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COGNITIVE INSTRUCTION & STUDENTS WITH FAS/FAE

by

LISA HAMMOND

A thesis submitted to the Faculty of Graduate Studies and Research in partial fulfillment of the requirements for the degree of MASTER OF EDUCATION

DEPARTMENT OF EDUCATIONAL PSYCHOLOGY

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The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies and Research for acceptance, a thesis entitled COGNITIVE INSTRUCTION & STUDENTS WITH FAS/FAE submitted by LISA HAMMOND in partial fulfillment of the requirements for the degree of MASTER OF EDUCATION.

Dr. R. Mulcahy

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Abstract

This study involved two grade one students who were suspected of suffering from Fetal Alcohol Syndrome or Fetal Alcohol Effects. To gain a better understanding of why these students were having so much difficulty, and in order to gain a more complete understanding of Fetal Alcohol Syndrome and its related disorders, relevant literature on the syndrome was reviewed. Specific attention was given to definitions of the disorder and its identifying characteristics, cognitive and behavioural impairments associated with the disorder, and previous educational strategies that had been tried with this population.

The research project had two principle purposes. The first purpose was to use an observational approach to investigate the behaviour of these children involved in the study within their classroom environment. Direct observation of the students was done, and a detailed account of the students' actions and behaviours was recorded on a daily basis. Answers to questions such as the following were being sought : What behaviours do these children exhibit, and are they typical of a child with FAS/FAE? How do these children function within their classroom environment? The results of the observations revealed that both of the subjects exhibited many behaviours and characteristics considered in the literature to be typical of students who suffer from FAS/FAE, including shortened attention

span, difficulties adjusting to changes in routine, difficulties following verbal instructions, needing reteaching of skills and information, taking longer than the other students to complete their school work or task assigned, and being easily frustrated.

The second purpose of this project was to improve the cognitive skills of the subjects through the use of individual instruction on a daily basis using modified SPELT strategies. Specifically, listening comprehension and letter recognition/knowledge were targeted for improvement. The students' performance in these areas was assessed prior to instruction, throughout instruction, and at the end of the intervention period to determine the effectiveness of the strategies used. The results indicated that small improvements were made in these skill areas of the subjects. The progress made was small, but gains were made in the area of the students' letter recognition/knowledge and in the area of the students' verbal abilities, specifically their expressive verbal abilities.

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I. Introduction

Fetal Alcohol Syndrome (FAS) and its related disorder Fetal Alcohol Effects (FAE) are of significant concern to educators, and this concern is increasing as more children enter school suffering from these disorders. Kleinfeld & Wescott (1992) address this concern in their paper entitled "FAS in Alaska: What the Schools Can Do". They recognize the need for schools to become more actively involved in the prevention of alcohol-related prenatal brain damage, and they offer numerous recommendations for the education of "children who have cognitive and behavioral problems caused by FAS/FAE" (p. 1).

Both FAS and FAE are caused by maternal alcohol consumption during pregnancy, and the result is permanent damage to the child. The damage that has resulted manifests itself in a variety of problems in all areas of development and functioning. There may be health problems, cognitive deficits, behavioural problems, and learning problems; all of which have direct educational implications. In order to understand why these children have so much difficulty in school, it is important to define FAS and FAE, and what the typical characteristics are that are associated with these disorders. Specifically, what are the characteristics that define the disorders; what are the effects of the disorders on the student's cognition and behaviour; and what are some educational strategies that have previously been tried with this group?

Each child who suffers from this syndrome is unique, but there are also characteristics that are considered to be common or typical of children who suffer from FAS/FAE. For example, some degree of cognitive impairment is common, as is inattentiveness and easy distractability, inability to follow verbal instructions, slow work habits, and difficulty adjusting to changes in routine. For the more severe FAS, there are also obvious physical characteristics such as extremely small size and specific malformed facial features.

The problems that these children have greatly affects their school experience. Often, programs must be modified and alternative teaching methods have to be used. Many of the approaches that have been used advocate the use of a cognitive strategies. Intervention programs that address the problems of inattentiveness and poor judgment have been tried each using a cognitive component.

The present study had two principal areas of focus. The first area was to investigate the behaviours and actions of the subjects within their classroom environment. Direct observation of the students within their classroom was used, and a detailed account of the students' actions and behaviours was recorded on a daily basis. Answers to questions such as the following were being sought : What behaviours do these children exhibit, and are they typical of a child with FAS/FAE? How do these children function within their

classroom environment? How do they interact and cope within the context of the classroom?

The second focus of this study was an analysis of the effectiveness of specific intervention approaches. In keeping with the literature reviewed that suggests that intervention strategies used should be based on cognitive approaches, the strategies chosen were from the Strategies Program for Effective Learning and Thinking (SPELT) program (Mulcahy et. al., 1987). The students received individual instruction on a daily basis using modified SPELT strategies, with the purpose of improving their cognitive skills in the areas of listening comprehension and letter recognition/knowledge. These skill areas were chosen based on discussions with the classroom teacher who identified these areas as in critical need of extra intervention. The students' performance in these areas was assessed prior to instruction, periodically throughout instruction, and at the end of the intervention period to determine the effectiveness of the strategies used.

II. Review of the Literature

A. Characteristics of Fetal Alcohol Syndrome & Fetal Alcohol Effects

Both Fetal Alcohol Syndrome (FAS) and Fetal Alcohol Effects (FAE) are due to prenatal exposure to alcohol. The actual symptoms and effects experienced by any one individual afflicted with either of these disorders are dependent upon the amount of alcohol consumed by the mother, as well as the length of time during the pregnancy that the mother continued to consume the alcohol. The effects of the prenatal alcohol exposure range along a continuum from visible physical characteristics and severe mental impairment to more mild behavioural and learning disabilities such as hyperactivity, poor attention span, cognitive and perceptual problems, school behavioural problems, and speech and language deficits (Ugent et. al., 1986)

Fetal Alcohol Syndrome (FAS)

When the prenatal exposure to alcohol is extensive and the result is FAS, a variety of symptoms and problems may exist including mental retardation, deformed facial features, and other minor physical malformations (Asetoyer, 1990). The major characteristics that identify FAS are seen to cluster into five general areas; central nervous system effects, growth retardation, facial and skeletal abnormalities, behavioural disruptions, and miscellaneous abnormalities (Ugent et. al., 1986). Table 1 identifies these areas and expands on the specific

characteristics associated with each area.

Table 1: Major Identifying Characteristics of FAS

Central nervous system	Mild to moderate mental retardation
Growth	Extremely small size for age
Facial	Small head
	Jutting forehead
	Short eye slits
	Skin folds on inner corner of eye (epicanthal folds)
	Underdeveloped mid-facial region
	Low-set eyes
	Short, flat nose
	Low-set ears
	Absence of vertical ridges between nose and mouth
	Thin upper lip *
Behavioural	Hyperactivity
	Distractability
Miscellaneous	Poor fine-motor ability
	Speech and language defects

*Highly specific to FAS.

Conry (1990) outlines the steps involved in diagnosing a child as suffering from FAS. First of all, a history of maternal alcohol abuse during pregnancy must be established, and then the child should be examined to determine if he/she meets specific criteria. The first of these criteria is prenatal and postnatal growth retardation, of both height and weight. The second is central nervous system dysfunction which may include neurological abnormalities, developmental delays, or intellectual impairments. The third criteria to be met is that of craniofacial abnormalities, as described in Table 1.

Fetal Alcohol Effects (FAE)

Fetal alcohol effects (FAE) is considered to be a lesser degree of FAS. It too is caused by prenatal exposure to alcohol, but there may not be any of the overt physical signs present. Effects of this disorder include the possibility of below average IQ, learning disabilities, hyperactivity, and short attention span (Asetoyer, 1990).

Lamanna (as cited in Ugent et. al., 1986) describes the profile of the typical child with fetal alcohol effects as intellectually functioning in the normal range, having poor work habits and low school achievement, being fidgety, hyperactive, impulsive, and attention deficit, being developmentally behind other children of the same age, and possibly having some or all of the facial and/or physical

irregularities associated with FAS. It is evident that with the exception of the last characteristic, the first four are often typical of a child who has been labeled as learning disabled. Therefore, it is possible that a number of children who have FAE may have been misdiagnosed, and that if one were to look further into their background it would reveal that their present disabilities are due to their mother having consumed excessive amounts of alcohol during pregnancy.

The other concern with FAE also relates to the difficulty of correct identification. Because its characteristics are often more subtle and difficult to identify, the disorder may not be identified correctly early on in the child's life, and therefore, the child would not receive appropriate early intervention. It is possible that the problems or deficiencies may not be identified until the child enters elementary school. This is problematic because it has been shown that the earlier the proper intervention is applied, the better the chance there is of compensating for, or diminishing potential learning problems. (Ugent et. al., 1986)

Growth Deficits

The growth deficiencies that are evident in children who suffer from FAS, and sometimes also in those who suffer from FAE, occur in the areas of both height and weight, both prenatally and postnatally.

Research has suggested that the deficiencies in prenatal growth are due to drinking during the later part of pregnancy, since much of prenatal growth takes place during the second and third trimesters. (Russell et. al., 1991) However, what is different about FAS as compared to many of the other factors that result in small birth weight and height, is that children with FAS appear to display none of the catch-up growth often seen in other children who are small at birth. Day et. al. (1991) conducted a follow-up study of children diagnosed with FAS at birth when they were three years old. The data indicated "that at age 3 years of age, children who are prenatally exposed to alcohol are smaller in weight, length, and head circumference"(p. 70). These children were not only smaller on all of the growth parameters, but they also had slower rates of growth. The fact that this pattern of slower growth persists strongly suggests that these children have a diminished capacity for growth that will stay with them for their entire lives. These "observed deficits in growth and rates of growth are markers for the biological changes that have occurred in this exposed population."(p. 70) Any postnatal catch-up growth usually does not occur. While the authors could not estimate the significance of this decrease in growth, they do suggest that whatever the decrease may be, it would certainly not be "optimal for a cohort of children to lag behind in growth."(p. 70)

Prevalence Rates

The information available on prevalence rates of FAS and FAE can be somewhat misleading. Cooper (1987) reported that

> at levels of average maternal alcohol consumption of under one ounce per day, the risk of congenital malformations appears small. With one or two ounces of average daily alcohol consumption during pregnancy, the risk of significant malformations increases to 10% while two ounces or more per day of maternal alcohol consumption is associated with a risk of infant malformations of approximately 20%, and virtually all cases of the full FAS have occurred among women with histories of alcohol abuse who drank heavily throughout their pregnancies. (p. 224)

This information suggests that the risk of having a child with FAS is quite small; however, other reports suggest a slighlty different picture. Overholser (1990) estimates that "FAS occurs in the general population at a rate of about 1 to 2 cases per 1000 live births. In alcoholic women, this rate jumps to a 44% chance of having the full FAS syndrome, and a 66% chance for exhibiting partial effects." (p. 163) While it is true that a rate of 1 or 2 per 1000 for the general population may be considered to be low, the risks for women who abuse alcohol are far too great to ignore. Phillipson (1988) suggests a very simple guideline. "Until it is very clear which women - if any - can consume alcohol safely during pregnancy, its use - even on infrequent occasions - should be avoided." (p. 215)

Unfortunately, this message has not yet reached everyone and

the Native population in particular has seen a steady increase in the number of children born with FAS and/or FAE. Asetoyer (1990), in referring to the Northern Plains Native Americans, estimates that 1 in every 100 children born there has FAS, and that about 1 in every 50 show signs of FAE. She goes on to suggest that "within 2 1/2 to 3 generations every Native American household in the Northern Plains area will have one spouse being a descendent of a fetal alcohol birth."(p. 89) Kleinfeld (1991), in referring to the Alaska Native population, estimates that the prevalence rates of FAS to "range from a low of 2.1 cases per 1000 births in the Kodiak region to a high of 25.8 cases per 1000 births in the Copper River region." (p. III) She goes on to state that "knowledgeable Native Americans working in the Indian communities, ... and some research in Canada raise the possibility that the numbers of children with alcohol-related birth defects in isolated, economically depressed Native communities may be many times higher." (p. III)

Cognitive Deficits

Perhaps one of the most debilitating symptoms of FAS and FAE is the cognitive deficiencies that are very often associated with these syndromes. The

> unique pattern of physical, cognitive, and behavioural abnormalities found in the children of alcoholic mothers (FAS children) is recognized as the third most common cause of mental retardation ... and fetal alcohol effects are emerging as the single most prevalent cause of cognitive dysfunction (Ugent et. al., p. 55).

The severity of the mental retardation associated with FAS varies from child to child, but the average reported IQ of children with FAS is approximately 68. (Cooper, 1987) The IQ of the child is inversely related to the severity of the FAS. Those children who show more severe symptoms of FAS also have lower IQ scores. The tragedy of the situation is that, regardless of the severity of the cognitive deficit the child exhibits, it is irreversible.

Other effects associated with FAS and FAE include problems with learning, problems with attention and memory, fine and gross motor problems, organizational and problem-solving difficulties, and psychosocial problems. (Streissguth et. al., 1989) These problems are not only serious, but are also long-lasting and difficult to compensate for, especially for those with the more severe FAS. The long range prognosis for patients with full FAS is poorer than for those with FAE, and this demonstrates the enduring consequences of the prenatal brain damage associated with FAS. These problems often remain very serious and handicapping right into adolescence and adulthood.

One area that has seen particular research interest is the speech

and language problems suffered by FAS children. It appears to be a developmental delay suffered because of central nervous system damage caused by the effects of the alcohol on the child's brain. Carney & Chermak (1991) found "a significant negative correlation between the amount of alcohol consumed by the mother during pregnancy and both expressive and receptive skills of the infant" (p. 124). The older FAS children they studied presented primarily syntactic deficits and the younger FAS subjects presented more global language deficits.

Research conducted by Becker et. al. (1990) found both quantitative and qualitative language differences between children with FAS and a control group. Quantitative differences were found in the areas of grammatical ability, semantic ability, and memory ability. In terms of grammatical abilities, FAS children

> did not demonstrate comprehension of morphological and syntactic forms for picture identification, ... produced fewer grammatically accurate and complete sentences in spontaneous conversation, ... and did not demonstrate comprehension of verbal commands, to the same degree as their younger controls (p. 118).

With regard to semantic abilities, it was found that the FAS children "did not demonstrate comprehension of single word vocabulary to the same degree as the younger control subjects." (p. 118) Memory differences were evident in the fact that the FAS children "demonstrated poorer ability to store linguistic elements in short-term

memory when compared to the younger controls." (p. 118)

Qualitative differences between FAS children and controls were studied in the areas of articulation abilities, language structure, and oral-peripheral mechanism. These impairments were believed to reflect deficits above and beyond deficits which could be accounted for based on the subjects' cognitive or intellectual abilities. Articulation deficits were found in the severe impairment of the production of speech sounds. Language structure was found not to be qualitatively different for FAS children as compared to their controls. In terms of oral-peripheral mechanisms, it was found that there were qualitative differences in the structure and function of the dentition, tongue, and larynx. (Becker et. al., 1990)

Possible explanations for these speech and language problems identified by Becker (1990) include the high prevalence of hearing disorders in the FAS population caused by the craniofacial abnormalities associated with FAS, the deviations in the structure of the dentition and the gingiva, and the deviations in the functional movements of the tongue and larnyx. The suggestion is that the physical problems associated with FAS appear to play a part in the speech and language problems the child experiences.

In general, it appears that children with FAS have linguistic performances significantly below the average performances of children

not afflicted with this syndrome. However, Carney & Chermak (1991) do make the point that "it is unclear whether FAS causes language deficits or whether language deficits are but one of a cluster of symptoms resulting from the depressed cognitive function" associated with FAS (p. 131).

Regardless of the cause of these linguisitic deficits, the wide range of problems and the potential severity of them point to the need for intervention strategies that address these problems.

Behavioural Problems

The behavioural patterns often associated with people with FAS and FAE include impulsivity, hyperactivity, poor attention span, lack of inhibition, overfriendliness, overinquisitiveness, poor social judgment, poor sensitivity to social cues, excessive demands for physical contact and affection, lack of stranger anxiety, difficulty in remaining on task, disrupted sleep patterns, and an unresponsiveness to verbal caution (Rice, 1992). As is evident from this list, the behavioural deficits are widespread, covering all aspects of interaction and behaviour, and can also be quite severe. A deficit in just one of these areas can prove to be problematic, yet here is a population of children who are exhibiting deficits in combinations of or even all of these areas. Further discussion of the various behavicural problems as

they relate specifically to the education setting are discussed later in this review.

B. FAS/FAE and Educational Considerations

Once children with FAS and FAE enter the school system, their problems and deficits often become more obvious and pronounced both in the area of learning and in the area of social relationships. The question then becomes, What can be done to help these children?

As previously mentioned, the earlier that intervention is applied, the better the chance the child has to compensate for and/or diminish potential learning problems; therefore, the ideal is to begin intervention programs before the child enters the school system. (Ugent et. al. 1986) Preschool interventions should include the provision of the stimulation and enrichment necessary to help the child gain basic skills that will foster later learning. Because language and speech deficits are common characteristics of FAS children, it is important to work with the child as early as possible to develop both communication and social skills. Early intervention is important to facilitate optimal learning and to increase the child's potential. (Ugent et. al., 1986)

Unfortunately, especially when dealing with children afflicted with the more difficult to identify FAE, intervention programs often

do not begin until the child enters school. At this point, it is the behavioural and developmental deficits that become of particular concern. Fine motor problems and attention and memory deficits often complicate learning (Jones, 1991). However, because of the range of the severity of symptoms that may be associated with FAS and FAE, intervention strategies must often be decided upon on a case by case basis. A "general guideline is to educate the drug-exposed child as an individual with particular strengths and vulnerabilities" (Jones, 1991, p. 5).

Jones (1991) suggest that one way to assess a child's development is to observe him/her at play. "Play is the means by which children begin to integrate cognitive, language, and social skills in relationships" (p. 6) therefore, any abnormalities noticed during play may be a signal that intervention is needed.

Rice(1992) identifies some of the characteristics typically associated with FAS and FAE children in the classroom as:

1. They often need reteaching; seem to be always "starting from scratch".
2. They are very schedule dependent and have difficulty adjusting to unexpected changes in the schedule.
3. They cannot seem to follow verbal instructions, even though they do hear them.
4. They are often accused of daydreaming, low motivation, and not paying attention.
5. They sometimes resist "changing gears" to another kind of activity.

6. The tend to complain that they were just getting involved when suddenly they are expected to keep up with something that's moving faster that they are.
7. They tend to resist rules and fantasize that things would be fine if there were no pressure from rules or structure.
8. They have an oversensitivity to stimuli, hypersensitvity to criticism and difficulty following through with tasks to the end. Once interrupted, they cannot remember the task or where they were in the process of doing it.
9. They try hard academically and in life skills areas, but the results are quite often disappointing leading others to repeatedly prompt them to "try harder" or "just put their minds to it".
10. They experience fatigue from the regular stimulus level of the classroom and regularily show exhaustion after a typical school day, displaying exaggerated tiredness, emotionality, or blunted effect (psychic exhaustion).
11. They take up to three times longer to complete schoolwork and homework that would take other children under an hour to complete.
12. They may show a hypersensitivity to sensory input.
13. They may have some form of sleep disturbance.
14. They seem curiously "younger" than peers their age.
15. They have impaired ability to gauge cause and effect but can be trained to use deductive logic to improve their problem-solving skills.
16. They are poor at generating potential choices in a linear way.
17. They are easily frustrated and need frequent encouragement even on tasks that don't seem out of the ordinary for a child the same age. (p. 9)

C. Intervention Strategies

Jones (1991) identifies six factors that can be implemented within the classroom to help children with FAS/FAE, and their teacher, cope.

These include respect for the child's space, maintaining routines and rituals in the classroom, observing the child to gain information on how the child deals with stress and reacts to change, maintaining a flexible room environment that allows of the removal or addition of stimuli to reduce or enrich activities, having well planned transition times between activities, and having an adult : child ratio that is "sufficient to promote attatchment, predictability, nurturing, and ongoing assistance" (p. 6).

Jones (1991) also identifies facilitative factors that will help the child acquire better coping skills. These include accepting the child regardless of any past history of negative experiences with him/her, acknowledging the child's feelings (this will promote self-esteem), mutual discussions with the child to help him/her integrate experiences and distinguish between fantasy and reality, having classroom rules that permit exploration and active engagement in the environment, acting as a role model of appropriate behaviour to the child, meeting the child's needs to help the child become more sensitive to the needs and feelings of others, allowing the child to make decisions, working towards a close working relationship between home and school, and coordinating services among various institutions to be as successful as possible.

In addition to the six factors presented earlier, Jones (1991) also

identifies 22 teaching strategies to use with FAS and FAE children to promote optimal learning. They represent the various dimensions along which development occurs and deal with the specific needs of these children. They are as follows:

1. Provide support and emotional reassurance
2. Reduce classroom interruptions
3. Limit number of objects in room
4. Establish classroom routines with minimum number of transitions
5. Model alternative strategies
6. Direct child to watch another child who is using a successful strategy
7. Consider the developmental level of child
8. Recognize preschoolers may need to sit in adult's lap
9. Recognize preschoolers may need to sit next to an adult
10. Use physical, concrete and verbal cues to direct or redirect child in task
11. Consistently praise child's attempts and accomplishments
12. Ask child to verbalize steps of task
13. Talk child through task if child cannot verbalize steps
14. Provide opportunities for child to take turns with peers and adults
15. Model taking turns
16. Provide attention/time to child behaving appropriately
17. Protect child from over-stimulation of intrusive persons or noise; protect from under-stimulation of bland experiences
18. Provide schedule of play and rest activities
19. Alert child routinely 1-2 minutes prior to end of activity .
20. Talk about next activity before beginning it
21. Allow adequate time for transition activity
22. Guide child through transition and into next activity (p. 7-8)

In terms of some specific intervention strategies, Rice (1992) was able to determine that a structured environment with a consistent and systematic daily schedule was necessary to help control and change the behaviour of these individuals. It was noted that very little was available regarding curriculum and classroom issues for FAS children but that

> a small classroom setting with clear guidelines and a great deal of individual attention to students can help these patients maximize their intellectual capabilities. In a regular classroom setting, these students' short attention spans and distractability may compound their intellectual deficits...Teachers at all levels should have training and information about FAS in order to help them recognize and understand the problems facing these children. (p. 9)

The importance of the need for structure with flexibility, consistency in behavioural expectations, an understanding of the student's reactions to change, and a warm accepting environment were stressed as some of the factors required for success in the classroom. Parents of these children reported that good school years were characterized by regular communications between the school and home, flexibility in the classroom, and an understanding by the teacher of the syndrome and its wide range of characteristics. The good teachers were the ones who provided the FAS or FAE child with patience, structure, consistency, encouragement, and improved self

esteem.

Improving Judgment

"Streissguth identifies bad judgment as one of the most subtle, most difficult, but most telling symptoms of FAS and FAE. According to her, this condition had less to do with the intelligence than it did with the inability of a person to evaluate the consequences of his or her own actions" (Dorris, 1989, p. 179 as cited in D'Entremont, 1990). To improve the judgment of the FAS child, approaches that enhance the child's ability to think through and solve problems are being advocated. Two different approaches by two different research teams have been suggested to help deal with this problem.

Shure and Spivack (as cited in D'Entremont, 1990) demonstrated that "it was the child's own ability to generate solutions to interpersonal problems and the ability to foresee consequences that related to adjustment" that was the crucial ability to develop in the child (p 13). They believe that it is the process of the generation of solutions that is important and that the actual content is less relevant. As a way to help the child develop this skill, they suggest focusing on the generation of multiple solutions to a problem and attempting to increase the total solution repertoire of the child. In this manner, the child learns to think through various routes of action before deciding

on the most appropriate one.

According to Glen & Nelson (as cited in D'Entremont, 1990), judgment is a learned ab. . and therefore, the only way to develop it is through practice. They identify the skills required to use judgement and control behaviour as the ability to focus attention, the ability to understand causal relationships, and the ability to anticipate future events. They also believe that these skills will develop with age and that they are related to the child's developmental level. The child requires practice and experience to pass through each stage and develop skills consistent with what would be expected of them. As a guide of appropriate behaviour, Piaget's and Kohlberg's stages are used.

Their strategy for teaching the child is, through dialogue, to give him/her the opportunity to consider the consequences of his/her actions. The teacher (or any other adult working with the child) provides decision-making experiences that are safe for the child to handle and are in line with his/her developmental level. The requirements necessary for this procedure to be effective include allowing the child to be the decision-maker, going at a pace set by the child, allowing the child to make his/her own mistakes in a safe environment, and allowing the child to experience the consequences of his/her choice(s). The role of the adult is to help the child develop various solutions, help him/her evaluate these solutions, and help

him/her choose an appropriate solution, and then live with the consequences. (D'Entremont, 1990)

Dealing with Attention Deficits

Many of the attention deficits and behaviour problems associated with FAS and FAE are similar to those of children diagnosed as suffering from attention deficit hyperactivity disorder. This is believed to be due to central nervous system damage caused by the prenatal alcohol exposure. Because of this similarity, D'Entremont (1990) approaches FAS and FAE with the view that techniques which deal with impulse control, hyperactivity, and the inability to evaluate consequences, which results in poor judgment, all may be of help to the child with FAS or FAE.

In terms of impulse control, teaching children impulse control involves teaching them a specific technique that will enable them to stop and think **before** they act. Two possible technques from two different researchers were presented.

Meichenbaum (as cited in D'Entremont, 1990) suggests that self control can be managed by teaching the child some cognitive strategies (eg. teaching the child what he/she should be saying to him/herself in particular situations). These are then practiced first out loud, and then gradually more quietly and covertly. Throughout the process, the child

is encouraged and reinforced for using the strategies and it is believed that eventually this cognitive modeling and self instruction will alter the attention strategies of the impulsive child.

Gaber (as cited in D'Entremont, 1990) believes that the first thing that should be done in teaching impulse control is to explain the concept of impulsivity to the child. Then, you list the situations in which the child acts impulsively, and share this information with the child. Next, you teach the child some form of a hesitation response that will lengthen the time between the impulse to behave and the action. You then using a modeling and practice technique to demonstrate to the child, in the simulated situations priorized earlier, how the hesitation response would be used. The child then practices this response, receiving much praise and feedback. Each situation is worked on one at a time until mastery has been achieved. Once the child has gained mastery, it is believed that this hesitation response will have become so habitual that it will generalize to situations not practiced.

These two approaches are actually not that different from each other. The hesitation response that Gaber refers to could easily be a cognitive self-talk strategy that Meichenbaum advocates.

In dealing with the hyperactivity of the FAS child, D'Entremont suggests the four techniques and strategies offered by Walden. These

are environmental manipulation, curriculum modification, behaviour management, and affective attitude consideration.

In terms of environmental manipulation, the goal is to match the child's individual needs to the most appropriate classroom environment and then assist the teacher in making any other minor adjustments that will further help the child (D'Entremont, 1990). Structure in the environment is crucial A routine that is understandable and acceptable to the child should be established that allows him/her to work within the enforced limits and also provides opportunity for movement. It is also important that the teacher become familiar with the warning signs that precede outbursts of uncontrolled or restless behaviour. Then, when they appear the child can be shifted to a non-punitive task such as running an errand, or going to see the counselor.

Techniques relating to curriculum modifications involve giving special considerations to the child's individual needs especially in the areas of the amount of work and the time period in which the child is expected to finish. Short-term tasks and goal are appropriate because they help the child build a sense of confidence and acceptance, and because they are able to finish what is expected of them. Often, activity-orientated learning centers are a good balance to the lack of activity involved in seatwork.

If a behaviour management strategy is to be employed, before starting, the behaviour to be modified must be identified and a baseline of that behaviour should be established. The behaviour in question should be kept track of throughout the program so that progress can be assessed. The next step is to decide on an appropriate reinforcer and reinforcing schedule. "Compared to other children, children with FAS or ADHD appear to need more positive and negative consequences to alter their behaviours"(D'Entremont, 1990, p. 18). The negative consequence that works is ignoring the inappropriate behaviour and paying attention only when the behaviour changes or, using a time out system. Initially, rewards should be fairly easy to earn and then the schedule should be gradually adjusted so that the rewards are not as frequent. Praise is an important reinforcer that should be used whenever possible. One note worth mentioning is that often, the program is most effective when the child is included in the process of setting up the plan. The more involvement the child has in the entire process, the more successful the program will be.

Affective attitude considerations refer to the importance of understanding and meeting the child's emotional needs. These children require much patience, sensitivity, creativity and acceptance. Providing for the emotional needs of the child enables the child to feel good about him/herself and therefore increases the chances of the child

becoming successful in reaching his/her potential.

The review of the intervention strategies indicates that many of the strategies used with this population have been based upon a cognitive framework. All of the aforementioned strategies advocated helping the student through the use of some form of cognitive procedure or cognitive strategy (eg. reciprocal dialogue to generate solutions to problems, or cognitive self-talk to control impulsivity). Children who suffer form FAS/FAE typically have some degree of cognitive deficit; therefore, the strategies used should be targeted at diminishing or compensating for [illegible] cognitive deficits. Children are encouraged to think through processes and change the way that they process information so that their behaviour is subsequently changed. Through this procedure, the student becomes more independent or autonomous in their thinking. This focus on cognitive strategies is based on the belief that students should be taught learning and thinking skills or strategies to help them increase their cognitive abilities. The importance of cognitive strategies is stressed by Palincsar & Klenk (1992) who state that as children enter school "there are new demands for (them) to organize and structure their learning for the purpose of recalling what has been learned and applying that information in the context of problem solving activity" (p. 212). That is, there is a shift from incidental learning to intentional learning.

They go on to state that "incidental learning ... is an achievement resulting from the learner's purposeful, effortful, self-regulated, and active engagement. Intentional learning requires metacognitive knowledge, or the awareness and ability to monitor and control one's activity as a learner. It requires a repertoire of (cognitive) strategies" (p. 212).

It is the repertoire of cognitive strategies in students suspected of suffering form FAS/FAE that this research project attempted to increase, and the strategies selected were from the Strategies Program for Effective Learning and Thinking (SPELT) program (Mulcahy et. al., 1987). The goal of the SPELT strategies is to "have students become more aware of their own cognitive and metacognitive processes as well as aware of their motives and affect as it affects their learning." (Mulcahy, 1991, p. 387) this is accomplished through a "three-phase continuum of instructional methodologies" (Peat et. al., 1989, p. 95) in which Phase 1 involves the acquisition of strategies through teacher imposition, Phase 2 involves the transference of strategies taught to other settings and situations, and Phase 3 involves the acquisition and use of strategies through self-generation. (Peat et. al., 1989) The end result are students who are active learners, thinkers, and problem solvers, who are more planful and strategically efficient in their approach to learning, who are independent learners, and who are

aware of , and control, their own thinking processes. (Peat et. al., 1989)

Encouraging and helping a student become more planful and strategically efficient in their approach to learning is important for all students. When considering students who suffer from FAS/FAE, developing these characteristics is especially important because of the impulsivity and lack of problem solving skills that is typical of these students. The preceding description of the characteristics asssociated with FAS/FAE identified impulsivity (Rice, 1992) and bad judgment (D'Entremont, 1990) or poor problem-solving ability as common. Therefore, the use of the SPELT strategies which have the improvement of these areas as a goal is an appropriate match as an intervention approach with this population.

III. Method

A. Participants

The two male students involved in this study were both aged seven years, and were currently in their third year of attendance at school. Randy (not his real name) had spent one year in Kindergarten and was currently in his second year in grade one. Neil (not his real name) had spent two years in kindergarten and was currently in his first year of grade one. The students resided in a northern native reserve, where they lived with their biological families, and were bussed approximately 30 kilometers to the nearest town where they attended school. Both students were reported by their teacher to be experiencing a great deal of academic difficulty and were considered to be well behind their same grade peers both academically and socially.

The two students were referred to the study by their classroom teacher primarily because of the strong likelihood that they were suffering from Fetal Alcohol Syndrome or Fetal Alcohol Effects. Initial contact was made with the classroom teacher through the questionnaire contained in Appendix B. The information obtained from this questionnaire, and the information obtained through subsequent discussions between with the classroom teacher, identified Neil and Randy as highly suspected of suffering from FAS or FAE. It was noted that neither student had been medically diagnosed with either FAS or FAE; however, it was known that both of their mothers

had consumed alcohol considerably during their respective pregnancies with the boys and that they continued to consume excessive amounts of alcohol. This background knowledge combined with their history of academic and behavioural difficulties had lead school personnel to conclude that both students were probably suffering from FAS or FAE. In addition, Neil appeared to have some of the physical characteristics associated with FAS. He was very small for his age, and had some of the facial features associated with FAS including short eye slits, a short, flat nose, and low-set eyes. Based on this information as provided by the classroom teacher, the two students were chosen as subjects in this research project, contingent upon the obtainment of parental consent. Appendix B contains a sample of the Parental Consent Form that was used and signed by the parents of both subjects.

B. Intervention Strategies

Initial discussions with the classroom teacher had revealed that her main concerns regarding Neil and Randy centered around two skill areas in which she felt they were showing particular weakness. These skills were listening comprehension and letter recognition/knowledge. It was these two areas in particular that she wished to see intervention occurring. Based on these identified areas of weakness, two cognitive

strategies from the SPELT program were chosen to improve these skills in the students. The RIDER strategy was chosen to address the improvement of listening comprehension, and the Spelling strategy was chosen to address the improvement of letter recognition/knowledge.

Listening Comprehension

The class, in which the two subjects were members of, currently used the strategy "Listen-Sketch-Draft" within their language arts curriculum. This strategy required the students to listen to the reading of a story, and then at predetermined breaks throughout the story (usually three or four) to sketch some of the details of the story and write a draft of the story in their own words based on the pictures that they had drawn. The teacher had indicated, during initial discussions concerning the subjects, that both of the students involved were not grasping the concept of this strategy and were generally not "getting it" when they used this approach. She reported that Randy was able to follow the sequencing of the story, understood the concept of "story", and was partially able to record through drawings what had happened in the story. He did not, however, do any writing at all. The second student, Neil, would listen to the story and might pick up a few details of the story to draw; however, he typically did not persevere for the

entire instructional time and was usually taken out by the teaching assistant to do other work.

The SPELT strategy RIDER requires students to visualize the details of the passsage they are reading in order to facilitate the learning of the material. As the student reads the information he/she is to visualize the images that correspond to the material they are reading. This technique will aid in their retention and comprehension of the material as they have visual images to correspond with the written or spoken words. Because of its similarity to the "Listen-Sketch-Draft" strategy in terms of the use of visualization and the generation of images to go along with the words, the RIDER strategy was chosen as the intervention strategy to be used to develop listening comprehension in the subjects.

The RIDER was modified somewhat for use with the students in this project. In this modified version, the instructor read a very small piece of the story being covered and then had the students visualize what they had just heard, and then had them draw that visualization. What they had drawn was then recorded and discussed in comparison to the actual words that were read, noting similarities and differences. It was this addition of the drawing component that respresented the major modification made to the original SPELT strategy. Initially, very little of the passage was read before stopping to visualize and sketch;

perhaps only a sentence or two. Gradually, the amount of information they would have to listen to before stopping to sketch was increased. The goal was to lead them eventually to the point where they could follow the story as presented in the classroom and participate in the "Listen-Sketch-Draft" activity. Appendix A contains the lessons plans used to teach this strategy to the students.

Before using the modified RIDER stategy with actual stories, it was necessary to first teach the students how to visualize and see images in their minds. This was done through a series of modelling exercises using images other than just stories. For example, the students were required to visualize pictures of activities they had done, familiar places, familiar people, etc. Modeling was used extensively throughout this process to help them learn how to visualize. Appendix A contains the lesson plans used in the instruction of the technique of visualizing.

Letter Recognition/Knowledge

As mentioned previously, the classroom teacher had reported during initial discussions about the subjects that neither of the students knew the alphabet, nor could they spell their own names on a consistent basis. Both of them could recognize their own name within a group of names, but they did not know the individual letters in their

names. The goal was to have them learn the letters of the alphabet and the strategy used to achieve that goal was a modification of the SPELT spelling strategy. Appendix A contains the lesson plan used to teach this strategy.

To begin the lesson, both the upper and lower case forms of the letter were presented. The following steps were then used to teach the letter to the student:

P - (plan) look at the letter, practice saying it out loud, trace the sandpaper letters on the page, make the letter out of plastercine

V - (visualize) visual image of the letter (ie. all the things that they can think of that begin with that letter; they will draw them & label them in their alphabet book)

A - (act) write the letter over and over again saying the letter out loud each time they write it;

S - (sentences) look for items in the surrounding area that begin with the letter,

Students had their own "alphabet book" that consisted of three pages for each letter. The first page was for "P" (initial presentation of letter), and consisted of sandpaper cutouts of the letter. The second page was for "V" (visualizations of the letter), and consisted of space for the student to draw pictures of items that begin with that letter. The last page was for "A" (act), and consisted of a page for them to practice

printing the letter. The initial first few lines on this page involved simply tracing the letter until the lines were faded out so they printed the letter on their own.

Instruction with this strategy began by using the letters identified by their teacher as being highly familiar and ones to which they had had a lot of prior exposure to to facilitate learning. A master sheet of all the letters of the alphabet was kept in the front of their books, and as instruction was received for each letter it was coloured in on this page.

C. Test Instruments and Rationale

The students in this study were administered two assessment devices. The goal was to determine their skill level in the areas of listening comprehension and letter recognition/knowledge. The initial assessment was conducted during the first week of study and then repeated at approximately two week intervals for the duration of the project. The testing instrument used to assess listening comprehension was the Alberta Diagnostic Reading Inventory, and the test instrument used to assess letter recognition/knowledge was the Supplementary Letter Checklist of the Woodcock Reading Mastery-R.

In addition to these standardized assessment tools, a questionnaire was also given to the classroom teacher. This questionnaire was created by the researcher to gain an understanding of

the teacher's perceptions of each student, and where she felt each stood in relation to a variety of skills and behaviours. This questionnaire was based on descriptions of behaviours and activities considered typical of children who suffer form FAS/FAE. This device can be found in Appendix B.

Supplementary Letter Checklist of the Woodcock Reading Master-R

The Supplementary Letter Checklist was administered in order to evaluate the subject's ability to recognize and name the letters of the alphabet, or their ability to give their sounds. The checklist includes all the upper and lowercase letters of the alphabet in a type style very similar to that used to teach beginning students the alphabet. The letters are arranged in order of general difficulty, and the subject is shown the letters and asked to verbally identify the name of the letter or to give its sound.

This checklist was chosen primarily because of the type style of the letters used. It contains all the upper and lowercase letters of the alphabet and presents them in a type style very similar to the style used by the classroom teacher to teach the alphabet to the students. It was felt that this match in type style would give a more accurate picture of what the students had learned because the mode of presentation in the assessment device was very similar to the mode that was used to teach

them both in and out of the classroom.

Alberta Diagnostic Reading Inventory

The Alberta Diagnostic Reading Inventory contains a section that is used as an informal assessment of a student's comprehension of a passage. This comprehension assessment section has four passages and each grade level available for use, starting at grade one, and for the purposes of this project the grade one passages were used. For the subjects in this study, the researcher read the passage to the student and then asked the student to answer verbally a series of questions relating to the passage just read. The subject's responses to the questions were recorded verbatim and then scored. If the subject scored above Frustration Level (ie. a raw score of seven or more), the answers were analyzed further to gather information about out how the student inferred, associated, and synthesized information about the passage. If the subject did not score above Frustration Level (ie. above six), further analysis of their responses was not possible as the passage was considered too difficult for the student and therefore, would not yield enough information that could be used for analysis and interpretation.

This assessment device was chosen because it had four parallel forms for each grade level. This allowed the same assessment tool to be used throughout the project, using the four different passages,

without having the results affected by a practice effect because the same passage was used at each assessment point.

C. Procedure

There were two students and one researcher involved in this research project. The study was conducted after the Christmas break and lasted for 11 weeks - January 11 to March 25, 1994. This began one week after the students' return from their Christmas break and ended at their Spring Break. The study was conducted during the hours of the regular school day from Tuesday until Friday of each week. The first week was spent solely in observation of the students within their normal classroom environment and activities. This observation period was used to learn the daily routines of the classroom and establish a rapport with the students, particularly those involved in the project. A daily written record of events was kept detailing the activities occurring in the classroom, and detailing the students' responses to and behaviours during these activities. Also during this first week, initial assessments were done with the subjects to determine their level of functioning prior to any intervention. This pre -treatment period consisted of an assessment of their listening comprehension, an assessment of their letter recognition/knowledge, and a questionnaire for their classroom teacher to complete regarding

her perceptions of the students in a variety of different areas. Each student was administered the same assessments by the researcher which were described in the "Test Instruments" section.

Beginning in the second week, each student was removed from the classroom setting and given individualized instruction either once or twice a day for a time period of between 30 and 45 minutes. The majority of these individualized instruction sessions were audio taped to facilitate analysis. This pull-out instruction lasted for the remaining 10 weeks, and during this period both students were re-assessed approximately every two weeks to monitor their progress in the skill areas being remediated. The result was that Randy was assessed three times in the area of listening comprehension and four times in the area of letter recognition/knowledge, and Neil was assessed four times in the areas of listening comprehension and five times in the area of letter recognition/knowledge.

When the students remained within the context of their classroom, the researcher acted as a participant observer and carefully kept daily written records of their behaviour and activities. Details regarding the activities occurring in the classroom were recorded, as were the subject's responses to these activities. Comments and statements made by the subjects as they engaged in the classroom activities were also recorded, as were any interactions between the

subjects and other students. The researcher also recorded comments made about the subjects by others within the school (eg. Principal, other teachers, teaching assistant, etc.), and the perceptions of others regarding the two students involved in the project.

IV. Results and Discussion

This chapter contains two major areas of focus. The first area deals with the analysis of the observations made of the two subjects within their classroom environment. In this section, the students are described in terms of their behaviour and activities in the classroom. The daily written records of the classroom observations were carefully examined for patterns of behaviour and for characteristics previously identified in the literature as typical of a student suffering from FAS/FAE. Each instance or sample of behaviour recorded was examined to determine if it corresponded to a particular theme. For example, the original passages "Randy is prompted by teacher to pay attention" and "Neil is squirming and fidgeting in his seat" were both placed under the category or theme of "inattentiveness".

The second area of focus deals with assessing the effectiveness of the instructional strategies used with the students. The details of the lesson plans used, modifications that were made, and the effect they had on the skill areas being worked on, as well as the results of the student's assessments are all presented and discussed.

A. Observation Results

Subject 1 (Neil)

This student was aged 7 years, and was small for his age, both in height and weight. He was easily the smallest in the class, despite the

fact that he was actually a year older than most of his classmates. He had a friendly personality and was outgoing and smiled easily. Neil is in about the middle of his family, with both older and younger siblings; however, there was some uncertainty regarding just how many brothers and sisters he does have. From all information gathered, Neil appeared to have a fairly unstable homelife. At one point during this project he indicated that both his mother and father were currently in jail, and that an older sister (who was in grade 7 at the time) was looking after him and his siblings. On another occasion, he indicated that the night before his mother had drank "beers" and "got drunk and passed out". His classroom teacher indicated that he has another older sister (in grade 5 at the time) who seemed to look out for him and protect him.

Out of a possible 39 days of observation, Neil was absent for 9 of these days. This represented an absentee rate of approximately 23%. This was actually better than his attendance rate prior to the Christmas break when he was absent approximately 1/3 of the time.

Subject 2 (Randy)

This student was also aged 7 years, and unlike the first student, was about average in height and weight for his age. He did not stand out as physically smaller than his classmates. He was quieter as a rule,

and not very outgoing. Randy is the eldest in a family of at least 2 children, and from all reports appears to come from a somewhat more stable home environment than Neil. In a conference with the Speech Pathologist, his mother reported that his Dad is quite a good artist and spends time drawing and creating pictures with his boys.

Out of a possible 39 days of observation, Randy was absent 14 of these days. This represented an absentee rate of approximately 36%. This was consistent with his previous rates of attendance which saw him absent approximately 1/3 of the time.

Behavioural Observations

Because of the considerable similarity in the behaviour of the two subjects observed, the presentation of the behavioral observations is not divided into two sections that would deal with the student's behaviour separately. Rather, the behaviours observed are presented as being the same for both students except where differences are noted.

Both Neil and Randy were seen by the School Division's Speech Pathologist on her regular visits to the school. Discussions with her revealed that she was working with them to improve their delayed verbal skills. She was not working on any specific speech impediments, but was attempting to increase their verbal abilities and improve their communication skills. This was consistent with their

classroom teacher's perception that both students showed a discrepancy between their superficial verbal skills and their ability to communicate effectively, and that they both showed speech delays. Neither student spoke a great deal and both were delayed in their verbal development. Their speech often consisted of incomplete sentences or gramatically incorrect sentences. For example, when Neil wanted to leave the classroom with the teaching assistant he would say to her "I go work with you?", and when Randy was asked to describe the picture in the book they were looking at, he said " He gonna get foods out then he gonna make the sandwich." These observations were consistent with the findings of Becker et. al. (1990) previously reviewed that stated FAS children "produced fewer grammatically accurate and complete sentences" (p. 118).

In general, both Neil and Randy exhibited many of the behaviours previously identified in the literature by Rice (1992) as typical of a student with FAS/FAE. Both often needed reteaching of skills and information, both were very schedule dependent and had difficulty with schedule changes, both had great difficulty following verbal instructions, both often seemed to not be paying attention and were easily distracted, both took longer than the other students to complete their school work or task assigned to them, and both were easily frustrated.

As reported by the classroom teacher and observed by the researcher, Neil and Randy typically spent a lot of time engaging in behaviours that were not related to the activities going on in the classroom. They often appeared inattentive to the task at hand. For example, during a small group exercise Neil was observed to be watching the fish in the fish tank rather than participating in his group's assigned activity. On another occasion, the class was sharing ideas for stories they were going to be writing and Randy had his head down and was playing with something on the floor. This inattentiveness was typical and was observed to occur numerous times throughout the school day. The students were rarely inattentive in a disruptive manner, (ie. they did not talk to other students or disrupt other's activities), they were just quietly not paying attention. Their attention would be focused on any number of things including their hands or shirt, papers or posters on the wall, something on their tables, etc.. If asked by their teacher to "listen carefully now" or to "keep their eyes forward", they would do so for a brief period of time, and then would usually "drift off" again. Because they were inattentive in a quiet manner, it often went unnoticed initially by the teacher.

This inattentiveness was particularly evident during class discussions or when the teacher was giving instructions to the class

regarding their next activity. These particular instances of inattentive behaviour were related to the difficulties the boys had following verbal instructions. This observation was consistent with the teacher's report that they only "sometimes" comprehended simple instructions. They would appear to just "tune out" of the discussion going on around them, and their attention would be directed to a picture on the wall, a mark on their finger, the buttons on their shirt, or any number of other things in the room. If they were asked a question or prompted to pay attention, it might bring them back momentarily, but it rarely lasted. Usually the question that they were asked went unanswered. Once the instructions had been given and the students were to begin the task, Randy and Neil would need to be retold the task step by step. For example, they would need to be prompted to get their pencils or crayons, then to open their books, then to start colouring or drawing or whatever the task assigned was. It was rare for them to begin an assigned task without being prompted and retold the instructions individually. This was all a part of the constant reteaching that had to be done with Randy and Neil.

Randy and Neil also took a lot of time to complete their assignments and school work. This was partially due to their wandering attention, partially due to the difficulty they had following instructions, and partially due to their weaker developed skills. They

were often the last ones to complete their work and would usually require prompting throughout the task to keep working. They also often had to be reminded what it was their "job" at the time was, and the next step they had to take to complete it. They needed individual guidance through many of the tasks, especially less structured ones such as journal activities and writing, and if not checked periodically they could be found not engaging in the required task. For example, if the task assigned was to draw a picture of their favorite character in the story just read, Randy and Neil may in fact be drawing, but when questioned about what it is they were drawing, they may be found to be drawing a castle or a tree instead.

Most of the work that Neil and Randy were required to do was modified to accommodate their less developed skills. Tasks involving writing were modified so that they would dictate the words to one of the adults in the classroom who would then either write them out on their page for them, or write them out on another piece of paper for them to copy. Neither of the students engaged in any independent writing, and preferred to draw pictures rather than attempt to engage in any writing. At one point, when Randy was asked to generate some writing about his picture he replied "I don't like to do that!". However, both students were usually willing to copy out words that had been written for them earlier. When they were copying words

out however, it was apparent that they did not really grasp the concept of what exactly a "word" was. They would copy out the letters in front of them, but they may not be spaced correctly and if there was more than one sentence to copy, the words were not always in the correct order. For example, if the sentence to copy was 'The wolf was mean and ate Grandma and Little Red Riding Hood.', the final result that Neil or Randy copied might be 'The wolfw as mean an date Grandma and Little Red Ridin gHood.'. If they were not working on lined paper, the words might also end up in a jumbled order. At one point, Neil was copying words onto his page and putting them basically wherever they would fit.

Math tasks were also modified so that they could work with either the teacher or Teaching Assistant on a one-on-one basis, and they often spent the math period engaged in counting games on the classroom computer.

Observations also revealed that neither student engaged in activities for as long as their classmates. They would only work at any one specific task for so long before "burning out", and leaving it. For most activities, 30 minutes was about their maximum limit, and there were many instances when they did not last even this long. In the one-on-one sessions with the researcher, half an hour was generally the longest they would last on any one activity. They would then become

inattentive and require constant prompting to continue with or finish the task they were working on. Neil in particular could become quite vocal and say that he "hated this", or that he "wanted to go home", or that he "was hungry" and wanted to go for lunch.

Related to this low tolerance level for any one activity was their tendency to become easily frustrated. This frustration often appeared when the boys were presented with choices to make. If there were more than two items to choose from, they would "shut down" and not be able to decide. They would become unresponsive. On one such occasion, when Neil was asked to choose between several things to put on the castle he was constructing, he just turned his head away, tensed up, and said "I don't know!". As long as there was only a choice of two things, he would carry on and choose, but if there were more than two choices he turned away.

The students also became easily frustrated when asked to engage in activities they did not like to do. As mentioned previously, Randy's response to being pushed to do writing to go with the pictures he had created was an emphatic "I don't like to do that!".

When there were changes in the typical routines of the classroom, Neil and Randy did not adapt well to these changes. This was particularly apparent whenever their regular classroom teacher was away and a substitute teacher was present. When this occurred,

there was a noticeable change in the behaviour of both students. Neither would respond to the substitute teacher, and would generally become uncooperative in the classroom. Neil would act up more and was a much more disruptive student. He would wander around the classroom more, and generally became louder and even less attentive than usual. Randy would also would become uncooperative and difficult. He would not respond to the substitute teacher, and would usually get up and just leave the classroom. When the substitute attempted to entice him back into the classroom or get him to engage in the assigned task, he would generally not cooperate. On one particular day, he finally cooperated when the substitute threatened to get the Principal. If she did succeed in persuading him back into the classroom, he would often slip out again as soon as an opportunity presented itself. During this project, there were three different substitute teachers that taught in this classroom, and Neil and Randy were difficult and disruptive in the same manner for all of them. The researcher or teaching assistant would often take Randy and/or Neil aside on these days and work with him individually on a one-on-one basis. The classroom teacher would always warn the class before a substitute was coming in and prepare them for the activities they would be doing that day, but this did not seem to make a difference for Neil and Randy. Their behaviour still became noticeably different.

B. Effectiveness of Instructional Strategies

Letter Recognition/Knowledge

Appendix A contains the initial lesson plan drawn up for the teaching of the letters of the alphabet. Several modifications and/or additions were made to this lesson plan during the project. The first change dealt with the visualization task. Rather than have the students visualize things that began with the letter being studied and then draw them onto the page, the task was changed so that they simply had to identify pictures of things that began with that letter and then choose several to draw. The pictures that they chose from were from the Peabody Picture Vocabulary series, and were tacked up around the instructional area. There was a variety of pictures present that began with a variety of different letters. This change brought an auditory component into the learning process as they now had to hear the sound of the letter as they went through the pictures looking for ones that began with the letter in question. This modification was also made because of the difficulty the students had visualizing objects on their own. When asked to visualize pictures of things that began with the letter, it was a task that they just could not do. They would say that they "didn't know" and would not generate any pictures this way.

The next modification made involved the introduction of exercises geared toward reviewing the letters learned, and exercises

geared toward fostering transference of the learning. The review exercises consisted of worksheets on which there was a variety of upper and lower case letters including the ones on which the student had previously been working. The student was then required to choose a particular colour of marker and circle all of a specific letter on the page with that colour. This continued until all the letters that were the same were circled in the same colour. This exercise helped the student discriminate between similar letters and served as a review of the letters learned. Appendix A contains a sample of this worksheet that the students completed.

The exercise developed to facilitate the transference of the learning was called a "Letter Treasure Hunt". The student would take with him of paper on which were the letters for which he had received instruction. His task was to find those letters in other places around the school. The goal was to have him recognize that these letters could be and were present in all sorts of places in all sorts of sizes. The introduction of this exercise was prompted by Neil's inability to identify the letter "s" on the cover of a story book when asked by his teacher, after he had gone through an entire lesson on the letter "s".

The students each received instruction covering six letters during this research project. The letters covered were ones identified by their teacher as most familiar to each student and were not the same

for each subject. Figures 1 and 2 present a summary of each student's assessment results, based on the Supplementary Letter Checklist of the Woodcock Reading Mastery-R, throughout the duration of the project, and indicate that the students did in fact increase the number of letters that they recognized.

Figure 1 : Results of Neil's Assessments Based on the Supplementary Letter Checklist of the Woodcock Reading Mastery - R

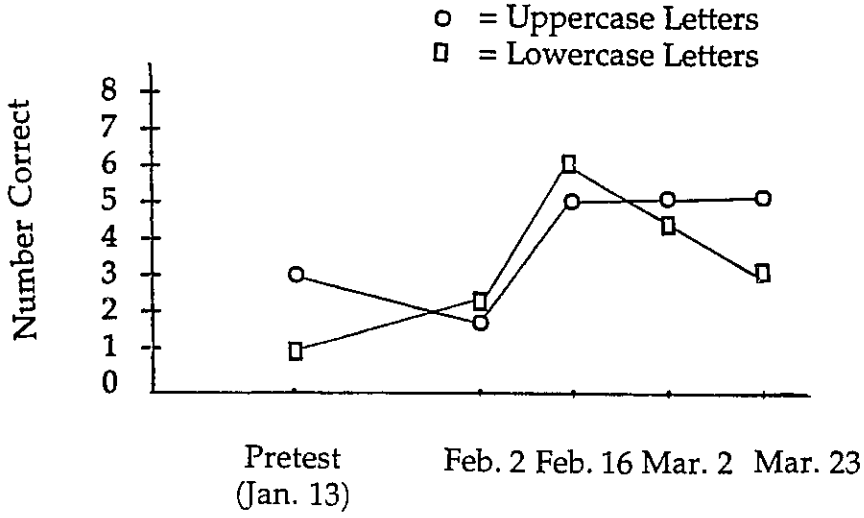
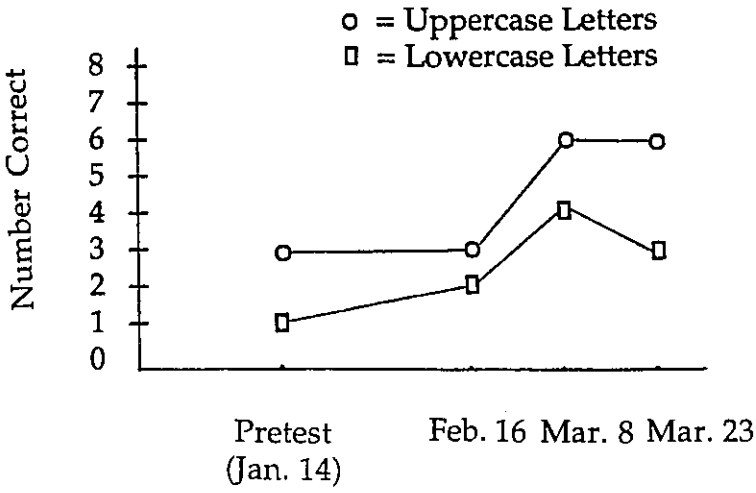


Figure 2 : Results of Randy's Assessments Based on the Supplementary Letter Checklist of the Woodcock Reading Mastery - R



Closer examination of these results to determine which letters the students did in fact consistently recognize indicates that they were not necessarily the letters which were taught. For example, Neil had individual instruction on the letters "Nn", "Ee", "Ll", "Ss", "Oo", and "Pp". Table 2 indicates how often he correctly identified these letters over the five assessments using the Supplementary Letter Checklist of the Woodcock Reading Master - R. Neil consistently identified the capital "N", and also correctly identified the letters "E", "e", "O", "o", and "S" in every assessment done after those letters had been taught. He was never able to identify correctly the letters "L" or "l" during any of the assessments.

Table 2: Number of Times Neil Correctly Identified Letters Taught

Letter	N	n	E	e	L	l	S	s	O	o	P	p
# of times correctly identified	5	3	4	4	0	0	3	2	3	3	1	0

Randy received individual instruction on the letters "Rr", "Oo". "Yy", "Kk", "Mm", and "Aa". Table 3 indicates how often he correctly identified these letters over the four assessments using the Supplementary Letter Checklist of the Woodcock Reading Master - R. Randy correctly identified the letters "R", "r", "Y", and "y" in every assessment after the letter was taught. He also consistently identified the letters "B", "X", and "x", even though he never received instruction on these letters during this research project. He was never able to identify the letters "K", "k", "M", or "m" correctly in any of the assessments.

Table 3: Number of Times Randy Correctly Identified Letters Taught

Letter	R	r	O	o	Y	y	K	k	M	m	A	a
# of times correctly identified	3	3	1	1	2	2	0	0	0	0	2	0

During these instructional sessions on letters, it became very clear just how easily these students could "forget" information that was being taught to them. The phenomenon of the "swiss cheese learner", where the information appears to "go in one side and out the other", was very evident. During the completion of the letter printing worksheet, the students were required to say the name of the letter each time they printed it out. This task required continuous prompting as the subjects tended just to print the letter without saying its name, and they often forgot what letter it was that they were working on. The following excerpt from the instructional session of the letter "Mm" with Randy illustrates this point.

L: "What letter is this again?"

no answer from Randy

L: "The letter M."

R: "M"

L: "Let's say it again."

R &L: "M M M M M M M"

L: "And what sound does it make?"

R: "M" (gives the name of the letter)

L: "mmmmmmm"

R: "mmmmmmmm"

...

L: "What letter are we writing again?"

no answer from Randy

L: "M"

R: "M"

L: "Let's say it 5 times together."

R &L: "M M M M M"

L: "What's the letter?"

R: "M"

...

L: "Don't forget to say the name of the letter as you print it. What is it again?"

R: "uh ... R?"

L: "M, remember?"

R: "M"

L: "Say it again 5 times."

R & L: "M M M M M"

This approach to teaching the letters of the alphabet did appear to be working with these students. It was a very slow process that took much time; they only covered six letters over the 10 weeks. However, part of the reason for this slow learning process was the high rate of absenteeism the students exhibited. Because they missed so much school, much more time had to be spent reviewing and reteaching letters that had previously been covered. Their frequent absenteeism made it difficult to maintain a consistency in the learning process whereby the letters covered could be reviewed on a daily basis to facilitate them being remembered.

Listening Comprehension

The purpose of the teaching of the modified SPELT strategy was to improve the listening comprehension of the two students. The goal was to have the students better able to follow the story line of stories read to them and to have them better able to participate in class discussions and other exercises dealing with the books read, specifically in the Listen-Sketch-Draft strategy that was currently used in the classroom.

As mentioned previously, Appendix A contains the

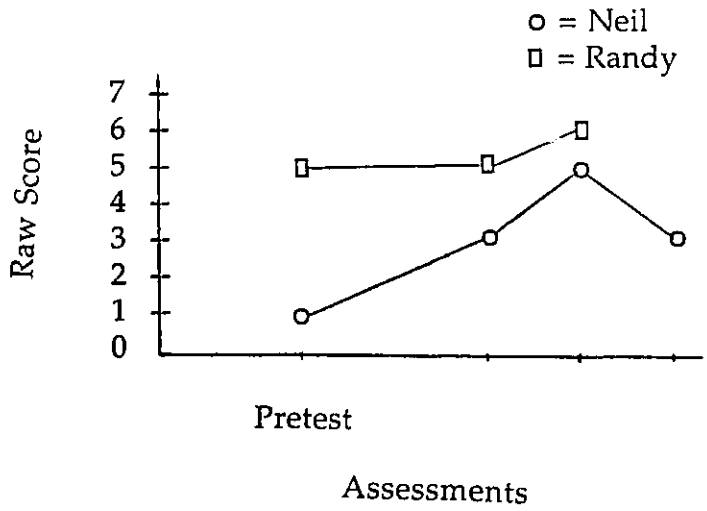
visualization lesson plans used with the subjects. These were used as the initial step in teaching the RIDER strategy because it was felt that the students had to first understand what visualization was before they could begin using the RIDER strategy. There were two lesson plans used to facilitate the students learning the process of visualization. The first lesson plan involved presenting various pictures to the students for them to examine, and then removing the picture and having them draw it from memory. This was done several times before moving on to the next lesson. The next lessons involved having the students imagine themselves in the various activities that they engaged in throughout the day and then to draw themselves engaged in these activities.

Once these exercises dealing with the skill of visualization had been completed, the lessons moved on to the use of stories. Initial lessons involved the students telling the stories and watching the model do the visualizing and drawing. This was followed by the students using puppets to enact a story read to them, and finally to the students visualizing and creating pictures based on stories being read to them.

Initial assessments of the subjects' listening comprehension using the Alberta Diagnostic Reading Inventory indicated that both students were below the Frustration Level for their grade level (ie. they

obtained a raw score of less than 7); and therefore, further analysis of their responses was not possible. Assessments done throughout the project indicated that although their scores did improve, neither student scored above the Frustration Level on any of the subsequent assessments that were administered. Because this was a necessary prerequisite for further analysis of their responses, further analysis was not possible. Therefore, there were no significant increases in the students' listening comprehension as measured by this instrument. Figure 3 presents the subjects' scores on the assessments using the Alberta Diagnostic Reading Inventory.

Figure 3 : Assessment Results from the Alberta Diagnostic Reading Inventory



Although assessments using the Alberta Diagnostic Reading Inventory did not measure any significant change in the subject's skill level, there were other indicators that a change had occurred in the students. Many of the staff members at the school, including the classroom teacher, the Librarian, the Principal, and the Speech Pathologist, commented on the change they had noticed in the students. They felt that they had both become much more verbal and expressive in their use of language. They commented that the students were talking more and were more willing to answer questions that were asked of them.

The Speech Pathologist, who saw the boys on a regular basis prior to this research project, did not have an opportunity to work with the two student's again until this project had been underway for approximately five weeks. After seeing and working with the students she commented to the researcher that she had noticed a change in them; that their verbal abilities had improved. The work that she was doing with them was aimed at improving their expressive language abilities, and it was her opinion that the two students, and Neil in particular, were more expressive verbally. She commented that they spoke more during their sessions together and that their sentences were longer, more complete, and more expressive. They needed less prompting to tell her about the pictures and stories that she was

presenting to them.

On several occasions throughout this project the classroom teacher also commented on the change that she was noticing in the boys' expressive language skills. She felt that they were participating more in class discussions and also when she worked with them individually, and that they seemed to be more aware of the activities that were going on in the classroom. She felt that they were participating more in the activities of the classroom.

Similar comments were made by other staff members as this project progressed. After having the class for a period of Physical Education, the Principal of the school commented on how much more talkative Neil had been. He said that he had talked "more than he had ever noticed" during that gym class. He said that he was interacting with the other students and just being "more talkative" and expressive in general. The Librarian made similar comments one day after having the class for a Library period. She said Neil had been much more talkative than usual and had made several comments about the story that they had read. She was "surprised" at how verbal he had been.

The increase in expressive language skills that the students showed suggests that the intervention strategies used did cause some kind of change in their cognitive skills. At the Grade one level, much

of the teaching done is accomplished through the use of stories and other orally presented material. Themes are used to present various topics of information, and in the majority of cases, the information is presented through of series of stories relating to that theme. For example, an animal theme may involve reading a series of stories about different types of animals to learn about the characteristics of different groups of animals. By teaching the students a strategy for dealing with and processing the information that they were receiving from the stories presented to them, they were able to "hold onto" more of that information for future use. This enabled them to participate more in the classroom activities, as well as in various activities outside of the classroom, including Library time, and Phys. Ed. class. This increased participation should only add to the skill improvements that they have made.

Communication is an important and necessary component of education, and improving the expressive language skills of the students enhances their communication skills which in turn enhances their learning and education. By becoming more involved in their school activities, they will get more out of them, learn more, and further develop their skills. Therefore, this initial increase in skill level is an important first step in the continuation of the improvement of their skills and abilities.

V. Conclusions, Limitations, & Recommendations

The purpose of this chapter is to synthesize and integrate the information presented previously, to present conclusions based on the research conducted, to explain some limitations of the project and the realities of the situation, and to make recommendations for further areas of intervention and research.

A. Conclusions

The purpose of this research project was twofold: to examine the behaviours of these students involved to determine if they were typical of students with FAS/FAE, and to determine the effectiveness of specific cognitive based intervention strategies for improving the students' skills in letter recognition/knowledge and listening comprehension. In terms of the first objective, an review of the subjects' behaviours, as observed in the classroom, indicated that the students did in fact engage in behaviours typical of students with FAS/FAE. Both needed reteaching of skills and information, were schedule dependent and had difficulty with schedule changes, had great difficulty following verbal instructions, often seemed to not be paying attention and were easily distracted, took longer than the other students to complete their school work or task assigned to them, and were easily frustrated. They also had significant delays in their verbal

and language skills. One of the students also had some of the physical characteristics associated with FAS.

In terms of the second objective, the intervention strategies used did result in changes in the students. Their letter recognition/knowledge increased from three or four letters to five or six. Although this is not a very large increase, it does suggest that the strategy used was working. Progress was slow, but progress was occurring. The students' listening comprehension skills as measured by the Alberta Diagnostic Reading Inventory also showed a small increase; however, because neither student scored above Frustration Level on any of the assessments, further analysis of their results was not possible. The students' scores were slowly increasing and there is a possibility that, had the study continued on, further assessments would have revealed the students to be scoring above Frustration Level thereby permitting further analysis of their results.

Where progress or development was noted was in the area of the students' expressive language skills. Anecdotal reports from other adults in the school environment indicated that the students made improvements in the area of verbal abilities and language development, particularly in terms of their expressive language. Numerous comments were received concerning the more "talkative" nature of the students and their increased verbal participation in

activities.

B. Limitations

In research that involves subjects receiving extra attention that they would otherwise not be receiving, it is possible that it is the extra attention itself that is a factor in the change found in the students, and not the actual intervention itself. Adair et. al. (1989) identify this as most commonly called the Hawthorne Effect and define it as the "results of the study (being) due to special attention given to ... pupils by the investigators, rather than (being) due to the experimental treatment." (p. 344)

In the present research project however, the subjects involved did not just receive extra attention from the researcher. They also received extra instruction and assistance form the Speech Pathologist and the teaching assistant, and they had been receiving this extra attention prior to the introduction of the research interventions. Therefore, the changes noted in the subjects were more likely to be due to the effect of the intervention than the effect of the extra attention, as the students had been receiving extra assistance before the implementation of this research. What had changed, was the method of the intervention they were receiving.

A related concern is that of expectancy effects or self-fulfilling

prophecy. This is the notion that teacher expectations are responsible for or have an effect on the achievement of the students. (Smead, 1984) The concern is that the changes in the students that were observed by those in the students' environment were noted because those individuals expected to see a change in the students. Because they were aware that intervention strategies were being employed, they expected to see changes, and therefore saw changes. Again however, it must be noted that the interventions used in this research project were not the only ones occurring, and that the addition of intervention for these students was not a unique situation. These students had been receiving some form of extra assistance throughout their years in school. Also, with the exception of the classroom teacher, the other school personnel were not aware of the specific nature of the intervention strategies being employed with these students. They were not aware of the specific skills that were being targeted for improvement, and therefore the changes that would likely to be occurring if the strategies were effective. Therefore, it is more likely that the comments that they were making were based on accurate observations rather than what they were expecting to see, because they were not aware of what it was they should expect to see.

At the onset of this project, the classroom teacher indicated that she expected Randy to benefit more than Neil from this extra

intervention, because she felt that he was the stronger of the two students and more capable. However, as time progressed it appeared that it was in fact Neil who was making greater progress. There were more comments made by the teacher and other staff members regarding the changes that they saw in Neil than there were about Randy. One very large reason for this discrepancy was the high rate of absenteeism that Randy had during this project. Both boys had an absentee rate of approximately 1/3 throughout their years in school; however, Neil averaged slightly better than this for the duration of this project, and their teacher felt that it was Randy's irregular attendance that contributed to his making less progress. Because he missed so much school, there had to be a lot more reteaching of material that he had forgotten. He was not able to progress to new work, because he was being retaught material he had forgotten while he was absent. This proved to limit the amount of material he was exposed to. The lack of consistency in his school attendance affected his retention of the material, because he did not have the opportunity to review it each day.

Discussions with the staff members at the school revealed that such a high rate of absenteeism was common among all the students who came to school from the Reserve. It appears that the general attitude amongst most of the parents from the Reserve does not place a

high value on education. School is not considered to be a priority among the majority of the households, and one of the ways that this manifests itself is in poor attendance rates among the students from the Reserve. An example of the little value that is placed on education was provided by a fellow classmate of the subjects who is also from the Reserve. When asked why she would not take any books home with her to read during the home reading program, she replied that when she did, her Granny just "threw them into the fire". This lack of cooperation between the home and school makes any extra programming difficult as there is little cooperation or encouragement coming from the home environment. Especially in the case of a child who is experiencing difficulties at school, it is crucial to have appropriate follow-up and support at home. Unfortunately, the reality of this situation is that the home environment of these students is not supportive of the school and its attempts to provide assistance. What is done during the school day is accepted, but beyond that very little support is provided at home.

C. Recommendations

A large component of this research project focused on strategy instruction in a one-on-one situation outside the classroom. The students' classroom teacher felt that with the age and skill level of the

students involved this would be the most effective way to introduce them to the strategies being taught. Further development or research is needed to determine how to modify and generalize this strategy use into the regular classroom with the entire class as taught by the classroom teacher. This situation is more representative of typical instructional situations than individualized, pull-out instruction and therefore, would give an indication of the effectiveness of the strategies in a more "natural" or "typical school setting. Adapting these strategies for use in the regular classroom by the regular classroom teacher in a group setting would also enable one to expand the scope of the conclusions drawn. The findings and results would be transferable to a wider variety of students.

The instruction of the SPELT strategies with these subjects was based on Phase 1 instruction of the program ie. the acquisition of the strategies was through teacher imposition. The SPELT program involves two additional phases with the ultimate goal being the acquisition and use of strategies through self-generation. Additional work with these students to progress through the next two phases of the program would provide additional assistance to the development of their cognitive skills, and would be an area for future intervention.

Most students respond best to instruction when it is carried out on a one-on-one basis, and the students involved in this project were

no exception. Because of the difficulty they had in following verbal instructions, and because of their tendency to become easily distracted and inattentive, they were much more likely to remain attentive and on task if there was someone there overseeing their activity and guiding them through their work. In whole-class activities or independent work, they were both much more likely to be engaged in off task behaviour. They required someone to be there to remind them what their "job" was and to reteach them the things they missed. Obviously, although this appeared to be the optimal learning situation for these two students, practicality dictated that this individual instruction could not always be a reality, as there were 16 students in the classroom and one teacher and one teaching assistant. Therefore, it would be beneficial to have the subjects learn to behave at all times the way that they do during one-on-one instruction. This is a skill that should be developed in the students, and the initial investment of time and energy would probably pay off in the long run. The goal is to have them transfer their behaviour in one-on-one instructional situations to group situations and situations where they are required to work independently. This might be best accomplished through a gradual process whereby more and more students are introduced into the initially individual instructional situation. More students and situations would be added as the student learns to behave

appropriately. For example, to begin with there may only be two students doing a Math lesson. Gradually the number of students in the group is increased and different lessons are introduced. This is an area that would require further work and the reality of most educational settings would suggest that it is an area worth pursuing. Research to determine the most effective strategy for helping these students function appropriately within a typical classroom environment where the student is expected to work independently in a group setting and cannot receive an abundance of individual instruction would be a very valuable next step.

As mentioned previously, there was a marked lack of cooperation between the home and school. One of the ways that this manifested itself was in the high rates of absenteeism exhibited by the majority of the students who came from the Reserve. This attendance problem is echoed in the literature by Crumb (1982) who states that one of the most significant problems in Native education is the high dropout rate. It appears that poor attendance in the early school years leads to increased chances of dropping out before completing high school. This is a serious problem that requires addressing. It is important to develop some type of program that would encourage these students to attend school and to not drop out before completing. Gunderson (1986) outlines such a program that was undertaken and

resulted in an attendance increase of 33% from one year to the next. This program involved home visits, family counselling, student detention, and an emphasis on Native American culture.

In order for any intervention program to be effective, the participants must attend school on a regular basis to receive the full benefits of the program. It is also important to have the support of the home environment so that progress made at school is supported and developed further at home. In order for the students involved in this project to benefit fully, the school and home need to cooperate and collaborate. Methods to improve this relationship should be explored and pursued.

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Appendix A

Lesson Plans

RIDER Lesson Plan #1

Objectives:

1. To have the student see the model draw the picture(s) that correspond to the word(s) .
2. To have the student see how pictures can come from words.
3. To have the student tell/ read word(s) based on pictures.

Materials:

1. paper for drawing/colouring
2. crayons, markers, or other tools for drawing
3. stories the student is capable of "reading" out loud (ie. stories that are basically just pictures and the students create the words to tell the story of the pictures)

- stories used:
  1. Off to Work
  2. Just Me
  3. Dinnertime

Activities/Format:

1. Have the student "read" or tell the story based on the pictures in the book.
2. Teacher draws/colours pictures that correspond to the words of the story the student is telling.
3. Teacher retells the story based on the pictures he/she has drawn and

the student checks for accuracy.

Note: The student does not show the pictures as he "reads" the story. It is important to stress how the pictures come from the words read and how they can help you to remember the story.

RIDER Lesson Plan #2

Objectives:

1. To have the student act out the story as it is being read to them.
2. To have the student follow the sequence of the story and improve their listening comprehension.

Materials:

1. Story with puppets that correspond to the characters in the story.
    a) Goldilocks and the Three Bears
    b) Hansel and Gretel

Activities/Format

1. Give the student the puppets and explain to them the characters that they will be in the story.
2. Read through the story breaking to act it out with the puppets.
    - Initially, this should be modelled for the student to show them what is done,and then gradually faded out so that the student does it on his own.
3. After the story has been completely read through, have the student retell as much of it as they can using the puppets.

RIDER Lesson Plan #3

Objectives:

1. To have the students form images corresponding to the story in their mind.
2. To have the students draw pictures to go with the story they are hearing.
3. To aid in their understanding of the sequence of the story and to increase their listening comprehension.

Materials:

1. stories of increasing difficulty and unfamiliarity
   - stories used :
     1. The Gingerbread Man
     2. Witch, Witch, Come to My Party
     3. The Three Little Pigs
2. paper for drawing/colouring
3. pencil, crayons, markers, etc. for drawing and colouring with

Activities/Format:

1. If the story is unfamiliar, read through the story together all at once without any breaks showing the pictures. (This step is to be gradually faded out.)
2. Reread the story, breaking to draw the characters, events, what is

happening, etc. (This time, do not show the pictures as the story is being read.)

- Initially, break after each sentence/idea to discuss and draw what has been read and then gradually decrease the number of breaks over time.

- Initially, do the drawings together to model the technique.

3. Once the story has been entirely read through with the breaks for sketching, have the student re-tell the story in their own words based on the pictures they have drawn.

Visualization Lesson Plan #1

Objectives:

1. To have the students look at a picture for several minutes and to then draw it from memory.
2. To have the students form an image of the picture in their mind.

Materials:

1. pictures of increasing complexity/detail
2. paper for drawing and colouring
3. pencil, crayons, markers, etc. for drawing & colouring

Activities/Format:

1. Show the student the picture.
   - Direct their attention to the various details of the picture -> specific parts, colours, details, etc.
   - Tell them to look closely because it will be hidden and they will have to reproduce it from memory.
2. Ask them to close their eyes and see the picture in their mind.
3. Remove the picture.
4. Ask them to redraw the picture from memory.
   - prompt them for colours and other details
   - remind them to close their eyes and "see" the picture in their

mind again

5. Bring back the original picture to check their's against.

    - look for what was remembered and forgotten

    - add any details that are missing

Note: This should initially be done as a modeling exercise where the student watches the teacher go through the process to see how it is done.

Visualization Lesson Plan #2

Objectives:

1. To have the students identify the activities that they engage in during the school day.
2. To have the students draw themselves as they perceive themselves engaged in various daily activities.

Materials:

1. paper with a line at the top to label the activity drawn
2. pencil, crayons, markers, etc. for drawing and colouring

Activities/ Format:

1. "Warm-up" with visualization activity #1.
   - show the students a picture, take it away, and have them reproduce it from memory
2. Have the students identify activities they do during their day at school.
3. Have the students draw themselves engaged in each activity.
4. Label each activity as "(Student's Name) at (activity)."

"Letter" Lesson Plan

Objectives:

1. To review past letters covered.
2. To have the student associate the name and sound of the letter with its written form.
3. To have the student recognize the letter among other letters and pick it out correctly.
4. To have the student identify words/objects that begin with the letter.

Materials:

1. sandpaper cut-outs of the letter
2. plastercine
3. worksheets:
   a) letter recognition worksheet
   b) printing practice worksheet
   c) page for drawing pictures of objects that begin with that letter

Activities/Lesson Format:

1. Review letters previously covered
2. Introduce the new letter:
   a) sandpaper cut-out to trace with finger
   b) plastercine to make the letter

c) practice saying the name and sound of the letter

3. Draw pictures of 4 things/objects that start with the letter

a) look around the room and imagine/visualize objects that begin with the letter

b) look through other books and identify the letter in the words in the book

4. Complete the worksheet which involves circling the letter amongst a group of similar letters.

5. Practice printing the letter on the printing worksheet, saying the name of the letter each time it is printed.

6. Find the letter on the sheet of the entire alphabet and colour it in.

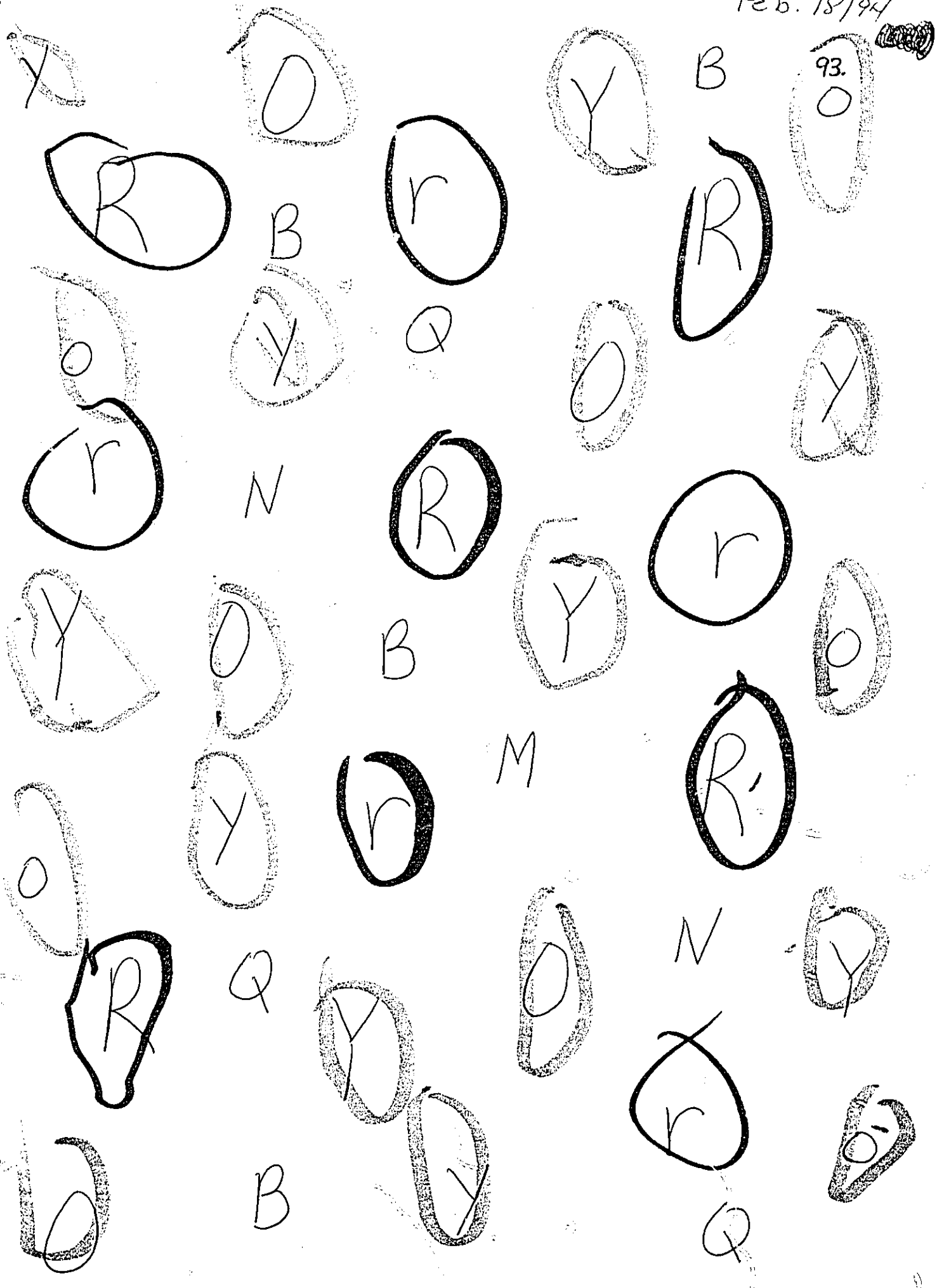
7. Place the pages in the binder in the correct order.

Sample Letter Worksheet

The student is required to choose a coloured marker and circle all of a particular letter in that colour. Each letter is to be circled in a different colour.

Feb. 18/94

93.



Christmas Chopsticks

Adapted, source unknown

A6 So So Fa

'Twas the night be - fore Christ - mas, and all through the house, not

Ti

crea - ture was stir - ring, not e - ven a mouse. And the stock - ings were hung by t

B

chim-ney with care in the hopes that St. Nich- o- las soon would be there. He's bring - ing lots

toys, ___ for the girls ___ and the boys. ___ And wait un - til you see, ___ wha

A *a tempo*

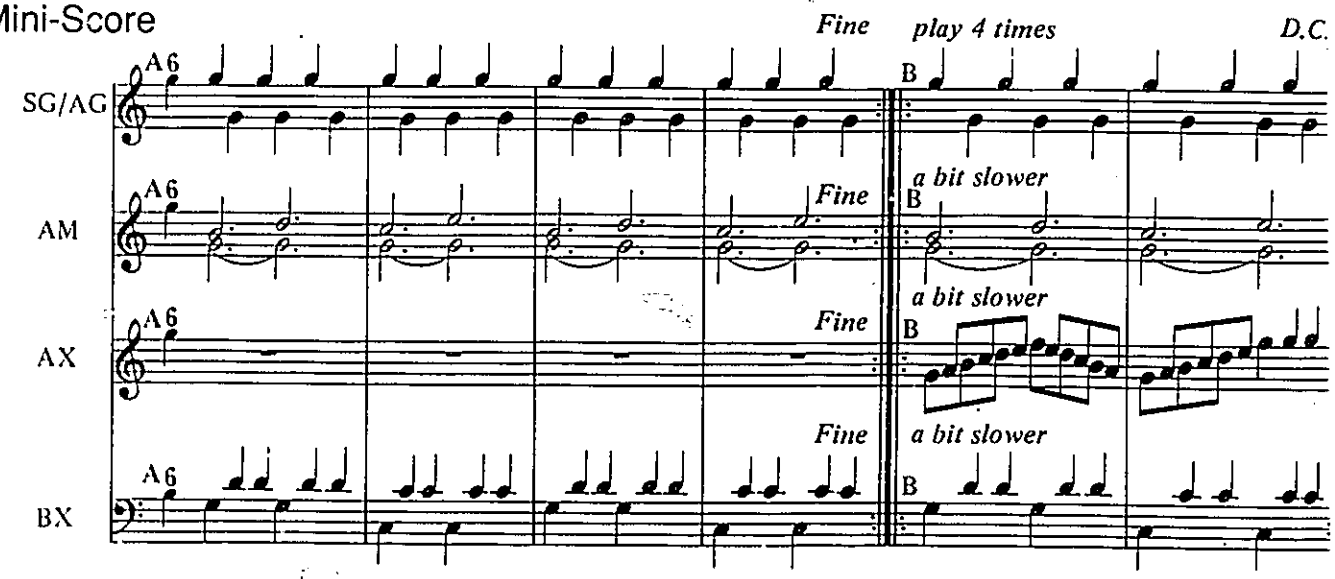
mer - ry Christ - mas tree! ___ So on Dash - er, on Danc-er, on Pranc - er, on Vix - en

Com - et, on Cu - pid, on Don - ner and Blit - zen, to the top of the roof to th

top of the wall. He's com - ing to wish, "Mer - ry Christ - mas to ALL."

Instruments

Mini-Score



Appendix B

Questionnaires

Original Initial Contact Questionnaire

Teacher's Name: _____

Grade: 1/2

Number of children in your class: 15

Number and ages of those children diagnosed with, or suspected of having FAS/FAE: None of the students in my room have been medically diagnosed with FAS/FAE; however I suspect 3 students are FAS/FAE. One parent has indicated that she believes her child is FAS.

Please specify the behaviours these children engage in that are inappropriate or disruptive: -extremely limited attention span
- poor retention
- aggression
- difficulty following directions (academic or social)

Which behaviours are of greatest concern to you, or are ones you would most like to see changed/eliminated: all of the above

Are there any other students in you class that display inappropriate or disruptive behaviour? If yes, how many, and please specify their behaviour? no

Parental Permission Form

As part of a research program designed to help those children who are having difficulty in school, I will be working with some children in the Birch River Elementary School. I am requesting your permission to work with your child. The purpose of the program is to help the child in those areas in which he/she is experiencing difficulties, specifically in the areas of reading and listening comprehension, and vocabulary/spelling. Assessments of the child's present functioning will be done in the areas of listening/reading comprehension, spelling/vocabulary, and impulsivity. The program will involve some in-class instruction as well as some pull-out instruction. The pull-out instruction will occur for approximately 45 minutes to one hour each day.

All information will remain confidential and will only be used by myself and the appropriate school personnel. Your child's name will be changed in any reports in order to protect his/her anonymity. If at any time you wish your child to be withdrawn from this supplementary program, you can just notify the school and he/she will be removed from the program.

If you have any questions, please feel free to contact me at Birch River School from Tuesdays until Fridays at 236-4382. In any case, would you please fill in and return this note to the school.

Child's Name: _____

_____ Yes, you have my permission to work with my child.

_____ No, I prefer that my child not be included.

Parent's Signature: _____ Date: _____

Thank-you.

Lisa Hammond / Mrs. Chad

Lisa Hammond

Teacher Perceptions Questionnaire

Student : _____ Date : _____

Please answer the following questions either Yes or No.

Reading

_____1. Does the child ask to be read to?

_____2. Does he sit quietly while being read to?

_____3. Does he comment on the story?

_____4. Does he talk about books adults have read to him?

_____5. Does he ask adults to write his name for him?

_____6. Does he ask adults to label pictures for him?

_____7. Does he ask the names on signs, packages, and other items?

Does he ask "What does that say?"?

_____8. Does he recognize his name?

_____9. Does he ask adults to write letters of the alphabet for him?

_____10. Is his language production higher than his language comprehension?

Please check those items that apply to this student according to the following 5-point scale:

1 = never 2 = rarely 3 = sometimes 4 = often 5 = all the time

Language

_____1. stuttering and stammering

_____2. atriculation difficulties

_____3. speech delays

_____4. echolalia

_____5. discrepancy between superficial verbal skills and the ability to communicate effectively

_____6. comprehends simple instructions

_____7. uses language to maintain self, to direct, to report, to imagine, to reason, to predict, to project

_____8. can recognize purposes for listening

Physical Characteristics

_____1. clumsiness/gross motor co-ordination is poor

_____2. small size (Yes or No)

_____3. shortness of stature (Yes or No)

_____4. poor hand-eye coordination

Structural

_____1. inability to structure work time

_____2. poor memory

_____3. impaired rates of learning

_____4. difficulty understanding abstractions or thinking abstractly

_____5. trouble with transitions

_____6. seems to lack motivation

_____7. poor problem solving strategies

_____8. trouble generalizing behaviours and information

_____9. disinhibition

_____10. behaviourally disorganized

_____11. unusual high demands for physical contact & affection

_____12. listens to directions

_____13. follows directions

Impulsiveness

_____1. reduced attention span and/ or distractibility

_____2. impulsive

_____3. engage in what we call "stealing" behaviours

_____4. "pinball" or "butterfly" kids

Behavioural & Social Characteristics

_____1. poor self-image

_____2. fearlessness & unresponsiveness to verbal cautions

_____3. stubbornness and/or sullenness

_____4. teasing or bullying behaviour

_____5. hyperactivity

_____6. perseveration

_____7. constantly requires monitoring and/or attention

_____8. poor social judgment

_____9. swiss cheese learner -> information slips in and out

_____10. difficulty getting along with peers

_____11. has trouble internalizing modeled behaviours

_____12. adults label him as socially immature

_____13. has difficulty making choices

_____14. initially charming but then overly intrusive

_____15. easily over-stimulated

Other comments/additional information: _____
_____
_____
_____
_____
_____
_____