THE MODIFICATION AND MAINTENANCE OF ATTENDING BEHAVIOUR WITH ELEMENTARY SCHOOL BOYS

by

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ABSTRACT

Three male students of average intelligence and exhibiting high levels of disruptive behaviour, were selected for investigation in this study. The subjects were drawn from intermediate classrooms in the public school system in British Columbia. The research methodology utilised was single-subject design across subjects. This experiment investigated the effects of a teacher-implemented behaviour management intervention plan on the attending behaviour of single male students at the elementary school level. It also evaluated the impact of behavioural strategies on the on-task behaviour of their male peers. The maintenance of improved attending skills was examined, as was the effect of increased levels of attending on academic performance. Data obtained during baseline, intervention and follow-up phases of the study were collected by a group of observers who recorded the frequency of on-task behaviour at timed intervals over a total recording period of 27 days across the three experimental phases. The findings indicated that the application of a behavioural contingency significantly improved the attending behaviour of individual male students. The results also demonstrated that vicarious behavioural effects on male peers were noteworthy. Moreover, the improvement in on-task behaviour for subjects and male peers was maintained in two cases out of three during the follow-up phase. The effects of an attention contingency on academic performance were not supported by solid scientific data in this study.

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Dedication

To Don, for so many reasons.

Chapter 1

Introduction

Statement of the Problem

The children enrolled in elementary schools, today, present their teachers with the kinds of problems and challenges with which the vast majority of teachers are ill-equipped to deal. Students bring to the school the problems encountered in a rapidly accelerating, pluralistic society. Increased domestic stress-levels have become common-place with many families, a situation which has had a direct adverse effect on students, not only in their learning processes, but also in their ability to stay on-task in the classroom.

The present school system is not structured to meet the emotional needs of its students. Rather than focussing on the individual, it tends to favour a group approach through such traditional methods as are promoted in the systemic perspective of curriculum theory. It is not surprising then, that disruptive behaviour has become a common-place occurrence in the elementary classroom.

The link between behaviour and learning has been well established by researchers. Nelson (1981) suggested that no matter how effective the teacher's academic curriculum, unless incompatible social behaviours were dealt with, little student learning would occur. He further stated that managing children's behaviour was a necessary condition for accomplishing the goal of facilitating their learning.

When children experience learning difficulties, in elementary school, they are usually referred to a Learning Assistance Teacher, an in-school specialist trained to deal with individual, or small groups

of students exhibiting low levels of academic success. The majority of those referrals are male students, frequently identified by their regular teachers as non-attending, and therefore non-achieving, in the classroom environment.

If the school system is perceived to be unsuccessful in meeting the needs of disruptive students, then it can be assumed that the teachers within that system are not adequately equipped to address the problems.

Effective teacher behaviour was seen by Rosenshine and Berliner (1978) as managing students in order to optimise their exposure to curriculum content. Kounin (1970) identified successful classrooms as having high degrees of work involvement and low levels of misbehaviour. Moreover, Rude (1978) stated that behaviour management was the biggest problem faced by beginning teachers and that it ranked high in the expressed in-service needs of experienced classroom teachers. A study by Marlowe, Madsen, Bowen, Reardon and Logue (1978) suggested that counsellors serving as consultants to classroom teachers provided an effective means for improving student attending behaviour. On a level closer to the classroom scene, Borg (1975) found that teachers, who enrolled in a 30-hour course in classroom management, significantly increased their students' work involvement in recitation and seat work situations.

To date, behaviour intervention, at the elementary level, has been largely the domain of itinerant experts, dispensing "band-aid" treatment from within a costly Special Education framework. There are few opportunities for the regular teacher to acquire hands-on skills, and

there are fewer opportunities for classroom peers to benefit from the vicarious effects of teacher-implemented behaviour intervention plans. In the meantime, the numbers of male students who require behavioural intervention continue to grow within a school system scarcely designed to address such problems at the most basic level.

It would seem, then, that the most time-and-cost-efficient method of dealing with non-attending classroom behaviour is direct teacher-intervention, as opposed to externally-managed strategies. It is reasonable to assume then that the regular classroom teacher may be capable of improving the behavioural and academic performances of disruptive male students by implementing simple, effective intervention methods which may be applied after a minimal training period (Hett, 1981). It is to that end that this study is addressed.

Purpose of the Study

To date, a great deal of data has been gathered by researchers who have sought to validate the usefulness of applying behaviour modification techniques in the classroom. Behavioural strategies have been applied successfully, in school settings, for over 20 years, in order to ameliorate problem behaviour (O'Leary & O'Leary, 1977).

The bulk of the research and experimentation has been conducted in settings involving groups of children frequently composed of boys identified as being highly disruptive in class. Intervention techniques tended to be of an elaborate nature, and were often carried out by persons other than the regular classroom teacher.

The purpose of this study was fourfold. In the first instance, it

set out to demonstrate that the regular classroom teacher, after minimal training in the application of simple behaviour modification techniques, could significantly improve the non-attending behavour of an individual male student. A second purpose of the study was to evaluate the impact of those increased behaviour gains on the attending behaviour of his male classroom peers. The study also proposed to examine the long-term effects of a teacher-implemented intervention plan on the individual student's level of engaged time. The effects of the individual student's improved attending skills on his academic performance were also investigated in this study.

Chapter 2

Review of the Literature

The purpose of this chapter is to review the more recent findings of researchers who have examined the relationship between time-on-task and student learning at the elementary school level. This review of the existing literature highlights the comprehensive findings of researchers who have pinpointed a wide range of variables which have been found to influence levels of engaged time and academic achievement in the elementary classroom. Factors ranging from teacher enthusiasm to instructional methods will be examined and their impact on student engaged time will be discussed. The research findings have been grouped and organized so as to be subsumed under several main headings.

Effects of Self-Monitoring on Student Engaged Time

Inappropriate classroom behaviour resulting in reduced levels of student engaged time have been the focus of researchers and teachers who have sought to modify the attending behaviour of attention-deficit students. More recently researchers have investigated the student's ability to modify his/her own behaviour using techniques that have proven to be effective in increasing levels of academic learning time. Self-reinforcement and self-evaluation, for example, have been shown to be effective procedures for maintaining appropriate levels of student behaviour (Drabman, Spitalnik, & O'Leary, 1973; Kaufman & O'Leary, 1972).

Behavioural self-control may take many forms. These include self-observation, self-reward, self-recording and self-punishment. In

a study carried out by Birkimer and Brown (1979), five male elementary students monitored their own attending behaviour, by utilising a self-rating procedure. Four out of the 5 subjects responded positvely to the self-monitoring, when a matching condition was introduced as a treatment variable. Those targeted students were found to reduce their own inappropriate behaviours by 50%.

A similar study was carried out by McLaughlin (1983) when he and his colleagues set out to examine the immediate and long-term effects of self-recording for on-task responding. The subjects were three male behaviourally disordered students, all of whom were pupils in a public school classroom. Data were collected for both on-task and accuracy of performance in handwriting, spelling and math. Results revealed an increase in both on-task and academic performance when target students recorded their own attending behaviour. McLaughlin concluded that with improved rates of on-task performance a more positive teacher and peer group climate developed in the classroom, thus leading him to agree with Hallahan and Sapona (1983) that teachers would be well advised to focus on on-task responding as an important behaviour to be brought under control. The final word on self-recording belongs to another group of researchers who concluded that self-recording had, in general, improved academic proficiency (Fink & Carmine, 1975; Johns, Trap & Cooper, 1977).

The bulk of the literature reviewed regarding student self-control as opposed to externally managed contingencies, would seem to suggest, then, that an attention-deficit student can be effectively "trained" in the classroom to monitor his/her own level of engaged time during

instructional events.

Effects of Peer Teaching

The merits of peer teaching have been investigated by researchers over the years and there is a growing body of evidence that attests to the efficacy of utilising fellow students as coaches and tutors within the school system. Fox and Ervin (1976) investigated the relationship between on-task performance and reading improvement in a study involving a peer teaching component. Forty-two elementary school students were coached in reading by 18 competent readers within the same school. The researchers found that those groups having a peer teacher and/or receiving contingent rewards remain on-task in excess of 90% of the time throughout the study. This was in marked contrast to the results yielded by the control group whose on-task performance declined in the absence of peer teaching and contingent rewards. It was suggested that while either intervention procedure was sufficient to motivate on-task attending, it was the combination of treatments that optimised reading improvement.

Student Anxiety and Relaxation Training

A significant factor affecting on-task performance and achievement is student anxiety. According to Speilberger (1982), academic anxiety is characterised by a student's feelings of tension and uncertainty in situations requiring a written or verbal response in normal classroom interactions and activities. Gaudry and Speilberger (1971) found that a high level of anxiety was associated with low performance especially at the elementary school level. Wine (1971, 1980) observed that a

student's anxiety frequently interfered with his/her learning process in the classroom, thus rendering on-task performance significantly below optimum level.

Guida, Ludlow and Wilson (1982) investigated the effects of academic achievement. Four grade 7 classes in two elementary schools were selected for investigation. The results of this study in reading achievement indicated a negative correlation between academic anxiety and time on-task. These findings supported the data produced by Marlett and Watson (1968) thus lending credence to the theory that highly anxious students perform inadequately in cognitive tasks, due to attentional deficits. The results of this study also suggest that high-anxiety levels impact negatively on academic performance. The question remains then: What interventions may be introduced in order to reduce stress in high anxiety students? What have modern researchers gleaned from their findings?

In 1982, Omizo and Michael studied the effects of biofeedback-induced relaxation training on attention to task with hyperactive male students. Earlier researchers (Firestone & Douglas, 1975; Sandoval, 1977) had concluded that since the estimated incidence of hyperactivity among school children ranged from 5% to 20%, effective intervention strategies would considerably enhance both on-task and academic performances. Rivera and Omizo (1980) later found that biofeedback and relaxation training had a positive influence on attention to task.

Since the incidence of hyperactivity has been found to be six times greater for boys than for girls (Sandoval, 1977), a study conducted by

Omizo and Michael (1982) was limited to investigating the attending behaviour of hyperactive boys at the elementary level. The results of this study supported the findings of earlier research by Rivera and Omizo (1980) which revealed that biofeedback and relaxation training increased time on-task among hyperactive boys. While a decrease in impulsivity was also demonstrated by the study, the intervention strategy was not seen to affect the measure of loss of control.

A more recent study conducted by Oldfield and Petosa (1986) replicated the findings of the Omizo and Michael (1982) study. The 196 students participating in the investigation ranged from kindergarten to sixth-grade and were mostly from single-parent families with low incomes and high-mobility. The study sought to evaluate the impact of psycho-physiological relaxation strategies on the on-task behaviour of elementary school students. The results confirmed earlier findings that the acquisition of relaxation skills had a positive effect on a student's ability to remain on-task during direct classroom instruction.

The Teacher's Role as a Function of Student Attention and Achievement

Considerable attention has been focussed in recent years on the importance of the classroom environment in managing student behaviour and optimising achievement. Included in the conceptualisation of classroom environment, within the psychoeducational model, are such terms as "therapeutic milieu", "social climate" and "learning atmosphere" (Rich, Beck & Coleman, 1982).

There is general agreement among educators that the teacher is the

most critical influence in shaping the classroom environment (Smith, Neisworth & Green, 1978). The suggestion has been made that the character of this environment is strongly shaped by the teacher's role, which is to provide the conditions under which learning can take place (Long, Morse & Newman, 1976). In referring to teacher effectiveness, Brophy (1979) observed that a business-like learning environment maximised student engagement in productive activities. The teacher then may be seen to exert a critical influence in determining the levels of on-task behaviour and academic achievement in the elementary classroom. This contradicts the research findings of Gage (1978) and Griffey (1981), that few significant relationships had been established between individual teacher variables and student achievement.

One teacher variable considered significant in optimising on-task behaviour, and thus student learning has been indentified as teacher enthusiasm. Rosenshine (1970), in reviewing the research on teacher enthusiasm, found consistent positive correlations between teacher enthusiasm and academic achievement. In a study conducted by Bettencourt, Gillett, Gall and Hull (1983) the findings demonstrated that while the attending rate of students increased when teachers had been exposed to enthusiasm training, their overall achievement did not exceed that of other students. The researchers speculated: "Enthusiasm is considered one of the most important characteristics of effective teachers" (p. 435).

Teacher effectiveness has been the subject of several major studies in recent years. Rosenshine and Berliner (1978) saw effective teacher behaviour as that which maximised students' exposure to curriculum

content. Metzler (1982) implied that teacher behaviours add a significant and direct influence on students' levels of academic learning time (ALT). The most effective teachers increased the quality of learning time, (Confrey, 1982) as well as the quantity (Fisher, Berliner, Filby, Marliave, Cahen & Dishaw, 1981). A further characteristic of the effective teacher was identified as the ability to utilise a range of classroom management skills in order to optimise student engaged rates and thus minimise disruptive behaviour (Emmer & Evertson, 1981; Locke, 1979). Investigations of teacher effectiveness by Evertson and Anderson (1978) and Good and Grouws (1979) revealed that classroom management activities were kept to a minimum while time was allocated to academic tasks and maximum coverage of curriculum content. It was also found that effective teachers were generally task-focussed and expressed higher achievement expectations (Good & Grouws, 1979). Greater achievement was realised consistently in highly structured, teacher-directed classrooms (Bennett, 1976; McDonald, 1976; Stallings, 1975).

On-Task Behaviour and Student Learning

Effective teachers were seen to manage successful classrooms invariably characterised by high degrees of work involvement and low levels of misbehaviour (Kounin, 1970). Freiberg (1983) identified classroom management as the dimension of teaching concerned with establishing and maintaining an environment conducive to effective instruction. Effective management skills include the ability to perceive overall student behaviour and to communicate this awareness

to the students (Kounin, 1970). Research produced by Soar and Soar (1979) provides evidence that classroom management techniques can have a positive effect on establishing student routines. Kounin's (1970) findings reveal that such techniques reduce deviant and off-taks behaviours while Rosenshine (1978) concludes that effective management skills increase levels of student interaction with the curriculum.

Freedom of behaviour has been negatively related to student achievement (Soar & Soar, 1979). Crocker and Brooker's (1986) findings indicate that high on-task behaviour is important for learning, an intermediate level of classroom control being optimal for facilitating student learning.

The link between behaviour and learning has long been established by numerous researchers. Behavioural strategies have been applied successfully in school settings for over 20 years, in order to modify deviant or disruptive student behaviour (O'Leary & O'Leary, 1977). Moreover, Nelson (1981) has suggested that no matter how effective the teacher's academic curriculum, unless incompatible social behaviours are dealt with, little student learning will occur.

The bulk of the research in behaviour management in the elementary classroom associates teacher effectiveness with low levels of disruptive behaviour and high levels of on-task behaviour. The ability of the classroom teacher to manage off-task, or non-attending, behaviour correlates significantly with increased student achievement (Fisher et al., 1978).

Effects of In-Service Programmes

If behaviour management is the biggest problem faced by beginning teachers today and ranks high in the expressed in-service needs of experienced classroom teachers (Rude, 1978), what have researchers gleaned from their findings with regard to increasing teacher effectiveness through in-service education?

Kounin (1970) concluded that teachers with fewer discipline problems would have more time available for focussing on the curriculum and would thus be more likely to be effective in the classroom. Teacher competence has been known to be influenced positively by in-service programmes. Those programmes that have involved individual teachers or entire staffs have sought to bridge the gap between research and existing classroom practice. Many in-service programmes, however, have had little impact on the behaviour patterns or classroom strategies of teachers (Griffin, 1983; Griffin & Barnes, 1984; McLaughlin & March, 1978). Leithwood's (1987) observation that "teachers do not change their practices radically in the long run" (p. 19) would seem to concur with these earlier findings.

A number of variables have been identified with regard to optimising the effectiveness of teacher in-service programmes (Joslin, 1981). The programmes most likely to succeed were found to take place at the local district level and involved instruction by local personnel. Moreover, elementary school teachers with less than 10 years experience were considered more likely to modify their practice as a result of in-service education.

There is evidence, within the existing research on behaviour

management, that teacher-training through in-service can have a positive impact on student attending behaviour. For example, Borg's (1975) study demonstrated that teachers who participated in in-service education in classroom management were able to increase student engaged rates in such tasks as recitation and seatwork. Further investigation by Marlowe et al. (1978) suggested that when teachers consulted counsellors for the purpose of ameliorating attending behaviours in the classroom, on-task rates were seen to improve. A more recent study, conducted by Hett (1981), examined the effects of improving the attending behaviour of groups of male elementary students by training classroom teachers in appropriate intervention procedures. As a result of his findings, Hett was able to conclude that teachers are able to acquire and implement simple intervention strategies (Crouch, Gresham & Wright, 1985), which, in the long run, prove to be more efficient than direct intervention by an outside authority.

Effects of Instructional Methods and Task Variables on Student Engaged Rates

Recent research conducted to investigate the relationship between class size and achievement (Glass & Smith, 1979) suggests that student achievement declines as group size increases. While class size itself may have little effect on academic achievement (Shapson, Wright, Eason & Fitzgerald, 1980), the number of students assigned for small-group instruction may have a significant impact on student learning (Moody, Bausell & Jenkins, 1974).

The smaller the group size it seems, the greater the opportunity

for teacher interaction, particularly through monitoring and feedback activities. Sindelar, Rosenberg, Wilson and Bursuck (1984) concur with the findings of earlier researchers that on-task rates during individual instruction exceed the attending rates of groups ranging from three to six students. It would seem then, that group size, rather than class size, is of considerable significance in terms of time-on-task and student achievement.

While examining the effects of group size and student achievement, Sindelar et al. (1984) also investigated the significance of instructional methods on student learning. Teacher-led lessons, which included more substantive teacher interaction, produced greater achievement than supervised seatwork. Nonetheless, group size was found to be the most significant factor in levels of engaged time, regardless of instructional format. The smallest groups in either teacher-led activities or seatwork exhibited the highest rates of attending. These results conflicted with the findings of Emmer and Evertson, 1981; Halpin, 1979; Medley, 1979, who reported that large teacher-led group instruction correlated with greatest on-task behaviour, while small-group and independent seatwork activities were associated with lower levels of on-task responding.

Student engaged rates then have been found to be a function of the instructional activity. Rosenshine (1980) found that, across grades and subjects, students were on-task for nearly 85% of the teacher-led activities but for less than 70% during independent seatwork. In a similar study conducted by Sindelar, Gartland and Wilson (1981) the researchers hypothesised that the more time students spent in

teacher-led activities, the greater would be their achievement. It was concluded that achievement is a function of instructional variables; that is, achievement varies with, not only lesson format, but also the amount of sustained time in a single instructional activity.

The comparative effects of teacher-led activities and independent seatwork on student engaged behaviours were examined in a study conducted by McIntyre, Copenhaver, Byrd and Norris (1983). The subjects were third, fifth, and seventh-grade pupils. The results of the investigation indicated that as grade level increased, student on-task behaviour decreased somewhat. The implication drawn from this study was that, in general, an increase in teacher-led instruction led to a decrease in student engaged time.

The relationship between task complexity, classroom management and time-on-task has been explored by Wilson and Others (1983). Student engaged rates were found to be higher in high-complexity classroom tasks. It was believed that the influence of peers on the low-achieving target students contributed to the maintenance of a high level of interest in tasks undertaken in co-operative settings. The researchers speculated that the spirit of joint commitment may have served to increase the level of engagement. This observation is consistent with earlier findings that well structured co-operative group activities contribute to increased achievement gains for lower-achieving students (Sharan, 1980; Slavin, 1980).

Task structures, student ability and their relationship to task engagement have been the focus of investigation by researchers in recent years. Redfield and Roenker (1981) examined the influence of

seatwork on engaged learning time (ELT), using three separate work sheet tasks. The results of the study revealed that high-achieving readers at the fifth-grade level attended less well than did low-level readers during the drill treatment. It is interesting to note that students at all reading levels spent significantly more time on-task than did the most competent readers during the drill treatment. It may be concluded, then, that tasks requiring such cognitive skills as are associated with reading comprehension tasks produce a higher level of student engaged rates, and that unsuccessful readers attend best during drill activities.

A later study in student engaged rates, with respect to classroom instructional and task variables, was carried out by Graden and Others (1983). A summary of their investigation revealed that students' academic responding tended to be higher during such activities as handwriting, spelling, reading, math and language while working from readers and workbooks, and using paper and pencils. The preferred instructional format for optimum on-task responding was found to be individual or small-group instruction. These results seem to concur with the findings of Sindelar et al. (1984). The Graden et al. experiment also demonstrated the significance of teacher proximity and teacher approval to students' academic responding.

The bulk of the studies conducted in time on-task are generally subject specific; that is the findings are gleaned from studies conducted in one or two curriculum areas, usually reading and math. Researchers as a rule decline to speculate on the generalisability of their findings regarding on-task behaviour. At least one study, however,

has addressed subject generalisability. Sharp (1980) attempted to establish that increasing a student's engaged rate in one curriculum area, by using a behavioural contingency, would have an ameliorative effect on another curriculum area. The target students' on-task response to the introduction of a behavioural intervention strategy proved to be of a significant nature for language. However, output for mathematics was not significantly altered as a result of the token system introduced.

Physical Environment of the Classroom

The literature on student attending rate and its impact on learning is not merely confined to instructional or task variables. There is growing evidence that on-task behaviour in the classroom is influenced by numerous factors. Among these factors is the physical environment of the elementary classroom. Gump (1974) studied the amount of time spent by pupils in moving, waiting and getting organized, in both open and traditional classroom settings. He found, among other things, that in most open classrooms, on-task behaviours of students were significantly lower than in more traditional environments. Those findings were consistent with those of Bennett (1978) who observed that, in open-plan schools, as much as 30% of the observed time was taken up in the kinds of transitional activities identified by Gump. Off-task behaviour was seen by Smyth (1981) to accelerate during transition from one activity to another. Likewise, Arlin (1979) observed that off-task behaviour during transition time was almost double that of regular classroom time. It may be concluded then that a traditional

classroom setting, with its relatively low emphasis on student mobility, is most conductive to maintaining higher levels of on-task behaviour.

In terms of relating attending time to student movement and physical activity, Gump (1977) illustrated the importance of the relations between lessons, by emphasising their relative location in time and space. Krantz (1974), for example, found that pre-schoolers' attention to stories was affected by their preceding activity. If recess preceded story time, children were less attentive than if rest time was built into the instructional planning format.

A major focus of the environmental considerations a teacher should consider is that of physical arrangement as it relates to the seating of students. Informed, skilled and knowledgeable practices with regard to seating and grouping can impact isgnificantly on, not only the emotional climate within the classroom, but also on the degree of learning that takes place. Leithwood and Montgomery (1986) would seem to support this view by stating that the seating arrangement of students in the classroom shows a significant relationship with learning.

A recent study conducted to evaluate the affects of desk arrangement on observed pupil behaviour at the fifth and sixth-grade level, confirmed that students seated in circular arrangements engaged in significantly higher levels of on-task behaviour than those arranged in clusters or rows (Rosenfield, Lambert & Black, 1985). It is significant to note that students seated in rows demonstrated the lowest engaged rates. The vast majority of students attending traditional schools today, however, are arranged in rows in classrooms where teachers continue to encounter ever greater levels of deviant or off-task behaviour. The

results of the Rosenfield et al. (1985) study demonstrated that desk arrangment, rather than student ability or student interest, influenced student behaviour. Desks in rows they concluded, produce more withdrawal and off-task behaviour, and also minimise student interaction with lesson material.

Grade Level, Time of Day, Programme Assignment

Among the factors identified by researchers as impacting on student attending time is that of different grade levels. Stallings and Others (1985) compared data on attention span, engaged rates, grade levels and achievement between kindergarten and fourth-grade students. A trend was observed for children's engaged rates to increase from kindergarten to fourth grade. For example, fourth-grade students stayed on-task for 20 to 25 minutes while pre-school students averaged six to eight minutes at a time. It is interesting to note that those kindergarten pupils were off-task most often during large-group teacher-directed activities requiring listening skills. The researchers suggested that students' attending patterns are an important consideration in planning lessons and activities at any grade level and that periods of different lengths should be scheduled for different grade level.

While most of the research has focussed on regular-education students, some studies, however, have examined situations other than mainstream settings where students were perceived to be of average ability and conforming to behavioural norms.

Time-of-day and its effect on pupil problem-solving and classroom behaviour was the focus of an investigation conducted by Bowers and

Zager (1983). The student sampling consisted of 43 hyperactive children who exhibited low on-task behaviour levels. The results of this study indicate that the pupils performed significantly better in the morning than in the afternoon on almost all problem-solving tasks. In terms of classroom behaviour, all pupils were more off-task and exhibiting more interference and non-compliance, in the afternoon. Boys were rated higher for interference, while girls exhibited more aggressively threatening behaviours. It would appear, from these findings, then, that classroom teachers should consider scheduling problem-solving tasks in the afternoon, certainly where attention-deficit students are concerned, in order to optimise on-task behaviour and thus academic achievement.

Ysseldyke, Thurlow, Meeklenburg, Graden and Algozzine (1984) compared the attending rates of elementary students at time of referral to a special-education programme with those behaviours exhibited after placement. All subjects were in regular classroom settings when first observed. Ysseldyke et al. found that the most consistent trends across students were evident in task management reponding time. However, while levels of engagement increased from referral to placement, those gains were not maintained. On-task behaviours were found to decrease after two months of special programming.

It would appear, then, that while placement in special-education settings may have a positive influence on some routine tasks, the changes that were noted in this study were not effective in bringing about consistent changes in academic responding time. Indeed the pattern which emerges in the long run is remarkably similar to that

observed in most regular classroom situations.

Effects of Intervention Procedures On
Time-On-Task and Academic Achievement

The research literature on time-on-task attests to the vigorous attempts of researchers to identify factors which influence the attending behaviour of elementary school children. Studies have been carried out in regular classrooms as well as in special-education settings with both boys and girls serving as subjects for investigation.

Researchers have focussed considerable attention on the ameliorative effects of behaviour modification on attending and social behaviour. It has been demonstrated that off-task behaviours can be effectively modified by utilising contingency procedures (Barrish, Saunders & Wolf, 1969; Medland & Stachnik, 1972; Schmidt & Ulrich, 1969). The most common behavioural intervention in school settings has been focussed on the reduction of disruptive behaviour in order to improve on-task responding. The tacit assumption is that off-task behaviour interferes with classroom learning processes and that its elimination will result in accelerated academic gains (Hall, Lund & Jackson, 1968; Madsen, Becker & Thomas, 1968; O'Leary, Becker, Evans & Saudargas, 1969).

Although research has shown that teachers can effectively and consistently reduce off-task behaviour by applying a combination of short-term punishment and positive reinforcement techniques in the classroom setting, the overwhelming data obtained in intervention procedures point to the effectiveness of positive reinforcement as an ameliorative concept in improving attending behaviour. Moreover,

Lysakowski and Walberg (1981) have suggested that the effect of teacher reinforcement on academic achievement is significant. In a later review and synthesis of literature related to student learning, Horn and Walberg (1984) stated that the most powerful factor to influence student learning was reinforcement. This factor was found to have 15 times the effect of another significant variable, that of socioeconomic status. In another study, contingent teacher-attention was shown to improve one student's on-task responding by almost 50% (Hall, Lund & Jackson, 1968). High rates of on-task behaviour and accurate responding were found to be associated with correspondingly high levels of verbal-reinforcement from the classroom teacher (Gettinger, 1983). In order to increase student on-task behaviour and to optimise learning, researchers working with teachers have combined verbal-praise with behavioural, academic, or mixed contingencies in order to maximise student achievement. The bulk of the literature however suggests that reinforcement programmes which target correct academic responding, rather than on-task behaviour, produce marked improvements in both academic and off-task, or disruptive, behaviour (Ayllon, Layman & Burke, 1972; Ayllon, Layman & Kandel, 1975; Ayllon & Roberts, 1974; Hay, Hay & Nelson, 1977; Kirby & Shields, 1972).

Effects of Behavioural and Academic Contingencies on Attending Behaviour and Student Achievement

Researchers have long since maintained that behaviours which interfere with academic progress hurt the child most of all (O'Leary, 1972). If the goal of educational programmes is to ameliorate and

enhance the student's academic repertoire, then it is reasonable to assume that educators would concern themselves with optimising student achievement by utilising the findings of researchers who have investigated the impact of contingency procedures in the classroom.

While there is much data to suggest that improvement in on-task behaviour does not necessarily lead to concurrent increases in academic performance (Ferritor, Buckholdt, Hamblin & Smith, 1972; Hay, Hay & Nelson, 1977), there are positive aspects to intervention strategies which target social and attending behaviours for modification. Positive behavioural effects have been found to spread vicariously to classroom peers who are not receiving treatment when the behaviour of a disruptive target student is modified (Drabman & Lahey, 1974; Kazdin, 1973). Moreover, the sociometric status of disruptive children has been found to improve when their inappropriate behaviours are modified (Drabman & Lahey, 1974; Drabman & Spitalnik, 1974). Recent research findings on classroom intervention procedures attest to the efficacy of implementing academic rather than behavioural contingencies in educational settings.

While many researchers report that behavioural contingencies do not affect academic performance, there is considerable evidence to support the hypothesis that academic contingencies can positively influence both behavioural and academic performances (Ayllon, Layman & Burke, 1972; Ayllon, Layman & Kandel, 1975; Ayllon & Roberts, 1974; Hay, Hay & Nelson, 1977; Kirby & Shields, 1972). Broughton's (1983) findings, replicating previous research, confirmed earlier speculations that the application of academic contingencies was effective in

improving both on-task and academic responding. An investigation conducted by Marholin and Steinman (1977) concluded that student behaviour was more under stimulus control when an academic contingency was in effect. It is interesting to note, however, that the data from at least one study disagreed wtih the bulk of research findings in this area. Witt and Elliott (1972) concluded that contingencies on behaviour do impact positively on academic performance despite the more popular claim that contingencies should be on targeted academic behaviour.

The results of the Ferritor et al. (1972) study demonstrated that while academic contingencies increased academic performance, attending behaviour decreased and disruptive behaviour accelerated, until contingency procedures on both social and academic behaviours were implemented. Classroom teachers aspiring to increase survival skills and academic achievement should thus consider targeting academic performance but add other target behaviours should it become necessary.

Regardless of the contingency system employed, then, selection of academic target behaviour, rather than social, is apparently the most effective intervention procedure in education settings (Nelson, 1981).

The efforts of researchers to identify and investigate the effects of appropriate intervention procedures or reinforcement systems are well documented. Probably the most widely applied strategies are response-cost and token-economy systems. While several researchers have found them to be equally effective in decreasing inappropriate classroom behaviour (Iwata & Bailey, 1974; Kaufman & O'Leary, 1972; Kazdin, 1972), research on the effectiveness of response cost is contradictory. It is interesting to note, however, that McLaughlin

and Malaby (1972) adopted an opposing viewpoint in reporting that response-cost procedures were less effective than token-economy systems in reducing disruptive classroom behaviour. Walker and Buckley (1972) concurred with this evidence and further stated that a response-cost system was more likely to be abused within regular classroom settings.

Notwithstanding the controversy surrounding response-cost procedures, researchers continue to utilise this intervention strategy with demonstrable success. In the process of evaluating the merits of response cost in mainstreamed settings, Salend and Henry (1981) examined the impact of this strategy on reducing the disruptive behaviour of two special-education students. The results of the two case studies suggested that a response-cost system may also be an effective strategy for reducing inappropriate behaviours in the regular classroom milieu. Their findings regarding the persistent effects of response-cost procedures were also consistent with the observations of earlier researchers (Kazdin, 1972; Phillips, 1968).

Token economies have been proven effective in decreasing classroom disruptions and increasing academic achievement (Boegli & Wasik, 1978). The effects of one token-economy system were assessed in a study conducted in a second-grade class (O'Leary et al. 1969). Not only was disruptive behaviour reduced, but improvement was also observed in attending behaviour and academic performance. It is significant to note that no improvement occurred in classroom behaviour during the morning, when the system was not in effect.

It is evident, then, that controversy notwithstanding, both response-cost and token-economy systems are both considered effective

intervention strategies for bringing about changes in inappropriate or disruptive classroom behaviour.

The Maintenance and Vicarious Effects of Contingency Procedures on Classroom Behaviour and Academic Performance

While intervention strategies may be considered effective in bringing about positive behavioural and/or academic changes in the classroom, there is also evidence to support the hypothesis that when some contingency systems are withdrawn behavioural gains are not necessarily maintained.

The treatment effects of behavioural contingencies have been the subject of considerable researcher scrutiny. Hay, Hay and Nelson's (1977) findings suggested that behavioural gains were lost once contingencies were removed. These results were somewhat inconsistent with the findings of another study which claimed that low rates of inappropriate behaviour were maintained through follow-up observations (Jones & Kazdin, 1975). A later investigation conducted to evaluate the effect of response-cost lottery procedures on attending rates and academic performance would seem to lend credence to the Jones and Kazdin (1975) results. Contingencies in this instance were attached primarily to behaviour. Not only did both on-task and academic performance improve when behavioural contingencies were in effect, but gains were also found to be maintained after treatment conditions were withdrawn. The researchers suggested that the maintenance in subjects' on-task behaviour could be partially attributed to the persistent long-term effects of response-cost treatment (Azrin & Holz, 1966; Broughton &

Lahey, 1978; Kazdin, 1972; Phillips, 1968).

Research carried out by Hay et al. (1977) and Kirby and Shields (1972) found that academic and behavioural effects tended to persist following withdrawal of treatments when academic responding was targeted, but not when on-task behaviour was the focus of modification. Contingency procedures applied to academic behaviour appeared to be much more resistent to extinction following abrupt termination of the programme (Broughton & Lahey, 1978). This was in sharp contrast to the transient effects produced by the reinforcement of on-task behaviour.

The literature in general suggests that through the application of contingency programmes in the classroom, teachers are in a position to assist students in acquiring appropriate patterns of behaviour which may continue to benefit students long after the treatment has been discontinued.

The overwhelming majority of intervention programmes have targeted specific social and/or academic behaviours exhibited by individual, or groups of, elementary school students. Further examination of treatment effects in the classroom has produced data which support that hypothesis that the implementation of contingency procedures has a positive effect on the response of non-target peers. For example, Drabman and Lahey (1974) and Kazdin (1973) demonstrated that positive behavioural effects were found to spread vicariously to classroom peers who were not receiving treatment when the behaviour of a disruptive or inattentive child was being modified. Other researchers have suggested that introducing a behavioural contingency for some

individuals may alter the behaviour of other students in the same situations, through collateral effects of instruction such as modelling and vicarious reinforcement (Bandura, 1969; Kazdin, 1973; Strain, Shores & Kerr, 1976). Further studies by Broden, Bruce, Mitchell, Carter and Hall (1970) and Kazdin (1973) reported improvements on the attending behaviour of non-target students when contingencies for on-task behaviour were implemented (Boyd, Keilbaugh & Axelrod, 1981; Christy, 1975; Ward & Baker, 1968).

If vicarious effects have been noted for behavioural or on-task contingency procedures, it would make sense to investigate the collateral effects of intervention targeted on academic performance with regard to its effect on non-target peers. Broughton (1983) maintains that evidence to support the hypothesis that academic contingencies might produce effects similar to behavioural contingencies was sparse and largely unsupported by solid experimental data. Analysis of Broughton's (1983) data indicated that vicarious effects did not necessarily result from the application of academic contingencies. In this investigation, non-target students actually decreased in on-task behaviour over the course of the study. The researcher suggested that perhaps treatment programmes utilising free-time activities, tokens, or where target students were praised before the class, would be more likely to produce vicarious effects. Such was the case in an experiment conducted by Aaron and Bostow (1978) whose findings led the researchers to report vicarious effects with academic contingencies. In this study, free-time which is a potentially stronger reinforcer than praise, was employed as a reinforcer.

The suggestion has been made, therefore, that when free-time is the motivating factor behind modifying behaviour, vicarious effects on non-target students are greater than they would be with praise. It would appear then, that in terms of attaining positive vicarious effects on non-target peers, behavioural or academic contingencies should be implemented, with the preferred reinforcer of free-time being employed in order to optimise positive social or academic responses in the classroom.

Summary

The literature on time on-task and it's effects on the achievement of elementary school students is both voluminous and thorough. Moreover the data collected over the years are significant in their implications for improving student learning. Researchers' findings as reviewed in this paper, will now be summarised.

Student self-monitoring has been proven to be an effective measure in increasing time-on-task and academic performance (McLaughlin, 1983). Researchers have also found that students in classrooms where peer teaching is utilised as a strategy remain on-task for a significantly longer period of time (Fox & Ervin, 1976).

Guida, Ludlow and Wilson (1985) identified a negative correlation between academic-anxiety and engaged student behaviour, thus supporting the data produced by Marlett and Watson (1968) which suggested that highly anxious students perform inadequately due to attentional deficits. However, the acquisition of relaxation skills has been found to have a positive effect on an anxious students' ability to

remain on-task during direct classroom instruction (Oldfield & Petosa, 1986; Omizo & Michael, 1982).

The teacher's role and that of the classroom environment are considered a critical influence in maximising student achievement (Long, Morse & Newman, 1976). Teacher enthusiasm, for instance, was found to affect academic performance (Rosenshine, 1970). Furthermore, a competent teacher has been shown to have effective classroom management skills, high expectations of students, and a business-like manner of instruction. Kounin (1970) identified effective teachers as generating high degrees of work involvement and low levels of misbehaviour. Researchers conclude that effective teachers skills not only reduce off-task behaviours (Kounin, 1970) but also increase levels of student interaction with the curriculum.

It has been suggested in the literature that in-service programmes, particularly those offered to elementary teachers at the local district level, have some impact on improving the attending behaviour of students (Joslin, 1981). Hett (1981) cited that teachers exposed to seminar training involving behaviour management were successful in bringing about changes in behavioural and academic responding.

Instructional variables have been investigated by researchers in terms of their influence on engaged rates and academic achievement. It was demonstrated that group size, rather than class size, was of considerable significance in terms of student engaged rates and student learning. The bulk of the research in this area suggests that the smaller group size for small-group instruction, the more significant the achievement gains (Moody, Bausell & Jenkins, 1974; Sindelar et al.,

1984). In terms of instructional methods, teacher-led activities proved to be more effective than supervised seatwork (Gartland & Wilson, 1981; Rosenshine, 1980; Sindelar, et al., 1984). High-complexity activities produced higher engaged rates (Wilson & Others, 1983), particularly reading comprehension tasks (Redfield & Roenker, 1981). Low-level readers were found to perform best during drill activities (Redfield & Roenker, 1981) while low-ability students, in general, performed best during well structured, co-operative group activities (Sharan, 1980; Slavin, 1980). The Graden and Others (1983) study concluded that on-task and academic responding behaviours were optimised during handwriting, spelling, reading, math and language activities which involved the use of readers, workbooks, papers and pencils. Individual or small-group instruction, inclusive of teacher proximity and teacher approval, was preferable for maximising student responses. Students, particularly boys, were found to be more on-task in the morning than in the afternoon (Bowers & Zaga, 1983).

Traditional classrooms have been reported to be more conducive to student engagement than open classrooms (Bennett, 1978; Gump, 1978). Moreover, the most effective seating plan for optimising student attending was found to be a circular arrangement. Significantly, the least effective plan involved desks arranged in rows (Rosenfield, Lambert & Black, 1985). The literature has also suggested that engaged rates increased as students progressed from kindergarten to fourth-grade (Stallings & Others, 1985). Ysseldyke et al. (1984) reported that very little difference had been noted in levels of attending between regular and special-education settings.

Teacher reinforcement has been found to have a significant effect on academic achievement (Lysakowski & Walberg, 1981). High levels of verbal-praise produced correspondingly high levels of on-task behaviour and accurate responding (Gettinger, 1983). Furthermore, reinforcement programmes which targeted academic rather than on-task behaviour led to marked improvements in both disruptive and academic behaviour (Ayllon, Layman & Burke, 1972; Ayllon, Layman & Kandel, 1975; Ayllon & Roberts, 1974; Hay, Hay & Nelson, 1977; Kirby & Shields, 1972).

Conclusion

Research on attending behaviour tends to be conducted in studies favouring mixed-gender samplings within elementary school settings. While this review of the literature has identified several investigations focussed on groups of male students (Hett, 1981; McLaughlin, 1983; Omizo, 1980; Omizo & Michael, 1982; Salend & Henry, 1981; Sharp, 1980; Witt & Elliott, 1982), to the best of the writer's knowledge, no experiments have been conducted to measure the effects of behaviour modification on the attending rates of individual male subjects within discrete educational settings.

It would appear, then, that observational studies have yet to investigate the maintenance, vicarious and academic effects resulting from contingency procedures applied to individual male students at the elementary level. In addressing this discrepancy in the existing research, the present study proposes to address four dominant issues related to time-on-task at the elementary school level.

In the first instance, the experiment will investigate the effects

of a teacher-implemented behaviour intervention plan on the attending behaviour of individual male students within discrete educational settings. The impact of behavioural strategies on the on-task behaviour of male peers will also be evaluated. Moreover, the maintenance of improved attending skills will be examined. Finally, the study proposes to investigate the effects of increased levels of attending on academic performance.

Chapter 3

Method

Subjects and Setting

Three male students, enrolled in regular fourth, fifth and sixth-grade classes, were the subjects of investigation. Their ages, at the beginning of the experiment, ranged from 9 to 11 years. The subjects, who were of average intelligence, exhibited high levels of disruptive behaviour in the classroom. They were selected for the study by their classroom teachers, all of whom had utilised a behaviour checklist scale in order to identify common non-attending behaviours. The students selected shared middle-class backgrounds.

The study was carried out in a small town in British Columbia. Two elementary schools within city limits participated in the study. The experiment was conducted in three separate classrooms which were typical of most intermediate classes in the school district. The students in all three classrooms were seated in rows, in classes ranging in size from 22 to 31 pupils. The fourth-grade class was shared by two teachers, one of whom declined to participate in the study.

Experimental Design

The research design utilised in this study was single-subject design across subjects. Single-subject analysis, considered to be the most widely accepted methodology for studying individual change, has been identified as the most effective technique for isolating causes

in behaviour change (Hersen & Barlow, 1976). Single-subject design, featuring a treatment component, also allows the researcher to examine the immediate effect of an intervention strategy (Griffey, 1981). Isolating target behaviours, then intervening with discrete treatment variables, enables greater inference to be made regarding the impact of treatment on that behaviour (Gold, 1984; Hersen & Barlow, 1976).

Preliminary Procedures

Before the study could be implemented in the school district, the author was obliged to undertake several preliminary steps. Permission to launch the experiment was sought, and granted, from the District Superintendent as well as the School Board. Subsequent to Central Office consent, volunteers were then sought within the teaching community. Four teachers, known to the author, were approached for voluntary participation in the study and their administrators were subsequently contacted for approval and consent. Participating teachers were then requested to identify non-attending male students in their classrooms. A behaviour checklist formerly utilised by Schonewille, Martin and Winne (1978) served as reference source in order to isolate off-task behaviours common to all subjects (see Appendix C for complete proof). The parents of each student were then notified and consent forms were signed at the school once the purpose of the experiment had been explained to them.

Teacher Orientation

Prior to implementation of the study, the teachers were involved

in an orientation session during which experimental procedures were thoroughly outlined. They were informed as a group regarding commitments, responsibilities, and implications in terms of time investment. They were also requested, at this time, to keep track of informal class tests in Mathematics and Language Arts in order that significant change in academic performance might be recorded. Results of standardised tests were also requested, where and when available.

Observers

Six female observers were recruited, on a volunteer basis, from within the general population. While no more than four volunteers were required for the daily observation schedule, the author felt it would be advisable to build "spares" into the observation team. Prior to commencement of the study, there was a training-period provided for them by the author.

The first step in training procedures involved the explanation and identification of attending and non-attending behaviours. The behaviour checklist utilised by participating teachers was made available to the observers during the training session and emphasis was placed on the degree of agreement among observers in identifying off-task behaviours. The off-task behaviours identified by an asterisk in Appendix C were a major focus of discussion and clarification during the observer-training period.

The second step in the training method involved actual classroom visits in the author's work setting. This close approximation of the situation to be later observed allowed the volunteers to observe and

record off-task behaviours first as a group, and later in pairs. Training in observer etiquette focussed on matters such as how to enter a classroom, where to sit, and how to interact with school personnel. Inter-observer reliabilities which were checked at this time, yielded a mean agreement of 86%. Meanwhile observers remained naive as to the purpose of the experiment.

The observers reported daily to the schools on a rotating basis, spending 40 minutes of each session on direct observational procedures. Wearing dark glasses and equippped with audio-cassett recorders, with ear-phones attached, they were positioned so as to afford them complete visual and auditory access to all male students. Audio-tapes, tone-cued at 6-second intervals provided the prompting system for recording frequency of non-attending behaviours. Stop-watches were also made available to observers for back-up purposes. Tally sheets, devised by the author, were used in time-sampling procedures. The recording was done by columns, each of which represented one minute, or 10 observations of 6-second, intervals. Observation was conducted in a predetermined, set order while students were either engaged in seatwork, or attending to teacher-led presentations.

For attending behaviour to be recorded, the subject was required to exhibit on-task behaviour for the total interval. If, at any time, during the 6-second interval, the student exhibited off-task behaviour, the entire interval was recorded as off-task. The rationale for this was that if a student engaged in off-task behaviour during such a short time interval, it was reasonable to assume that on-task concentration was seriously disrupted. This time-sampling procedure was used by

Bushell, Wrobel and Michaelis (1968) to validate the assumption that, in a given situation, behaviour observed at fixed intervals adequately represented behaviours occurring during the total interval. Subjects were assigned "+" or "-" on the tally sheet, at the end of each 6-second interval. The percentage of attending behaviour was calculated from the total number of positive recordings on the sheet at the end of each observation period.

Each observer spent 45 minutes in one classroom every day, recording 400 behaviours daily over a total recording period of 27 days throughout the three experimental phases. The subject's attending behaviour was observed for 20 minutes, then after a 5-minute rest period, male peers were observed. This observation sequence was alternated every second day.

In order to record the attending behaviour of male peers, the observers looked at a different male student at the moment of each auditory cue, proceeding around the room in a pre-set order until each of the subject's male peers had been observed. This format which was followed and repeated for 20 minutes, excluded the subject from the recording procedure. Percentage of attending behaviour was then calculated from the number of "+" recordings on the tally sheet.

The baseline phase was unusually lengthy due to complications which arose concerning a fourth subject initially included in the study. This student was the first subject targeted for intervention. His behaviour however was so erratic and severely disruptive that it was difficult to establish a stable baseline trend from which to intervene. He was thus considered an inappropriate candidate for the

study and was withdrawn from the experiment. Inter-observer reliability which was checked at this point yielded percentages ranging from 84 to 91, with an overall mean of 87.

Inter-Observer Reliability

Four inter-observer reliability checks were conducted during the experiment. The author served as reliability checker during training, baseline, intervention, and follow-up phases. Reliability was calculated by dividing agreements between observers, by the sum of agreements and disagreements, then multiplying by 100 to calculate a percentage. From commencement of the study to its completion, reliability percentages ranged from 84 to 96, with an overall mean of 90.

Intervention

A token-economy system coupled with reinforcement, contingent upon on-task behaviour, was selected as an appropriate medium for intervention. The token-economy is perhaps the most widely used classroom management system in education and has been considered effective in decreasing inappropriate behaviour (Kazdin & Bootzin, 1972). Another advantage is its flexibility. A token-system can be adapted to fit any situation, or combined with a variety of other management strategies (Walker, 1979).

A response-cost system was initially considered by the author, since several researchers have found this system to be equally effective in decreasing inappropriate classroom behaviour (Iwata & Bailey, 1974; Kaufman & O'Leary, 1972; Kazdin, 1972). However, it is interesting to

note that McLaughlin and Malaby (1972) adopted an opposing viewpoint in reporting that response-cost procedures were not as effective as a token-economy system in reducing disruptive behaviour in the classroom. Walker and Buckley (1972) added to the controversy by stating that response-cost procedures were more likely to be abused within regular classroom settings.

Prior to implementation of the intervention plan, a brief training session was provided for teachers, on an individual basis. The purpose of this training was to assist them with procedures for strengthening appropriate behaviour, while concurrently weakening non-attending behaviour. A simple token-economy treatment package developed by the author, was explained and was subsequently presented to each teacher in booklet format. Teacher input was solicited and encouraged at this stage.

The token-economy system developed for this experiment involved the utilisation of readily available classroom materials. Poker chips and masking tape were all that was required in order to initiate the strategy. The school day was divided into three 90-minute intervals during which the subject was capable of "earning" a total of 15 tokens contingent upon appropriate on-task behaviour. The subject's behaviour was observed and evaluated by the teacher, and tokens were awarded accordingly. A maximum of five tokens could be earned at the end of each designated time period. A langth of masking tape was attached to the top of the subject's desk, adhesive side facing upwards. If the student remained on-task for the entire period he accumulated five tokens. If, however, he exhibited off-task behaviour on three

occasions only two poker chips were affixed to his desk.

Throughout this time, the subject was encouraged and reinforced by his teacher when appropriate attending behaviour was maintained. Thirty minutes before the end of the school day, the tokens were counted and were then exchanged for free time. One token represented two minutes of free time and maximum free time earned could not exceed 30 minutes. The subject's classmates participated in selecting rewards to be enjoyed by the entire class. Favourite suggestions ranged from games and extra P.E., at the low end of the scale, to an end-of-the-week video. Students frequently opted to forego a daily reward in order to accumulate points for their favourite video.

The first subject targeted for intervention was identified after baseline data had been obtained for 12 days. The classroom teacher then discussed the plan with him, privately. Details regarding teacher expectations were outlined thoroughly, and off-task behaviours requiring improvement were identified. The student was encouraged and assured of everyone's support.

The second step in the treatment programme involved the inclusion of classmates in the plan. Peers were invited to participate and their support solicited for the subject. Details of the intervention plan were outlined, the positive aspects of the programme being clearly emphasized. In this way, both subject and classmates were involved in changing specific negative behaviours by means of a reward system contingent upon appropriate attending behaviour. Focus was kept on the subject as the student who had the "power" to earn rewards and privileges for the whole class.

Intervention in the three classrooms was introduced sequentially, as baseline trends were established, and subject response to the treatment component subsequently recorded.

The first subject exposed to the intervention plan attained criterion level performance before the second subject was phased into the programme. When the second subject's observation data indicated that he was on-task at least 80% of the time for a minimum of two days, the third subject was introduced to the same treatment condition. An identical format was adhered to for all treatments after specific procedures had been outlined to all participants.

The entire intervention phase lasted 11 days. Throughout this period, observation procedures were maintained with male peers in all three classrooms. It should be noted that throughout this phase observers were kept naive regarding the introduction of an intervention programme. The experiment was terminated five days after the last subject had been exposed to the intervention plan. The baseline and treatment phases lasted 22 days.

The final phase of the study involving observer data was initiated seven weeks after the attention contingency had been discontinued. Initial observation procedures were duplicated for a further five days and data were obtained by the same group of observers. A reliability check conducted beforehand yielded inter-observer agreements ranging from 87% to 94% with an overall mean of 90%. The purpose of this follow-up phase was to investigate the significance of introducing an intervention plan in terms of long-range effects.

Chapter 4

Results

The mean percentage of on-task behaviour for subjects and male peers across all phases of the experiment are presented in Table 1. Figures 1 and 2 depict the daily attending rates of target students and peers. The figures also display the duration of each experimental phase.

The attending behaviour of S_1 improved by a mean of 24.9% during the treatment condition (See Table 1). The data show that although he was not able to maintain those behavioural gains during follow-up observations, nevertheless his on-task behaviour did not revert to baseline levels of attending. As can be seen in Figure 1, the first subject attained criterion performance on the second day of the treatment condition and was able to maintain this level of attending throughout 50% of the intervention programme.

There was an increase of 4.6% in the on-task behaviour of S_1's male peers. This gain, however, was not maintained during follow-up observations (See Table 1).

The most significant behavioural gains were made by S_2 whose on-task behaviour improved by 33.8%, an increase which was maintained during follow-up but for a negligible loss of .1% (See Table 1). Figure 1 shows that the subject reached criterion level on the first day of the attention contingency, a level which he attained on 6 out of the 7 days he was exposed to the token-reinforcement programme. Figure 1 also shows that S_2's highest level of attending during a

Table 1

Mean Percent of On-Task Behaviours of Subjects and Male Peers

	Phase		
Subject	Baseline	Intervention	Follow-Up
1	50.5	75.4	65.8
Peers	66.6	71.2	67.2
2	47.5	81.3	81.2
Peers	66.4	70.7	85.2
3	49.5	79.0	83.0
Peers	62.3	72.8	75.4

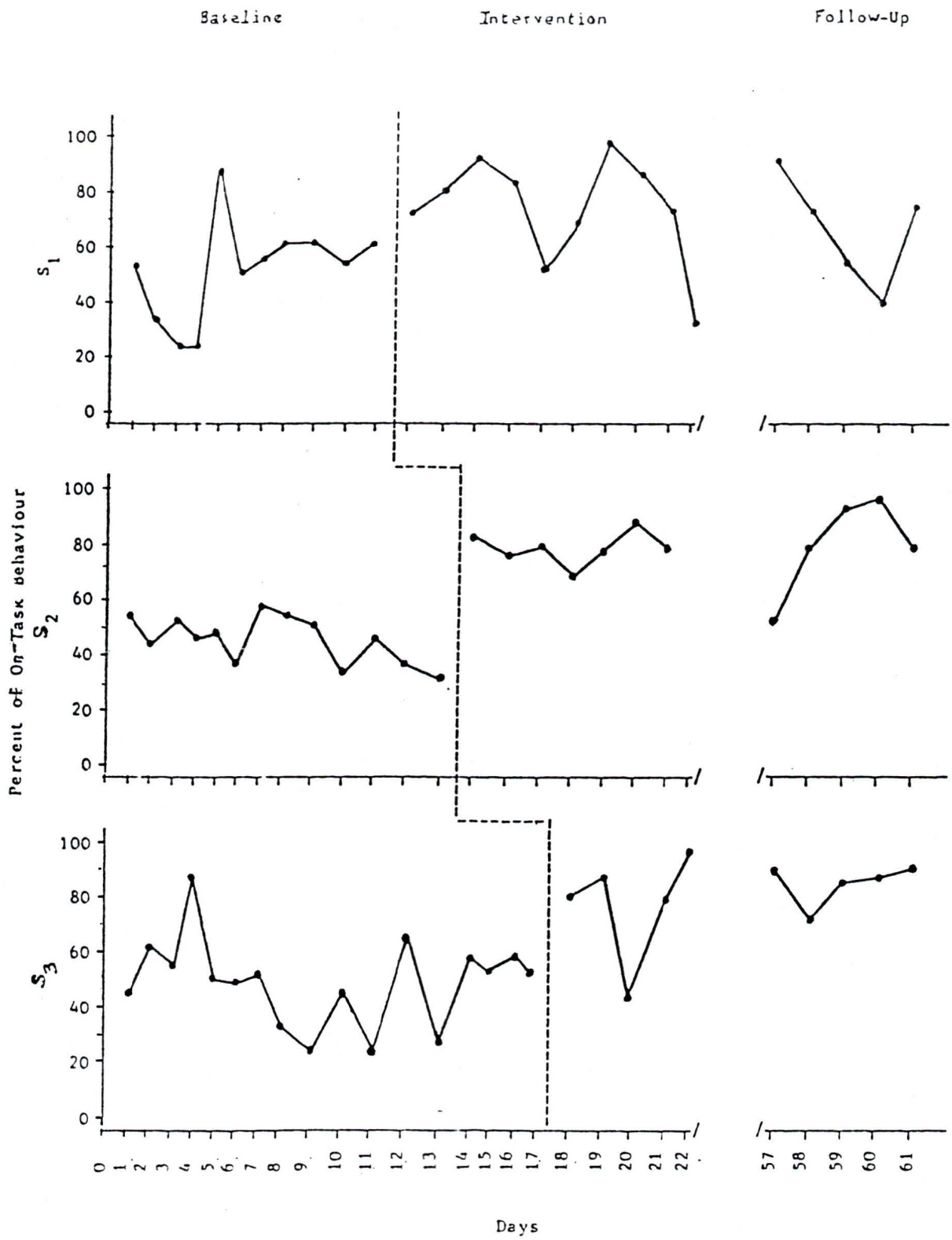

Figure 1. Daily attending rate of target students across all phases of the experiment.

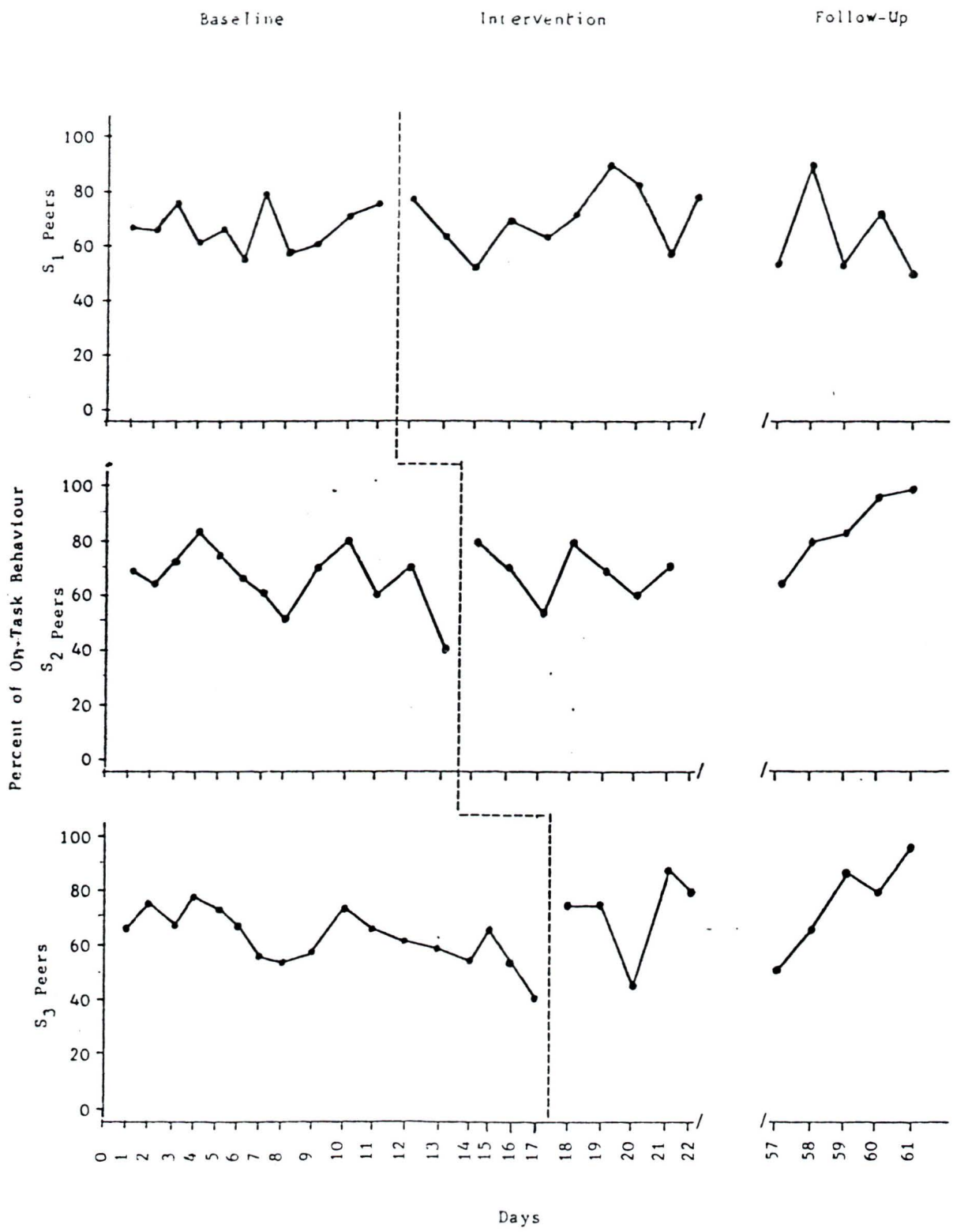

Figure 2. Daily attending rate of target students across all phases of the experiment.

baseline of 13 days was 59%.

The data presented in Table 1 indicate that vicarious behavioural gains recorded for male peers of S_2 represented a mean of 4.2%. This improvement in on-task behaviour was not only maintained but also further increased by 14.5% during the follow-up phase.

The results displayed on Table 1 demonstrate that S_3's attending gains represented a mean of 29.5%. Data obtained during follow-up observations indicate that behavioural gains were not only maintained but also further increased by 4%. Criterion performance, which was reached on the first day of the attention contingency, was attained during 4 of the 5 days of the treatment phase (See Figure 1). Baseline observational data reveal that this level of attending had been reached on only one occasion during a lengthy baseline of 17 days.

The vicarious attending gains for S_3's male peers are displayed in Table 1. A significant improvement of 10.5%, which was further increased by 2.6% during follow-up, was recorded (See Figure 2).

In summary, then, the data demonstrate that increases in on-task behaviour were recorded for all subjects and male peers upon implementation of an attention contingency. The results also indicate that 2 of the 3 subjects were able to maintain those behavioural gains. The data further show that in 2 cases out of 3, attending gains were not only maintained, but also surpassed, by male peers.

In terms of academic improvement, modest gains in the scholastic performance of the target students were reported by the three teachers. Report card results displaying letter-grades were submitted by participating teachers at the end of the school year. The standardised

test scores originally requested were either not available or were not valid data (see Discussion for specific detail) for inclusion in this study. Thus the lack of quantitative or scientific data in this study would seem to negate the author's former assumptions regarding the effects of an attention contingency on academic performance.

Table 2 displays the range and mean of attending behaviours of target students during the baseline phase. The range in on-task behaviour for S_1 was 65%, with a mean of 50.5%. S_2 was on-task 47.5% of the time, with a range of 24%. The range for S_3 was 63%, with a mean attending rate of 49.5%. The mean attending rate of the three subjects during baseline was 49.2%.

Table 3 illustrates the range and mean of attending behaviours of subjects during the intervention phase. Target students showed immediate improvement upon implementation of an attention contingency. During this phase, inappropriate behaviours decreased and substantial gains in engaged time were noted for all subjects.

S_1 improved from a mean of 50.5% during baseline, to a mean of 75.4%. This represented an increase, in attending behaviour, of 24.9%.

S_2 similarly showed behaviour gains, improving from a baseline mean of 47.5% to a mean of 81.3% during the treatment phase. The figures represent an improvement of 33.8%.

The data for S_3 indicate that his baseline attending rate of 49.5% increased by 29.5% to an intervention phase mean of 79%.

The mean attending rate of the three target students, during baseline was 49.2%. Subsequent to the implementation of an attention contingency, the mean attending rate rose to 78.6%, a mean behaviour

Table 2

Percentage of Attending Behaviour During Baseline Phase

Subject	Range		Mean
	Low	High	
1	23	88	50.5
2	35	59	47.5
3	25	88	49.5

Table 3

Percentage of Attending Behaviour During Intervention Phase

Subject	Range		Mean
	Low	High	
1	35	100	75.4
2	70	90	81.3
3	46	98	79.0

gain of 29.4%.

Table 4 displays the range and mean of attending behaviours of target students during the follow-up phase. The data reveals that 2 of the 3 subjects maintained gains in attending attained during the treatment phase.

S_1 sustained a loss of 9.6% in on-task behaviour. Nevertheless, a gain of 15.3% in attending was retained from the intervention phase.

The figures indicate that S_2 was able to maintain his intervention phase level of attending, while incurring a negligible loss of 0.1%.

The attending behaviour of S_3 was not only maintained, but was also improved upon by a further 4%, during the follow-up phase.

The mean attending rate during the follow-up phase was 76.7%.

Table 5 presents the mean percentage of attending behaviours for all subjects throughout the experiment. The mean increase in on-task behaviour upon implementation of a token reinforcement programme was 29.4%. A mean loss of 1.9% was recorded when follow-up data was obtained.

Table 6 presents the range and mean of attending rates for male peers during the baseline phase.

The range in on-task behaviour for the first group was 24%, with a mean of 66.6%.

The attending behaviour of S_2's male peers ranged from 42% to 81% with a mean of 66.4%.

The data, for the third group, reveals that the students were on-task 62.3% of the time. The range recorded was 36%.

Table 4

Percentage of Attending Behaviour During Follow-Up Phase

	Range		
Subject	Low	High	Mean
1	38	87	65.8
2	53	97	81.2
3	72	87	83.0

Table 5

Mean Percentage of On-Task Behaviour of Subjects Across All Experimental Phases

	Subjects			
Condition	1	2	3	Mean
Baseline	50.5	47.5	49.5	49.2
Treatment	75.4	81.3	79.0	78.6
Follow-Up	65.8	81.2	83.0	76.7

Table 6

Percentage of Attending Behaviour of Male Peers

During Basleine Phase

	Range		
Group	Low	High	Mean
1	54	78	66.6
2	42	81	66.4
3	41	77	62.3

The mean attending rate for the three groups during the baseline phase was 65.1%.

Table 7 shows the range and mean of attending behaviour for male peers upon implementation of an attention contingency with the three subjects. During this phase, inappropriate behaviours of peers decreased slightly. In all cases, the vicarious effects on male students were noteworthy.

The attending behaviour of the first group increased from a baseline mean of 66.6% to a mean of 71.2%, during intervention. This represented a gain of 4.6%.

The male peers of S_2 improved by 4.3%, while the level of attending in the third group increased by a substantial 10.5%.

The mean attending rate during this phase rose from a baseline figure of 65.1% to 71.6%, an overall gain of 6.5%.

Table 8 displays the results in range and mean of on-task behaviour for male peers during the follow-up phase of the study.

The male peers of the first target student did not maintain their on-task gains during this phase. A decline of 4% in attending behaviour was recorded but with an overall gain of 0.6% retained from the baseline phase.

The second group of male peers not only maintained their intervention phase mean of 70.7%, but also improved upon this figure by a further significant 14.5%, to a mean of 85.2%. An overall gain of 19.8% was recorded from baseline to follow-up phases.

The male peers of S_3 maintained their treatment-phase level of attending while making a further gain of 2.6%.

Table 7

Percentage of Attending Behaviour of Male Peers During Intervention Phase

Group	Range		Mean
	Low	High	
1	60	89	71.2
2	55	81	70.7
3	46	86	72.8

Table 8

Percentage of Attending Behaviour of Male Peers During Follow-Up Phase

Group	Range		Mean
	Low	High	
1	55	92	67.2
2	63	100	85.2
3	51	96	75.4

The mean attending rate of male peers during the follow-up phase was 75.9%, representing a maintenance gain of 4.3%.

In summary, then, 2 male peer groups out of 3 not only maintained but also increased levels of attending behaviour during the follow-up phase.

Table 9 displays the mean percentage of on-task behaviour for male peers throughout the three phases of the study. The overall mean increase in attending behaviour upon implementation of an attention contingency was 6.5%. This gain was maintained during the follow-up observations and was further increased by 4.3%.

Table 10 displays the Grade 4 letter grades assigned to S_1 during the three school reporting periods. Improvement was noted in one subject area only, during the treatment phase. His pre-intervention scholastic levels were maintained in two subjects while his performance was seen to decline in Reading, Mathematics, and Science.

Grades earned in the June report indicate that the student improved in one subject area, maintained his March record in four subjects, but lost ground in Science.

The very minimal academic gains recorded over two reporting periods would seem to suggest, then, that the implementation of an attention contingency was of questionable significance, with regard to the student's academic performance.

Table 11 displays the academic record of S_2 during three reporting period. The March report, which was issued after the student had been exposed to intervention, indicates that academic gains were made in one subject out of 6. While the student maintained his scholastic

Table 9

Mean Percentage of On-Task Behaviour of Male Peers Across All Experimental Phases

	Subjects			
Condition	1	2	3	Mean
Baseline	66.6	66.4	62.3	65.1
Treatment	71.2	70.7	72.8	71.6
Follow-Up	67.2	85.2	75.4	75.9

Table 10

Academic Performance of Target Student 1

	Grades		
Subject	December	March	June
Reading	B	C	B
Writing	C	C+	C+
Spelling	B	B	B
Mathematics	C+	C-	C-
Social Studies	C-	C-	C-
Science	C+	C	C-

Table 11

Academic Performance of Target Student 2

	Grades		
Subject	December	March	June
Reading	A	A	A
Writing	C+	B	C
Spelling	B	B	A
Mathematics	A	A	A
Social Studies	B	C	C
Science	C+	C+	B

standing in Reading, Spelling, Mathematics and Science, his standing in Science was seen to deteriorate.

The final-term letter grades indicate that the student showed a further improvement in two subject areas, while maintaining his March performance level in Reading, Mathematics and Social Studies. A decline in performance was noted in writing.

It would seem, from those figures, that one cannot conclude that an increase in attending behaviour automatically results in a corresponding improvement in academic performance.

Table 12 displays the Grade 5 letter grades earned by S_3 during the three school reporting periods. The March report was issued shortly after the subject had been exposed to an intervention plan. The letter grades for that reporting period demonstrate that Science was the only subject area to reflect a slgiht improvement. In all other areas the pre-intervention academic standing was maintained.

The June report indicates that the target student improved in four subject areas, maintained his performance level in Reading but deteriorated in Science.

It is doubtful if one can conclude that the modest academic gains in Science can be attributed to the student's increased attending skills. It is possible, however, that the further gains in four subject areas may be a direct result of the student's improvement in on-task behaviour. This suggestion is viewed with scepticism since there is reason to believe that the intervention plan was abandoned by the teacher, after the March report. Any significant improvement in academic performance due to the effects of reinforcement should

Table 12

Academic Performance of Target Student 3

Subject	Grades		
	December	March	June
Reading	B	B	B
Writing	B	B	A
Spelling	B	B	A
Mathematics	B	B	A
Social Studies	C+	C+	B+
Science	C+	B	C

have been noted at that time. Other factors may have contributed to the student's acquisition of improved letter grades in the June report.

Chapter 5

Discussion

The results of this experiment suggest that a token reinforcement programme may be an effective strategy for reducing inappropriate attending behaviour among elementary school boys. These findings replicated earlier research which has demonstrated the efficacy of behavioural contingencies in reducing the off-task behaviour of male students in the regular classroom milieu (Hett, 1981; McLaughlin, 1983; Omizo, 1980; Omizo & Michael, 1982; Salend & Henry, 1981; Sharp, 1980; Witt & Elliott, 1982). The results are also consistent with the findings of those researchers who conclude that simple contingency programmes designed to be time-and-cost-effective are easily implemented by classroom teachers (Borg, 1975; Crouch, Gresham & Wright, 1985; Hett, 1981; Marlowe et al., 1978).

It may also be concluded from the results of this study that behaviour modification applied to a single off-task male student has a positive behavioural effect on his male peers. Vicarious behavioural effects were demonstrated previously by researchers who observed an increase in the attending behaviour of non-target students when attention contingencies were implemented (Bandura, 1969; Boyd, Keilbaugh & Axelrod, 1981; Broden et al., 1970; Christy, 1975; Drabman & Lahey, 1974; Drabman & Spitalnik, 1974; Kazdin, 1973; Strain, Shores & Kerr, 1976; Ward & Baker, 1968).

The failure of the behaviour to return to baseline levels was interesting, and would thus suggest that the implementation of an

attention contingency targeted at individual students has persistent maintenance effects among individuals and peers alike (Hett, 1981; Jones & Kazdin, 1979; Walker, Hops & Johnson, 1975).

In general then, this study has demonstrated the efficacy of introducing a teacher-implemented token reinforcement programme in terms of ameliorating and maintaining the attending behaviour of, not only individual male students, but also that of their male peers. The findings are of significance at a time when elementary teachers are obliged to cope with increasingly greater numbers of hyperactive or attention-deficit students, the majority of whom are boys (Sandoval, 1977). Acquiring skills in behaviour management allows the classroom teacher to minimise disruptive behaviour and to focus on delivering the curriculum in order to optimise student learning (Kounin, 1970).

The data obtained in this experiment do not lend support to the hypothesis that the implementation of behavioural contingencies impact positively on academic performance. The quantitiative data originally requested were not provided by participating teachers. Rather, they submitted summative forms of evaluation displaying end-of-year letter grades. These data were not considered a sufficiently valid or scientific measure of achievement to support the author's earlier assumptions regarding attention contingencies and academic performance.

The somewhat lengthy baseline phase evolved from the inclusion of a fourth subject at the beginning of the experiment. This student who was severely disruptive and was the first subject to be exposed to the treatment condition failed to respond to intervention strategies and was eliminated from the study. Thus the experiment was lengthened

during the baseline phase.

The daily attending rates of subjects, as displayed on Figure 1, indicate that target students attained a considerable range in their attending behaviour. It was ascertained that "highs" recorded during baseline observations were invariably the result of classroom tests or drill activities. The "lows" reflected target students' on-task behaviour during the presence of a substitute teacher. It may be further observed from the data presented in Figure 1 that S_2 failed to attain criterion performance on only one occasion subsequent to implementation of the token-reinforcement programme. It was later reported by the teacher that his lower on-task response may well have been due to the distracting presence of the observer who arrived later than usual that day.

The data displayed on Table 1 indicate that S_1 was the least successful target student in the study. The findings are of particular significance since the subject was taught by two teachers one of whom declined to participate in the study. The subject was thus exposed to attention contingencies for 50% of the school day and ultimately maintained his behavioural gains during 50% of follow-up observations.

The fact that S_1 was in fourth-grade and was the youngest target student may also be an important factor in his attending rate. Stallings and Others (1985) demonstrated that younger students were observed to be less on-task than those in later grades. S_2 and S_3 were in grades 5 and 6 respectively.

A further variable affecting S_1's maintenance of behavioural gains may be attributed to the conditions under which he was observed. This

student was the only subject on whom data was obtained in the afternoon and at least one study has investigated the effects of time-of-day on student engagement. The researchers concluded that pupils, particularly boys, are more off-task and exhibit more interference and non-compliance in the afternoon (Bowers & Zagar, 1983). It is also important to note that when follow-up data were obtained at the end of the school year, S_1's classroom was reported to be particularly uncomfortable and distracting due to not only its northern exposure but also to repeated interruptions on the public address system. It is not surprising then, that the first student targeted for intervention was less successful than subsequent subjects in the experiment. Despite those disadvantages, however, he was able to make noteworthy behavioural gains as a result of the attention contingency.

Several factors may have determined the success of the experiment. Undoubtedly, the reinforcement provided by teachers (Gettinger, 1983) and peers contributed to the response of subjects to the intervention strategies. Participating teachers reported a "feeling of success" among students and further stated that peers were "very supportive" of subjects while their behaviour was being modified. These observations lend further support to recent findings regarding the effects of positive reinforcement on student engagement (Horn & Walberg, 1984).

Vicarious effects were noted for all non-target groups in this study. In all three cases subjects were encouraged and praised before the class and vicarious effects were thus considered more likely. Moreover free-time which is a potentially stronger reinforcer than praise (Aaron & Bostow, 1978) was employed not only with the subject,

but also with his peers. The results of this study concur with Kazdin's (1979) specualtions that programmes employing tokens, free-time activities and praise before the class will be more likely to produce vicarious effects.

The maintenance effects of the token reinforcement programme are of particular interest since the literature on intervention programmes tends to favour response-cost procedures in terms of its persistent effects (Kazdin, 1972; Phillips, 1968; Salend & Henry, 1981). It would seem teachers were more comfortable with the aspect of a predictable daily observation schedule. Observers were thus not permitted access to the classroom at times other than those designated by the teachers.

While the duration of the intervention phase may be regarded as unusually brief by the critical observer, it should be pointed out that since subjects responded rapidly to the attention contingency, an extended interval between intervention for each subject was deemed unnecessary. Furthermore, spring break was drawing nearer and teachers were somewhat weary of observers. Thus it seemed advisable to complete the treatment programme on a tighter schedule than was initially proposed. The results of the study, nevertheless, attest to the success of this intervention phase, despite its brief duration.

At the beginning of the study, teachers were informed that standardised test results would be requested at the end of the school year. The data produced by one teacher however could not be compared with the previous year's results since two different tests had been used. In another instance, standardised tests had not been utilised

as a regular school procedure. Thus, there was a paucity of scientific data in this respect and consequently former assumptions could not be validated or supported. The single weakness in the study, then, was its inability to provide quantitative measures of evaluation to support the final hypothesis.

How the Study Could be Improved

While some problems were encountered along the way, in general, the study ran smoothly from its initiation to its termination. Nevertheless, some aspects of the study would merit closer scrutiny.

A more appropriate time to conduct an investigation of this nature would be some six weeks into the school year after classroom teachers had already identified attention-deficit students. A behaviour modification programme implemented in mid-October would thus be beneficial to both teachers and students throughout the whole year. Follow-up data could then be obtained at a time when the school was not involved in intrusive end-of-year activities. Moreover, an investigation commenced in the first term of the school year could be initiated shortly after the first battery of standardised tests. The second battery, given at the end of the school year would then provide comparative quantitative data which might validate assumptions regarding the effects of attending skills on academic achievement.

Practical Implications of the Study

The data obtained in this study support the findings of earlier research in demonstrating the effectiveness of teacher-implemented behavioural programmes in modifying the off-task behaviour of elementary

school boys (Crouch, Gresham & Wright, 1985; Hett, 1981). A classroom teacher can significantly improve the attending behaviour of attention-deficit students, a great number of whom are invariably male (Sandoval, 1977). The acquisition of simple behavioural strategies provide teachers with practical and effective techniques so that their technical skills of teaching can be used most productively in exposing students to the curriculum and in this assisting them to learn (Kounin, 1970). Moreover, a behaviour modification programme implemented by the classroom teacher, rather than by a costly itinerant specialist, has the advantage of economy, not only in terms of time but also of fiscal resources.

The burgeoning costs of education specialist programmes merit closer attention, particularly those which are externally managed. Increased skills in managing off-task behaviour would ultimately make every teacher a "specialist" and thus give him/her more control of the classroom situation. This in turn would promote a "feeling of success", boost teacher confidence and increase overall effectiveness in instructional capacity. Not only would teacher-stress be reduced but more positive effects would emerge from the application of techniques proven to be effective in the classroom.

Classroom and school effectiveness are once again issues brought into sharper focus in our time. Accountability is "in" and teacher competence is frequently called into question. The literature on teacher effectiveness attests to the merits of teacher management skills in terms of optimising student learning (Bennett, 1976; Brophy, 1979; Confrey, 1982; Emmer & Evertson, 1981; Fisher et al., 1981; Good &

Grouws, 1977; Locke, 1979; McDonald, 1976; Metzler, 1982; Rosenshine & Berliner, 1978; Stallings, 1975).

The results of this study, then, lend weight to the findings of earlier researchers who have published data on the relationship between behaviour modification and time-on-task in the elementary classroom.

General Observations

This study, initially designed to investigate the behaviour of children in the classroom, ultimately provided revealing insights into teacher attitudes and behaviours. The process of recruiting volunteers for the experiment vicariously exposed the latent fears and insecurities of a large number of teachers, most of whom were considered experienced and competent in their field. Several teachers who had previously requested management techniques at a district in-service workshop on behaviour management, later denied that problems existed in their classrooms. Many others considered eligible or appropriate for the experiment insisted that their students rarely exhibited attentional deficits despite the fact that all of them had referred male students to the District Assessment Centre for remediation due to disruptive or non-attending behaviour. It may also be of interest to note that several administrators were equally loathe to identify behavioural problems within their schools.

While the denial of existing attentional problems in the classroom was surprising in itself, it was equally surprising to note the prevailing attitude towards classroom observation. Several teachers

who had tentatively demonstrated an interest in participating in the experiment declined to become engaged in further dialogue once the twin issues of "observation" and "academic performance" were introduced. Those aspects of the study seemed to present a genuine "threat", particularly where female teachers were concerned. In general, male teachers appeared more confident and much less threatened by the prospect of observational procedures and scrutiny of student test scores. All of the teachers approached had referred students to either in-school or district specialists for remediation in academic subjects and all of them had presumably done so without viewing the process as a reflection on their teaching or instructional competence. One could surmise, then, that many teachers continue to regard disruptive student behaviour as an area that reflects negatively on their teaching abilities.

The recruitment of volunteer teachers was thus an illuminating experience. Eventually, some teachers were identified as being eager to participate in the study. It should be noted that all of those volunteers were regarded as competent, flexible and self-assured individuals who were more than a little conversant with the principles of behaviour modification.

Although details regarding the treatment phase were initially withheld from the volunteers, the teachers did nevertheless exhibit symptoms of "performance anxiety". Each participant tended to assign high on-task activities (Graden & Others, 1983) during baseline observation procedures. Moreover, S_3's classroom seating arrangement was dramatically altered in order to render male students under constant

teacher surveillance. Those tactics were subsequently interpreted as a genuine desire to optimise student attending rates during baseline observations.

There can be little doubt that the teachers became involved in the study for reasons other than their confidence in the demonstrated effects of behaviour modification within the classroom milieu. Their involvement was regarded as a personal favour to the author, and while each of them participated wholeheartedly in all phases of the study it was concluded that here was a "gimmick" with marginal merit, credibility, or validity in terms of its implications in educational settings.

Somewhat sceptical, initially, regarding the outcome of the reinforcement programme, the teachers nevertheless co-operated fully at all stages, consistently eager to adapt and adjust the intervention package in order to accommodate students' priorities. A flexible and manageable contingency system thus emerged. Teacher enthusiasm was already evident during implementation of the attention contingency. S_2's teacher reported that the more she reinforced the subject the faster he responded to the intervention strategy. Her anecdotal comments regarding the positive value of reinforcement support Horn and Walberg's (1984) conclusions regarding the importance of positive reinforcement in the classroom. The same teacher was approached by other non-attending male students in the class who wished to be exposed to similar behavioural techniques. She complied with their requests after the intervention phase was discontinued, and despite her initial scepticism she was encouraged to observe an immediate

improvement in general on-task behaviour.

Despite the positive behavioural gains exhibited by all three subjects, there is reason to believe that the teachers phased-out behavioural strategies once the study was terminated. In each instance, the participating teacher reverted to former, entrenched methods of classroom control. Clearly they were found to be "more comfortable" assuming a punitive stance in the classroom.

In addition to examining issues related to student behaviour then, this study vicariously highlighted teachers' resistance to change (Leithwood, 1987) in terms of ameliorating attentional deficits within the classroom milieu.

Summary and Conclusion

The results of this study support earlier findings regarding the positive effects of behaviour modification on student attending. It would seem that simple teacher-implemented behavioural programmes which are time-and-cost-efficient benefit attention-deficit students to a significant degree. The implications for school populations and education, in general, are far-reaching particularly at a time when school effectiveness has become the focus of considerable public scrutiny. If schools fail to meet those standards expected of them by a dissatisfied and critical public, then it might be reasonable to assume that teachers may be called upon to initiate changes in their pedagogic practice. The data obtained on teachers, however, supports the view that as a group, teachers are notoriously resistant to implementing attitudinal and/or behavioural changes in their classroom

practices.

While the focus of this study was primarily student behaviour, it became patently obvious, as the investigation progressed, that several other potent variables impacted on the attending behaviour of attention-deficit students. Copious amounts of teacher-generated negative feedback were incidentally noted by observers, particularly during baseline observations. The abundance of criticism and the paucity of verbal reinforcement would seem to lend weight to Walker et al.'s (1976) findings regarding teacher praise and disapproval in the elementary classroom.

Despite careful emphasis on the principles of behaviour modification during teacher training, universities continue to produce teachers who demonstrate an abiding faith in the authoritarian approach to student management and classroom control. The fact that disruptive students become progressively more deviant in their behaviour as they move through the system is an issue that has yet to be addressed by a profession which paradoxically views itself as being committed to student well-being, growth, and development.

This investigation has vicariously exposed a problem of considerable import--a problem only marginally addressed at the decision-making level within the education system. Behaviour management in the elementary classroom has not yet merited the kind of attention focussed on other areas in the curriculum. Indeed, it may not even be regarded as a curriculum problem. It may well be viewed as a non-issue, even at a time when the ultimate cost to society is too great to be ignored.

Wherein lies the solution, then? Who will champion the cause of

the myriad confused, bewildered, and troubled students who continue to fill the nation's classrooms in ever-increasing numbers? How may beleaguered educators address the problem in an effective and professional manner?

It would seem logical to conclude that an improvement in student behaviour may only be brought about by major attitudinal and behavioural changes in classroom teachers. A significant overhaul would be called for as teachers would be required to be deprogrammed. Practices geared to de-emphasizing those destructive approaches which are scarcely designed to address the needs of today's student, might be introduced through mandatory in-service programmes. Curriculum developers would devote their energies to building programmes based on research findings proven to be effective in ameliorating the kinds of behaviour demonstrated by students investigated in this experiment. It might also be proposed that pressure be brought to bear on those in a position to dispense, or apportion, funding for the purpose of initiating programme changes of this magnitude.

Undoubtedly the problem will persist for some time and teachers will battle on, delegating increasingly greater amounts of instructional time to countering attentional problems in the classroom milieu. In the meantime, further empirical research is required in the area of teacher behaviour and its potential impact on student attending, and thus learning.

Effective teacher behavioural practices merit closer scrutiny if the profession is to respond to a rising public outcry calling for greater accountability in the public school system. The challenge to

target teachers for behavioural change may be taken up by future researchers who might not only extend the findings of this study, but also courageously address a major educational issue hitherto ignored.

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Appendix A

Letter to Parents of Subjects

Dear Parents,

Your son has been selected for a research study that is aimed at evaluating a programme designed to improve classroom behaviour and learning. This programme will involve your son's teacher rewarding him for appropriate behaviour with praise and special privileges.

To evaluate the worth of this programme, an observer will visit your son's classroom periodically to record the frequency with which he attends to his learning tasks. At the end of the programme you and your son may be asked to answer a brief evaluation questionnaire.

The information gathered will be written as a research report. At no time, however, will your name or your son's name be mentioned. Strict anonymity and confidentiality will be maintained throughout the study and in the reporting of the information gathered.

Please call me at your earliest convenience for an appointment. I would like to have the opportunity to answer any questions you might have. Your consent is also required prior to commencing his study.

Sincerely,

Teacher

I _____ hereby give my consent to have my
Parent's Name
my son enrolled in this research programme and to have the information gathered on his behaviour and learning included in a research report written by Dolina Berg.

Appendix B

Pupil Observation Checklist

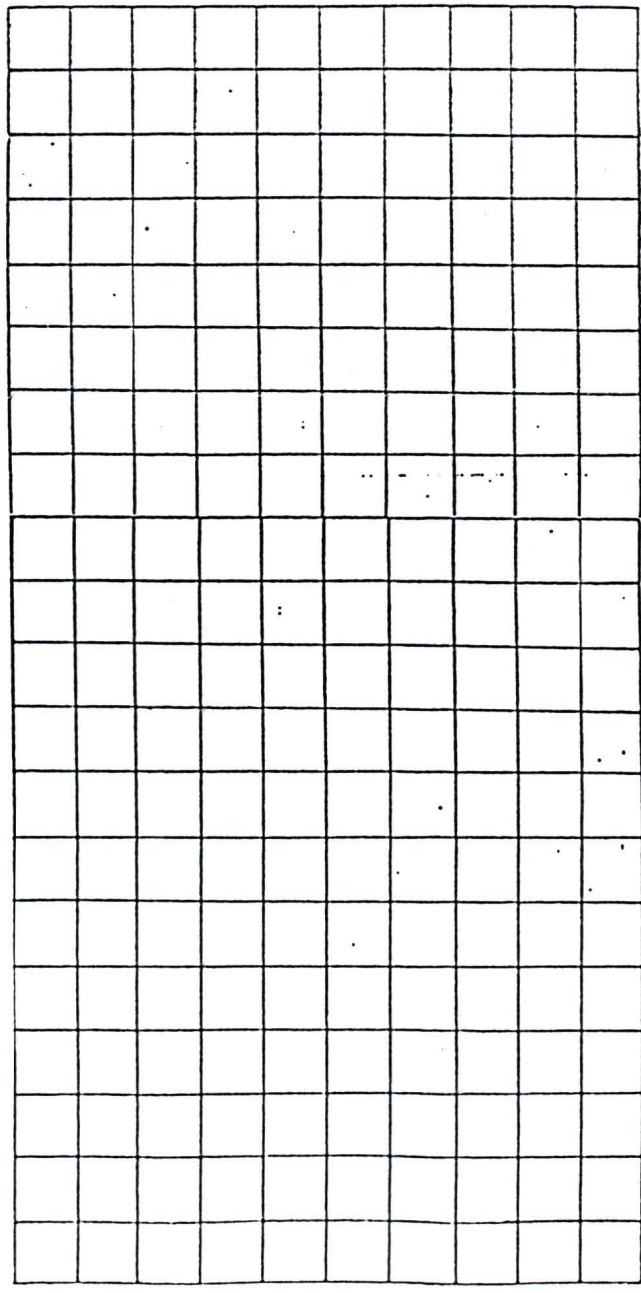
Pupil #: _____ Age: _____

Grade: _____ School: _____

Teacher(s): _____

Observer: _____ Observation Period: _____ mins.

Date: _____



Total + : _____

Total - : _____

Appendix C

Off-Task Classroom Behaviour

Categories	Behaviours
Verbal	Calling out answers
	Interrupting the teachers*
	Interrupting other students*
	Humming, laughing, whistling, etc.
Out-of-Seat	Getting a drink of water, sharpening* pencil, "borrowing" book, etc.
	Leaving classroom, without permission
	"Visiting" other students*
	Tipping chair or desk
Disruptive	Throwing objects
	Slamming doors
	Shuffling feet
	Dropping ruler, pencil, book, etc.*
	Turning around in desk*
	Taking things from others
	Hitting or poking another student*
	Kicking or tripping another student

Note: An asterisk identifies off-task behaviours selected for modification during the study.

Appendix D

A Behaviour Intervention Plan: Teacher's Manual

BEHAVIOUR MANAGEMENT STUDY:

A TEACHER'S MANUAL

AN INTERVENTION PLAN

STUDENT: _____ GRADE: _____

TEACHER: _____ SCHOOL: _____

DATE: _____

TEACHER INTERVENTION PLAN:

Introduction: By now the observations will confirm that your student's behaviour has stabilised, that is to say, he will be maintaining a steady degree of task orientation. We will now intervene with a number of behaviour techniques. We will use the token-economy technique. This approach is outlined below.

Goals: This study has 3 primary and 3 secondary goals:

The primary goals are:

1. To improve the attending behaviour of the male subject.
2. To improve the attending behaviour of his male peers.
3. To increase academic output of the subjects and his male peers.

The secondary goals are:

1. To enhance the self-esteem of the subject.
2. To provide him with peer support.
3. To help the teacher acquire some positive behavioural skills.

Method: By introducing the token-economy technique the teacher will make a specific and highly visible effort to improve the subject's attending behaviour. Both the class and the subject will be involved in changing specific negative behaviours to positive behaviours, by means of a reward system for achievement.

Procedure: The teacher will implement the following steps:

1. Identify the non-attending behaviours (see behaviour checklist).

2. Identify and prioritise those behaviours to be improved.

3. Have a private talk with the subject to tell him how he will be helped to improve his attending skills (explain the reward system). Answer any questions he may have and show enthusiasm for his "adventure". Make teacher expectations clear.

4. Share, with the class, the subject's programme, enlist their support. Explain the plan and point out the benefits they will enjoy by joining in.

5. Involve the subject and the class in choosing and prioritising rewards.

6. Use verbal praise and the "Good For You" sheet to keep "energising" the subject and the group (see "68 Ways to Say Good For You" sheet).

TOKEN-ECONOMY PLAN:

Materials: Masking-tape, poker chips

1. Attach a length of masking tape, adhesive side up, to the subject's desk. Divide the school day into 3 ninety-minute periods, awarding a maximum of 5 tokens to the target student at the end of each interval, contingent upon appropriate attending behviour. If the subject exhibits off-task behaviour on 3 occasions during the designated time period, only 2 poker chips are affixed to his desk. Utilise the same format for each of the 90-minute periods.

2. Reinforce, encourage and support the subject in his efforts to remain on-task.

3. Thirty minutes before the end of the school day, the subject counts the number of tokens he has accumulated. They are then exchanged for free-time. (One token reporesents 2 minutes of free-time). Classmates participate in selecting rewards to be enjoyed by the entire class. Points may be accumulated by the target student in order to "earn" an end-of-week video for the whole class.

4. Suggested reward structure for one day:

5 tokens	=	10 minutes	=	extra P.E. for everyone
10 tokens	=	20 minutes	=	games, a story, art, library
15 tokens	=	30 minutes	=	portion of a video, no homework

Reminders:

1. It is imperative that both subject and classmates understand what is considered appropriate on-task behaviour. The target student should also be kept informed as to why he "earned" or did not earn a certain number of tokens. Be consistent, clear in your intentions, supportive and fair.

2. Take care to see that the class does not exhibit hostile behaviour if/when the subject slips. Rather they should encourage him and offer additional support.

3. Keep the focus on the subject as the one who has the power to "earn" free-time rather than the responsibility to provide it!

Modifications to Plan: _____

_____

_____

Teacher's Comments and Observations: _____

_____

_____

_____

68 WAYS TO SAY "GOOD FOR YOU"

By Edward S. Kubany

EVERYONE KNOWS that a little praise goes a long way in any classroom. But "a little praise" really needs to be something more than the same few phrases repeated over and over ad nauseam. Your students need more than the traditional "Good", "Very good" and "Fine" if encouragement is in the cards. Here are some additional possibilities:

That's really nice.
Thank you very much.
Wow!
That's great.
I like the way you're working.
Keep up the good work.
Everyone's working so hard.
That's quite an improvement.
Much better.
Keep it up.
It's a pleasure to teach when you work like this.
Good job.
What neat work.
You really outdid yourself today.
This kind of work pleases me very much.
Congratulations. You only missed .....
That's right! Good for you.
Terrific.
I bet your Mom and Dad would be proud to see the job you did on this.
Beautiful.
I'm very proud of the way you worked (are working) today.
Excellent work.
I appreciate your help.
Very good. Why don't you show the class?
Thank you for (sitting down, being quiet, getting right down to work, etc.)
My goodness, how impressive!
You're on the right track now.
That's "A" work.
John is in line.
Mary is waiting quietly.
Dickie got right down to work.
Ann is paying attention.
It looks like you put a lot of work into this.
That's clever.
Very creative.
Very interesting.
Good thinking.
That's an interesting way of looking at it.
Now you've figured it out.
Clifford has it.
That's the right answer.
Now you've got the hang of it.
Exactly right.
Super.
Superior work.
That's a good point.
That's a very good observation.
That certainly is one way of looking at it.
That's an interesting point of view.
Thank you for raising your hand Charles. What is it?
Sherrie is really going to town.
You've got it now.
Out of sight.
Nice going.
Far out.

Marvelous.
Groovy.
Right on.
For sure.
That looks like it's going to be a great report.
You're a winner.
You make it look easy.
That's coming along nicely.
I like the way Bill (the class) has settled down.
Sharp.
I like the way Tom is working.
Attaboy, Attagirl.
Way to go.

* Dr. Kubany is a clinical psychologist with the Diamond Head Mental Health Center, Honolulu.

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Title of Thesis

THE MODIFICATION AND MAINTENANCE

OF ATTENDING BEHAVIOUR WITH

ELEMENTARY SCHOOL BOYS

Author [redacted]

(Signature)

DOLINA JOAN BERG

April 1987