

To Whom It May Concern:

The attached submission is in regards to the Senate Committee on Teaching and Learning (maximising our investment in Australia schools).

This document was a research report conducted as part of the requirements of the undergraduate Australian National Internships Program (ANIP) run through the Australian National University. I was placed with the Hon. Senator Nigel Scullion for the length of this placement, the work was not published and it was completed in October 2012. The focus of this research I believe, addresses the committees reference points as the theme of this paper looked in the effectively engaging remote indigenous youth in school.

Within its context it briefly compared the effectiveness of past and current practices in education while touching on the administering and organising of such practices. It also looks into testing methods of achievement and why alternate forms of testing were used as well as new methods of education and how they strive to re-engage students in the process of learning. Overall it delves into the fundamental right of all children to receive a fair and quality education regardless of location or background.

This research concentrated on the remote indigenous school of Aurukun that uses a non-mainstream education system known as Direct Instruction. Thus, copies of this research were given to both Aurukun School and Cape York Australian Aboriginal Academy, the organisation responsible for this methods implementation. As this was originally a graded piece of assessment the director of ANIP and my internship placement office of Senator Scullion also have copies of this research.

If you have any queries please don't hesitate to contact me,

Elly-Joan Duff

# Direct Instruction Education

Analysing the effectiveness of this education method in re-engaging remote indigenous youth in school

Elly-Joan Duff



(ANUNAKA, 2011)

This report was prepared by Elly-Joan Duff on behalf of Hon. Senator Nigel Scullion as part of the Australian National Internship Program

## Executive Summary

In Australia there is a vast gap between the achievement of indigenous students and non-indigenous counterparts. This discrepancy is partly due to students disengaging from education as well as their geographical remoteness. The recent implementation of Direct Instruction in Australia's remote Cape York region is an impressive attempt in addressing this gap in achievement. This report explores the results surrounding improved attendance and the re-engagement of remote indigenous students in Primary School through this explicit model of education.

The method of Direct Instruction education has had a lengthy history in both application and research. This method was conceived in America in the 1960s as an attempt to address a similar gap of achievement. This method of education relies on a script to teach students basic reading skills through phonics. It also uses rehearsal, mastery and the testing of students' knowledge in smaller than usual groups in an attempt to maintain engagement. The use of the components of this program is explored using the Aurukun Primary School as a case study. At Cape York Schools that have this measure implemented, Aurukun has shown the most astounding results. Since the implementation of this program in 2010 attendance has increased by 40% while 80% of students are now progressing at same rate of non-indigenous students in mainstream students.

The method of teaching in this program that is responsible for bringing about this gain has a strong link to learning theory. The use of scaffolding, modeling and reinforcement can be associated with the work of educational psychologists Lev Vygotsky, Albert Bandura and B. F Skinner. Also, the work of Smarter Stronger Learning Communities and the Queensland Education

National Curriculum were used as further comparisons to Direct Instruction. It was concluded that out of this comparison, Direct Instruction appeared to be the more effective program for engaging remote indigenous youth in education.

Considering the findings from the scope of this report, the following recommendations were made. Firstly, this research recommends that part of the funds from the support of SSLC be channeled into a more detailed comparative case study of DI and the SSLC models. This would provide clarity in deciding which “no excuses” model is more effectively engaging remote indigenous youth, thus, having a greater effect in addressing the overall achievement gap. The second recommendation proposed was to lengthen teaching contracts and use the possibility of more attractive working conditions to attract longer staying teachers. This aims to build better relationships with the community and provide greater consistency to students. The third and final recommendation was to reconsider the possible removal of the alcohol ban in this remote area. This is controversial, however, the flow on effect that the removal of this ban will have is unlikely to be positive in improving student engagement.

## Acknowledgements

I would like to thank and acknowledge a number of people, who without their help this report and the extent of research behind it could not have been possible.

Firstly, I would like to thank Dr. Andrew Banfield and Cheryl Wilson from the Australian National Internships Program for granting me this opportunity. Your guidance, support and instantaneous responses were greatly appreciated.

Thank you to Senator Scullion, for providing me with insights into the once distant and foreign world that is the inside of Australian politics. I have found your perspective refreshing and your motivation uplifting.

To the brilliant Bev Cubillo, your abilities to sort out any issue is beyond my comprehension. Thank you, to all the office staff for your openness and helpfulness.

Thank you to Dr Vicky Vachon of NIFDI, Danielle Toon and Lizzie Fuller of the Cape York Aboriginal Australian Academy for their openness and knowledge

To Patrick Mallett and his team of hard working teachers and support staff at Aurukun Campus. Thank you for allowing me to briefly venture into your world. The dedication you show every day in the face of adversity is astounding.

## Table of Contents

Executive Summary .....	i
Acknowledgements .....	iii
Glossary .....	v
Chapter One .....	1
Introduction.....	1
Historical Background .....	3
Theoretical Context.....	6
Chapter Two.....	7
Direct Instruction in America .....	7
Unpacking the results of Follow Through.....	8
Original Criticisms of Direct Instruction .....	9
Chapter Three .....	11
Education in Australia and DI.....	11
The Challenge of Aurukun .....	12
Benefits of DI in Aurukun .....	14
Education and Learning theory .....	16
Criticisms .....	18
Chapter Four .....	21
Alternative Education Programs .....	21
Chapter Five .....	25
Recommendations.....	25
Conclusion.....	26
References .....	28
Appendix 1 .....	36
Appendix 2 .....	37
Appendix 3 .....	47

## Glossary

<b>AIDI</b>	The newly established organisation the Australian Institute for Direct Instruction.
<b>CYAAA</b>	Cape York Aboriginal Australian Academy, a non-for-profit organisation focused on education, led by Noel Pearson.
<b>DI</b>	Refers to the educational methods and programs known as Direct Instruction
<b>DISTAR</b>	Direct Instruction System for Teaching Arithmetic and Reading.
<b>DIBELS</b>	Dynamic Indicators of Basic Early Literacy Skills. The sensitive test used to measure gains in DI education
<b>GDP</b>	A country's total Gross Domestic Product or more specifically the market value of a countries goods and services. In terms of education it is the percentage of this product that is spent on education
<b>MULTILiT</b>	Making Up Lost Time in Literacy. It is the Australian version of a small scale direct

instruction education program developed in part by Macquarie University.

**NAPLAN**

National Assessment Program- Literacy and Numeracy. This program is an Australian initiative that was commenced in 2008. It assesses students nationally in years 3, 5, 7 and 9 in reading, writing, language conventions and numeracy.

**NIFDI**

National Institute For Direct Instruction that is responsible for analysing the testing data of CYAAA schools like Aurukun.

**OECD**

Organisation for Economic Cooperation and Development. The organisation consists of 34 free market countries seeking to compare policy and co-ordinate positive internal and international development procedures.

**PISA**

The OECD Program for International Student Assessment. Founded in 1997 the program is an international evaluation of education systems that is conducted on 15 years old students every three years.

**Project Follow Through**

To date, the largest controlled comparative longitudinal education study. It was carried out in the US with approximately 200,000 primary school students.



<b>SRA</b>	Is the specific DI published program by McGraw Hill that is used in CYAAA schools.
<b>SSLC</b>	Stronger Smarter Learning Community established by Chris Sarra to create groups of schools that have high expectations for indigenous students
<b>SSI</b>	Chris Sarra's Stronger Smarter Institute. The organisation responsible for the schools involved in the SSLC's.

# Chapter One

## Introduction

The purpose of education is to prepare young people for the future. Teachers are responsible for facilitating this development by helping them build their foundations in reading, comprehension and numerical skills (Claxton, 2009). In Australia the education system continues to be a fundamental talking point, battleground of policy intuitive and more recently, accountability. Despite constantly being highlighted, there continues to be a gap in the education levels within Australia. This gap exists between the indigenous youth population and their non-indigenous counterparts. Furthermore, much of this discrepancy is also of a geographical nature, between urban and remote rural school settings. The difference in educational outcomes of indigenous youth in remote rural Australian communities can largely be attributed to their disengagement from education (Denigan, 2008). The recent implementation of the explicit education model of Direct Instruction (DI) in Australia has had interesting and positive results. This is particularly evident in the progress of Cape York Aboriginal Academy Aurukun Campus in remote Northern Queensland. Consequently, highlighting the need to support measures that seek to address education discrepancy and clarify the debate between explicit and implicit models of education.

Despite this achievement Australia has a relatively high reputation regarding the standard of education, ranking overall, in the top 10 OECD nations for reading and math proficiency (OECD, 2012a). Similarly, the United States also has a relatively impressive international position in education and a dramatic gap in achievement between its populations(OECD, 2011). The US sits in 14<sup>th</sup> place with regards to student reading proficiency and 25<sup>th</sup> in overall math

proficiency (Gurria, 2010). Meanwhile the Program for International Student Assessment for OECD nations (PISA) records that the gap in education standards is present across all domains of learning in both countries (De Bortoli and Cresswell, 2004). Results from the 2006 PISA testing showed that only 3% of Australian indigenous students surveyed demonstrated the skills associated with their required age standard of education (Thompson and De Bortoli, 2008). While Native American Indians, Hispanic and Black minorities in the US scored on average 95 points below their fellow students in reading (Baldi et al., 2007).

This discrepancy in reading results is particularly shocking. Numeracy is important to a child's all round education. Although it's argued that a child's proficiency in reading, is the crucial predictor of their future engagement and achievement in education (Bost and Riccomini, 2006). It is also argued that reading difficulties can predict whether a child will drop out of school, or at the very least disengage from classroom education (Bost and Riccomini, 2006). The difficulty children experience in learning to read is cited as the most prevalent problem in education, regardless of the student's background (Kuder, 1990, Lamb et al., 2004). Therefore as a top priority, establishing reading skills should be a focus of any program in either country. There is one program implemented in both countries that has this priority. This program is the method Direct Instruction. It is a high reading content-based program that attempts to re-engage disconnected and indigenous youth in school (Saine et al., 2010, Teitel, 2009). Thus, also attempting to begin closing this overall achievement gap. The history and use of DI in education to address achievement gaps will be explored in Chapter Two and the background section of this paper.

For the purpose of this research, disengagement is considered as a student's lack of engagement with classroom education to the extent that it causes them to fall behind as shown in achievement tests. Extensive absenteeism also falls within this definition. Contributing factors such as poverty, violence, and

location play vital roles in the level of engagement indigenous youth have in education. In underlying disengagement, these four factors in combination also highlight those students whose learning needs are not addressed by the education system. The students can be prior to disengaging but are labeled as 'at risk' youth. The demographic of 'at risk' and disengaged students focused on by this research are remote indigenous Australian youth between the ages of six and thirteen years. This age group has an immense importance in a child's development regardless of race or status. The experience of education a child has during these informative years will become the foundation upon which any further learning experiences will take place. Therefore, the degree of engagement a child has during this time is another predictor of their continuance with education and a preventative 'drop out' measure (Bost and Riccomini, 2006). Disengagement by this demographic in primary school and how it is addressed by the introduction of DI in Australia will be explored in the Aurukun case study in Chapter Three.

Chapter Four and Five will attempt to put into perspective the results of DI and its use in re-engaging remote indigenous students by comparing other alternate education methods. The first of these methods will be the work of Chris Sarra through his Stronger Smarter Institute. While this is not a whole curriculum approach like DI it shares its philosophy of "no excuses education" and the goal to re-engage indigenous youth in schooling. The second comparison that will be made in the section is to the Queensland education system. In light of these comparison programs and the Aurukun case study, recommendations will be proposed for addressing this gap between indigenous and non-indigenous students in Australia.

## **Historical Background**

Lacking modern orthodoxy, Direct Instruction (DI) has a long and relatively controversial history in education and implementation. Siegfried Englemann

of the United States originally conceived this scripted behavioral method of education in 1960 (Engelmann, 2007). This form of education focuses on the explicit teaching and instruction of knowledge to children, in order for them to build mastery of basic skills. This is unlike the implicit focused Australian curriculum that most schools currently base their teaching methods upon. This uses prior student knowledge of education to allow students to direct their own exploration in order to learn. Engelmann challenges this “freedom” in learning, highlighting students who may not have prior knowledge of education from which to direct their own learning. His theory of education proposes two components underlying teaching. Firstly, education should be efficient, children should be taught briskly and in exactly the same way by each teacher. Secondly, that education is effective, instructing content that allows students to learn in the most retainable and straightforward way. Therefore, DI as a product of these ideals is structured and comprehensive. DISTAR, or Direct Instruction System for Teaching Arithmetic and Reading was developed as the primary DI curriculum implemented in the US (Kuder, 1990). The use of DI in Australia falls under DISTAR as well as SRA Reading Mastery curriculum. MultiLIT, or, Making Up Lost Time In Literacy is also used a remedial program in some schools (Wheldall and Beaman, 1999).

DISTAR was co-founded by Siegfried Engelmann and Wesley Becker of Oregon University (Warburton and Gregory, 1983). Like DI, it is a fast paced and highly structured program that relies on phonics to teach students basic reading skills (Denise, 2008). It uses rehearsal, mastery and the testing of student knowledge in smaller than usual groups in an attempt to maintain engagement. Student mastery is extremely important in the learning process of all students but particularly a risk and low performing students. The key process of mastery is the presentation of new information on the same topic, in short sessions, across multiple days with assurances of achievement (Engelmann, 2007). This increases the familiarity of the topic to students, increasing the likelihood that they will attend to and remember this new information (McFarlane and Humphreys, 2012). The testing component of DI

and DISTAR has been an area of controversy. Children are grouped homogeneously even within achievement level. They are also continuously tested on their understanding of the content. Opposition to this component questions the value of repetitive testing as well as the learners self esteem in being grouped this way. DI refutes this criticism, arguing the constant support of students learning provides an extra safety net preventing disengagement and students 'falling through the cracks'. It also provides a basis to reassess the level of content administered rather than a students self-esteem diminishing because they cannot understand content (Ewing, 2011). These programs were born out of the educational reform that took place in the US during the late 1960's.

This wave of educational reform was originally to be directed by the outcomes formed by the Project Follow Through study in 1968 (Coughlin, 2011). Yet little direction ever eventuated from this, the most comprehensive longitudinal study into education ever undertaken. It involved over 180 communities and approximately 200,000 children in the US over its 9 year duration (Engelmann, 2007). It was a specific attempt to evaluate 20 different programs potentially capable of educating vast numbers of disadvantaged children within the school system (Warburton and Gregory, 1983). It focused on children who were considered to be part of a minority group, living in poverty and to be 'at risk' of disengaging from the education system. All the methods trialed were aimed at addressing this achievement gap in the US.

The introduction of DI in Australia was also driven by the recommendations proposed by the 2005 National Inquiry into the Teaching of Literacy. (Rowe, 2005). MultiLiT was the original DI program formulated for use in Australia. It was built on the concepts of effective and efficient teaching that DI is famous for. These principles were also the recommendations that came out of the 2005 inquiry. This remedial program was developed in 1995 as a combined

initiative between Macquarie University, Professor Kevin Wheldall, Doctor Robyn Wheldall and Iain Rothwell (Wheldall and Beaman, 1999). However, SRA Reading Mastery is now the one of the key DI methods implemented in Australia and this will be discussed in greater detail in Chapter 3.

### **Theoretical Context**

Important theoretical foundations and scientific evidence underlie the debate surrounding the implicit and explicit approaches to teaching. The theoretical foundations for education practices are dominated by the discipline of psychology. While DI was not originally formulated from psychological theory many of its components can be directly related to the work done by major learning theorists. In particular it is related to the work of Albert Bandura, Lev Vygotsky and B. F Skinner. It is important to draw on these connections to provide further scientific evidence in this implicit verses explicit debate. It is also vital in understanding the effectiveness of education methods in catching children up in academic achievement. The relationship between Direct Instruction and these main educational psychology theories will also be explored in Chapter 3 relating this relevance to the use of DI in the context of the remote Aurukun in Australia's far Northern Queensland.

## Chapter Two

### Direct Instruction in America

In 2002 there were an estimated 25 million primary school children in the United States (Hickok, 2002). Approximately \$762 billion US dollars or 5.5% of the US's GDP in 2009, was spent on educating these young minds (UNESCO, 2009, OECD, 2012b). Education is a deserving financial investment into a population's future. However, the success and the equity of its implementation is essential given the amount of financial expenditure. By delving briefly into the context of disparity in the US system, the factors that interfere with the effective implementation of education that are addressed by DI will become apparent. Thus, allowing analysis of how the instructional teaching method of DI addresses these factors to improve implementation of education. The effective implementation of this method also improves the outcomes that result from it. It is important to analyse the effectiveness of this program in the context for which it was originally designed, prior to evaluating its use within Australia.

Direct Instruction attempted to address racial inequality that occurred in America in 1960s through education. The aim of its radical teaching practices was to re-engage these 'at risk' youth, generally from minority populations, in learning. Once again, a child's disengagement from learning attributes to the disparity in education. While in the US compounding of factors such as socio-economic background, poverty, teaching quality and access to education resources all lead to this initial disengagement (Ewing, 2011, Engelmann, 2007). It is the particular combination of these factors and the way that they combine that makes disengagement individual and context specific. At a classroom level disengagement can be shown in a child's attention and performance. However, it is more explicitly demonstrated in standardized achievement scores between year levels, schools and countries (Baldi et al.,



2007). . This difference is most commonly depicted in tests, such as PISA. These tests can be seen as much of a comparison between learning contexts, as they are a comparison of learning outcomes. All of the education methods used in Project Follow Through attempted to address the disengagement through inequality. Therefore, they focused on attempting to narrow the achievement gap in US education with equality teaching methods (Hickok, 2002, Teitel, 2009).

### **Unpacking the results of Follow Through**

The results from Project Follow Through undertaken between 1967-1976 were controversial due to the unorthodox advertising origin of the approach resulting in vast opposition (Beatty, 2011, Engelmann, 2007). The results of Follow Through found that DI had the most significant effect on closing the achievement gap in the US education system (Ewing, 2011). The multiple studies conducted since 1976 continue to fuel this controversy in their assessment of the lasting of DI. The following research delves into the 1983 study conducted by Warburton and Gregory into the reading and comprehension abilities of grade four and five students across five low socio-economic schools. The student of these five schools had been taught with the DISTAR curriculum of DI, during Follow Though. This study found that these students had significantly stronger reading and comprehension scores in comparison to their non-DI and Follow Though counterparts (Becker & Gersten, 1982 and (Warburton and Gregory, 1983). The most astounding result of this research showed that DISTAR taught for 25mins in a small class was able to re-engage disconnected students. More importantly, through this engagement student's knowledge could be progressed by 0.9 of a year in just 5 months (Warburton and Gregory, 1983). DISTAR has also been shown to be more effective than other instructional methods of teaching. In 2005 a meta-analysis of 37 studies into the use of instruction education methods to progress low progress readers was conducted. In 34 of the studies, children instructed with DISTAR out performed those using other instructional methods (Kinder et al., 2005). It is argued these results are due to unambiguous DI approach to

scaffolding a child's learning process that enables a greater gain and mastery of the learning process. This requires a child to explicitly and completely master each step in the learning process before moving on to the next (Gersten, 1985). Other important factors that are related to the achievement gains of DI have also been researched and should be accounted for.

External factors that have influenced the effectiveness and implementation of the DISTAR program include the schools openness to new methods, how effective the teachers were and how well organised its implementation was. The degree of central administration each DI school operated within during Follow Through was a key determinate of the level of success their students achieved. However, the one exception to this notion was the only school in the state of DC to have DI implemented. Due to the quality of teaching in this specific school case, in terms of efficiency and effectiveness performance of this school outstripped any other within the state (Engelmann, 2007). Therefore, importantly, students of teachers who understand the need to change the structure of school curriculum, to focus on the effective teaching and to affect educational change tend to further progress. This notion returns to the foundation of DI, which is the effective and efficient teaching of children.

### **Original Criticisms of Direct Instruction**

Aside from the positive results found by these studies it is also important to acknowledge the criticisms. Much of the criticism surrounds the initial implementation of DI and the reluctance to use the results of Project Follow Through specifically within the American Context. Siegfried Engelmann the founding father of DI, was not initially a teacher, instead he had background in product advertising for children (Engelmann, 2007). Due to the credentials upon which the program was founded, many arguments against DI and its use in America stem from the notion it lacks grounding in educational theory. Thus, this is thought to be a reason why the results of Follow Through were

not extensively publicized or acted upon. Other criticisms of DI arise through research.

One particular series of longitudinal studies by David Weikart and associates followed the progress of children who experienced DI as part of Project Follow Through until they were 40 years old. He found that DI students were less likely to drop out of education and had better social skills than other children their age. However, at 23 years of age these children showed a greater tendency towards anti-social behaviour, to commit property crimes and to experience emotional disturbance (Schweinhart and Weikart, 1997). These dramatic results should not be taken lightly especially in considering the future of our children. These results were highly published in America and were used against the reputation of Follow Through and to justify the criticism against DI. However, despite the results found by these authors in this research these findings have not been replicated or validated by any other study.

Although faced with criticism since its conception in the 1960s, DI continues to be implemented in the United States. While its use is small-scale mainly in charter schools, it remains an attempt to address the same disparity present in the education system 50 years ago. Considering the significant results surrounding Project Follow in engaging students DI should not be ignored. Further research needs to be conducted into this programs overall implementation on a large scale. This is important due to this continued prominence of gap in student achievement. Therefore this research and contextual analysis is but one important step in clarifying whether or not the gains students have made through DI provide enough evidence for its use as an alternate education curriculum to re-engage at risk students.

## Chapter Three

### Education in Australia and DI

In 2011 approximately 2 million Australian children were enrolled in primary school (ABS, 2012). In 2009, Australia spent approximately 5.1% or \$4.9 billion US dollars of its total GDP on education each year (UNESCO, 2009) (OECD, 2012b). In Australia, a child's education is recognised as providing them with an equal and vital foundation for skills development. It does this by providing students with the necessary understanding and knowledge for lifelong learning and the ability to participate fully in society. However, there is a disturbing gap that exists between the achievement levels of indigenous and non-indigenous youth. This educational disparity continues to challenge this ideal of education. Therefore overcoming education disadvantage is a key policy priority for the Australian Government (Rowe, 2005). The prioritising of education continues to grow not only nationally but internationally due to testing measures like PISA and NAPLAN that emphasise accountability (Smyth and Fasoli, 2007). While on an individual school level, measuring the progress and accountability of DI is more precisely by external benchmarking tests like Dynamic Indicators of Basic Early Literacy Skills also known as DIBELS.

The Cape York Institute and their partnership with Education Queensland is only one of a small group of alternative programs that focus on reducing this educational disparity. While education is but a small part of the work done by the Cape York Institute (CYI) this facet of the project falls under organization of the Cape York Australian Aboriginal Academy also known as CYAAA. CYAAA was established in 2010 as the 'no excuses' brainchild of respected indigenous figure Noel Pearson (CYAAA, 2012a). There are four schools that fall within the Cape York Reform all of which use DI, these are Aurukun, Hope Vale, Coen and Djarragun College. It is from this Cape York reform that CYAAA and the CYI were developed. The implementation of DI in these

schools was not a blanket approach to education. Schools and communities must invite CYAAA to fully implement DI. Nonetheless, each of these schools has shown remarkable gains using this structured explicit model of education. As part of this curriculum cultural traditions are also preserved in the components of Club and Culture. Out of these four remote schools, Aurukun has experienced the most substantial gains in the achievement and the engagement of their indigenous students through this program.

### **The Challenge of Aurukun**

It is important that the assessment of DI as an effective education method to re-engage remote disconnected indigenous youth takes place within the remote context. The effectiveness of DI in Australia will therefore be supplemented with observations and interview responses obtained during a visit to Aurukun. This small remote and indigenous town has a population of approximately 1200 people and is located in Queensland's remote Cape York region. There are approximately 194 students enrolled in Aurukun primary school. None of these students were at, or above their grade level in literacy or numeracy in 2010 (CYAAA, 2012b). Their disengagement in education was shown in the schools attendance rate that was below 40% in this same period. The start of 2010 marked a change in the approach to education in this community, as CYAAA rolled out full immersion DI supported by NIFDI. The Australian small di program MultiLiT or Making Up Lost Time In Literacy was implemented as a remedial program to catch up a small group of students who have fallen behind in normal curriculum in the 2009 Welfare Reform trial. It is also a phonetics based reading program that is based upon the principles of full immersion DI (Wheldall and Beaman, 1999, Pogorzelski and Wheldall, 2002). However, the use of the SRA Reading Mastery curriculum superseded MultiLiT. The context of Aurukun is not a remedial situation, every child was behind. Hence, the transition to full immersion, big DI curriculum that is a holistic school based approach to accelerate learning.

The current DIBEL test results from Aurukun show extremely impressive gains in achievement since DI has been implemented. The attendance records of the school have steadily progressed since 2007. Currently the attendance rate sits at approximately 73%, which is up almost 30% from its lowest point in 2007 (CYAAA, 2012b). The individual effect sizes relating to the average gain students have achieved under DI has also been positive. These effect sizes have been based upon the research conducted by John Hattie. This research suggests that effective teachers can initiate a gain in student achievement of between 0.15 and 0.40 in a single year (Hattie, 2009, Hattie et al., 1996). According to the statistics supplied by CYAAA, from mid 2010 until mid 2011 Aurukun had an average student effect size gain in fluency of 0.49 and in accuracy of 0.87. These gains are well above the range of gain proposed by the empirical work of Hattie. These results show a huge progression in the achievement teachers have been able to initiate using DI. When considering this positive trend it should be noted that these effect sizes were taken from a sample of only 54 students from grade 1-7, whereas there are 194 students in total the Aurukun campus (CYAAA, 2012b).

It is also important to relate this progress to the average progress students in the mainstream education are able to achieve. According to this same data over 80% of the students at Aurukun campus are progressing at the same rate of mainstream students in Queensland under the method of DI. While approximately 30% of these students appear to be exceptionally engaged with the curriculum. These particular students are measured to be progressing at a rate of twice the expected average of achievement in a single year (CYAAA, 2012b). Furthermore, over half of the total students at this school are progressing at an accelerated rate of achievement. DIBELS is more sensitive in measuring the progress in achievement made by DI schools. Therefore comparisons with mainstream schools are difficult using this measure, however, its use is growing in popularity regardless of curriculum.

Fortunately, some of the significance of this progress has been captured by NAPLAN. In the 2010 NAPLAN report Aurukun improved its average scores across 8 out of the 15 categories relating to learning and engagement, while one third of students were recorded to have met national benchmarks (CYAAA, 2012b).

### **Benefits of DI in Aurukun**

Overall there have been many positives relating to the implementation of DI that have not been indicated by these statistics. These positives tend to centre on the delivery of the SRA DI program. Due to the remoteness of some indigenous communities there is a difficulty in attracting teachers. Most of the teachers at Aurukun are recent graduates completing their two years of remote service. While these teachers do a fantastic job, it is only rarely that they chose to stay longer than is required. Consequently, there tends to be constant rotation of staff into, and out of the school environment. The heavily scripted nature of DI can be seen as providing the level of consistency in the classroom that the rotation of staff does not necessarily allow. It is this scripted consistency during learning time that also appeared to be a factor in engaging students. The following description is an outline of the consistency and the best practices used during a typical DI lesson in Aurukun. These observations were taken in a composite year one and two classroom during multiple reading lessons. This classroom was made up of 6- 9 year olds who were at a grade two level of reading achievement.

All DI lessons tend to run between 20 and 60 minutes depending on level of difficulty. The following classroom example is a reading lesson. This example was chosen due to the predictive nature a child's proficiency in reading has in determining their future engagement in education (Benner, 2007, Kinder et al., 2005). This also reaffirms the main ideas of DI explored in Chapter One. The students in this classroom grouped homogenously in terms of competency. Students groups are dealt with individually yet the lesson pattern is the same for each group. Students were first presented with the key phonetic sound that

was to appear in a following list of words. The teacher models the sound, gives a cue signal such as the phrase “get ready”, and the students then sound out the words. The teacher then provides a correction or tells the students if their pronunciation is correct before saying the word once again then asking them to repeat it. Appendix 1 contains a sample of a DI word attack lesson including the instructional script for the teacher of which DI is famously criticized for providing (McGraw-Hill, 2012). Furthermore, the curriculum of DI only allows students to progress onto new lessons if they can achieve over 90% accuracy on testing of the content. Each new student also undergoes a placement test upon entry to a DI school to effectively place them in an appropriate level of content. This reaffirms that engagement is the focus of the program, which makes sure that no child falls behind.

Teachers are the instruments through which educational methods and engagement are achieved. It was therefore important to explore their perspective of this highly instructional and explicit model. The following quotes used in this analysis were provided by the teachers at the Aurukun campus in response to a series of interview questions (Appendix 2). The most insight was given by teachers when asked if they thought DI had been successful in engaging students in school. The first teacher interviewed stated that DI had definitely been successful in engaging the students. This particular teacher thought increased engagement was a product of the high expectations the children held of themselves in this DI program. Engagement was also discussed as being the product of the children knowing explicitly what was required from them in school as well as what they can achieve with the program (Confidential interview #1, 10/10/2012). A similar response to this question was obtained in the group interview while other factors like routine and the constant reaffirming of knowledge that is at the heart of the program was also highlighted (Confidential Interview #3, 10/10/2012). These are very important factors in this education debate. Many students have difficult



backgrounds and are faced with numerous economic and social difficulties that contribute to their disengagement. These problems run particularly deep within remote indigenous communities making it hard to find adequate teachers. It is even more difficult to find teachers willing to spend longer than two years in the area. Therefore the routine, and expectations set into the structure of it provides students with a form of consistency they need. This consistency also provides the children with the opportunity to see the direction of their learning creating ownership. This occurs despite the regular rotation of staff. As any teacher in this curriculum will pick up from where the other left off using the same routine and structure of the program.

### **Education and Learning theory**

The implementation of this approach in Aurukun by CYAAA has a strong grounding in education psychology and learning theory. In particular, the use of scaffolding, modeling of behavior and reinforcement within curriculum can be empirically and theoretically related to the work of Albert Bandura, Lev Vygotsky and B. F Skinner. Meanwhile other psychology and empirical theories of child development provide the basis of the main criticisms towards the use of this explicit form of education.

As previously discussed, DI is characterised by placing children within the series of scaffolds and support structures. This is not unlike the scaffolding work of Russian psychologist Vygotsky. Vygotsky theorised that children should be guided through the learning process with the direction, clear statements and expectations of each lesson (Wood and Wood, 1996). Children are also provided with constant verbal feedback due to the way that the program is structured. This allows them to successfully achieve a new skill by training their own actions and responses to these criteria (Ferrari et al., 2010). These methods are particularly evident in Aurukun. All the lessons observed were fast paced in their delivery and almost completely verbal to maintain students engagement. Another theoretical concept used by DI in Aurukun that also relates to scaffolding was that of the Zone of Proximal Development or

ZPD. Vygotsky uses this term to demonstrate the level of achievement children can achieve independently compared to the potential development of achievement students can achieve through adult guidance (Cortazzi and Hall, 1998). For example, teachers help children to correctly produce basic phonetic sounds during repetition, so practice does not make phonetic mistakes permanent in a child's memory. By mastering this pre-corrected sound students were able to efficiently move on to saying the complete word independently.

This oral repetition and verbal component of the curriculum also has some psychological grounding. This particularly relates to the modeling of sounding out behavior the teaching script elicits, is very similar to Albert Bandura's Social Learning Theory. In this relationship the teacher is the identified figure that the children model their behaviour from, by paying attention to, for example the words and sounds they have to then imitate (Bandura, 1978). Furthermore, this program is highly structured towards fostering a child's self-efficacy through reinforcement that showed the students they were achieving (Grusec, 1992). This component of reinforcement is also similar to Skinner's theory of operant conditioning as the children were more likely to repeat the word correctly because of the amount of support they had and because of the positive consequences it had on their self-esteem and self-efficacy. The brisk and structured pace of lessons can also be closely related to psychological research. In particular the research points out that these two characteristics can improve attention and retention of information therefore helping students to stay engaged with the content and in school (Ewing, 2011, Tarver, 1986). Overall this is very much a model in opposition to the work of play theorists such as Piaget and many implicit education supporters who believe it stifles creativity.

## Criticisms

Despite this positive hype surrounding the effective implementation of DI education in Australia it continues to be marked by opposition. The following criticisms that will be explored will first be specific to Aurukun. Then general criticisms that arise in association with the implementation of DI in the Australian context more generally will be explored. Overall the biggest uproar towards the implementation of DI in Aurukun came from the community and the Queensland government. The opposition was not so much about the program but its sustainability in a community context that had previously been placed in the “too hard basket” (Confidential interview #4, 10.10.2012).

This question of sustainability was particularly unappealing politically and could have very much been seen as a financial gamble. When the program was first implemented it was seen as a radical attempt to address the gap in indigenous education, to structure a once unstructured school system. Even today the teachers of Aurukun admit it was an attempt at a new starting point in education (Confidential Interview #3, 10.10.2012). Despite the opposition to this radical move “it seems to have provided a solid foundation... and more than a starting point” for these children (Confidential Interview #3, 10.10.2012).

The Australian criticism centers upon questioning the comprehensiveness curriculum of this approach. Specifically, whether DI is effective in building skills such as mathematics that are further outside the domains of reading and comprehension (Ewing, 2011). Other criticisms of the use of DI tend to relate to constant testing and stigma relating to the categorization of students in “streams” of ability within the classroom. The testing conducted every week as a requirement of DI is an attempt to make sure every student placed in every stream is given the appropriate level work and is not falling behind and thus disengaging from the program. While this seems like a positive and student focused step in education there is one criticism related to data collection that does hold some weight. All data that is collected each week is actually

processed by the US National Institute for Direct Instruction, which then relays what changes need to be made on a classroom level. Thus, as it is an American program the data is ranked more generally to American standards of education. It can be argued that this removes some of the accountability from the teachers in Australia and the autonomy of the program. However, NIFDI is an institution grounded in empirical research. Furthermore, AIDI or the Australian Institute for Direct Instruction has just been launched, so in the future the ultimate aim would be to have this Australian institute under partnership with NIFDI analyses Australian data (AIDI, 2012).

Another criticism relating to the data obtained through the regular testing of DI is its ability to be generalised. DIBELS is a highly reliable and validated test of achievement for any classroom. Due to the relatively recent implementation of DI in Aurukun and other Cape schools overall, very little difference has been shown on broader and more generalized tests such as NAPLAN. The results shown by DIBELS are unfortunately hard to compare with the test results of other non-DI schools. Therefore, at this stage it is difficult to make a full statistical comparison overall. However, this also calls into question the validity of the production of NAPLAN tests compared to DIBELS. DIBELS has a full psychometric basis and development background, unlike NAPLAN that is used nation wide. This is another possible and critical area of future research.

Not surprisingly another major criticism of this program relates back to the initial debate surrounding the differences in methods of education. This criticism centers on the explicit nature of DI and its highly scripted curriculum. Some argue it does not allow the child or the teacher to express their own creativity in the learning process (Denise, 2008). This argument provides the basis of the exploration or discovery method of learning. This approach is more closely aligned to the current Australian education system where the

structure of both the classroom and the curriculum tend not to be scripted and are more implicit (Ewing, 2011). Therefore allowing the child to find their own way of learning, in their own time. This will always divide the education community, as there is substantial evidence for both sides. However, it is important to consider the particular scope of the context of this report in assessing this argument. Educating children is not about always allowing teachers to express their creativity in the process. Furthermore, DI argues that creativity is not stifled, rather solidifying the building blocks of learning and the basics of reading, for example, also provide the foundation for a child's future creativity.

## Chapter Four

### Alternative Education Programs

While it is hard to ignore the positive results of DI it is one of many programs only beginning to address the education gap between remote indigenous youth and their non-indigenous counterparts. In the case of Australia there are other alternate programs originating within Queensland and implemented on a larger scale. These programs all attempt to create awareness of this issue. There is also a growing media presence that reinforces the accountability of these programs. This is also playing a very important role in engaging the rest of Australia in the fight to close the gap in education. It also publicly outlines what programs are seeking to do so. The Stronger Smarter Leadership Program (SSLC) is one of these programs. Like SRA, it also focuses on re-engaging remote indigenous youth in education. Meanwhile, outside the realm of remedial and alternative education the relatively new curriculum for the education system is also a contrast. Therefore, as an alternative to DI, it should also be considered for its effectiveness to engage remote indigenous youth. The comparison of these initiatives will provide a basic assessment as to which of these programs has had the most effect in reducing Australia's gap in educational achievement.

The SSLC program was originally established through the work of Chris Sarra in 1999 (Sarra, 2004a). It developed from the success Sarra had as principal of Cherbourg school by approaching education as a challenge to the expectations that limit a child's learning. More specifically, challenging the pre-existing expectations of teachers that indigenous youth are doomed to failure, thus teaching accordingly. Alternatively, this method of education seeks to motivate and enable indigenous children to realize their own potential and ability, to reverse negative expectations (Sarra, 2004b). The current government supported this vision and the Stronger Smarter Institute was established in 2009. This occurred only one year prior to the establishment of CYAAA. The

ethos of SSI has since been implemented in approximately 100 schools nationally and has a government-funded budget of approximately \$30 million over two years (DEEWR, 2011).

Addressing the disengagement of indigenous students in school is also a key focus of this program like in DI (Matthews et al., 2005). However, the difference between these two programs lies in the methods used to address this disengagement. Unlike DI, the work of the SSI and the SSLC program focus more on incorporating indigenous knowledge and learning in the current teaching processes. A key feature of the program is the use of mentors and teaching aids within the classroom. Therefore, engaging the indigenous community in education in an attempt to also engage indigenous students. This practice also aims to incorporate and facilitate the transfer of indigenous culture and knowledge from the mentors to the students in the classroom environment (Sarra, 2004a). Furthermore the use of mentors and known individuals in the community in class is an incentive for children to attend school, addressing the excessive absenteeism of students (Mark, 1999). This is one of the key factors in the disengagement of remote indigenous students.

There are also some relative similarities between these two alternate education programs that relate to empirical research in psychological theory. For example, well-respected members of the indigenous community have established both of these programs. These respective founders have placed emphasis upon incorporating the notion of indigenous community into their teaching methods. While SSLC focuses on the uses mentors in the classroom, CYAAA uses it's "culture" component of curriculum. This use of mentors by this program does not change the content of the curriculum, unlike DI that uses new structure to educational disparity. However, DI is able to engage indigenous youth in education and their culture. The main focus of this program continues to be the acquirement of basic learning skills. A key factor in the success of Project Follow Through was the organized and central administrative body it established to deliver education. SSI and CYAA are also

organized in this way. Part of this organization is the thorough and ongoing training provided to teachers in both institutions on the specifics of their education (Hattie et al., 1996). It is also important to explicitly note the overall similarity between these two methods of education. It is their “no excuses” approach to closing the education gap in Australia and their need to high expectations for indigenous students to strive for that are a positive attempt to rectify this difference and bring about a better future of education.

Although there are similarities in the motivations of these programs, two major differences exist between these educational models. This primary difference is the success that these programs have had as shown through the achievement scores of their students, despite their relatively recent implementation. In considering differences in progress, it should be noted that it was difficult to obtain the curriculum of SSLC schools. However, an independent report recently conducted into the work of Chris Sarra and his Stronger Smarter Institute has yielded interesting results. Finding that there was no evidence to support that schools implementation of the SSLC curriculum had any improvement on the reading, writing and numeracy outcomes of its students (Alberechtsn, 2012, Luke et al., 2011). In comparing this to the overall gains made by students in the case study of Aurukun in attendance that has improved and that 80% and academic achievement by between 1.5- 2 years in a single school year (CYAAA, 2012b). This is an extremely stark comparison. However, in terms of scale the size of implementation of these programs should be taken into account of their reliability and effectiveness. SSLC has implemented its curriculum in approximately 100 schools nationally, while CYAAA has only implemented DI in 4 schools in remote Queensland. However, even based upon these sample sizes and number of locations all current information leans towards DI as implemented by CYAAA as having had greater result than its SSLC comparison. Despite the initial results between these two programs further



research still needs to be conducted and made public about the effectiveness of these two programs to increase public awareness and accountability for the education of Australia's children.

The Queensland State education system is another contrast to the method of DI. Considering that gap in education is yet to be specifically addressed though the implementation of a state curriculum the focus should remain on alternative programs. The work of SSLC and the CYAAA both attempt to "catch up" or effectively accelerate the learning of particularly remote, primary school aged indigenous students. Both programs acknowledge the underlying factors that cause these students to disengaged and fall behind in education. However, the CYAAA through CYI is overall a more holistic and entire community approach particularly in terms of the other health and welfare programs that are intertwined with their approach to education. These encouraging results cannot be compared equally with Sarra's method. Nor should these results be viewed as a sole product of this education method. While in terms of the state, state curriculum is redundant. What it does mean is that indigenous children continue to fall behind. Regardless of the program it should aim to transition into high school regardless of its curriculum, placing indigenous students on an equal foundation with their non-indigenous counterparts, giving them the best opportunity to succeed.

## Chapter Five

### Recommendations

Overall the following three recommendations are proposed from the scope of this report. Firstly it is recommended that some of the proposed education budget of SSI be funnelled into assessing the achievement of DI and SSLC in comparative case study. This suggestion allows for a greater comparison into each programs sole ability to re-engage remote indigenous youth.

Subsequently, analysing how effective they can be in attempting to close this gap in achievement. However, the time over which this evaluation takes placed needs to be considered. The longer this research continues without a definite finding it allows for more remote indigenous students disengage and slip though the gaps in the current and education system. Therefore, depending on the period of time this disengagement occurs for, it will require greater recourses to bring each student up to speed.

The second recommendation also relates to consistency. As it has been shown, DI is a very consistent and structured form of education. This provides remote indigenous students with a degree of routine they may not otherwise have. However, the issue of the constant change over of staff in these schools should also be researched. Consideration into longer teaching contracts with more attractive conditions should be made. Rather than the mandatory two years remote service required of teachers at end of their degree. Teacher's motivation to be teaching in a specific context can also go a long way towards achieving student engagement and this was shown in the results of the school in DC that took part in Project Follow Through. While longer service despite its extreme remoteness would also increase the integration of the community into education. This would occur through enabling the community to build stronger relationships with its teachers, which also fosters the ideal of accountability for education from a community level.

The third and final recommendation of this research relates to consistency and while it was not explored in the scope of this paper it is relatively controversial. This recommendation is in regards to the underlying social factors of violence, location and socio-economic disadvantage of indigenous that attribute to student disengagement. The recent Queensland government and communities talks surrounding the removal of the alcohol ban should be strongly reconsidered. There is a large possible impact the removal of this ban will have on children through aggregating the underlying factors of disengagement. The gains displayed in the Aurukun case study were done so during the ban on alcohol. The gap in achievement within these specific Cape York Communities cannot be blamed on the context prior to this ban, nor has it completely alleviated the issues surrounding excessive alcohol consumption. However, the flow on effects brought about by the removal of this ban need to be considered in regards to their impact on children and their ability to prosper in education.

## Conclusion

Unfortunately there continues to be a substantial difference between the achievement in education by indigenous and non-indigenous students. The recent implementation of Direct Instruction education in four remote Cape York schools by the Cape York Aboriginal Australian Academy has had surprising but controversial results in relation to this achievement gap. In exploring the case study of CYAAA Aurukun Campus, the implementation of DI was found to have been effective in catching up remote indigenous students. This was shown in the extremely recent but significant DIBELS test results and through the increase in school attendance. This case study also provided the basis for relationship between educational theory and the methods of DI. This relationship showed that while there are valid criticisms surrounding explicit methods of education like DI, they also have some empirical grounding.

It is important to understand the origins of this education method and context for which it was specifically designed. This was explored in both the background section and Chapter 2. This is important because DI has not been specifically adapted for the Australian context. Therefore, if it did not address the discrepancy in education within the US context there would have been very little relevance in applying in Australia to deal with a similar issue. However, the underlying good instruction of teaching is universally applicable. Another finding mentioned in the scope of this research was also connected to this Australia and United States relationship in terms of content and data processing. Ideally, Australian experts within Australia should process data from Australian schools. Also the content of lessons is American so currently students are presented with foreign examples that are not always applicable. These ideas could be considered as future goals to maintain engagement and the use of DI in Australia.

This research also found that in comparison to SSLC schools and the Queensland education system, the results of DI appeared to better re-engage remote indigenous youth. Again this was assessed on the factors of attendance and achievement. However, it was acknowledged that the work done in associated with DI in Aurukun under the Cape York Reform by the Cape York Institute may have influenced for example, the increase in student attendance. Overall findings of this research are important. Despite its limitations in scope and extent it contributes to the growing body of research that attempts to narrow the achievement gap. These early results surrounding DI, despite their size are significant in engaging students. They are also exciting because of the possibilities they hold in providing indigenous children greater opportunity. This begins with a fair and quality education and the reduction of the gap in achievement between indigenous and non-indigenous Australians.

## References

Abs. 2012. *Schools in Australia; Students* [Online]. Canberra: Australian Bureau of Statistics. Available: <http://www.abs.gov.au/ausstats/abs@.nsf/Lookup/4221.0main+features302011> [Accessed 15.10 2012].

Aidi 2012. Australian Institute for Direct Instruction. *In: AIDI (ed.) Cape York Partnerships*. Cairns: AIDI.

Alberechtsn, J. 2012. Chris Sarra stretches the gap on credibility. *The Australian*.

Anunaka. 2011. *Australia's Racist Education System* [Online]. Available: <http://anunaka.com/australias-racist-education-system/> [Accessed 17.10.12 2012].

Baldi, S., Jin, Y., Skemer, M., Green, P. & Herget, D. 2007. Highlights From PISA 2006. Washington: National Centre for Education Statistics; Institute of Education Sciences, U.S. Department of Education.

Bandura, A. 1978. Self-efficacy: Toward a unifying theory of behavioral change. *Advances in Behaviour Research and Therapy*, 1, 139-161.

Beatty, B. 2011. The Dilemma of Scripted Instruction: Comparing Teacher Autonomy, Fidelity, and Resistance in the Froebelian Kindergarten, Montessori, Direct Instruction, and Success for All. *Teachers College Record*, 113, 395-430.

Benner, G. 2007. The Relative Impact of Remedial Reading Instruction on the Basic Reading Skills of Students with Emotional Disturbance and Learning Disabilities. *Journal of Direct Instruction*, 7, 1-15.

Bost, L. W. & Riccomini, P. J. 2006. Effective Instruction: An Inconspicuous Strategy for Dropout Prevention. *Remedial and Special Education*, 27, 301-311.

Cortazzi, M. & Hall, B. 1998. Vygotsky and Learning. *Education Libraries Journal*, 41, 17.

Coughlin, C. 2011. The Impact of Direct Instruction Implementation on the Reading Achievement of Cape York Australian Aboriginal Academy Students: A First Year Analysis. Cape York Aboriginal Australian Academy.

Cyaaa 2012a. Cape York Aboriginal Australian Academy; Overview. In: TOON, D. (ed.). Cairns: Cape York Aboriginal Australian Academy.

Cyaaa 2012b. Key Results Briefing. In: TOON, D. (ed.). Cairns, QLD: Cape York Aboriginal Academy.

De Bortoli, L. & Cresswell, J. 2004. Australia's Indigenous Students in PISA 2000: Results from an International Study. Melbourne: Australian Council for Educational Research.

Deewr. 2011. *Focus School Next Steps* [Online]. Canberra: Australian Government. Available:

<http://www.deewr.gov.au/Indigenous/Schooling/Programs/Pages/FocusSchoolNextSteps.aspx> [Accessed 10.10.12 2012].

Denigan, B. 2008. Lessons from America: What 'No Excuses' Schools in the USA can teach us about reforming education for Indigenous children in Cape York Peninsula. Cairns, Australia: Cape York Partnerships.

Denise, G. 2008. Scripted Curriculum: Scourge or Salvation? *Educational Leadership*, 65, 80.

Engelmann, S. 2007. *Teaching Needy Kids in our Backward System: 42 Years of Trying*, ADI Press.

Ewing, B. 2011. Direct Instruction in Mathematics: Issues for Schools with High Indigenous Enrolments--A Literature Review. *Australian Journal of Teacher Education*, 36, 64-91.

Ferrari, M., Robins, D. & Yasnitsky, A. 2010. Wundt, Vygotsky and Bandura: A cultural-historical science of consciousness in three acts. *History of the Human Sciences*, 23, 95-118.

Gersten, R. 1985. Direct Instruction With Special Education Students: A Review of Evaluation Research. *The Journal of Special Education*, 19, 41-58.

Grusec, J. E. 1992. Social Learning Theory and Developmental Psychology: The Legacies of Robert Sears and Albert Bandura. *Developmental Psychology*, 28, 776-786.

Gurria, A. 2010. Presentation of the PISA 2010 Results. *United States*. Washington: OECD.

Hattie, J. 2009. *Visible Learning; A Synthesis of over 800 Meta-Analyses Relating to Achievement* Oxon, Routledge.

Hattie, J., Biggs, J. & Purdie, N. 1996. Effects of Learning Skills Interventions on Student Learning: A Meta-Analysis. *Review of Educational Research*, 66, 99-133.

Hickok, E. 2002. *No Child Left Behind: A Desktop Reference*. Washington: Office of the Under Secretary.

Kinder, D., Kubina, R. & Marchand-Martella, N. E. 2005. Special Education and Direct Instruction: An Effective Combination. *Journal of Direct Instruction*, 5, 1-36.

Kuder, S. J. 1990. Effectiveness of the DISTAR reading program for children with learning disabilities. *Journal of Learning Disabilities*, 23, 69-71.

Lamb, S., Walstab, A., Teese, R., Vickers, M. & Rumberger, R. 2004. *Staying on at school: Improving student retention in Australia*. Report for the Queensland Department of Education and the Arts ed. Brisbane: Centre for Post-compulsory Education and Life Long Learning, The University of Melbourne.

Luke, A., Cazden, C., Rhonda, C., Kelnowski, V., Ladwig, J., Lester, J., Macdonald, S., Phillips, J., Shield, P., Theroux, P., Tones, M., Villegas, M. & Woods, A. 2011. *A formative evaluation of the Stronger Smarter Learning communities Project. 2011 Report* [Online]. Brisbane: Queensland



University of Technology and Department of Education, Employment and Workplace Relations. Available: <http://eprints.qut.edu.au/47539/> [Accessed 16.10.12 2012].

Mark, L. 1999. Some issues in providing culturally appropriate science curriculum support for indigenous students. *Australian Science Teachers Journal*, 45, 41.

Matthews, C., Watego, L., Cooper, T. & Baturo, A. 2005. Does Mathematics Educaiton in Australia devalue Indigenous Culture? Indigenous perspectives and non-Indigenous reflections. *Proceedings 28th conference of the Mathematics Education Research Group of Australia*. Melbourne: Mathematics Education Research Group of Australia.

Mcfarlane, K. A. & Humphreys, M. S. 2012. Maintenance rehearsal: the key to the role attention plays in storage and forgetting. *Journal of experimental psychology. Learning, memory, and cognition*, 38, 1001.

Mcgraw-Hill. 2012. *SRA: Free Downloads* [Online]. Ccolumbus. Available: <http://www.mcgraw-hill.co.uk/sra/free-downloads.htm> [Accessed 14.10 2012].

Oecd 2011. UNITED STATES - Country Note - Education at a Glance 2012: OECD Indicators. OECD.

Oecd 2012a. AUSTRALIA- Country Note - Education at a Glance 2012: OECD Indicators *Australia*. OECD.

Oecd. 2012b. *Gross domestic product in US dollars 2012/1* [Online]. OECD. Available: <http://www.oecd-ilibrary.org/sites/gdp-cusd-table-2012-7->

[en/index.html;jsessionid=3ldp18wdgvtcu.epsilon?contentType=/ns/StatisticalPublication,/ns/KeyTable&itemId=/content/table/2074384x-table3&containerItemId=/content/tablecollection/2074384x&accessItemIds=&mimeType=text/html](http://en/index.html;jsessionid=3ldp18wdgvtcu.epsilon?contentType=/ns/StatisticalPublication,/ns/KeyTable&itemId=/content/table/2074384x-table3&containerItemId=/content/tablecollection/2074384x&accessItemIds=&mimeType=text/html) [Accessed 19 September 2012].

Pogorzelski, S. & Wheldall, K. 2002. Do differences in phonological processing performance predict gains made by older low-progress readers following intensive literacy intervention? *Educational Psychology*, 22, 413-427.

Rowe, K. 2005. *Teaching Reading: National Inquiry into the Teaching of Literacy* Canberra: Department of Education, Science and training.

Saine, N., Lerkkanen, M.-K., Ahonen, T., Tolvanen, A. & Lyytinen, H. 2010. Predicting word-level reading fluency outcomes in three contrastive groups: Remedial and computer-assisted remedial reading intervention, and mainstream instruction. *Learning and Individual Difference*, 20, 402-414.

Sarra, C. 2004a. Strong & smart. *New Internationalist*, 14.

Sarra, C. 2004b. Strong and smart: Aboriginal children are expected to do poorly at school. Teacher Chris Sarra blasts away the prejudice. *New Internationalist*, 14.

Schweinhart, L. & Weikart, D. 1997. The high/scope preschool curriculum comparison study through age 23. *Early Childhood Research Quarterly*, 12, 117-143.

Smyth, J. & Fasoli, L. 2007. Climbing over the rocks in the road to student engagement and learning in a challenging high school in Australia. *Education Research*, 49, 273-295.

Tarver, S. G. 1986. Cognitive Behavior Modification, Direct Instruction and Holistic Approaches to the Education of Students with Learning Disabilities. *Journal of Learning Disabilities*, 19, 368-375.

Teitel, L. 2009. Improving teaching and learning through instructional rounds. *Professional Voice*, 7, 39-42.

Thompson, S. & De Bortoli, L. 2008. Exploring Scientific Literacy: How Australia measures up. THE PISA 2006 survey of students' scientific, reading and mathematical literacy. Camberwell, Victoria: Australian Council for Educational Research.

Unesco, I. F. S. 2009. *Public Spending on Education (% of GDP)* [Online]. The World Bank. Available: <http://data.worldbank.org/indicator/SE.XPD.TOTL.GD.ZS> [Accessed September 19 2012].

Warburton, B. G. & Gregory, R. P. 1983. Distar Reading and Remedial Children in an Infant School. *School Psychology International*, 4, 169-172.

Wheldall, K. & Beaman, R. 1999. An Evaluation of MULTILIT 'Making Up Lost Time In Literacy;'. Macquarie University Special Education Centre.

Wood, D. & Wood, H. 1996. Vygotsky, Tutoring and Learning. *Oxford Review of Education*, 22, 5-16.

### WORD-ATTACK SKILLS

#### EXERCISE 1

##### PRONUNCIATIONS

**Note:** Do not write the words on the board. This is an oral exercise.

##### Task A

1. Listen. His glasses had a gold **rim**. (Pause.) **Rim**. Say it. (Signal.) *Rim*.
2. Next word: **if**. Say it. (Signal.) *If*.
3. (Repeat step 2 for **im**, **reem**, **ram**.)
4. (Repeat all the words until firm.)

##### Task B It, fit, miff

1. I'll say words that have the sound **īīī**.  
What sound? (Signal.) *īīī*. Yes, **īīī**.
2. (Repeat step 1 until firm.)
3. Listen: **it**, **fit**, **miff**. Your turn: **it**. Say it.  
(Signal.) *It*. Yes, **it**.
4. Next word: **fit**. Say it. (Signal.) *Fit*. Yes, **fit**.
5. Next word: **miff**. Say it. (Signal.) *Miff*.  
Yes, **miff**.
6. (Repeat steps 3–5 until firm.)
7. What's the middle sound in the word **ffīīīit**? (Signal.) *īīī*. Yes, **īīī**. (Repeat step 7 until firm.)

##### Task C Mat, meet

1. Listen: **mat**. Say it. (Signal.) *Mat*.
2. I'll say the first sound in the word **mmmääät**. (Pause.) **mmm**. What's the first sound? (Signal.) *mmm*. Yes, **mmm**.
3. Say the middle sound in the word **mmmääät**. Get ready. (Signal.) *äää*.  
Yes, **äää**.

##### To correct:

- a. (Hold up one finger.) **mmm**.
- b. (Hold up two fingers.) **äää**.
- c. What's the middle sound in the word **mmmääät**? (Signal.) *äää*.  
Yes, **äää**.
- d. (Repeat step 3 until firm.)

4. Listen: **meet**. Say it. (Signal.) *Meet*.

5. I'll say the first sound in the word **mmmēēt**. (Pause.) **mmm**. What's the first sound? (Signal.) *mmm*. Yes, **mmm**.
6. Say the middle sound in the word **mmmēēt**. Get ready. (Signal.) *ēēē*.  
Yes, **ēēē**.
7. One of those words has the middle sound **ēēē**. I'll say both words again: **mat** (pause) **meet**. Which word has the middle sound **ēēē**? (Signal.) *Meet*. Yes, **meet**.

#### EXERCISE 2

##### SOUND INTRODUCTION

1. (Point to **f**.) This letter makes the sound **fff**. What sound? (Touch.) *fff*.
2. Your turn. Say each sound when I touch it.
3. (Point to **f**.) What sound? (Touch under **f**.) *fff*.
4. (Repeat step 3 for **ē**, **m**, **ī**, **r**, **d**, **ä**, **t**, **s**.)

##### To correct:

- a. (Say the sound loudly as soon as you hear an error.)
- b. (Point to the sound.) This sound is \_\_\_\_\_.  
What sound? (Touch.)
- c. (Repeat the series of letters until all the students can correctly identify all the sounds in order.)

f e m  
i r d  
a t s

## Appendix 2

### Aurukun Primary School

One-on-one confidential interview transcripts from the 10<sup>th</sup> of October 2012.

**Interview One:** Teacher of year levels one to six.

**Interviewer:** *okay so the first question is; when you first heard that DI was to be introduced what were your initial thoughts?*

**Teacher:** *okay so ive only been teaching this year and I'm a graduate. So I graduated at the end of last year. I came to Aurukun not knowing anything about DI until I reached Cairns where I did an intensive week program on DI. When I did 7 days of the intense workshop I was very overwhelmed. I thought wow this is so different to everything I've been taught in uni or was implemented in a mainstream school. However I had heard all the success stories and all the stuff that was going on in A, C and H so I was keen to get involved. So when I got here it was so different but to see the progression, my idea of di has become so positive, like just to see where my kids have come from, from the start of the year until now it was great.*

**Interviewer:** *So from your perspective, how has the perception of education within the community changed since you've been here?*

**Teacher:** *Okay so since being here for one year. I came in January, and since being here this year more and more parents now ask about their child's education and more and more parents will come up to me in the shop or to my house or along the street and ask "oh how is so and so going in class or how is my granddaughter, my niece and nephew". A lot more parents are interested and hearing from past teachers they've told me that parents are now coming in. Where as for me that is normal because its what*

*I've experienced in mainstream schools but I've heard now it's really good. Heaps of parents come into my room and ask me. Its good!*

**Interviewer:** *Question 3; do you think that DI has been successful in engaging students?*

**Teacher:** *definitely. I think that within di lessons there are so many high expectations of the kids that they have to reach 90% in every single lesson and in every single test. And I think having those expectations the children know what's expected of them, so they are always engaged and they want to do well. They see themselves as a good learner and I think that having those high expectations they're engaged they want to know. And yeah it's such an auditorial program so they are always listening but there are also visuals so they are looking that the book and stories and pictures and they are so engaged with what's going on. I think its fantastic.*

**Interviewer:** *Final question... Do you think that DI has been effective in engaging all students?*

**Teacher:** *Most students I'd say. There is the odd few students that learn kinesthetically, yeah and I think for them it's a struggle. But I would probably say that there are about two kids in my class that it affects them but across the board in my classroom defiantly. Most of them are engaged. Compared to teaching a lesson in a mainstream school during my prac, you would have a big chunk of the class that would be staring around or they get over it. But there is so much going on in a di lesson that they are always focused. They are moving from here, from there, they are listening to the story then reading off their books or doing their worksheets. Its pretty good.*

**Interview Two:** year two to year eight (mainly at a year one level)

**Interviewer:** *When you first heard about DI and that it was introduced in the school you were coming to what were your thoughts on that?*

**Teacher:** *well I was excited to be coming here firstly and I didn't really, I was pretty open actually. I didn't really have any thoughts either way, I was just open and interested to see what it was like.*

**Interviewer:** *okay then so in your perspective do you think that the perception of education in the community has changed since you've been here, with the implementation of DI?*

*Question Two:*

**Teacher:** *well I think so, I was talking with someone the other day who was talking about watching all the kids running down the road going to school and said that a couple of years ago or even a year ago they would have never seen that. They didn't see the people in that number going to school so I think its had a great impact on attendance and so I think the perception throughout the community I think is really good.*

**Interviewer:** *so do you think that di has been successful in engaging students in school and if so why do you think this maybe?*

**Teacher:** *Yeah I think it has and our attendance shows that. I think its successful because it is very structured and I think that really suits the kids here. They know what's happening so they, each lesson builds on a theme and it's conducted in the same manner so the kids don't need to think about the instructions or as much about what is happening. They just need to go along and learn all the new stuff. So they always know what's coming or how to do it. And so I think they are far more engaged because of*



*that. And then because they are beginning to read really well they are far more engaged in their learning. They can see that they can read other things and so I think the engagement level is really, really high.*

**Interviewer:** *So final question, do you think it has been effective in engaging all students? Do you think there are some students it misses somehow in engaging?*

**Teacher:** *Well I think like any school program I think its hard to engage absolutely every student. I think, that some of the students are really affected by what happens in the community so whether or not the school is engaging them or not it affects how they are. I feel that, and I think that it is impossible for anything to be effective for every student. It doesn't matter what different thing it is. Ive been in mainstream schools and certainly doesn't engage all students. So but I think part of what does engage, part of the plan for engaging all students is that it is ability based. So students end up where they should be, and I think that where we lose kids when its too hard for them. So by having ability grouping you are able to put some of those student who are struggling, you are able to see straight away that they are struggling and put them down to a program where they are better suited. And often you will find that they will re-engage and then they will work their way back up and I've seen that a couple of times, In different students who have been difficult to start with who have been re-placed into a pace that better suits them. And then they have worked hard and worked their way back up.*

**Interview Three: Teacher 1:** grade 1-4 **Teacher 2:** grade 4-7

**Teacher 3:** grade range 2-10 majority are yrs 5-7

**Interviewer:** *so when came or heard that di was introduced in this school that you would be teaching in, what were your first thoughts about it?*

**Teacher 2:** *I sort of knew a bit about it I think but I didn't know a lot about it. So I think I came in without a lot of background knowledge and I initially started up here as a club and culture teacher for a term, which I was helping to relieve other classes. So I sort of didn't have any ideas so I sort of didn't have any pre conceptions about what di was so I don't really know if I can answer it better than that.*

**Teacher 1:** *yeah I was similar. I came with like the idea that I knew that di was already implemented within the school; it had been here for a year. I didn't know much about direct instruction until I went to the first training session in Brisbane and we were told more about it then.*

**Teacher 3:** *so umm I did it, I did my internship here at the end of last year. But prior to coming up I did try to read a bit about it but I really had no idea what I was getting into but I just kind of got here and threw myself into it. So when I came up this year I had a good idea of what was going on and yeah.*

**Interviewer:** *okay so question two, in your perspective, since you have been here has your perception of education within the community changed? Since being here in terms of has It become more positive or negative towards it/*

**Teacher 1:** *I think the parents have become more involved in what happens in the school. They are kind of more aware of what the basics of what we are doing are and they are much more approachable, I find, to us. They're asking more questions about*

*how their kids are going and things like that so I think its yeah I think its been a positive thing.*

**Teacher 2:** *yeah I would say it's a real combination of things. I think over the time that ive spent here because I'm starting into my third year now I would say it's a combination of the fact that the longer you are here the more I guess you, the stronger your relationships with the community become. I sort of think, with the conversations that I have had they are generally, when its about the academic side of things really positive. They are talking about how their children are reading now and that's something that has become more obvious within the community as well. I mean I know that the school has had sort of a waxing and waning relationship with the community with the change of, you know, of staff and of principals but I think that this is something done for the children. They always have something that they know, so they are always going to have that constant so I guess its easier for them to talk about it at home in some ways.*

**Teacher 3:** *yeah this is my first year so I haven't really been here for long but I've noticed that sort of seeing in comparison to the start of the year I have tried to build up relationships particularly with the parents of my students. The more they get to know me the more they will approach me and chat about what's going on at school and I have a couple of challenging, kids with challenging behaviour and they are quite open about coming up to me and making sure that things are going okay at school and things like that so ive noticed that increase.*

**Teacher 2:** *I would say too that people like our teaching aid staff like Vicki and Mary Anne and Alhpia. I think they are largely people you can have these conversation with. And they are someone, women who have been teaching in this school for a very number of years. I wouldn't even has of a guess of how long but I think they have defiantly. I have had conversations with them where you see thm say how much and how good it children are reading now. So I think its, maybe even someone you can talk to, if they hadn't of already gone home!*

**Interviewer:** *That's alright! So, next question. Do you think that DI has been successful in engaging the students in school? If so, why? And if not, why not?*

**Teacher 1:** *Yeah I think the big thing is just was routine and as teacher 2 said before with basically being consistent, every day we do the same thing so the kid know what they are coming into. And they also know now what they are missing out on so they know that if they miss school they are going to fall behind and they are also going to perhaps, you know, move classes because they have not been at school. And if they are coming they might move up. So I think, yeah, routine and I don't know what I was going to say there but it was going to be really good... haha*

**Teacher 2:** *Can you ask me the question one more time, sorry!*

**Interviewer:** *So, from your perspective do you think that DI has successfully engaged students.*

**Teacher 2:** *I would say it's a combination with our staff who help get the kids to schools. I would say we have a much higher attendance. I think now they come, and that they are achieving and being successful. So I feel like they have a real ownership of their learning in a lot of ways. Like Alice said, they come, they know what's expected of them and what to expect. I mean you could have a staff turn around and the students have that ownership and that control of their education because they know what's there. Does that make sense? But I would say that, in the sense that its given them that feeling of success it's made them engage more so, not only, I think with the direct instruction books but I find with the other books I have in my room as well and with the words around the classroom, name badges, and words on peoples shirts they are engaging with language in that sense. So I would say it defiantly has helped.*

**Teacher 3:** *and I mean I have nothing as in I don't have nay evidence to back this up or anything... but I've noticed that I think the kids that have been in DI since the*

*beginning of schooling are really quite engaged. I think it's a lot harder for the kids that have only had DI for the last three years or so, because they have been thrown around a little bit prior to DI. but I believe that the kids who have started with DI from the beginning and who have been working up at age appropriate levels are quite engaged.*

**Interviewer:** *Do you think DI has been relatively effective in engaging all students? Are there still some students that it over looks for example?*

**Teacher 2:** *I think any curriculum would. That would be my short answer to that. I mean teacher 3 majored in special education so she might be able to talk a bit more about that but I guess curriculum in general. I don't know if there is any perfect fit to any student in any curriculum because you get such a vast variety of students in a classroom I think that's where your job as a teacher comes in. I think we do it pretty well and that's the role of our staff, taking the script and engaging. There is that conception that you just read out of a book and I guess I find it a little insulting. I would say that there are people who just have that idea because its so much more. You know, we are still teaching and engaging and managing behaviour monitoring. All that sort of stuff as well.*

**Teacher 3:** *Any curriculum you are going to have that sort of ten percent or so that are going to not work for them. One size does not fit all in any situation you're in. I guess that when its up to the school and their priorities as to how we are going to work with that small number of children that it's just not the best fit for. But there are ways to manipulate the program so that you can re-engage those children that it is not the best fit for I guess.*

**Teacher 2:** *I think there is always room to I guess evolve and whether that is with our teaching practices and our knowledge and skills or with the program. There are many avenues will go down in the future, with the Australian Direct Instruction Institute that we are looking at brining in and with Australian materials. I guess you can never be sure of where it's going to go but there is always room to grow and it seems like we*

*have such a solid foundation that we can manipulate for students. I mean there is a strong starting point for sure. Even more than a starting point I'd say.*

***Interviewer:*** *Well that's all. Thank you.*

## **Interview Four: Teacher**

*Interviewer: considering your history with the school I will ask you the one question the new teachers struggle to answer, when you first heard that DI was to be introduced what were your initial thoughts?*

*Teacher: I very uncertain, it was very political well it was about politics not policy so it was more a question of how can it be sustainable More so implemented in a cost effective manner. It was a trial run very different to the then wave of indigenous education. It seemed very much to be not about the program but more about a name game especially in a community that had been placed in the too hard basket. So yeah very much uncertain.*

*Interviewer: Thank you very much for your time!*

## Appendix 3

### Interview Questions

*General questions asked to some of the teachers within the Aurukun school, verbal permission was given to do so is given;*

#### **Question One:**

When you first heard that DI was to be introduced what were your initial thoughts?

#### **Question Two**

In your perspective, how has the perception of education within the community changed since the implementation of DI?

#### **Question Three**

Do you think that DI has been successful in engaging students in school?

- ➔ If it has/ If it hasn't, why do you think it has been so?
- ➔ And how would you measure this success or failure?

#### **Question Four**

Do you think it has effective in engaging all students?

- ➔ what were the students first reactions to the program