief Supervisor

Dr. Kerry Daily  
Co-Supervisor

Pema Wangmo  
PhD Candidate
བན་བཟང་ཕྱིའི་ཤིས་བ་དྲུག་པར་བདེ་་ི་ནི་ཆོས་ཀྱིས་
མ་ལོའི་ཤིས་ེ་དེ་བོད་བོད།

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དེ་བོད་ཆོས་ཆེན་པོ་ང་བཅུ་སོགས་པ་བོད་ལྔང་ཤིས་ཚེ་

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ེ་ཞི་ཚེ་རྩ་བྱེད་དེ་བསྟན་པས་བཀྲེད་པ་བདེ་་ི་ནི་ཆོས་ཀྱིས་
མ་ལོའི་ཤིས་ེ་དེ་བོད་བོད།

ེ་ཞི་ཚེ་རྩ་བྱེད་དེ་བསྟན་པས་བཀྲེད་པ་བདེ་་ི་ནི་ཆོས་ཀྱིས་
མ་ལོའི་ཤིས་ེ་དེ་བོད་བོད།

ེ་ཞི་ཚེ་རྩ་བྱེད་དེ་བསྟན་པས་བཀྲེད་པ་བདེ་་ི་ནི་ཆོས་ཀྱིས་
མ་ལོའི་ཤིས་ེ་དེ་བོད་བོད།

ེ་ཞི་ཚེ་རྩ་བྱེད་དེ་བསྟན་པས་བཀྲེད་པ་བདེ་་ི་ནི་ཆོས་ཀྱིས་
མ་ལོའི་ཤིས་ེ་དེ་བོད་བོད།

ེ་ཞི་ཚེ་རྩ་བྱེད་དེ་བསྟན་པས་བཀྲེད་པ་བདེ་་ི་ནི་ཆོས་ཀྱིས་
མ་ལོའི་ཤིས་ེ་དེ་བོད་བོད།

ེ་ཞི་ཚེ་རྩ་བྱེད་དེ་བསྟན་པས་བཀྲེད་པ་བདེ་་ི་ནི་ཆོས་ཀྱིས་
མ་ལོའི་ཤིས་ེ་དེ་བོད་བོད།

ེ་ཞི་ཚེ་རྩ་བྱེད་དེ་བསྟན་པས་བཀྲེད་པ་བདེ་་ི་ནི་ཆོས་ཀྱིས་
མ་ལོའི་ཤིས་ེ་དེ་བོད་བོད།

ེ་ཞི་ཚེ་རྩ་བྱེད་དེ་བསྟན་པས་བཀྲེད་པ་བདེ་་ི་ནི་ཆོས་ཀྱིས་
མ་ལོའི་ཤིས་ེ་དེ་བོད་བོད།

ེ་ཞི་ཚེ་རྩ་བྱེད་དེ་བསྟན་པས་བཀྲེད་པ་བདེ་་ི་ནི་ཆོས་ཀྱིས་
མ་ལོའི་ཤིས་ེ་དེ་བོད་བོད།

ེ་ཞི་ཚེ་རྩ་བྱེད་དེ་བསྟན་པས་བཀྲེད་པ་བདེ་་ི་ནི་ཆོས་ཀྱིས་
མ་ལོའི་ཤིས་ེ་དེ་བོད་བོད།
Thank you for considering this invitation. Your participation would be greatly valued.

A/Prof. Ian Dempsey
Dr. Kerry Daily
Pema Wangmo
Chief Supervisor
Co-Supervisor
PhD Candidate
Appendix G 3.7 Consent Form for Schools

Consent Form for the Research Project:
An Investigation of Phonological Processes and Reading Skills in Bhutanese Primary Students
Conducted by Pema Wangmo under the supervision of Associate Professor Ian Dempsey
and Dr Kerry Dally


I agree for my school to participate in the above research project and give my consent freely.

I understand that the project will be conducted as described in the Information Statement, a copy of which I have retained.

I understand my school can withdraw from the project at any time and do not have to give any reason for withdrawing.

I consent to ________ (School's name) participate in the research project.

I understand that the personal information of the students at my school will remain confidential to the researchers (if applicable in the case of illegal behaviour, add except as required by law).

I have had the opportunity to have questions answered to my satisfaction.

Print Name: ____________________________

Signature: ____________________________ Date: ____________________________
Appendix H 3.8 Information Statement for Parents

School Information Statement for the Research Project: 
An Investigation of Phonological Processing and Reading Skills in Bhutanese Primary Students 
Document Version 2: dated Jul/30/2010

Associate Professor Ian Dempsey 
Special Education Centre, School of Education 
University of Newcastle 
Callaghan, NSW 2308 
Telephone: +612 49216282 
Fax: +612 49216939 
Ian.Dempsey@newcastle.edu.au 
Pema.Wangmo@uon.edu.au

Dear Parent,

Your child is invited to take part in the research project identified above which is being conducted by Pema Wangmo from the School of Education at the University of Newcastle. Ms Wangmo is conducting the research as part of her Doctor of Philosophy degree under the supervision of Associate Professor Ian Dempsey and Dr. Kerry Daly from the School of Education, Faculty of Education and Arts.

The purpose of the research is to look at how well children in Grades 4 and 5 can read in English and to see if there are some skills that help children to read better. The information from the study will be used to help teachers and educators design more effective ways of teaching Bhutanese children to read in English. There have been no previous studies done in this particular area in Bhutan.

Your child has been invited to participate in this project because he/she is currently in Grade 4 or Grade 5. Participation is voluntary and your child will only take part if you and your child agree. Whether or not you decide to allow your child to participate, your decision will not disadvantage you or your child in any way. If you do allow your child to participate, your child may withdraw from the project at any time without giving a reason.

If your child agrees to be involved in the study, he/she will be asked to participate in a reading assessment and a short interview with Pema Wangmo conducted during the school day and taking approximately 40 minutes. The students will complete activities including naming pictures, identifying letters and words, reading a short story and sound games such as rhyming words and finding sounds in words. The activities will be presented in the form of games and when the activities are finished, the researcher will ask each student some
questions about their school work and how much they like school. However, please be aware that it may not be possible to include all children who volunteer for this study.

Participating in this study will help identify whether difficulties in one or both of reading skills and phonological processing skills may be associated with children who are repeating grade four in Bhutan. Insight into this issue is likely to provide long term benefits for Bhutanese students and the entire community. It is unlikely that the study will distress children. However, should the study cause any distress to the students, the testing will be terminated immediately and the student will be returned to their class teacher or designated person (e.g. school counsellor).

The information from this project will be reported in a thesis to be submitted for Ms Wangmo’s degree. It may also be reported in conference papers and academic publications. A summary of the findings will be sent via e-mail to each participating school within six months of completion of the research. You may access this information through your school Principal or contact the researcher through e-mail.

No one will be able to identify you or your child from the results of the study. Only the researchers will have access to this information. The student’s assessment results will be coded for privacy and stored in a locked filing cabinet in the Special Education Centre at the University of Newcastle for 5 years and then destroyed. The only people with access to the coded records are the researcher and the two university supervisors.

Please explain the research to your child before signing the consent form. If your child would like to participate and you are willing to provide consent on their behalf, please complete the attached Consent Form and return it in the envelope provided to the school administration office.

If you would like any further information about the project please contact Pema Wangmo or Ian Dempsey as indicated on the previous page.

This information sheet is for you to keep. Your child has also been given information about this project.

Thank you for considering this invitation. Your participation would be greatly valued.

A/Prof. Ian Dempsey
Chief Supervisor

Dr. Kerry Dally
Co-Supervisor

Pema Wangmo
PhD Candidate

Complaints about this research
This project has been approved by the University’s Human Research Ethics Committee. Approval No. H-2010-1149. Should you have concerns about your rights as a participant in this research, or you have a complaint about the manner in which the research is conducted, it may be given to the researcher, or, if an independent person is preferred, to the Human Research Ethics Officer, Research Office, The Chancellery, The University of Newcastle, University Drive, Callaghan NSW 2308, Australia, telephone (+61 2) 4921 6333, email Human-Ethics@newcastle.edu.au.

OR

Local Contact in Thimphu: Tandi, Department of School Education, tel. 02 326412
Appendix I 3.9 Consent Forms for Parents

Parent Consent Form for the Research Project:
An Investigation of Phonological Processes and Reading Skills in Bhutanese Primary Students
Conducted by Pema Wangmo under the supervision of Associate Professor Ian Dempsey
and Dr Kerry Dally

Document Version 2: 30/July/2010

I agree for my child in Grade ______ at __________________ school to participate in the
above research project and give my consent freely.

I understand that the project will be conducted as described in the Information Statement, a copy of which
I have retained.

I understand my child can withdraw from the project at any time and do not have to give any reason for
withdrawing.

I consent to

__________________________ (child’s name) participating in the reading assessment

__________________________ (child’s name) participating in the interview

I understand that my child’s personal information will remain confidential to the researchers.

I have had the opportunity to have questions answered to my satisfaction.

Print Name: ____________________________

Signature: ____________________________ Date: ____________________________

Consent of child / young person < 18 years:

Print Name: ____________________________

Signature: ____________________________ Date: ____________________________
Appendix J 3.10 Letter Naming

Individual Recording Sheets

Name ________________________________ School _________________________

Age __________ Grade _________ Date ________________

Administration Procedures

Letter Naming

Direction: Children will be required to name the letters of the English alphabet. The examiner will point to the letters where both the capital and small letter is given and ask the children to read the name of the. For example, the examiner will say: “Here are some letters of the alphabets. I will point to each letter a time. You can say the name of the letter.” This task will have 26 test items with a possible maximum score of 26.
Letter Naming

Aa  Ii  Pp  Ww  Bb  Jj
Qq  Cc  Kk  Rr  Dd  Ll
Xx  Ss  Yy  Ee  Zz  Ff
Mm  Tt  Gg  Nn  Uu  Hh
Oo  Vv
<table>
<thead>
<tr>
<th>Letter</th>
<th>Recognition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aa</td>
<td></td>
</tr>
<tr>
<td>Ii</td>
<td></td>
</tr>
<tr>
<td>Pp</td>
<td></td>
</tr>
<tr>
<td>Ww</td>
<td></td>
</tr>
<tr>
<td>Bb</td>
<td></td>
</tr>
<tr>
<td>Jj</td>
<td></td>
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<tr>
<td>Qq</td>
<td></td>
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<tr>
<td>Cc</td>
<td></td>
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<tr>
<td>Kk</td>
<td></td>
</tr>
<tr>
<td>Rr</td>
<td></td>
</tr>
<tr>
<td>Dd</td>
<td></td>
</tr>
<tr>
<td>Ll</td>
<td></td>
</tr>
<tr>
<td>Xx</td>
<td></td>
</tr>
<tr>
<td>Ss</td>
<td></td>
</tr>
<tr>
<td>Yy</td>
<td></td>
</tr>
<tr>
<td>Ee</td>
<td></td>
</tr>
<tr>
<td>Zz</td>
<td></td>
</tr>
<tr>
<td>Ff</td>
<td></td>
</tr>
<tr>
<td>Mm</td>
<td></td>
</tr>
<tr>
<td>Tt</td>
<td></td>
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<tr>
<td>Gg</td>
<td></td>
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<tr>
<td>Nn</td>
<td></td>
</tr>
<tr>
<td>Uu</td>
<td></td>
</tr>
<tr>
<td>Hh</td>
<td></td>
</tr>
<tr>
<td>Oo</td>
<td></td>
</tr>
<tr>
<td>Vv</td>
<td></td>
</tr>
</tbody>
</table>
Appendix K 3.11 Onset-rime

Onset and Rime Assessment

Direction: children will be required to put the sounds of the letters or groups of letters together to make a word. The examiner will tell the children that words are made by putting sounds together. The examiner will say the sounds and the children will be asked to tell the word they make; for example, orally present the sounds /s/ /at/ makes the word “sat”. The examiner will ask, “What word would I have if I put together the sounds /f/ /ed/? (fed). Mark “+” to indicate a correct response or “-” to indicate an incorrect response. Record students’ exact responses on the blank lines. Tests will be discontinued if the child misses three consecutive items after the practice items or if the child appears confused and frustrated.

Practice Items:

1. /t/ /ake/
2. /p/ /in/

Test Items:

1. /d/ /og/  (+)(-)__________________________
2. /t/ /ea/  (+)(-)__________________________
3. /d/ /ust/  (+)(-)__________________________
4. /j/ /ump  (+)(-)__________________________
5. /m/ /ouse/  (+)(-)__________________________
6. /sl/ /eep/  (+)(-)__________________________

Items Correct ______________________________ (6 possible)

There will be two practice items with corrective feedback. This task will have six test items with a possible maximum score of six. Tests will be discontinued if the child misses three consecutive items after the practice items or if the child appears confused and frustrated.
Onset and Rime Assessment - Individual Record

Name ________________________________ School _________________________

Age __________ Grade _________ Date ________________

Test Items:

7. /d/ /og/ (+)(-) __________________________
8. /t/ /ea/ (+)(-) __________________________
9. /d/ /ust/ (+)(-) __________________________
10. /j/ /ump (+)(-) __________________________
11. /m/ /ouse/ (+)(-) __________________________
12. /sl/ /eep/ (+)(-) __________________________

Items Correct _________________________

(6 possible)
Appendix L 3.12 Phoneme blending

Phonemic Blending Assessment

Directions: Children will be required to connect sounds made by letters or groups of letters in sequence to form words. The examiner will say to the child that words are made by putting sounds together and present the sounds of the words orally and ask the children to say the word they make; for example: The sounds /p /o / /t/ make the word “pot.” The examiner will ask the children: “What word would I have if I put together the sounds /m/ e/ t/?” (met). Two practice items will be given with corrective feedback. Will proceed to test items. Mark “+” to indicate a correct response or “_” to indicate an incorrect response. Record students’ exact responses on the blank lines. Tests will be discontinue if the child misses three consecutive items after the practice items or if the child appears confused and frustrated.

Practice Items:
1. /t/a/p/ (tap)
2. /p/a/t/ (pat)

Test Items:
1. /j/o/g/ (jog) (+)(-)__________________________
2. /c/u/t/ (cut) (+)(-)__________________________
3. /l/i/d/ (lid) (+)(-)__________________________
4. /b/i/k/ (bike) (+)(-)__________________________
5. /w/a/v/ (wave) (+)(-)__________________________
6. /s/o/f/t/ (soft) (+)(-)__________________________

Items Correct _______________________________
(6 possible)
Phonemic Blending Assessment -Individual Record

Name ________________________________ School _________________________
Age __________ Grade _________ Date ________________

Test Items:

1. /j/o/g/ (jog) (+)(-)__________________________
2. /c/u/t/ (cut) (+)(-)__________________________
3. /l/i/d/ (lid) (+)(-)__________________________
4. /b/i/k/ (bike) (+)(-)__________________________
5. /w/a/v/ (wave) (+)(-)__________________________
6. /s/o/f/t/ (soft) (+)(-)__________________________

Items Correct ___________________
(6 possible)
Appendix M 3.13 Phoneme Segmentation

Phonemic Segmentation Assessment

Directions: Have children hear and identify beginning, middle, and ending sounds in words. The examiner will say the word sat and ask the child how many sounds he/she can hear in the word. What sound do you hear first? /s/. The sound you hear next? /a/. The sound you hear last? /t/. Two practice items will be given with corrective feedback. Will proceed to test items. Mark “+” to indicate a correct response or “−” to indicate an incorrect response. Record students’ exact responses on the blank lines. Tests will be discontinued if the child misses three consecutive items after the practice items or if the child appears confused and frustrated.

Practice Items:

3. pat ( /p/a/t/ )
4. lip ( /l/i/p/ )

Test Items:

7. red ( /r/e/d/ ) (+)(-)
8. tub ( /t/u/b/ ) (+)(-)
9. sock ( /s/o/k/ ) (+)(-)
10. mean ( /m/e/ /n/ ) (+)(-)
11. joke ( /j/o/k/ ) (+)(-)
12. fight ( /f/i/t/ ) (+)(-)

Items Correct _______________________________

(6 possible)
Phonemic Segmentation Assessment - Individual Record

Name ________________________________ School ____________________________

Age __________ Grade _________ Date ________________

Test Items:

1. red (/r/e/d/) (+)(-)__________________________
2. tub (/t/u/b/) (+)(-)__________________________
3. sock (/s/o/k/) (+)(-)__________________________
4. mean (/m/e/ /n/) (+)(-)__________________________
5. joke (/j/o/k/) (+)(-)__________________________
6. fight (/f/i/t/) (+)(-)__________________________

Items Correct ____________________

(6 possible)
Appendix N 3.14 Word Recognition

Word Recognition Task

Administration procedure

Each child will be asked to read from item 47 which is the suggested starting item for Grade Four as it is the estimated reading grade level according to the WRMT-R (1987), Test, 3 but earlier items will be administered if children do not respond correctly for six consecutive items commencing with item 47. The child will be asked to read as many words as he/she can.

Directions: “I want you to read the words on this list. Try to read them as best as you can. Even if you are not sure, please try to read every word.” The words will be shown one at a time by pointing to it and the child will be asked to read down each column. If a child fails to respond to a word after five seconds, the researcher will continue the test by pointing to the next word and asking the child to continue the test until the six highest–numbered items are failed or until they reach item 106 which is the last item on the test. A score of one point will be given to each word which is read correctly, and zero if read incorrectly, with a maximum possible score of 59.
### Word Recognition Task

#### Test Items

<table>
<thead>
<tr>
<th>hurry</th>
<th>vehicle</th>
<th>mathematician</th>
<th>heterogeneous</th>
</tr>
</thead>
<tbody>
<tr>
<td>largest</td>
<td>departure</td>
<td>almanac</td>
<td>cygnet</td>
</tr>
<tr>
<td>expert</td>
<td>yardage</td>
<td>relativity</td>
<td>expostulate</td>
</tr>
<tr>
<td>evening</td>
<td>urgent</td>
<td>instigator</td>
<td>tableau</td>
</tr>
<tr>
<td>passage</td>
<td>mechanic</td>
<td>prognosis</td>
<td>zymolysis</td>
</tr>
<tr>
<td>receive</td>
<td>wounded</td>
<td>judicious</td>
<td>tuberculous</td>
</tr>
<tr>
<td>gasoline</td>
<td>zenith</td>
<td>causation</td>
<td>surreptios</td>
</tr>
<tr>
<td>calendar</td>
<td>petroleum</td>
<td>vernacular</td>
<td>internecine</td>
</tr>
<tr>
<td>human</td>
<td>stigma</td>
<td>alkali</td>
<td>taupe</td>
</tr>
<tr>
<td>twilight</td>
<td>spectacular</td>
<td>philanthropist</td>
<td>quadruped</td>
</tr>
<tr>
<td>certain</td>
<td>cologne</td>
<td>naive</td>
<td>epistrophe</td>
</tr>
<tr>
<td>dwarf</td>
<td>miser</td>
<td>inordinate</td>
<td>dossier</td>
</tr>
<tr>
<td>furnace</td>
<td>hysterical</td>
<td>carnivorous</td>
<td>picayune</td>
</tr>
<tr>
<td>amazement</td>
<td>pedestrian</td>
<td>arsien</td>
<td>oenology</td>
</tr>
<tr>
<td>torpedo</td>
<td>yacht</td>
<td>quintessence</td>
<td>zietgeist</td>
</tr>
</tbody>
</table>
Word Recognition Task- Individual Record

Name------------------------------------------ School --------------------------------------------

Age---------------------- Grade--------------------- Date----------------------------------------

Items Correct _______________________________

(59 possible)
Appendix O 3.15 Word Attack/Pseudo Word

Word Attack/ Pseudo word Reading Task

Administration Procedure

The Word Attack Test requires the child to read aloud single nonsense or pseudo words. Each child will begin with the sample items as outlined in the WRMT-R (1987) and then proceed to Item 1 of the test. The test will be carried out by asking each child to read as many words as he/she can by showing the 45 items listed in the WRMT-R, Test 4.

Directions: “I want you to read the words on this list. The words don’t make any sense or meaning but try to read them as best as you can. Even if you are not sure, please try to read every word.” The words will be shown one at a time by pointing to it and the child will be asked to read down each column. If a child fails to respond to a word after about five seconds, he/she will be encouraged to attempt it once. If the child still does not respond then the researcher will continue the test by pointing to the next word and asking the child to try reading it and continue the test until the child fails to read six consecutive items. A score of one point will be given for each pseudo word which is read correctly, and zero if read incorrectly, with a maximum possible score of 45.
## Word Attack Reading Test Items

<table>
<thead>
<tr>
<th>dee</th>
<th>dud’s</th>
<th>yeng</th>
</tr>
</thead>
<tbody>
<tr>
<td>ap</td>
<td>shab</td>
<td>zirdn’t</td>
</tr>
<tr>
<td>ift</td>
<td>whie</td>
<td>gaked</td>
</tr>
<tr>
<td>raff</td>
<td>vunhip</td>
<td>knoink</td>
</tr>
<tr>
<td>bim</td>
<td>nigh</td>
<td>cigbet</td>
</tr>
<tr>
<td>nan</td>
<td>bufty</td>
<td>mancingful</td>
</tr>
<tr>
<td>un</td>
<td>sy</td>
<td>wrey</td>
</tr>
<tr>
<td>fay</td>
<td>straced</td>
<td>bafmotbem</td>
</tr>
<tr>
<td>gat</td>
<td>chad</td>
<td>translibsodge</td>
</tr>
<tr>
<td>roo</td>
<td>than’t</td>
<td>monglustamer</td>
</tr>
<tr>
<td>oss</td>
<td>tadding</td>
<td>vawj</td>
</tr>
<tr>
<td>pog</td>
<td>twm</td>
<td>gnouthe</td>
</tr>
<tr>
<td>poe</td>
<td>laip</td>
<td>quiles</td>
</tr>
<tr>
<td>weat</td>
<td>adjex</td>
<td>cyr</td>
</tr>
<tr>
<td>plip</td>
<td>gouch</td>
<td>pnomoker</td>
</tr>
</tbody>
</table>

Items Correct ________________________________

(45 possible)
Appendix P 3.16 Passage Comprehension

Passage comprehension Task

Administration Procedure

The Passage Comprehension Test measures a child’s ability to comprehend a short printed passage and identify a key word missing from it. For each blank, the child is required to supply a word that would be appropriate in the context of the passage. Passage Comprehension (PC) Tests uses a cloze reading procedure. For example, ( I want you to win. Please ................ lose. Correct: don’t, incorrect: do).

Directions: “Here are some passages that have a blank space with a word missing. I want you to read them silently and say the missing word.”

The examinee silently reads a passage that has a blank space with a word missing. The examinee then provides the examiner with a word that completes the sentence. Blank spaces are arranged so that the examinee must read and comprehend the entire passage. The test will be carried out according to instructions and procedures given in the manual of WRTM-R (1987). The children will be asked to read the passages silently but if after reminding them once on reading it silently they still continue on reading aloud, they will be allowed to do so. All the children will begin with the sample item and start with item 25 which is the suggested starting item for Grade Four as it is the estimated reading grade level according to the WRMT-R (1987), Test, 6, but earlier items will be administered if children do not respond correctly for six consecutive passages commencing with item 25. No corrective feedback will be provided during the test. The test will be continued until six consecutive items are failed. A score of one point will be given to each single word which is responded correctly, and zero if responded incorrectly, with a maximum possible score of 68.
Passage Comprehension Task-Individual Record

Name------------------------------------------ School --------------------------------------------

Age---------------------- Grade--------------------- Date----------------------------------------

Items Correct ________________________________

(68 possible)
Appendix Q 3.17 Rapid Naming Colours

**Rapid Naming Colours/Picture**

Administrative Procedure

The researcher will show the top row of items on the sheet of paper and ask children to name each one. If the child cannot name the item, the researcher will tell the child what it is called.

Then the researcher will say: “Now I want you to say the names of the pictures and colours as fast as you can” The researcher and say: “start here” by pointing to the first item in the top row of the chart and “finish here” by pointing to the last item in the bottom row of the chart. Then the researcher will say: “O.K. start now!” The task will be timed using a stop watch.

**Rapid Naming Task – Colours- Individual Record**

<table>
<thead>
<tr>
<th>Language</th>
<th>Timing</th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td></td>
</tr>
<tr>
<td>Timing:</td>
<td>________ seconds</td>
</tr>
<tr>
<td>Dzongkha</td>
<td></td>
</tr>
<tr>
<td>Timing:</td>
<td>________ seconds</td>
</tr>
</tbody>
</table>
Rapid naming- Colours
Appendix R 3.18 Rapid Naming Objects

Rapid Naming Task – Objects

**Rapid Naming Task – Pictures - Individual Record**

1. English

Timing: ________________ seconds

2. Dzongkha

Timing: ________________ seconds

correct
Appendix S 3.19 Digit Span Task

Digit Span Task

In this test the researcher will say:

“I am going to say some numbers. Listen carefully and remember the numbers. When I am finished you say them straight after me.”

Discontinue the test if the child fails to repeat an item on the trial. Will give one point for each trial repeated correctly.

<p>| | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>3 1</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>8 9 2</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>5 3 6 9</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>7 1 4 2 8</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>4 9 5 7 6 3</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>2 5 3 6 9 4 7</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>1 7 9 3 6 7 4 2</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>9 8 4 6 3 1 2 7 5</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Items Correct:</td>
</tr>
</tbody>
</table>
Appendix T 3.20 Subjective Well-being (COSSS)

Subjective Well Being of Students

Administrative Procedure

The researcher will read the items to the students with pictures of different facial expressions corresponding to the five Point Likert-scales. And ask the child to point to the faces that corresponds to their feelings. The items are: 1. School days are nice. 2. Learning makes me happy. 3. I like to go to school. 4. Learning is nice. 5. School is boring. 6. School lessons are fun.

There will also be oral probing of items” through open ended questions Open ended questions.
Subjective Well-being of Students - Individual Record

<table>
<thead>
<tr>
<th>Item</th>
<th>Strongly agree</th>
<th>Somewhat agree</th>
<th>Neither agree nor disagree</th>
<th>Somewhat disagree</th>
<th>Strongly disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>School days are nice</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>Learning makes you happy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>You like to go to school</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>Learning is nice</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>School is boring</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>School lessons are fun</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
</tbody>
</table>

Each item rates on a 1-to-5 response scale where:

1. = strongly disagree
2. = somewhat disagree
3. = neither agree nor disagree
4. = somewhat agree
5. = strongly agree
Appendix U 3.21 Subjective Well-being Open-ended Questions

Open ended questions:

1. Why do you find school boring?

2. Why don’t you like going to school?

3. What makes you unhappy at school?

4. Why do you like going to school?

5. What makes you happy at school?