LONG-TERM EFFECTS OF A
MORPHOPHONOLOGICAL AWARENESS TRAINING
PROGRAMME ON MOTIVATION FOR READING

by

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submitted in accordance with the requirements
for the degree of

DOCTOR OF LITERATURE AND PHILOSOPHY

in the subject

PSYCHOLOGY

at the

UNIVERSITY OF SOUTH AFRICA

PROMOTER: PROF. E. BEYERS

NOVEMBER 1993
STATEMENT

I declare that 'Long-term effects of a morphophonological awareness training programme on motivation for reading' is my own work and that all the sources that I have used or quoted have been indicated and acknowledged by means of complete references.

D.D. WINDELL

30/11/1995 DATE
DEDICATION

To my dear mother whose optimism and joy inspired me to
commence and complete this work.

Thank you for the legacy of your support and guidance.

I count myself blessed indeed to have a parent like you.

And in memory of my dear father who showed me that
patience and longsuffering does decorate the soul.
ACKNOWLEDGEMENTS

My sincere thanks and appreciation to:

* My promotor, Professor E. Beyers, for her expert guidance and motivation.

* The Natal Education Department for access to schools.

* The principal of Egerton Primary School, Mr W. Gould, for his infectious enthusiasm.

* A dedicated band of teachers for their insightful input: Mrs S. Gould, Mrs R. McKenzie, Mr C. Coetzee, Mrs J. Barnard, Miss A. Andersen, Mrs M. Pemuy and Mrs M-A Oosthuys.

* The ever-helpful school administrative personnel members: Mrs J. Coetzee, Mrs E. Brignoli and Mrs R. Burstein.

* The parents of the pupils, for caring.

* The pupils, for their happy cooperation and vast contributions to this work.
* My mother, Mrs Joyce Windell, for her optimism, assistance, unswerving confidence in me, and for her understanding smile.

* My colleague, Miss A. de Bruyn, for her help with the projective techniques.

* My typist, Mrs Julie Dyall, for her accuracy, professional script layout, and for deciphering my handwriting.

* The University of South Africa subject reference department, namely, Mr J. Kitching and Miss L. Brown, for their efficient and prompt service.

* My statistical consultant, Mr Jonathan Levin, of the Department of Statistics and Biometry, University of Natal, Pietermaritzburg, for helping me to compute, analyze and interpret the study results.

* Almighty God the Father, for insight, motivation, good health, grace ... and the gift of children.

The writer

LADYSMITH

NOVEMBER 1993
SUMMARY

Reading motivation is of paramount importance for future academic success. Yet numerous school pupils display gradual reluctance to read in advancing years, the outcomes of which compound drop-out rates. One of the possible reasons for this was already identified in the earlier research of the writer, namely, underdeveloped reading skills as a result of morphophonological awareness deficits. Morphophonological awareness is pupil consciousness of the sound units of spoken words which are vital to fluently decode and understand the sound elements of written text. Pupils identified in the previous study as potential at-risk readers capable of later reading difficulties indicated a lack of morphophonological awareness. To assist these pupils, a morphophonological awareness training (MAT) programme was constructed by the researcher and implemented by the class teacher for almost a year in tandem with the conventional reading instructional methods. Subsequent reading results unequivocally confirmed the quintessential role of morphophonological awareness for reading skill development, and moreover revealed the rehabilitating effects of the MAT programme for at-risk readers. However, it was not known at that time whether these effects could extend beyond the period of application and motivate future reading.

The aim of this current investigation was to extend the earlier findings by exploring the long-term effects of the MAT programme on reading skills and motivation over a period of three years. In the naturalistic classroom setting,
the study focused on the original sample members previously randomly assigned to experimental and control groups. Motivational phenomena are discussed in terms of attribution theory, in particular, and social-cognitive theory, in general. Standardized, projective, observational and interview methods revealed that, relative to control group members, experimentals exhibited more motivation to read. Other constructive long-term effects of the MAT programme were noted for general academic achievement, spelling, vocabulary, personality, attributions, emotions, pupil-teacher and pupil-parent interpersonal relationships which appear to consolidate the motivational effects. It is concluded that reading motivation requires at least two conditions to be met, namely, early identification of problem readers and early implementation of the teacher-friendly MAT programme.
OPSOMMING

Leesmotivering is van uiterste belang vir toekomstige akademiese sukses. Tog toon heelwat skoolleerlinge 'n geleidelike onwilligheid om te lees soos die jare vorder, met stygende skoolverfaling tot gevolg. Een van die moontlike redes hiervoor is reeds in die skrywer se vorige navorsing uitgewys, naamlik, onderontwikkelde leesvaardighede as gevolg van morfonomologiese bewustheidsstekortkominge. Morfonomologiese bewustheid is leerlingbesef van die klankeenhede van gesprok woorde wat nodig is vir die vloeiende dekodering en begrip van woorde van die geskrewe teks. Leerlinge, geidentifiseer in die vorige studie as potensiële swak leersers, het 'n morfonomologiese bewustheidsstekort getoon. Om hierdie skoliere by te staan, is 'n morfonomologiese bewustheidsopleidingsprogram (MBO) deur die navorser opgestel wat vir amper 'n jaar toegelykertyd met die konvensionele leesonderligmetodes deur die leerkrug geïmplementeer is. Daaropvolgende leesresultate het sonder twyfel die kwintessensiële rol van morfonomologiese bewustheid vir leesvaardigheidsontwikkeling bevestig, en het verder die rehabiliterende gevolge van die MBO-program vir risiko leersers openbaar. Of hierdie gevolge buite die implementeringstydperk kon funksioneer en toekomstige lees kon motiveer, was nog onbekend.

Die doelstelling van dié huidige ondersoek was om die vroeë bevindinge te vertel deur die langtermynnede van die MBO-program op leesvaardighede en motivering oor 'n tydperk van drie jaar na te vors. In dié
natuurlike klaskameromgewing met die studie op die oorspronklike steekproeefde gefokus wat voorheen vir die eksperimentele en kontrole groep op regverdige wyse geselekteer is. Motiveringsverskynsels is in terme van attribusie teorie, spesifiek, en sosiaal-kognitiewe teorie, oor die algemeen, bespreek. Gestandaardiseerde, projektieue, waarnemings - en onderhoudsmetodes het openbaar dat, in vergelyking met die kontrole groepledes, eksperimentele leerlinge meer leesmotivering getoon het. Ander konstruktiewe langtermynneffekte van die MBO-program is opgemerk: vir akademiese prestatie, spelling, woordeskat, persoonlikheid, attribusies, e mosies, leerling-leerkrag en leerling-ouer interpersoonlike verhoudings wat die motiverende effekte blyk te konsolideer. Daar word beewe dat leesmotivering minstens twee vereistes benodig, naamlik, vroeë identifikasie van probleemleiers en vroeë implementering van die leerkragvriendelike MBO-program.
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CHAPTER 1

PROBLEM ANALYSIS, RESEARCH AIMS AND CONCEPT

CLARIFICATION

1.1 INTRODUCTION

The increasing challenges facing daily living necessitates cultivating, already at a young age, the will to acquire numerous cognitive and physical skills. The initial acquisition of such skills, especially during the elementary stages, is usually greeted by all children with a great deal of happy enthusiasm. However, as these stages advance and the skills require repetition or increase in difficulty, numerous children begin to require various forms of motivation to help them sustain their initial keenness to learn. This is especially true in the educational sphere.

Schools are artificial settings. Here children are required to perform all kinds of activities which are unlikely to have occurred to them spontaneously. To therefore assist children to develop and sustain the learning of specific scholastic skills, various forms of encouragement (motivation) by adults is an unavoidable necessity. In education, the use of motivation is crucial for the adult as teacher and parent, and the child as pupil (Child, 1974). The task of teaching children new skills would be difficult indeed if teachers and parents were unaware of the motivating ways of encouraging learning. Motivation has
innumerable constructive implications for teachers when used in concert with their teaching regimen. The study of motivational strategies and effects is, therefore, a worthwhile research aim.

The enhancing properties of motivation for learning enjoys voluminous research coverage spanning many decades (Chapman & Feder, 1917; Frieze & Snyder, 1980; Geldard, 1963; Hooker, 1944; Maslow, 1943; McDougall, 1908; Vaughn & Disrens, 1938; Weiner, 1985, 1990; Woodworth, 1958). Yet, despite the advantages of motivation, not all school pupils experience a growing motivation to learn. Numerous difficulties or failures experienced at various stages of their school career are related to stunted motivational effects. As a result of these unfortunate experiences, pupils suffer in the educational process (Beery, 1975). School-related difficulties exhibited by pupils range from gross underachievement, test anxiety, to fear of failure and failure itself (Bimey, 1968). The harsh reality of persistent scholastic difficulty and failure leads not only to further accumulating academic deficits over the years, but also to grave motivational consequences (Palmer, Drummond, Tollison & Zinkgraf, 1982).

One area of education, in particular, known to be a source of suffering for many pupils, is reading. Difficulty in mastering this all-important scholastic skill is known to have many damaging side-effects which extend beyond the initial reading difficulties, and adversely affect the motivation to read (Butkowsky & Willows, 1980; Stevenson & Ellsworth, 1991). A lack of reading motivation is
a very serious scholastic condition: its eventual outcomes increase the inability to read and/or learn from books resulting in further failure experiences. Such negative associations with reading have the potential to further alter the belief system that children possess about themselves and the learning of school tasks. A considerable body of literature suggests that reading impaired pupils who are demotivated, can develop maladaptive achievement-related beliefs or attributions about reading and about themselves. These attributions not only inhibit further motivation for reading and learning but can also abort the remediation of reading difficulties (Cooley & Ayres, 1988; Licht, 1983; Marsh, 1984; Schunk & Cox, 1986). The motivational spin-off of problem reading has serious long-term scholastic and social implications for school pupils which could assume proportions of unfortunate permanence, if not timeously prevented or rectified.

1.2 PROBLEM ANALYSIS

1.2.1 Initial awareness of the problem

The researcher has, for the past eight years, become intensely aware of a problem in education: the escalating plight of unsuccessful readers, namely, their decreasing motivation for further reading and learning as opposed to the increased motivation of successful readers. Some reasons which have been shown to be strongly associated with reader demotivation are the inadequate early identification and the unsuccessful treatment of the problem. Mounting
evidence supports this awareness of the researcher (Blachman, 1983; Fox & Routh, 1975; Helfgott, 1976; Lenchner, Gerber & Routh, 1990; McMichael, 1979; Tunmer & Nesdaie, 1985; Vellutino & Scanlon, 1987). An empirical extension of this initial awareness by the researcher in 1989 indicated that the identification and treatment of problem readers can be more effective if conducted from the commencement of the school career of the child before the emergence of reading difficulties (Windell, 1990).

An additional product of this research was the construction of a pre-reading morphophonological awareness training (MAT) programme. This programme fosters an awareness in pupils of the structure of their language. It does not focus on the exclusive visual identification of letters since such an approach has been shown to be ineffective for some pupils. Numerous investigators have agreed that even pupils who can visually identify letters of the alphabet by the end of their first year of schooling, can still experience reading difficulties (Doehring, 1968; Kolers, 1972; Liberman, Shankweiler, Orlando, Harris & Berti, 1971). Reading problem prevention, avoidance or rectification of existing difficulties, needs to move beyond the identification of letters (Liberman, 1973). Learning to read requires mastering a process which maps the letters of the alphabet to units of speech. The MAT programme facilitates such mastery. It emphasizes the intensive teaching of the phonemic structure of the word even before the introduction of letter forms. In the previous investigation of the researcher, groups of elementary school pupils in class one and class two, identified at the beginning of 1989 as deficient in
morphophonological awareness, were exposed to the MAT programme in a naturalistic classroom setting at their school. This programme comprises instructional elements (named in chapter 4) that have been extensively and convincingly validated in the past and present (Arnvist, 1992; Bradley & Bryant, 1983; Coleman, 1970; Olofsson & Lundberg, 1983; Peterson & Haines, 1992; Williams, 1980). The MAT programme has, three years ago, demonstrated significant reading performance gains after an application period spanning 35 weeks for 30 minutes each day (Windell, 1990).

The positive outcomes of the MAT programme, during and soon after its implementation, indicated the improved reading skills and heightened motivation for reading of potential and existing problem readers. However, as with other programmes of this nature, the results, while optimistic, still remained inconclusive. More research is necessary (Williams, 1980).

There is limited documentation on the persistence or maintenance of the effects of morphophonological awareness training programmes on pupils as they grow older (Lenchner et al., 1990). The researcher became aware that this new instructional tool, the MAT programme, required further research regarding its long-term effects, the outcome of which would validate or invalidate its usefulness for reading skill acquisition and motivation for reading. The MAT programme has potential as a facilitator in the solution of the research and educational problem: it might develop and/or improve motivation for reading, in particular, and learning, in general.
1.2.2 Exploration of the problem

In further exploring the problem of ebbing motivation known to result from impaired reading performance, the researcher, subsequent to the MAT programme study of 1989, conducted discussions with the remaining members of the original samples. This was an attempt at isolating possible long-range positive effects of the MAT programme which could be probed further, the eventual outcome of which might provide some answers on how to circumvent future demotivation.

Common elements in the discourse of these samples began to emerge. It appeared as if these elements, categorized as prior experiences, attributions and emotions, could underlie motivation and demotivation. This finding consequently guided the general course of this research. Furthermore, from these pilot discussions, a great deal of qualitative and yet to be quantified data accumulated out of which a research programme began to crystallize.

Prior experiences can motivate and demotivate continuance of reading. The MAT programme had previously provided the experimental groups with fun-filled and entertaining group experiences and improved reading skills. It is to be expected that these readers were not only motivated for further reading but that their emotions and attributions about their reading would develop favourably.
The evolving research problem is to demonstrate that the MAT programme has constructional effects which:

- extend beyond the present;
- continue to improve or develop reading skills;
- motivate future reading;
- develop or enhance motivating cognitions and pleasant emotional outcomes.

The MAT programme has indicated great potential in not only developing or improving an important scholastic skill like reading, but also in benefitting the entire pupil. There are encouraging signs that the MAT programme has undiscovered potential and merit for solving both the current research problem and future educational problems. When implemented at the outset of a pupil's school career, the MAT seems to have the potential to sustain reading motivation via probable cognitive and emotional spin-offs.

1.2.3 Formulation of the problem

The problem facing education today is that many pupils do not want to read or avoid reading owing to previous and existing discomforting reading experiences. Attempts to assist such pupils have met with limited success owing to delayed remedial action. A solution to such a problem of potentially serious futuristic magnitude for a pupil would be to prevent or arrest it. It is
from such a preventative perspective that the MAT programme research emerged.

However, the effects of the MAT programme beyond the year of initial application are still unknown and require further probing. For the sake of the initial pupils and possible future pupils exposed to this programme, it is necessary to determine its long-term influence, if any, on reading performance and motivation. It is especially vital to determine the effects of the MAT programme in the more advanced years of education when reading motivation determines the thrust of the futuristic outlook of the pupil on school achievement. Unless the MAT programme is further researched, it will become one more educational tool that has made a short-term appearance and impact on reading performance before evaporating into oblivion. The continued discussions with and the reading testing of the original samples have suggested that the MAT has a potential for improving the motivation for reading. Since there is a dire need for techniques or programmes for the demotivated reader, the possible effects of the MAT programme as a powerful motivational tool cannot be ignored.

Studies of the long-term effects of morphophonological awareness training programmes are scarce. In addition to this, these investigations have mostly focused on the advantages of such programmes on reading skills, *per se*, and not on any positive spin-offs like motivational issues. One investigation demonstrated the short-term effects of a phonemic awareness training
programme, yet the results indicated the need for a longer-term study (Olofsson & Lundberg, 1983). Gittelman and Felingold (1963) demonstrated advantages of a long-term study on reading remediation. Such investigations could isolate additional factors which would be difficult to do over a shorter period of time. Simm (1986) found beneficial long-term effects of the Cheshire Remedial Service. These studies lend much credence to the advantages of long-term investigation of, or assistance with, reading problems. However, they have not focused on the issue of motivation for reading, as recommended by Cox (1987). The variable of motivation adds a new and vital dimension of potential durability of effects of the MAT programme.

1.3 STATEMENT OF THE PROBLEM

What are the long-term effects of a morphophonological awareness training programme on motivation for reading?

This problem statement is an extension of the one in the previous research (Windell, 1990). The statement suggests a relationship between two variables, namely, the MAT programme implemented previously (the independent variable), and the motivation to read (the dependent variable). Furthermore, an attempt at an empirical solution to this new problem is implied: the long-term treatment outcome of the MAT programme on reading motivation (and achievement) still needs to be investigated, as generated by the data of the earlier research. The problem statement implies inclusion of
the same sample members of the 1989 research for purposes of historical continuity and in order to observe the effects of the MAT programme over a longer period of time on the same pupils. In this way, a far broader perspective of the usefulness of this programme for reading motivation can be explored.

1.4 HYPOTHESES

The following hypotheses epitomize the steps to be taken in measuring the dependent-independent variable relationship. Additional hypotheses generated by the theories chosen for this investigation are formulated in chapter 2.

1.4.1 Hypothesis one

Pupils exposed to the MAT programme in 1989 will, during three subsequent years, achieve significantly higher reading achievement scores than the pupils not exposed to this programme.

1.4.2 Hypothesis two

Pupils exposed to the MAT programme in 1989 will, three years later, score significantly higher in reading-related subjects than the control group.
1.4.3 **Hypothesis three**

Pupils exposed to the MAT programme in 1989 will, over three years, voluntarily read more library books than the control group.

1.5 **SIGNIFICANCE OF THE STUDY**

This study is significant in that it differs from previous research in several ways. It creates potential for:

1.5.1 **Research extension**

The 1989 investigation is to be extended beyond the MAT programme effects on reading performance only. It now includes the effects of this programme not only on performance but also on reading motivation. Other studies on the effects of morphophonological awareness training programmes focused only on reading achievement and are therefore limited in their conclusions about the sustained effects of these programmes.

1.5.2 **Long-term investigation**

The current study spans a period of three years (1990-1992). Other studies on morphophonological awareness training programmes and reading achievement are based on short-term projects and are inconclusive (Williams, 1980). Several researchers encourage longitudinal studies since, in many
cases, the dramatic improvements demonstrated in the short-term tend to fade away over time. Improvements cannot be observed and documented in short-term studies (Collins, 1961; Freyman, 1980; Lawrence, 1973).

1.5.3 Validation

The MAT programme is newly constructed. Its 1989 implementation in actual classrooms indicated its great potential as a future educational tool. However, nothing is known about its effects beyond 1989. More input about the impact of this programme is required to validate its viability as an invaluable instrument for both the teacher and pupil. Previous morphophonological awareness training programmes have not been validated in this way over a long period of time in a naturalistic setting.

1.5.4 Developmental study

The original samples will be monitored subsequent to the 1989 research. In essence, each pupil will have generated data within a four year period (1989–1992). This creates the opportunity to study developmental growth in reading from the Junior Primary phase to the Senior Primary phase. Cognitive and emotional trends can also be investigated during this time. Many previous studies of morphophonological awareness development have employed samples of different age groups and have deduced morphophonological awareness training effects on reading in this way (Calfee, Chapman &
Venezky, 1972; Fox & Routh, 1975; Liberman, Shankweiler, Fischer & Carter, 1974). Using the same samples for four years rather than four separate age group samples in one year places the present research project at an advantage over previous studies.

1.5.5 Prevention and early rectification of reading impairment

This investigation probes the effects of the MAT programme on younger pupils. This approach has several benefits since younger children are easier to change (Rosenthal & Jacobson, 1968). Younger pupils are less likely to have well established reading problems or demotivation for reading. The class one samples of the 1989 investigation were exposed to the MAT programme before reading difficulties could develop. Other studies of morphophonological awareness training focused on much older school children who already displayed reading problems (Perfetti, Beck, Bell & Hughes, 1987; Wallach & Wallach, 1976).

1.5.6 Realism

Reading difficulties have not been studied much outside of the laboratory (Hewstone & Antaki, 1988; Pressland, 1991). This present investigation takes place in the same school as the 1989 study. Reading motivation is now investigated in a naturalistic setting: the classroom and the actualities of educational practice. The advantage of this is that realism strengthens the
variables (Kerlinger, 1975). The natural setting of the present research has every potential of contributing to the external validity of the MAT programme and the research design.

1.5.7 Experimental control

This field experiment was preceded by controlled conditions as the classroom situation permitted. Randomization criteria was met by breaking up existing classes and randomly reassigning pupils and teachers to experimental and control condition classrooms. In this way an attempt was made to approximate the criteria of the more controlled laboratory conditions. The criteria of control was therefore theoretically met even in the real-life environment. Prior naturalistic studies had to work with intact classes and randomization of pupils and teachers was not always entirely possible.

1.5.8 Field experiment

This type of study within a naturalistic setting is well suited to systematic observation of phenomena in real-life settings. The realism of the situations in which data are collected enables the testing of theory and the solution of the research problem (Kerlinger, 1975). This field experiment is an obtrusive research operation. It intrudes into the normal course of reading instruction by means of the MAT programme manipulation in 1989 and by controlling aspects of the classroom environment in which pupils behave. In this way the
real-life setting of the classroom was deliberately modified resulting in a field experiment strategy (Manstead & Semin, 1988).

1.5.9 Parental approval

Both the experimental and control groups stood to benefit from the outcome of this research. The experimental groups were exposed to the MAT programme and the Ginn reading scheme was administered to the control groups. Both treatment groups were receiving extra reading instruction in addition to the usual lessons. Parents felt that their children would be gaining by the extra tuition irrespective of it being the MAT programme or the Ginn reading scheme. Parental agreement for their children to participate made randomization possible and acceptable.

1.5.10 Pupil withdrawal prevention or reduction

Many impaired readers are withdrawn from their own classrooms approximately twice weekly for 30 minutes per session and are placed in another venue in order to be assisted by a specialist teacher. Sewell (1982) offers the opinion that removing children from a classroom to receive part-time assistance offers short-term benefits. Own classroom and group support was shown to be more effective than withdrawal. The early management of reading difficulties by the MAT programme creates every potential to prevent or reduce the instances of remedial class withdrawals.
1.5.11 Global reading problem management

To simply attempt to remediate a reading skill difficulty while disregarding its harmful demotivational side-effects might prove a fruitless exercise (Torgesen & Licht, 1983). This current study counteracts such an approach by considering reading performance and motivational factors, like attributions and emotions, simultaneously.

1.5.12 Prediction

This study attempts to demonstrate that it is possible to predict sustained reading success for those pupils exposed to the MAT programme.

1.6 FIELD OF STUDY

1.6.1 General field of study

In this investigation, the general field of study is Caucasian English speaking readers of the Egerton Primary School in Ladysmith, Natal province. These pupils formed the sample groups of the 1989 investigation when they were in the Junior Primary phase. Furthermore, this study will involve the teachers and parents of these pupils over a three year period (1990-1992).
1.6.2 Specific field of study

The specific field of study will be devoted to the determination of the long-term effects of the MAT programme on motivation for reading. The pupil, teacher and parent attributions for reading performance and motivation will also be receiving select focus.

1.7 RESEARCH AIMS

1.7.1 General aims

The general research aims of this investigation will be an attempt at:

- extending the findings of the 1989 study into the future;

- promoting the MAT programme not only as a reading skill facilitator for potential problem readers but also as an educational motivator for reading;

- continuing to expand the previously obtained knowledge/data base of each sample member to create better readers;

- contributing to educational practice by increasing the knowledge base of motivation in reading;

- filling gaps in existing psychological knowledge.
1.7.2 Specific aims

The specific research aims are:

- identifying the long-term effects of the MAT programme on motivation for reading;

- obtaining validational information which could further indicate the utility of this particular MAT programme for the beginning reader;

- indicating that preventative classroom management of potential or existing reading impairment holds numerous futuristic benefits, especially regarding attributions, emotions, and overall motivation.

1.8 CONCEPT CLARIFICATION

1.8.1 Morphophonological awareness

Morphophonological awareness is pupil consciousness of the structure (morpho-) of sound qualities (-phono-) of a speech stream or a single spoken word by means of breaking up (analysis/segmentation) and putting together (synthesis/blending) (Crowder, 1982; Ehri, Wilce & Taylor, 1987; Wagner & Torgesen, 1987). These spoken word activities/games and the resultant skills of analysis and synthesis can be successfully applied to the written word when reading.
1.8.2 **The MAT programme**

The MAT programme comprises spoken word games which stress analysis and synthesis skills. Also included in this programme are numerous application exercises showing when the analysis and synthesis skills can be used to decode written words. A vast body of research, past and current, has demonstrated the positive remedial advantages of morphophonological awareness training for impaired readers (Barron, Golden, Seldon & Tait, 1992; Edvell, 1991; Engelmann, 1969; Lindamood & Lindamood, 1971; Rosner, 1974; Venezky, 1976; Williams, 1979).

1.8.3 **Motivation**

Motivation is generally defined by many researchers as an internal spring of action which generates a human being to satisfy a need (Child, 1974; Maslow, 1943). Instincts, drives and the state of arousal of a person underlies motivation. In the educational setting, children have a need for successful performance at all school tasks to maintain social esteem and are motivated by this need. Other theorists regard motivation from a cognitive perspective: the prime source of action is a function of the thoughts of a person (Ames & Ames, 1984; Gerber, 1985; Weiner, 1990). Some sources of thoughts which can instigate action are attributions, self-evaluations and emotional states. The present research adopts the cognitive view of motivation as determined by attributions and resultant emotional states.
1.8.4 **Attributions**

Attributions are dispositional judgements that people make about themselves or others based on behaviour they experience or observe (Cushner & Trifonovitch, 1991; Ross, 1977). Judgements mostly revolve around being competent, educated or naive. Seen differently, attributions are sets of beliefs, schemata or presuppositions that individuals possess as to how various causes and their effects are related (Kelly & Michela, 1980; Wong & Weiner, 1981). Furthermore, attributions, depending on the interpretation of an event as a success or failure, are related to motivation (Weiner, 1988).

1.8.5 **Attribution research**

Attribution research is based on attribution theory and involves the systematic assessment by verbal report of only the antecedents of specific judgements or attributions of a person. The research does not proceed beyond the antecedents (Antaki, 1982; Kelly & Michela, 1980). Traditional formulations of attribution theory do not say much about the consequences of attributions.

1.8.6 **Attributional research**

Attributional research is based on attributional theories and advances a step further by systematically assessing the consequences of attributions (Antaki, 1982; Kelly & Michela, 1980). This research assesses the manipulation of perceived causes and measurement of their effects on behaviour and
feelings. The present investigation is both of an attribution and attributional research nature: antecedents and consequences of attributions are investigated and considered.

1.8.7 Class one and class two pupils

Children in the province of Natal are designated as class one pupils in their first year of schooling. Upon promotion, these children are subsequently referred to as class two pupils.

1.8.3 Reading

For the purpose of this investigation, reading will be viewed as a complex psychological process and function which depends on the ability to associate patterns of visual symbols with sound and meaning. The general set of skills required by a reader in associating visual units with meanings includes the ability in segmenting phonetic strings into their underlying phonemic constituents, and associating phonemes with their corresponding graphemes. Other than these rudimentary skills, reading is thought to be associated with competence in general linguistic and cognitive abilities as well as with basic attentional and motivational factors (Ownby, 1985). However, the relationship between language and reading is not clearcut, but rather complex and obscure (Pirozollo, Campanella, Christensen & Lawson-Kerr, 1981).
1.9 METHOD OF RESEARCH

The method of research will involve a field experiment which takes place within the familiar surrounds of a school, in general, and classrooms, in particular. The extent of the longitudinal effects of the MAT programme on the motivation for reading will be monitored from 1990 until the end of 1992. Members of the initial 1989 research samples will undergo annual group reading tests. Interviews are also to be conducted not only with these sample members, but also with their class teachers and parents to provide a broader perspective of a pupil's cognitive processes underlying reading motivation and academic motivation.

1.10 RESEARCH PROGRAMME

The programme of research will be structured according to the undermentioned chapter format.

In chapter two, social cognitive theory (attributions) will be critically reviewed, and its implications for the research design of this study will be stated.

Chapter 3 will critically survey recent literature of research relating to the potential role of the MAT programme, attributions and emotions for reading motivation.
The research design for this study will be discussed in chapter 4. The sample, measuring instruments, data acquisition and analysis techniques will be outlined.

In chapter 5 the results and their significance for the hypotheses of this investigation will be presented.

Finally, as a conclusion, a critical assessment of the results will be given in chapter 6 in order to attempt to determine their contribution to the enhancement of the research problem and psychological knowledge.
CHAPTER 2

SOCIAL COGNITION THEORIES OF MOTIVATION AND IMPLICATIONS FOR RESEARCH DESIGN

2.1 INTRODUCTION

This chapter will attempt to examine relevant social cognition theories of achievement motivation in education, and to indicate how they guide the research design of this investigation.

2.2 SOCIAL COGNITION PSYCHOLOGY

Researchers in general, and educationists in particular, agree that motivation is a major variable affecting the classroom performance of school pupils. Motivational variables are important in understanding, controlling, generating and predicting classroom behaviour. Numerous theories have emerged which attempt to explain how motivation develops and can be sustained. Unfortunately, these theories have not been extended much to educational settings and were based largely on phenomena studied under laboratory or out-of-school conditions (Maehr & Sjogren, 1971).

Nevertheless, some motivational theories have evolved postulates and hypotheses that are relevant to the teaching-learning process. Prominent
among those to be reviewed for the purposes of this study are found in social
cognition psychology.

2.2.1 Theoretical emphasis

There is a growing field in psychology that concerns itself with social
cognition. Social cognition is the study of how and why people make sense
of themselves and other people (Fiske & Taylor, 1984; Hewstone, 1983). The
emphasis is on ordinary people, their perception about themselves and other
people. How and why persons think and perceive the way they do is the area
of concern, and not the accuracy of those thoughts and perception. Social
cognition practitioners argue that much of our behaviour can be understood
and influenced by understanding how and why the world is cognitively
represented to us (Weiner, 1983).

2.2.2 Models

The study of social cognition leans heavily on the models of cognitive and
social psychology (Fiske & Taylor, 1984).
2.2.2.1 Cognitive psychology

Models of cognitive psychology are relevant for several reasons. They:

- describe mechanisms of thinking. Incoming stimuli (information from the senses, memory, language) are received, selected, organized and processed by a psychic mechanism into belief systems. These systems construct and store representations of reality, retrieve it, interpret the external environment, select plans based on all of this knowledge and implement these plans (Hewes & Planalp, 1987; Leyens & Codol, 1988; Marsh, Caims, Relich, Barnes & Debus, 1984).

- apply to a wide variety of areas of human behaviour. The greater the range of phenomena that is explained, the more powerful the theories are said to be (Chaffee & Berger, 1987).

- adapt easily to explain social behaviour (Fiske & Taylor, 1984);

- predict motivation. Cognitions help determine what a person will do next. However, knowing what to do does not necessarily mean that knowledge is acted upon. That is why motivation is necessary for putting cognition into action.
real-life setting of the classroom was deliberately modified resulting in a field experiment strategy (Manstead & Semin, 1988).

1.5.9 Parental approval

Both the experimental and control groups stood to benefit from the outcome of this research. The experimental groups were exposed to the MAT programme and the Ginn reading scheme was administered to the control groups. Both treatment groups were receiving extra reading instruction in addition to the usual lessons. Parents felt that their children would be gaining by the extra tuition irrespective of it being the MAT programme or the Ginn reading scheme. Parental agreement for their children to participate made randomization possible and acceptable.

1.5.10 Pupil withdrawal prevention or reduction

Many impaired readers are withdrawn from their own classrooms approximately twice weekly for 30 minutes per session and are placed in another venue in order to be assisted by a specialist teacher. Sewell (1982) offers the opinion that removing children from a classroom to receive part-time assistance offers short-term benefits. Own classroom and group support was shown to be more effective than withdrawal. The early management of reading difficulties by the MAT programme creates every potential to prevent or reduce the instances of remedial class withdrawals.
1.5.11 Global reading problem management

To simply attempt to remediate a reading skill difficulty while disregarding its harmful demotivational side-effects might prove a fruitless exercise (Torgesen & Licht, 1983). This current study counteracts such an approach by considering reading performance and motivational factors, like attributions and emotions, simultaneously.

1.5.12 Prediction

This study attempts to demonstrate that it is possible to predict sustained reading success for those pupils exposed to the MAT programme.

1.6 FIELD OF STUDY

1.6.1 General field of study

In this investigation, the general field of study is Caucasian English speaking readers of the Egerlon Primary School in Ladysmith, Natal province. These pupils formed the sample groups of the 1989 investigation when they were in the Junior Primary phase. Furthermore, this study will involve the teachers and parents of these pupils over a three year period (1990-1992).
1.6.2 **Specific field of study**

The specific field of study will be devoted to the determination of the long-term effects of the MAT programme on motivation for reading. The pupil, teacher and parent attributions for reading performance and motivation will also be receiving select focus.

1.7 **RESEARCH AIMS**

1.7.1 **General aims**

The general research aims of this investigation will be an attempt at:

- extending the findings of the 1989 study into the future;

- promoting the MAT programme not only as a reading skill facilitator for potential problem readers but also as an educational motivator for reading;

- continuing to expand the previously obtained knowledge/data base of each sample member to create better readers;

- contributing to educational practice by increasing the knowledge base of motivation in reading;

- filling gaps in existing psychological knowledge.
1.7.2 Specific aims

The specific research aims are:

- identifying the long-term effects of the MAT programme on motivation for reading;

- obtaining validation information which could further indicate the utility of this particular MAT programme for the beginning reader;

- indicating that preventative classroom management of potential or existing reading impairment holds numerous futuristic benefits, especially regarding attributions, emotions, and overall motivation.

1.8 CONCEPT CLARIFICATION

1.8.1 Morphophonological awareness

Morphophonological awareness is pupil consciousness of the structure (morpho-) of sound qualities (-phono-) of a speech stream or a single spoken word by means of breaking up (analysis/segmentation) and putting together (synthesis/blending) (Crowder, 1982; Ehri, Wilce & Taylor, 1987; Wagner & Torgesen, 1987). These spoken word activities/games and the resultant skills of analysis and synthesis can be successfully applied to the written word when reading.
1.8.2 The MAT programme

The MAT programme comprises spoken word games which stress analysis and synthesis skills. Also included in this programme are numerous application exercises showing when the analysis and synthesis skills can be used to decode written words. A vast body of research, past and current, has demonstrated the positive remedial advantages of morphophonological awareness training for impaired readers (Barron, Golden, Seldon & Tail, 1992; Edveldt, 1991; Engelmann, 1969; Lindamood & Lindamood, 1971; Rosner, 1974; Venezky, 1976; Williams, 1979).

1.8.3 Motivation

Motivation is generally defined by many researchers as an internal spring of action which generates a human being to satisfy a need (Child, 1974; Maslow, 1943). Instincts, drives and the state of arousal of a person underlies motivation. In the educational setting, children have a need for successful performance at all school tasks to maintain social esteem and are motivated by this need. Other theorists regard motivation from a cognitive perspective: the prime source of action is a function of the thoughts of a person (Ames & Ames, 1984; Gerber, 1985; Weiner, 1990). Some sources of thoughts which can instigate action are attributions, self-evaluations and emotional states. The present research adopts the cognitive view of motivation as determined by attributions and resultant emotional states.
1.8.4 Attributions

Attributions are dispositional judgements that people make about themselves or others based on behaviour they experience or observe (Cushner & Trifonovitch, 1991; Ross, 1977). Judgements mostly revolve around being competent, educated or naive. Seen differently, attributions are sets of beliefs, schemata or presuppositions that individuals possess as to how various causes and their effects are related (Kelly & Michela, 1980; Wong & Weiner, 1981). Furthermore, attributions, depending on the interpretation of an event as a success or failure, are related to motivation (Weiner, 1988).

1.8.5 Attribution research

Attribution research is based on attribution theory and involves the systematic assessment by verbal report of only the antecedents of specific judgements or attributions of a person. The research does not proceed beyond the antecedents (Antaki, 1982; Kelly & Michela, 1980). Traditional formulations of attribution theory do not say much about the consequences of attributions.

1.8.6 Attributional research

Attributional research is based on attributional theories and advances a step further by systematically assessing the consequences of attributions (Antaki, 1982; Kelly & Michela, 1980). This research assesses the manipulation of perceived causes and measurement of their effects on behaviour and
feelings. The present investigation is both of an attribution and attributional research nature: antecedents and consequences of attributions are investigated and considered.

1.8.7 Class one and class two pupils

Children in the province of Natal are designated as class one pupils in their first year of schooling. Upon promotion, these children are subsequently referred to as class two pupils.

1.8.8 Reading

For the purpose of this investigation, reading will be viewed as a complex psychological process and function which depends on the ability to associate patterns of visual symbols with sound and meaning. The general set of skills required by a reader in associating visual units with meanings includes the ability in segmenting phonetic strings into their underlying phonemic constituents, and associating phonemes with their corresponding graphemes. Other than these rudimentary skills, reading is thought to be associated with competence in general linguistic and cognitive abilities as well as with basic attentional and motivational factors (Ownby, 1985). However, the relationship between language and reading is not clearcut, but rather complex and obscure (Pirrozzo, Campanella, Christensen & Lawson-Kerr, 1981).
1.9 METHOD OF RESEARCH

The method of research will involve a field experiment which takes place within the familiar surrounds of a school, in general, and classrooms, in particular. The extent of the longitudinal effects of the MAT programme on the motivation for reading will be monitored from 1990 until the end of 1992. Members of the initial 1989 research samples will undergo annual group reading tests. Interviews are also to be conducted not only with these sample members, but also with their class teachers and parents to provide a broader perspective of a pupil's cognitive processes underlying reading motivation and academic motivation.

1.10 RESEARCH PROGRAMME

The programme of research will be structured according to the undermentioned chapter format.

In chapter two, social cognitive theory (attributions) will be critically reviewed, and its implications for the research design of this study will be stated.

Chapter 3 will critically survey recent literature of research relating to the potential role of the MAT programme, attributions and emotions for reading motivation.
The research design for this study will be discussed in chapter 4. The sample, measuring instruments, data acquisition and analysis techniques will be outlined.

In chapter 5 the results and their significance for the hypotheses of this investigation will be presented.

Finally, as a conclusion, a critical assessment of the results will be given in chapter 6 in order to attempt to determine their contribution to the enhancement of the research problem and psychological knowledge.
CHAPTER 2

SOCIAL COGNITION THEORIES OF MOTIVATION AND
IMPLICATIONS FOR RESEARCH DESIGN

2.1 INTRODUCTION

This chapter will attempt to examine relevant social cognition theories of
achievement motivation in education, and to indicate how they guide the
research design of this investigation.

2.2 SOCIAL COGNITION PSYCHOLOGY

Researchers in general, and educationists in particular, agree that motivation
is a major variable affecting the classroom performance of school pupils.
Motivational variables are important in understanding, controlling, generating
and predicting classroom behaviour. Numerous theories have emerged which
attempt to explain how motivation develops and can be sustained.
Unfortunately, these theories have not been extended much to educational
settings and were based largely on phenomena studied under laboratory or
out-of-school conditions (Maehr & Sjogren, 1971).

Nevertheless, some motivational theories have evolved postulates and
hypotheses that are relevant to the teaching-learning process. Prominent
among those to be reviewed for the purposes of this study are found in social
cognition psychology.

2.2.1 Theoretical emphasis

There is a growing field in psychology that concerns itself with social
cognition. Social cognition is the study of how and why people make sense
of themselves and other people (Fiske & Taylor, 1984; Hewstone, 1983). The
emphasis is on ordinary people, their perception about themselves and other
people. How and why persons think and perceive the way they do is the area
of concern, and not the accuracy of those thoughts and perception. Social
cognition practitioners argue that much of our behaviour can be understood
and influenced by understanding how and why the world is cognitively
represented to us (Weiner, 1983).

2.2.2 Models

The study of social cognition leans heavily on the models of cognitive and
social psychology (Fiske & Taylor, 1984).
2.2.2.1 Cognitive psychology

Models of cognitive psychology are relevant for several reasons. They:

- describe mechanisms of thinking. Incoming stimuli (information from the senses, memory, language) are received, selected, organized and processed by a psychic mechanism into belief systems. These systems construct and store representations of reality, retrieve it, interpret the external environment, select plans based on all of this knowledge and implement these plans (Hewes & Planalp, 1987; Leyens & Codol, 1988; Marsh, Caims, Retich, Barnes & Debus, 1984).

- apply to a wide variety of areas of human behaviour. The greater the range of phenomena that is explained, the more powerful the theories are said to be (Chaffee & Berger, 1987).

- adapt easily to explain social behaviour (Fiske & Taylor, 1984);

- predict motivation. Cognitions help determine what a person will do next. However, knowing what to do does not necessarily mean that knowledge is acted upon. That is why motivation is necessary for putting cognition into action.
2.2.2.2 Social psychology

Social psychology models are useful for several reasons. They:

- consistently depend upon cognitive concepts. Social behaviour is explained and interpreted by some models as a function of the perceptions that people have of the world (Fiske & Taylor, 1984);

- view the outcome of a social perception in cognitive terms;

- consider individuals as thinking organisms.

The study of social cognition, although made up of cognitive and social models, does not rely on any one theory. Rather, it shares common features with the cognitive and social models by stressing that the causes of social interaction are understood better via the perceptions of people and that the outcome of social interaction is thoughts, feelings and action.

In this present investigation, the social cognition perspective will be adopted and emphasized because it enables the study of the causal perceptions (cognition) of a school community (social) comprising pupils, teachers, parents, and how these perceptions relate to reading motivation among these school pupils. The school community perceptions about the rules, routines and norms of the school will not directly concern this investigation (Lancy, 1979). The component that will receive prominence involves human
perceptions of causes that can influence the various outcomes of achievement observed in the school and home situation (Frieze & Snyder, 1980). A social cognition emphasis, therefore, encourages researchers and teachers to examine the functions and effects of incoming stimuli with regards to motivation for reading.

This study will focus on one of the many elements that constitutes social cognition, namely, attributions. The emphasis on attributions is central to social cognition because it stresses people as social perceivers engaged in seeking the causes of their perceptions or social events (Fiske & Taylor, 1984). Research on attributions has led to a collection of diverse theoretical contributions known as attribution theory. There are so many attributional models but not all of them are relevant to the research problem. Only those that relate better to the understanding of the empirical results were selected.

2.3 Attribution(Al) Theory

Explanations of the origins or causes of human behaviour have received voluminous coverage by philosophers, anthropologists and sociologists (Laljee, 1982). Philosophy tends to focus mainly on the nature of the explanations, whereas anthropology and sociology advance various perspectives of those explanations that exist in different cultures and societies. Psychology has previously drawn on a great deal of explanations about the causes of behaviour from these other disciplines. However, over
the past three decades psychology has begun to seek and examine judgements and perceptions of causes provided not only by scientists and researchers but also by the layperson or man in the street (Heider, 1958; Kelley, 1967).

2.3.1 Definition

Arising from social psychology, attribution theory\(^1\) revolves around an individual's constant search for the causes of his/her success or failure. It is identified by a study of the social perceptions of the causes and consequences of behaviour (Kelley & Michela, 1980). The focus is on a person's perceptions of causality rather than actual reality. Attribution theory looks at the way the social perceiver attributes behaviour to discrete causes (Hewstone & Antaki, 1988). Attribution theorists examine how causal attributions are reached: what information is gathered from the social environment and how and why it is combined or activated to form an attribution (Covington, 1983; Fiske & Taylor, 1984; Weiner, 1980). The social perceiver asks or is asked what, why, how, types of questions in an attempt to obtain social explanations of the causes and consequences of events or judgements.

\(^1\)On p.20, a distinction has been made between attribution theory and attributional theory. When referring to the general notion of theories of attribution the term 'attribution theory' will be used.
Questions of social and self-perception are answered, not by the researcher, but by the subjects themselves. The social perceiver is viewed as a naive scientist who accomplishes many of the same tasks that the formal scientist conducts using similar methods (Fiske & Taylor, 1984). However, some biases and errors do operate in the attributional process owing to limitations on cognitive processes or motivational factors (Jones & Harris, 1967; Snyder & Jones, 1974; Weary, 1981; Zuckerman, 1979). Nevertheless, researchers generally acknowledge that the social perceiver can accurately sift through relevant information in a logical manner to reach causal conclusions about events.

The term 'attribution' has come to acquire a fairly general and wide-ranging meaning that includes far more than reference to a simplifying procedure by which one assigns (attributes) a specific event or disposition to a subset of possible causes (Rogers, 1982; Ross, 1977). It can also mean a judgement about the causal or situational factor(s). An attribution varies according to the characteristics of a situation as well as to individual differences in the way people respond in a situation (Marsh et al., 1984). Attribution theories do not directly define an attribution (Hamilton, 1980). The closest direct theoretical statement of an attribution is provided in the subtitle of a paper by Jones, Kanouse, Kelley, Nisbett, Valins and Weiner (1972), namely, 'Attribution: perceiving the causes of behavior'.
Attribution theory is not yet a fully developed theory (Antaki, 1982; Beery, 1975). There are a number of theoretical models that constitute attribution theory. Reference needs to be made to many attributional models to attempt to understand what attribution theory represents. The major expositions of attribution theory (Heider, 1958; Kelley, 1967; Weiner, 1988) do not constitute a theory in the formal sense but rather a conceptual framework comprising loosely structured propositions (Hewstone, 1983). The strong thread that binds these theoretical propositions is that all explanations can be traced to some cause: people look for the cause of behaviour and events (Antaki, 1982).

2.3.2 Motivation

Motivation is related to the conscious evaluation of events and behaviour which can generate further behaviour (Gerber, 1985). In attribution theory it is assumed that thoughts and perceptions guide behaviour (Weiner, 1988). Evaluations about the causes of an event or behaviour and its outcome can motivate or guide future actions, expectancies and task performances.

Evaluations enable persons to clarify events and experiences which, in turn, creates personal meaning. This in itself can motivate further action for similar experiences and events (Covington, 1983). Attribution theory ascribes motivational significance to social perceptions of causal antecedents and outcomes. It is assumed that the manner in which people attribute the causes
of events and experiences is an important determinant of motivation or motivational characteristics (Kukla, 1972). The focus of attribution theory in this present research is on the explanations people invoke to account for successes and failures and subsequent motivation or demotivation in achievement settings.

2.3.3 Education

The field of education is a tempting and fruitful area for the attribution theorist and researcher (Ross, Bierbrauer & Polly, 1974). Education has been one of the major areas to which attribution theories have been applied (Rogers, 1982). It is here that the teacher and learner socially interact and experience triumphs and defeats within the view of concerned parents. Questions of causality and responsibility of successes and failure are inevitable in such a social setting, and the answers or explanations to such questions are of paramount importance to educationists regarding teaching and motivational techniques.

2.3.4 Reasons for applying attribution theory

Attribution theory was chosen for this study for numerous functional reasons.
2.3.4.1 Theory of social perception and judgement

Attribution theory indicates the kinds of perceptions and judgements people make about the causes of outcomes of social interactions in which they are involved (Bental, Kaney & Dewey, 1991; Weiner, 1980). This model is well suited to the present investigation for two reasons. Firstly, it posits that people form causal attributions (social perceptions and judgements). School community members, like pupils, their teachers and parents, have beliefs or assumptions that guide their understanding of, and influence their behaviour within, the school environment (Frieze & Snyder, 1980). These members carry with them assumptions about the causes of success and failure that can arise in a school setting. The present research focuses on these assumptions and beliefs about the causes of children doing well or badly in reading and other educational tasks. An understanding of these beliefs is necessary when applying the attributional model in a school setting. This model shows how people reach a decision about what causes their own and other people's belief and helps us understand why and how people arrive at conclusions about causes (Antaki, 1982). It tries to answer prime questions like 'How do individuals draw conclusions about the way others behave? How is the information processed? Do people use the same cognitive processes about their own actions as they do about the action of others?' Secondly, this model illustrates the various types of causal attributions. Attributions and their types can be used in the present study as a vehicular means of extracting functional
information regarding not only motivation for reading but also the role of the MAT programme engendering this motivation.

2.3.4.2 Motivational Utility

This theory focuses attention on the relatively neglected cognitive perspective of motivation (Kelly & Michela, 1980). It has integrated a vast array of motivational constructs which gives it a functional usefulness for class teachers (Ball, 1977). Attribution theory has contributed and continues to contribute to the development and understanding of the important motivational determinants of people's interaction with their world (Brophy, 1983). This theory is preferred because it is less cluttered with motivational constructs than motivational theory per se (Ames & Ames, 1984).

2.3.4.3 Grounded in Empirical Research

The attribution field has been productive (Weiner, 1980). Much empirical research has been generated, and the breadth and consistency of experimental data has contributed to the validity of attribution theory which has, in turn, guided further investigations. The sizeable literature on the causal attributions of children concerning their academic success and failure reflects the extent to which attribution theory is grounded in empirical research in the educational setting (Andrews & Debus, 1978; Brophy, 1983;
2.3.4.4 Fruitful perspective

This theory presents a fruitful perspective for examining the causal relationship between motivation in reading and the MAT programme. The hypotheses that have been advanced in this present study were fostered by this theory.

2.3.4.5 Predictivity

Social cognition psychology has produced many predictive theories (Moscovici, 1985). One of them, attribution theory, indicates that attributions are predictors of achievement and non-achievement (Willig, Hamisch, Hill & Maehr, 1983). Perceptions of causality are not only postdictive (backward looking interpretations and judgements) but can also influence predictive (forward looking) processes (Weiner, 1980). Causal attributions for past events are important determinants of goal expectancies and motivation. In this present study, causal attributions of school pupils will be explored to predict their future motivation for reading.
2.3.4.6 *Line of enquiry*

This theory suggests a line of enquiry to follow in determining how pupils, teachers and parents perceive the causes of outcomes of the reading performance of pupils. Perceptions, also adumbrated by the term 'attributions', are internal representations of the real world event (Weiner, 1979). This theory advises that the attributions can be revealed by means of the linguistic medium: verbally or in writing. Subjects are usually asked to describe, evaluate, rate or make judgements about themselves or others.

2.3.4.7 *Life-like*

Asking the question 'why' is a common part of life (Hewstone & Antaki, 1988). Causal attributions are the most fundamental of cognitions (Fiske & Taylor, 1984). They are the first cognitions found from incoming information and the ones on which other influences are based. Attribution theory incorporates this natural and human quality of asking the reason of the occurrence of a particular event. People are used to asking questions; attribution theory recognizes this and does not require unrealistic tasks from people as is sometimes found in other theories.
2.3.4.8 General educational applicability

This theory is highly applicable to the educational process. Causal beliefs about scholastic successes and failures have important consequences, especially for motivation, feelings and further educational behaviour or performance (Weiner, Frieze, Kukla, Reed, Rest & Rosenbaum, 1971). Conversely, trying to develop or rectify a scholastic skill without considering cognitive factors like attributions may prove to be a vain exercise.

2.3.4.9 Specific educational applicability

Attribution theory has specific applicability to reading. This skill is not just dependent on the ability to associate patterns of visual symbols with sounds and meanings, but also requires motivational abilities (Ownby, 1985). The attributions of a pupil in explaining academic successes and failures will be influenced by, and in turn, influence motivation and persistence on academic tasks (Weiner, 1979). Attribution theory indicates the motivational potential of attributions for an achievement task that requires it, like reading.

2.3.4.10 Guidance

This theory guides teachers, parents and researchers to consider alternative techniques of motivating pupils to achieve. Miller, Brickman and Bolen (1975) have indicated that methods of direct persuasion like shouting and threats have ephemeral effects on academic motivation. Attribution theory suggests
that knowledge by the educationist, parent and researcher of the ways pupils perceive causes of the outcome of school tasks can provide motivational techniques which have a greater and longer lasting impact on academic achievements, of which reading forms a part. The outcome of this present investigation will indicate to teachers and parents the value of attributional exploration among their children as an alternative to threats and punishment.

2.3.4.1: Reader relevance

This theory has relevance for all types of readers, from the well-developed to the potentially impaired reader. Research has shown that good readers have positive attributions whereas problem readers hold beliefs that tend to perpetuate less than optimal motivation and performance in school (Pearl & Bryan, 1982). Attribution theory takes cognizance of these beliefs and their consequences (Duda & Allison, 1989). In this present research, an attempt will be made to examine the consequences of such attributions.

2.3.4.12 Generalizability

This theory is not only school-based or educationally oriented, but can also focus on other social environments where people form causal interpretations of the events around them (Jones et al., 1972). The home is such an environment where the attributions of parents and their children regarding
reading performance develop. These attributions will also be examined in this present study.

2.3.4.13 Common sense explanation

The voluminous attribution literature attempts to show how and why ordinary people explain events (Hewstone, 1983). The common sense explanation is well suited to this present study because it provides some insight into understanding how people comprehend their social world by means of the natural language these people employ (Fiske & Taylor, 1984). The common sense explanations investigated in this research will generate a great deal of functional ideas which can be used to motivate pupil reading motivation.

2.3.4.14 Theoretical extension

Attribution theory has not yet been fully applied to children (Frieze & Snyder, 1980). Most previous research has been conducted with college and university students or other adults (Anderson, 1983; Bar-Tal, Goldberg & Knaani, 1984). It is not fully understood how children actually make attributional judgements in a realistic situation like the classroom or what kinds of attributions they actually form. Neither have the consequences of attributions been paid much attention. This present investigation focuses on the attributions of primary school children in various but familiar achievement
situations as well as on the motivational functions of these attributions. In this way attribution theory can be extended to children.

2.3.5 Attribution Accuracy

Attribution theory details appropriate norms for how the social perceiver should proceed in the attributional process (Fiske & Taylor, 1984). However, no mention is made about the accuracy or fruitfulness of an attribution (Laljee, 1982). It is a theory more about attribution origins and outcomes rather than attribution accuracy. Lefcourt (1973) assumes that the truth of an attribution is not important, rather the belief that one is in control by means of the type of attribution one makes and its function for that person.

Although attribution theory outlines the attributional process only, irrespective of accuracy or truth of such attributions, research generated by this theory has revealed that the social perceiver does not always follow the normative guidelines laid down by attribution theory (Fiske & Taylor, 1984). The attribution process seems to be characterized by numerous persistent errors and biases (Kruglanski, Baldwin & Towson, 1983). Errors are deviations from the normative processes if the social perceiver does something wrong. Biases are also deviations from the theoretical norm if the social perceiver distorts a correct research procedure (Fiske & Taylor, 1984). The reasons for errors and biases may derive from individual factors: limited or immature cognitive
processes, personal motivations or a combination of these. Social factors may also influence social deviations.

The central purpose of attribution theory for this present study will be to investigate the attributions that pupils, their parents and teachers make in relation to reading motivation. Whether or not these attributions are true will not be an issue here. However, if errors and biases do emerge and can be detected, then they will be included in the research to provide a more comprehensive descriptive analysis of causal attributions and their association with reading motivation.

2.4 RELEVANT ATTRIBUTION(AL) THEORIES

Various statements of attribution theory exist (Kelley, 1973). A few of these statements or theoretical perspectives, from which this present investigation was derived, will be advanced and reviewed.

2.4.1 The naive analysis of action

Generally, this theory as proposed by Heider (1958, 1960) is an attribution theory (Antaki, 1982). It is concerned with the way ordinary people (as opposed to scientists) answer some specific questions about and explain the causes of experiences or events. The cause may be sought in themselves or in the environment. The epistemic or knowledge-seeking process of people
is addressed in this theory (Hewstone & Antaki, 1988; Kruglanski et al., 1983). This theory does not answer the question as to what consequential effect this attribution has on a person's feeling or behaviour. Nevertheless its proposals form the blueprint of many subsequent attribution and attributional theories.

2.4.1.1 Common sense theoretical explanations

The subject matter of this theory is everyday common sense explanations: how one person judges the action of another and what the judgement is based on (Antaki, 1982). A major job of the perceiver is in understanding the social and physical world, and to find the underlying causes of the things happening in it. By means of the explanations it describes the process by which an untrained observer or layperson (the naive scientist or psychologist) analyzes and interprets personal events and the intentions, actions, dispositions and events in the lives of other people (naive analysis) (Hewstone, 1983). Many of the basic concepts of the theory are taken from the vernacular that give it a common sense style. Words such as 'try', 'can', 'give', 'take', 'ought', form the foundation of the conceptual analysis of this theory. However, some scientific terms like 'locus of causality' are also used and might not form part of the layperson's vocabulary.

Common sense theoretical explanations have several distinct advantages over scientific explanations. Firstly, the former explanation is less ambiguous
than the latter and can thereby increase the uniformity of understanding among researchers. Secondly, common sense explanations provide more potential for realistic research designs in natural social settings as opposed to the fabricated or laboratory-based studies which favour many of the scientific language theories. Lastly, common sense explanations effectively link up or connect with, and can be effectively expanded by the common sense vocabulary from subjects in research endeavours.

2.4.1.2 Person-perception

This theory addresses the perceptions that persons have of one another regarding the causes of their intentions, actions or dispositions. It is a theory more about person-perception (perceiving the other person) than about self-perception (Farr & Anderson, 1983; Weiner, 1979).

Person-perception of the causes of behaviour by a perceiver involves linking the social event of the other person(s) with the underlying conditions of this event. This process is termed an attribution in this theory. Perception of causality or an attribution as described by this model is an ascription imposed by the perceiver: the causes, *per se*, need not be directly observable (Weiner, 1988).
2.4.1.3 Function of person-perceptions or attributions

The value of attributions act not only as a vehicular means of acquiring data to fill gaps eventually in social cognition. They are assumed to also serve several functions. Attributions are postdictive in the sense that they increase understanding about the antecedents of the event and/or behaviour of another person. An attribution also has a predictive function. It permits the observer more control over the prediction of future events (Heider, 1944, 1958; Hume, 1739). The observer can predict how the other person is likely to behave, either similarly or differently, contingent upon internal or external causes. Attributions follow circular patterns of intra- and interpersonal motivational effects: the postdictive and predictive knowledge contained in attributions is assumed to affect action in the observer which may in turn generate successful or unsuccessful change in the action/reaction of the other person. Other-person changes may then cause changes in the observer thereby initiating another circular intra- and interpersonal process. This process can form the basis for motivational/demotivational action. An attribution is, moreover, part of a person’s cognition of the environment. It is inevitable: whenever people cognize their environment, attribution occurs (Heider, 1976). For this reason, an attribution is deemed to be important and invaluable information about the innumerable complexities and components of human cognition.
2.4.1.4 Interpersonal relations

Perception of another individual and forming causal attributions about events surrounding that person is viewed by Heider (1958) as a two-way interpersonal relation between two but sometimes more persons. The one person (the observer) usually interprets his/her perceptions, thoughts, feelings about and expectations of the other person (the actor) being observed. Observer perceptions are generally represented in the mind of the observer. Observer and actor do not always or necessarily have to engage in conversation or writing to explain their thoughts to each other. This observer reaction is believed to be a function of the other person's behaviour, the situational context in which the behaviour was enacted, the manner in which the observer experienced it, the observer's characteristics, and the preconceptions of the observer about how and why the other person thinks and behaves the way he/she does. Within this interpersonal relation, both the observer and actor exert a two-way influence on each other: what the observer perceives can affect the observer also. Even if the actor is unaware of being observed, the observer's perception can still affect the actions and reactions of the observer (Heider, 1950).

Moreover, the actor can also be an observer and may offer perceptions about causal events in the life of the individual observing him/her. In this way the observer also becomes an actor. This interplay between observer and actor,
actor and observer constantly modifies or continues to stabilize observer-
actor perceptions and attributions.

The interpersonal relation is an important concept in this theory. It forms the
foundation of attribution formation and therefore needs to be taken into
consideration when analyzing attributions.

2.4.1.5 Personal-environmental dimension as cause of events/actions

To answer the question of why people behave the way they do, Heider (1958)
proposed a basic bipolarity in the interpretation of the causes of an action or
event. A given behaviour can be perceived by an observer as having
originated within a person or outside a person, that is, within his/her
environment. This dichotomy guided the development of early attribution
theories (Howard, 1967).

This basic personal-environment bipolarity is important for two reasons.
Firstly, an action affords the basis for inferring something about the person
(properties and dispositions). Secondly, an action discloses information about
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To answer the question of why people behave the way they do, Heider (1958) proposed a basic bipolarity in the interpretation of the causes of an action or event. A given behaviour can be perceived by an observer as having originated within a person or outside a person, that is, within his/her environment. This dichotomy guided the development of early attribution theories (Howard, 1987).

This basic personal-environment bipolarity is important for two reasons. Firstly, an action affords the basis for inferring something about the person (properties and dispositions). Secondly, an action discloses information about the contribution of the environment (its stimulus values and properties).
2.4.1.6 Causes of achievement related outcomes

Regarding achievement related outcomes, this theory outlines that people attribute a particular task outcome to a variety of causes. The four major and most studied attributional variables are the degree of ability possessed by the actor, the amount of effort he/she expends, the task difficulty/ease, and uncontrollable chance factors/luck. A person may succeed at a task because of his/her high ability, trying hard, a relatively easy task, or good luck. Failure could result from low ability, not trying hard enough, task difficulty or bad luck. Attributions can be made to any weighted combination of these four variables. Research has indicated that adults frequently employ other causes to explain success/failures of others and oneself. These can include a consistent pattern of diligence or laziness, stable effort, mood, fatigue, sickness, personality factors, physical appearance, other people who may aid/interfere with performance (Frieze, 1979).

The locus of control (internal-environment) dimension of these variables are suggested as being the most general and salient of the causes of achievement outcomes. A given outcome may be perceived by the observer as something originating within a person (ability, effort), or outside a person (task difficulty, luck). The social perceiver needs to take these variables into account when inferring the cause of an outcome or event.
2.4.1.6.1 Ability

Ability is a personal dispositional concept (internal dimension) and characterizes a person over time. It also represents 'can' (Heider, 1958). Although ability describes the person and not the environment, environmental factors may augment or deplete ability. If a person succeeds at an achievement task, then his/her ability or personal force is greater than the environmental force (task). If the individual fails and has maximally exerted himself/herself, then his/her ability must be less than the environmental difficulty.

Degree of ability is sometimes determined by a person's relative standing in the group as measured by success or failure on particular tasks. If the individual is among the few persons that can accomplish a task, then his/her ability is assumed as high. If he/she is among the few people who fail, then his/her ability is low.

2.4.1.6.2 Effort

Effort is defined by intention (what a person is trying to do) and exertion (how hard that person is trying). It also represents 'try'. Effort is a personal and motivational factor. A person is held responsible for his/her effort but not so strictly for his/her ability.
2.4.1.6.3 Task difficulty/ease

Task difficulty or ease is an environmental factor that exerts influence on effort and ability. A person of less ability will need to exert him or herself more in order to succeed in a difficult task.

2.4.1.6.4 Luck

Luck is an environmental condition and is a product of chance. It is this external dimension and not the individual that is responsible for an achievement outcome. When a person succeeds only once in a great number of trials, success is usually attributed to good luck. If that person fails only once and succeeds at other times, then this one occasion of failure is attributed to bad luck.

2.4.1.6.5 Other factors

This theory (Heider, 1958) also indicates other factors which the social perceiver needs to consider when inferring the causes of an event or an achievement outcome:

- Knowledge about the person. The observer needs to note whether or not an outcome is in line with the character of the actor and his/her usual motives or whether it may have been provoked by the
situation. Knowledge of the individual is especially necessary when inferring the presence of effort in the performance of that person.

- personality traits and attributes have an important bearing on motivation and the realization of one's ability.

- fatigue and mood have a temporary effect on ability. When failure is attributed to fatigue, then conclusions cannot be drawn.

- egocentric cognition and attribution in the case of ability and effort. A person's own wishes, for whatever self-centred reasons, can determine the attribution. In such cases, erroneous or distorted inferences are made.

Whether a person succeeds or fails in an achievement situation may depend on one or some of the above variables. When considering internal locus or personal factors, it is necessary to include the possible influence of environmental factors.

2.4.1.7 Major contributions of Heider's naive analysis of action

The major contribution of the naive analysis of action (Heider, 1958) was to define many of the fundamental issues of attribution theory which would later be explored more systematically in other theories (Fiske & Taylor, 1984). This
theory spearheaded the theoretical work of Jones and Davis (1965), Kelley (1967) and Weiner et al. (1971).

However, the theory has the potential to make several major contributions to the present study. It is highly applicable to the educational process. It draws attention to the possibility that people form attributions about their own ability, effort, task difficulty, luck and other factors based on their perceptions of the attributions of other people about them.

Such attributions have been found to be motivational or demotivational; both these outcomes have been observed in educational settings with pupils along various stages of their scholastic spectrum. This current study has sensed potential applicability of this theory with regards to primary school children and wishes to determine the motivational or demotivational effects of their attributions.

The other people in the lives of pupils apart from their peers, are their teachers and parents. The motivational/demotivational effects of these pupil-perceived adult attributions need to be further investigated, understood and put to good use especially in the field of reading which takes up a large part of the school day. Having a difficulty in reading, for instance, can affect a pupil's perception of what his/her teachers and parents think the cause of his/her reading problem might be. On the other hand the educational achievement of a pupil can also influence a teacher's and parent's causal
perception of the pupil's success or failure (Bar-Tal, 1982). Some of these perceptions of the attributions of the significant others in a pupil's life might harm his/her self-confidence and future motivation for reading. To prevent a pupil from forming negative attributions, it is imperative to use a method at the outset of a pupil's school career, like the MAT programme, which has the potential to promote positive attributions, especially about reading. This theory makes possible a study of the attributions of pupils exposed to the MAT programme as compared with pupils not exposed to this programme. By means of this comparison, it is hoped to determine the motivational effects of this programme on reading.

By means of this theory, reading motivation, exploration and prediction is made possible. This theory alerts the researcher to the observations and statements by one or many person(s) about the perceived attributions of an action or an achievement outcome of another person. Subsequent to the implementation of the MAT programme:

- the teacher and parent can infer causal attributions regarding the academic performance, in general, and the reading performance, in particular, of their children. By means of these attributional statements, the researcher will be able to determine what adult attributions are predictive of and motivate further reading for those pupils exposed to the MAT programme and those not exposed to the programme.
- the pupil can, in turn, also infer the causal attributions of the teacher-parent behaviour or attitudes toward him/her. Generally, a person reacts to what he/she is and can do. The MAT programme may have a constructive influence on pupil, teacher and parent attributions. This information may provide necessary information on how to effectively use/develop attributions in the best interests of the pupil.

The necessity of an interpersonal relation in order to form attributions is stressed in this theory. However, in studying these attributions, the interpersonal relations in this current investigation will be between the following people: teacher-pupil, parent-pupil, teacher-parent. These interpersonal relations can give rise to attributions which have been found to generate hypotheses about the following potential influences on the interacting persons, as suggested by this model:

- pupils' academic actions or outcomes or verbal behaviours about their own achievement or failure are related to or have the potential to influence teachers' and parents' motivational or demotivational causal perceptions about the pupils' success or failure.

- teachers' or parents' actions, verbal and non-verbal behaviours towards the pupils have the potential to influence pupils'
motivational or demotivational causal perceptions of their own success or failure.

- the teachers' motivational or demotivational actions and verbal and non-verbal behaviours, as perceived by the pupils, have the potential to influence the pupils' attributions about the teacher.

- the parents' motivational or demotivational actions, verbal and non-verbal behaviours, as perceived by the pupils, have the potential to influence the pupils' attributions about their parents.

2.4.1.8 Criticisms of this theory

Although the Heiderian naive analysis of action theory spearheaded the field of attribution theory, it also attracted a fair amount of criticism.

Firstly, the one-dimensional taxonomy (internal-external distinction), although a simplistic core of attribution theory, is limited and unlikely to be adequate as an explanation of causation (Shaver, 1981). There exists a wider range of causal dimensions relevant to all situations (Hewstone, Stroebe, Codol & Stephenson, 1988).

Secondly, during subsequent research, many subjects failed to understand the internal-external distinction. Other subjects found the internal-external dimension unmeaningful (Taylor & Koivumaki, 1976).
Thirdly, this theory only demonstrates how the actor is represented in the mind of the observer. However, it fails to indicate specific activities like speaking should the observer and actor engage in conversation to communicate their perceptions of the attributions they believe each other holds. The process of causal attribution is envisaged as being intrapsychic in nature (Hilton, 1990). It does not explicitly concern itself with interpersonal factors like who is doing the explaining, to whom an explanation is given or why an explanation is needed. If these verbal exchanges did occur, then the observer and actor would most probably change their representations of each other. This calls for a more dynamic model of action than presently provided by this theory (Sanford & Garrod, 1981).

Finally, how the representation of the actor in the mind of the observer controls the action of the actor is not fully explained (Farr & Anderson, 1983). This lack of plausibility in explaining this phenomenon undermines the explanatory power of this theory.

2.4.1.9 Conclusion

The naive analysis of action is an attribution theory; it describes the antecedents (information, beliefs, motivation) of an action or scholastic outcome and the resultant attributions (perceived causes). However, it does not explain the consequences (behaviour, affect, expectancy) of people who hold such attributions. The emphasis is epistemological (how events that
have happened were construed, interpreted and explained) rather than
behavioural (Eiser, 1983). One of the aims of this current research focuses
on behavioural outcomes of attributions. This requirement will be guided by
the following theory to be discussed.

2.4.2 An attributional theory of achievement motivation and emotion

A radical reinterpretation of the naïve analysis of action of Heider (1958) is
advanced in a model of causal attributions by Weiner (1972, 1974, 1977,
This model was explored in a context of achievement behaviour, with
achievement strivings, emotion and motivation as the theoretical focus. It is
an attributional theory: it goes a step further than the previous one. It tries to
answer the question as to what effect an attribution has on a person’s
behaviour and feelings.

2.4.2.1 The role of emotions and prior outcome

The central idea of this theoretical perspective is that a motivational episode
or future motivation for achievement is initiated by the kinds of feelings and
emotions that are generated by a prior performance outcome (Antaki, 1982;
Weiner, 1985). Prior outcome usually gives rise to a general positive emotion
(happiness, pride) or to a general negative emotion (sadness, anger,
frustration) depending on whether the achievement event is experienced as
success or failure respectively. If the outcome was important, successful or
desired, then the resultant emotions prompt a causal search to determine
reasons for such an outcome; there is likely to be an attempt to reinstate the
prior causal network. If the prior outcome or event was undesired then there
exists a strong possibility of an attempt to alter the causes to produce
different and more positive emotions.

The outcome of a causal search or analysis, that is, an attribution, dictates
more specific emotional reactions such as pride and shame, and resultant
future expectations of success or failure. In this way, emotions are seen as
serving the role of determining achievement-related performance.

In Heider's (1958) theory, emotions are given a brief comment. Anger is
viewed as an 'ought' emotion which is elicited when negative actions are
perceived to be caused by volitional factors such as lack of effort and/or
negative intent. Although this emotion is elicited by a perceived event, it is not
accorded any consequential role in this theory as in the theory of Weiner
(1982). Other theories of motivation have been remiss by virtually excluding
the emotions, with the exception of the acceptance of the pleasure (success)
-pain (failure) principle (Weiner, 1985). In Weiner's (1979) theory, emotional
reactions are consequential: they prompt causal analysis. This type of
analysis is explained in section 2.4.2.3.
2.4.2.2 Causes of success and failure

It is postulated by Weiner et al. (1971) that the most dominantly perceived causes upon which attributions are based have been identified as ability, effort, task difficulty, and luck.

An attribution in terms of ability implies a perception of an internal, stable and uncontrollable cause. In section 2.4.2.3, this type of classification is discussed more fully. An attribution in terms of effort implies an internal, controllable cause, but may be either unstable or stable (Weiner, 1974; Weiner et al., 1971). The effort input for a task can be stable (e.g., a set number of hours each day). However, the effort exerted may be unstable. An attribution in terms of task difficulty implies an external cause which is stable and uncontrollable, when it cannot be altered. Task difficulty is not necessarily only anchored to the external causal dimension (Weiner, 1983). Often, task difficulty can be perceived as involving a relation between ability and task characteristics. Heider (1958) refers to this relation as 'can'. When an individual responds to or makes a statement like 'The task was too difficult for me', then a causal attribution for failure in this event may imply not only external (the task) causal elements but internal (me) elements as well. This ambiguity may be confusing. To avoid confusion about task difficulty in this current study, the advice of Weiner (1983) has been followed, namely that this variable rather be anchored to external criteria such as task
characteristics only. An attribution of luck implies an external, unstable and uncontrollable cause.

The above causes seem to comprehensively represent the possible causal perceptions, but are not the only ones. They are just the most salient in achievement related events (Weiner, 1974, 1979; Weiner et al., 1971). The most dominant causes are ability and effort. Mood is a cause that can influence an attribution. Mood is internal, uncontrollable and unstable; it varies from situation to situation. Teacher bias is external, stable and controllable. A teacher’s belief that a pupil is one of the best in years is under a pupil’s control. In other motivational domains, a different set of causes may apply (Weiner, 1983). Each motivational concern is associated with causal beliefs or theories that are likely to be unique to a particular domain. Weiner et al. (1971) also demonstrated that in academic task situations, significant others, like family and teachers, and IQ are but a few of the many determinants of success and failure.

2.4.2.3 Causal analysis and causal dimensions

Causal analysis is a process by which individuals search for the perceived cause or causes to explain their success or failure on achievement tasks (Weiner, 1977, 1979; Weiner et al., 1971). These perceived causes can be classified into three dimensions.
2.4.2.3.1 Locus of causality

This refers to whether the causal elements are internal or external to the individual as proposed by Heider (1958) and Rotter (1966). The dimension of locus refers to the relative placement of a cause by an individual on this internal-external continuum (Weiner, 1983). Ability, effort, mood, personality or health are causes originating within (internal to) the individual. Task difficulty, home conditions, other people's (like teachers and parents) help or hurt, and luck are causes external to the individual. This dimension has been shown to be important regarding emotional reactions: for feelings of happiness and pride for reward, and shame for punishment (Weiner & Kukla, 1970). People who attribute their successes internally experience more happiness, pride, confidence, competence or satisfaction than if the attribution is made to an external cause (Weiner, Heckhausen, Meyer & Cook, 1972). These same studies have indicated that internally attributed failures lead to more dissatisfaction, guilt, and shame after failure. The classification of the locus of causality is not without ambiguity and also needs to be viewed in conjunction with the phenomenology of the respondent (Weiner, 1983).

2.4.2.3.2 Stability

This dimension refers to whether causal elements are stable (long lasting or enduring) or unstable (transient) over time (Weiner et al., 1971). Ability,
personality, diligence, laziness and task difficulty are considered stable causes. Effort, mood and luck is known to be highly changeable. Weiner (1974, 1979) postulated that the stability of a cause influences expectations for future success or failure. Numerous investigations support this postulation (Frieze & Snyder, 1980; McEachan, 1973; Weiner et al., 1971). Unstable attributions may generate expectations for change in outcomes.

2.4.2.3.3 Controllability

This refers to whether causal elements are perceived to be under volitional control of an individual or not (Weiner, 1979). Causal attributions are made to gain a sense of control over future events (Heider, 1958). The concept of control implies that an individual can prevent or alter an event or outcome (Hamilton, 1980). Ability and personality are factors within an individual over which that individual has little or no control. However, a person does have control over the effort he/she exerts. The controllability dimension seems to be specifically related to reward and punishment: most reward is given for performances attributed to internal, controllable causes. Nevertheless, much more research is required to clarify these relationships (Weiner, Russell & Lerman, 1978).

A cause is then located in dimensional space according to locus, stability or controllability. Causal dimensions are derived from attribution theorists, rather than their subjects (Weiner, 1985).
Causes may also be characterized by two other but relatively less researched dimensions of intentionality (Weiner, 1979) and globality (Abrahamson, Seligman & Teasdale, 1978). Since these two dimensions are not well known as yet, they will not be elaborated upon.

As a result of the causal analysis, a causal explanation is reached. A large number of antecedents influence the causal explanations that an individual reaches, *inter alia*, past personal history, own performance, performance of others, parents’ influence, teachers’ influence, biases (Bar-Tal, 1982; Weiner, 1985).

Dimensions (locus of causality, stability, controllability) are conceived as invariant, but the location of any specific cause (e.g. ability, effort, task difficulty/ease, luck) on a dimension is variable (Weiner, 1983). Perceived causality will differ from individual to individual and within the same person over a period of time because attributions represent phenomenal causality: the way a person perceives the causes of events. For one attributer, luck may be perceived to be an external, unstable cause, whereas for another, luck may be perceived to be an enduring personal property. Although the perception of specific causal inferences may vary between persons and situations, the underlying dimensions on which the causes are given meaning still remain constant.
2.4.2.4 Consequences of causal dimensions

Causal dimensions have psychological and emotional consequences (Weiner, 1986). With regard to psychological consequences, it is to be noted that dimensions of a cause influence the relative expectancy of future success or failure. For instance, in the case of stability an individual may perceive that an academic outcome of failure reflects his/her low ability. If this low ability is located on the stability dimension, then such a person will anticipate or expect future failure. These consequences are also related to emotion.

Besides psychological consequences, dimensions of a cause also exert an influence on the emotional states of an individual (Weiner, 1982). Each dimension is uniquely related to a set of feelings or emotions:

- the locus of a cause exerts an influence on self-esteem and pride. Internal ascriptions are assumed to elicit greater self-esteem for success and lower self-esteem for failure than do external ascriptions. Locus is thought to be tied to specific affective or emotional changes.

- the stability of a cause affects expectancy of future success or failure by fostering feelings of hopefulness or hopelessness respectively.
- the controllability of a cause influences social emotions. Self controllable causes of personal failure can generate feelings of guilt. Uncontrollable causes of failure can generate shame. These are self-directed affects. Among the affects directed at others are anger (if the cause of failure was controllable by others), pity (given an uncontrollable circumstantial cause) and gratitude (given a controllable cause). Individuals often use this dimension as a basis for evaluating someone or evaluating help.

These psychological and affective consequences of causal dimensions are presumed to generate behavioral consequences like actions, which in turn, lead to more specific emotional responses and expectations.

2.4.2.5 Theoretical emphasis

The bulk of this theoretical perspective focuses in detail on the associations between causal dimensions and emotions because they have enjoyed the most extensive empirical support (Weiner, 1985). These associations moreover form powerful and general laws. In contrast, the relations between more specific causes and emotional reactions received minimal coverage.
2.4.2.6 Types of cognitive determinants of emotion

The attributional framework advanced here, not only outlines the dominant causes of emotions and the three main dimensions that underlie them, but further differentiates two broad kinds of cognitive determinants of emotions (Fiske & Taylor, 1984). When emotions like happiness, sadness, frustration, are determined by the attainment (success) or nonattainment (failure) of an outcome or desired goal, and not by the perceived cause of an outcome, they are termed outcome-dependent, attribution independent. When success or failure is perceived as being due to a specific cause, and not to an outcome, the emotions arising from this are labelled attribution-dependent, outcome-independent. A feeling of surprise may be produced by success perceived to be due to good luck. Success following long-term effort expenditure might result in a feeling of relief or calmness.

The cognition of the emotional arousal and the cognition of the source of arousal (outcome or cause or both) often take place simultaneously. Weiner (1985) focuses his theoretical perspective more on the associations between the outcome of an event and the emotions of an individual.

2.4.2.7 Self-perception and self-attribution

This theory focuses primarily on an individual's self-perception regarding the perceived causes of his/her behaviour (self-attributions) and their implications
for emotional reactions, future expectations and performance. Self-perception supplements the person-perception of Heider (1958). Both types of perception and the resultant attributions serve the purposes of the current research well because they help explore the reasons used by school pupils, their teachers and parents to explain the reading motivation of these pupils. Emotions and attributions give the researcher access to cognitions which underlie motivation.

2.4.2.8 Person-perception outcomes

Apart from self-perception, this theory contends that person-perception is also essential in determining how one individual responds to another. For instance, a person must often react to another person based on his/her attribution(s) of the other person's traits or behaviour. Within an educational context, teachers are often stricter with pupils who they perceive to have ability, but underachieve. A teacher presumably perceives this kind of pupil's achievement to be under the pupil's control. Weiner (1979, 1980) argues that the controllability dimension dominates in arriving at such a conclusion. As a result of this dimension, a teacher may believe that an able pupil who underachieves has failed to exert the necessary effort and thereby control his/her academic outcome. Furthermore, a teacher may be inclined to assist pupils whose difficulties, for whatever reason, are perceived to be beyond their control (Brophy & Rorhikemper, 1981).
2.4.2.8.1 Emotion eliciting

Person-perception by an observer of an actor elicits emotions in the observer. Anger and pity are often elicited among persons who observe the failure of others. The determinant of whether the observer's reaction is anger or pity may be the attribution, or perceived cause, that the observer provides to explain the failure. If the observer is of the opinion that the individual's (actor's) failure is due to insufficient effort expenditure, then observer anger is more often than not the response. If the observer believes that the actor's failure is associated with the actor's lack of ability, then pity or sympathy is usually elicited in the observer (Weiner, Graham, Stern & Lawson, 1982).

2.4.2.8.2 Emotion-infering

Another person-perception outcome is when an actor infers the attributions of the observer which, in turn, can influence the emotions of the actor. Observer emotional communications such as pity or anger as inferred by the actor may be important determinants of the actor's self-ascription of failure. Emotional reactions of pity and sympathy might lower the self-esteem of the actor by implying that his/her failure is due to lack of ability. Information from others is likely to be an important determinant of emotions.

In school-related contexts, emotional information about a pupil's failure is not likely to be communicated directly by a teacher. However, indirect emotions
may transmit a low-ability message which can be inferred by a pupil and determines his/her resultant emotions. For instance, when teachers infrequently call on pupils perceived to be of low ability, these pupils may infer that they are not as clever as those frequently called upon to answer questions (Brophy & Good, 1974). Furthermore, teacher praise for success and the absence of criticism for failure at school tasks may assist the recipient of such feedback to infer that he/she is low in ability compared to peers.

2.4.2.9 Interpersonal contexts and the motivational sequence

Achievement motivation and emotion occurs in interpersonal contexts, like the classroom, an athletics field, the home. It is here where a motivational sequence or episode is initiated by an outcome that individuals (pupils, teachers, parents) interpret as positive or negative. The outcome-dependent emotion (like happiness for success; frustration or sadness for failure) gives rise to a causal analysis to determine reasons for the outcome. The causal explanation is biased towards a relatively small number of causes (ability, effort, task difficulty, luck) which are located in dimensional space (locus, stability and controllability). These causal dimensions have psychological and affective consequences which are presumed to determine more specific emotional responses and expectations. Emotional reactions and expectations determine subsequent performance.
2.4.2.10 Major contributions of the attributional theory of achievement
motivation and emotion

This theory serves to systematize people's intuitions about the way that outcomes produce emotions (Fiske & Taylor, 1984). It has potential to help specify what set of behaviours is logically consistent with attributional perception. It is also a naive psychology that tends to agree with the experiences of most people.

Weiner (1988) has added a new concept to attribution theory, namely, that attributions are not just perceived causes, but are dynamic determinants of behaviour. Furthermore, attributions shape an individual's emotional responses to success and failure, which can have future motivational or demotivational effects, depending on the emotional reactions.

The attribution-emotion association has proved useful not only to achievement-related contexts but also to other research. It provides the investigator with more options that can result in positive outcomes. For instance, cognitive psychologists are building emotion into their memory models and are using a systematic set of rules for emotional interpretations of personal outcomes (Bower & Cohen, 1982). Moreover, the attribution-emotion taxonomy of Weiner (1985) has also been applied to individuals' emotional reactions to major life outcomes such as their personal financial conditions (Smith & Kluegel, 1982).
The general influence of this theory is also apparent in research on sex stereotyping (Deaux, 1976), parole decision making (Carrol, 1978; Carrol & Payne, 1976, 1977; Saulnier & Perlman, 1981), help giving (Betancourt, 1983; Ickes & Kidd, 1976; Meyer & Mulherin, 1980) and reactions to hypertension medication (Henker & Whalen, 1980). This theory has proved effective in investigations on loneliness (Michela, Peplau & Weeks, 1983), quitting smoking (Eiser, 1983; Eiser & Sutton, 1977), dropping out of school and intentions to re-enter (Day, 1982; Crittenden & Wiley, 1980), alcoholism (McHugh, Beckman & Frieze, 1979), deprivation (Mark, 1985), maladaptive reactions to rape (Janoff-Bulman, 1979) and wife battering (Frieze, 1979).

Another feature of this model is that it promotes a great deal of heuristic provocativeness. A vast amount of empirical research has been conducted that strongly supports the three dimensions or properties of perceived causality. A locus dimension of causality was identified by Meyer (1980), Wimer & Kelley (1982), Michela et al. (1983) and Storn (1983). The stability dimension was demonstrated by Meyer (1980), Meyer & Koelbl (1982), and Storn (1983). Other investigations describe a dimension named control or intent (Meyer, 1980; Passer, Kelley & Michela, 1978; Storn, 1983). These empirical dimensions have been found to be reliable and meaningful. This model has also generated much past and present research which has mostly confirmed the conclusion that attributions can cause emotional responses in the theoretical manner described (Fiske & Taylor, 1984; McFarland & Ross,
1982; Ross, 1977; Schwarzer & Weiner, 1991; Stipek, 1983). Most of the basic elements of this theory enjoy a substantial amount of support.

The empirical endorsement for the attributional antecedents of emotion comes from several sources. Indirect ways of testing this theory has involved respondents having to imagine themselves or someone else reacting to success or failure outcomes. The respondents are given one of a number of attributions (like ability, effort, bad luck, task difficulty) for the outcome and are asked how they or the other person would feel. Researchers then attempt to connect the reported feelings and the attributions that they had manipulated. The results of Weiner et al. (1978) followed such a procedure and provided results that indicated that the internal attribution for success made individuals feel happier. Research by Averill (1982, 1983), Tesser, Gatewood and Driver (1968) has also followed such a methodology.

Direct ways of endorsing the validity of this theory have required the respondents themselves to actually participate in some kind of test and to determine what relationship there is between attributions, performance outcome and feelings. The work of Weiner, Nierenberg and Goldstein (1976) is an example of such a direct test of this theory which also supported the attribution-emotion link.
2.4.2.10.1 Research contributions

The research of Dweck (1975) with remedial pupils indicates the therapeutic effect of the stability dimension regarding effort. Empirical research unrelated to Weiner's (1985) attributional theory has identified and confirmed the locus, stability and controllability dimensions (Meyer, 1980; Stern, 1983).

A substantial amount of evidence suggests that causal perception of success and failure influences an individual's persistence (Butkowsky & Willows, 1980; Diener & Dweck, 1978; Fyans & Maehr, 1979). It was found that individuals who tend to attribute their failure to unstable-controllable causes, like effort, persisted for a long time even in failure situations. Such an attribution in spite of failure leads a person to believe that a possibility still exists in changing the outcome in the future. The attribution of failure due to stable-uncontrollable forces like ability or mood diminishes the possibility of changing the outcome in future. Resultantly, individuals feel there is no reason to persist. It was also found by the above researchers that pupils who generally attribute their achievement outcomes to ability are likely to choose tasks in which ability is a requisite to outcome. Those pupils who attribute their success to luck, rather choose tasks which depend on chance and avoid those requiring competence.

Hayamizu and Weiner (1991) recently demonstrated the relationship between perceived causality and achievement-goai tendencies. Questionnaire data
from 123 undergraduates aged between 18 and 26 years revealed that the perceived attributional causes of effort and task difficulty are related to and predictive of achievement goals. This type of investigation still needs to be applied to younger school pupils.

This theory has been constantly reanalyzed and critiqued (Chandler & Spies, 1984; Marsh, 1984), but the essential structure has remained intact.

2.4.2.10.2 Empirical endorsement of the dimension-emotion relations

The bulk of pertinent attribution-emotion research relates causal dimensions, rather than specific causes, to emotions (Weiner, 1985). The self-reflective emotions of pride and feelings of self-esteem are experienced as a consequence of attributing a positive outcome to the self. Negative self-esteem is experienced when an unsuccessful outcome is attributed to the self. These emotions have been found to be linked with the locus dimension of causality (Stipek, 1983; Weiner et al., 1978; Weiner, Russell & Lerman, 1979). An understanding of the relation between causal locus and the emotions of hurt feelings were demonstrated by children as young as five years of age (Weiner & Handel, 1985). It has also been shown how causal locus and feelings of self-esteem, which is part of naive psychology, is used by the layperson to manipulate the emotions of others (Folkes, 1982). Feelings of hopefulness (hopelessness) are associated with the causal stability dimension (Weiner, 1985).
The four emotions of anger, gratitude, guilt and shame are all associated with the controllability dimension. The attributional antecedent for anger is an ascription of a negative self-related outcome to factors controllable by others (Averill, 1982, 1983; Weiner, Graham & Chandler, 1982). Research regarding gratitude has been scarce. However, evidence does suggest the gratitude towards another individual is elicited only if the actions of the benefactor was under volitional control and was intended to benefit the recipient (Greenberg & Frisch, 1972). Guilt has been found to be elicited by controllable causes, like lying to others (commission of an action) or omitting the truth (omission of action) (Hoffman, 1970; Weiner et al., 1982). Guilt-related emotions (regret, remorse, guilt) are associated with failure due to lack of effort (Covington & Omelich, 1984). These emotions give rise to approach behaviour and motivational activation. Shame has been found to be self-related and uncontrollable and linked to a perceived lack of ability. Research has shown that shame-related emotions (disgrace, embarrassment, humiliation, shame) are highly linked with failure due to a feeling of low ability. These emotions promote withdrawal behaviour and motivational inhibition (Brown & Weiner, 1984; Hoffman, 1982; Jagaciński & Nicholls, 1984).

An emotion labelled hopelessness is elicited by a negative outcome due to stable causes (Weiner et al., 1978, 1979). Hopelessness is experienced by an individual if the future is expected to remain continuously unsuccessful.
The above emotions are among the most frequently reported (Bottenberg, 1975). The dimension-related emotions as outlined in the above research empirically support the attribution-emotion connections as proposed in this theory. The empirical foundation of this theory appears to be robust.

Although a great deal of research, as outlined above, convincingly indicates that the dimension-emotion relations are prevalent, Weiner (1985) has recently cautioned that these relations are not invariant. Given a causal ascription, the linked emotion does not always follow. For instance, an individual might attribute success to help from someone else, but may not experience the emotion of gratefulness. Also, an emotion like guilt, may be experienced in the absence of a linked antecedent, for instance, lying. The guilt may have been elicited by other antecedents.

2.4.2.10.3 Contributions to current investigation

The current investigation is served by this theory in various ways.

- Educational: the focus of this theory concerns achievement strivings and emotional consequences which can be motivational or demotivational. This theory generates ideas on how to investigate the causes that children (and their teachers and parents) use to explain the outcomes of various achievement situations. This information is necessary to understand what motivates/demotivates pupils in an
academic environment. Furthermore, the bulk of the supporting data has been generated in achievement-related settings. Education has been one of the major areas to which attribution theory has been applied (Rogers, 1982). This theory is well suited to the educational aims of this present study regarding reading motivation. Reading performance outcome gives rise to an emotional reaction which results in a causal attribution that triggers motivational or demotivational consequences. All these elements provide vital information for the educationist (teacher and parent) and researcher which can be used towards motivating reading in a pupil.

Success and failure, achievement and underachievement and the related emotions are educational realities of the pupil, teacher and parent. In the school situation, these individuals tend to ascribe causes to explain the pupil's success or failure in achievement tasks (Cooper & Burger, 1980; Frieze & Snyder, 1980). By means of causal search/analysis, causal dimensions, self-attributions, person-perception and interpersonal contexts, this theory offers educational techniques whereby achievement and success perceptions can be determined and evaluated. In this way, the more adaptive attributional pattern of pupils, teachers and parents can be put to good use to achieve more desirable educational outcomes for the pupils. Conversely, the less desirable attribution can be avoided.
- Validation of MAT programme: this theory stresses motivational consequences of the emotional reactions and self-attributions. These variables can be measured for MAT and non-MAT exposed pupils and their teachers and parents and correlated with reading performance. In so doing the researcher will be able to determine and validate the worth of the MAT programme on reading motivation.

- Predicting reading motivation: this theory not only emphasizes antecedents of attributions but also their consequences (Kelley & Michela, 1980). This information is essential when investigating a future oriented concept like motivation. Emotional reactions and expectancies predict subsequent performance. This theory furthermore advises the researcher on ways of determining the kinds of emotions and attributions, elicited by the MAT programme, which favour future reading motivation.

- Implying a long-term study: emotions and expectations need to be investigated over a long period of time. This current research will span three years. At the end of this time the long-term effects of the MAT programme and the resultant emotions, expectancies and attributions towards reading can be determined and evaluated.

- Self exploration by pupils: a pupil's self-attributions and causal dimensions permits an exploration of the self as person, as reader and
as social interactor. Attribution(al) theory deals with phenomenal causality: the personal interpretations of pupils will throw more light on the motivational effects of the MAT programme.

- Research perspective: this theory provides the researcher with a perspective that allows the determination and analysis of a source of emotions based on the outcome of an event. In this present research, the source of emotions and future expectations will be academic performance, in general, and reading performance in particular.

2.4.2.11 Criticisms of this theory

The success of this theory has not precluded criticism. The framework of this theory is persuasive and productive, but formulated explanations of this theory and the actual explanations of people are difficult to reconcile (Hewstone & Antaki, 1988). This attributional theory seems to expect to assimilate the 'real world' into its own neat explanations, rather than to accommodate itself to the complexities of the realities of the world (Rogers, 1982). It was found that respondents could not place the four 'classic' causes (ability, effort, task difficulty and luck) on either side of the three dimensions (locus, stability, controllability) as is specified by the theory (Krantz & Rude, 1984). Just under half the respondents categorized ability as unstable and not as the model indicates; task difficulty was categorized as internal and not
external as specified by the model. It seems as if the classification of causes can vary across perceivers and situations.

The proposed causal dimensions are found to be vague by some researchers since they have the potential to assume various interpretations (Duda & Allison, 1989). This criticism seems to have been anticipated by Weiner (1979, p.7) when he acknowledged that 'some problems with the classification scheme remain unsolved'.

Some of the evidence for this theory is based on studies that used role playing or scenario (vignette) methodologies. Subjects were asked by researchers to imagine how they or others would behave in particular situations such as failing a test. Since this theory makes sense intuitively, there exists the danger that respondents merely report what makes sense to them or the situation, rather than explaining how they would actually behave in the situation. The possibility of such intuitive respondent reporting provides only apparent support for this theory (Fiske & Taylor, 1984). Some recent studies suggest that the attributions which emerge are different and more diverse when subjects are realistically involved in their own feelings regarding actual events in their lives rather than being passive respondents (Howard, 1987; Kimicik & Duda, 1985). Sohn (1977) argued that results based on self-attributions need not necessarily agree with those based on attributions about hypothetical others. Furthermore, the highly structural nature of the
experimental task may provide an inadequate basis for generalizing to other, realistic situations (Marsh et al., 1984).

Another unsolved theoretical question revolves around the causal dimensions. There is little evidence that these theoretical dimensions are able to describe individual differences in the way individuals actually perceive causes of their own behaviour (Marsh et al., 1984).

The four types of achievement attributions (ability, effort, task difficulty and luck) and causal dimensions were deductively derived (Falbo & Beck, 1977). It has been pointed out by Weiner et al. (1976, p.55) that these 'dimensions are imposed by attribution theorists upon the causal concepts actually used in everyday life.' Yet one of the initial aims of attribution theory is to investigate the way that the average person understands causality (Heider, 1958). Falbo and Beck (1977) cast doubt on the repeated statements by Weiner (1977) and Weiner and Kun (1976) that ability, effort, task difficulty and luck are perceived by the average person as the most general and salient causes of achievement outcomes.

In relating causal perceptions to emotional experience, a problem has become evident: the range of emotional experience is not fully represented (Weiner, 1983). A wide variety of emotions are experienced in achievement-related situations. Furthermore, emotions and attributions are interrelated in numerous and unique ways not accounted for in this theory. These aspects
of attributions and emotions will need to be incorporated comprehensively into attribution theory. This will, in turn, foster further investigations into multiple attributions and more emotions to understand even further the linkages between causal reasons and feelings.

2.5 CONCLUSION

Attribution theory, in general, and the two attributional theories discussed above, in particular, proposed that causal thoughts are spontaneously emitted by individuals. A criticism sometimes levelled at this theory is that causal thoughts are more likely elicited by procedures (Hewstone & Antaki, 1988). Yet there is evidence which suggests that causal thinking is conducted spontaneously by people (Hastie, 1984; Lau & Russell, 1980).

Attribution theory has made important contributions in the development of a systematic approach for studying pupil motivation in the classroom and via the home. It is not conceived as a panacea for a solution to all the problems in the study of motivation, but it does offer a reasonable direction to take when trying to systematically relate thoughts to action and motivation. The present study expects to contribute further to attribution theory by applying it to the demands of the 'real world' of classroom environments. The outcome of this investigation will indicate to which extent attribution theory needs to be modified by virtue of the results of real (this current research) as opposed to
previous contrived or experimental situations in achievement settings upon
which most of the attributional propositions are based.

While much of attribution theory appears to be common sense, educators and
parents need to stay alert to its far-reaching implications for improving student
learning and motivation. How this can be accomplished will be outlined in
chapter six.
CHAPTER 3

A LITERATURE SURVEY OF THE POTENTIAL ROLE OF THE MAT PROGRAMME, ATTRIBUTIONS AND EMOTIONS FOR READING MOTIVATION

3.1 INTRODUCTION

A substantial amount of literature has been published on the subject of early reading (Anbar, 1986). Of particular interest to the present investigation are the studies relating to reading motivation.

The motivational difficulties of school pupils are among the most consistently reported (Licht, 1983). Numerous investigations have suggested that pupils with reading difficulties are likely to develop maladaptive achievement-related and personal-related beliefs. Such beliefs can create difficulties which may extend beyond the initial difficulties (Keery, CGI, Chapman & Garcia, 1979). Further research has indicated that such beliefs are linked with tend to perpetuate less than optimum motivation especially for scholastic performance. It follows, then, that the alteration, or better still, the prevention of such beliefs merits necessary literary and investigatory amplification.
This chapter will review a growing body of evidence of the important role that attributions, emotions and the MAT programme can potentially have in fostering reading motivation. In presenting this review, alternative approaches to reading motivation will be intentionally excluded. The emphasis rather will be on the attributional approach in order to relate to the theoretical perspective presented in the previous chapter, and because most of the research to be presented derives from the attributional research paradigm.

3.2 THE EMERGENCE OF SCHOLASTIC ATTRIBUTIONS AND EMOTIONS

Motivational problems are usually noticed by significant adults only later in a pupil's school career. However, numerous investigations have pointed out that motivational difficulties already surface in the early school years (Harari & Covington, 1981; Stipek & Tannatt, 1984). Unfortunately, during this time, some school pupils undergo numerous learning difficulty experiences like repeated failure at academic tasks and subsequently feel unhappy, ashamed and begin to doubt not only their intellectual abilities but also their chances of recovery. As this unhappiness, shame and doubt strengthens, their other academic experiences come to be interpreted in this light (Harter, 1978; Johnson, 1981). Even if such pupils experience some success later in their school career owing to the constructive effects of alternative teaching approaches like remedial tuition, they are not likely to take credit. Instead,
these success are likely to be attributed by these pupils to external factors like the ease of a task, the teacher’s assistance or to chance or luck.

The implications of these investigations are twofold. Firstly, in order to extricate a pupil from maladaptive belief systems, remediation of academic deficits only, is not sufficient. The self-defeating beliefs need to be altered as well (Licht, 1983). Secondly, it would be even more advantageous for such a pupil if the emergence of negative and damaging attributions could be prevented altogether. The MAT programme has previously indicated in 1989 the potential to develop or improve reading skills from the first year of schooling. It is assumed that the attributions spawned by this programme will generate positive emotions which can promote reading motivation long before too many failure experiences can overwhelm a pupil completely.

3.3 THE MAT PROGRAMME AS MOTIVATOR

There have been several suggestions that attempts should be made to devise and test programmes that are designed to induce appropriate achievement-enhancing and motivation-enhancing attributions in school children. The pupils targeted are those who are likely to or already give up in the face of failure and who display self-defeating attributional schemata (Dweck & Reppucci, 1973; Weiner, 1972; Wood, 1991).
Support for such programmes has accumulated in:

- clinical psychology which has discussed the possibility of 'attribution therapy' in the attenuation of debilitating behaviour symptoms and their effects. Attribution therapy includes a programme which develops new attributions for these symptoms (Heckhausen & Krug, 1982; Ross, Rodin & Zimbardo, 1969; Storms & Nisbett, 1973);

- existing techniques such as 'cognitive restructuring', 'rational emotive therapy' and 'what clients say to themselves' (Davison, 1966; Ellis, 1962; Meichenbaum & Cameron, 1974; Wood, 1991).

This, in essence, involves the reattribution of events.

However, the researcher has personally observed that, in formal educational circles, studies on programmes - remedial, reading, spelling, mathematics - have been confined solely to their effects on scholastic skill development. Evidence on the effects of such programmes in an educational setting regarding pupils' attributions, emotions and motivation has not yet been located by the researcher. The lack of available or easily accessible literature on this subject amplifies the necessity and importance of the present study which will serve to narrow this gap in psychological knowledge, and hopefully stimulate more needed research in this field.
In the present investigation, the 'therapy', as alluded to in the above-mentioned clinical studies, can be regarded as the positive outcome - the motivating reading success experiences - of the MAT programme. This programme still needs to demonstrate to what extent it is able to timeously induce appropriate motivational attributions and emotions in pupils before too many failure experiences occur, especially in reading.

3.4 ILLUSTRATED IMPACT OF THE MAT PROGRAMME

The 1989 MAT programme investigation has yielded persuasive evidence of its positive effects on reading skill development and reading performance successes (Windell, 1990). The data revealed that this programme provided repeated successful experiences for pupils exposed to it. These experiences included successes derived from the varied morphophonological exercises and games in the programme sessions, and successes arising from the pleasures of reading progress owing to the smooth transfer of the MAT skills to classroom books. Since the conclusion of this previous study, it has been assumed by the present researcher that such positive reading experiences are likely to influence the same pupils' attributions and emotions to the benefit of continued and prolonged motivation to read, as opposed to pupils not exposed to the impact of the MAT programme. Nevertheless, these assumptions need to be explored further, especially if the outcome is expected to hold numerous advantages for the beginning reader, not only at the outset of schooling but in future years as well.
3.5 MOTIVATION FOR A LONGITUDINAL STUDY

Previous research has consistently highlighted and added support for the formidable benefits of morphophonological awareness and its training with regards to reading (Bradley & Bryant, 1983; Fox & Routh, 1983; Gathercole, Willis & Baddeley, 1991; Goswami & Bryant, 1990). Some longitudinal studies have marshalled evidence of the long-term advantages of morphophonological awareness training on reading (Bradley & Bryant, 1985; Share, Jorm, McLean & Matthews, 1984). Yet, despite the long and interesting scholarly history of cogent attempts to sing the praises of morphophonological awareness training, previous studies have been criticized on several issues. Firstly, the effects of morphophonological awareness training have been cited as being of a short-term nature, and tend to fade in the long term (Collins, 1961; Freyman, 1980; Lawrence, 1973; Read, 1987). Secondly, most longitudinal studies enthusiastically note morphophonological awareness training advantages which seem to operate only during the investigation and seldom last beyond the termination of the study (Bradley & Bryant, 1985; Fox & Routh, 1976; Treiman & Baron, 1983). Thirdly, although much has been recorded about morphophonological awareness training, and its impact on reading skills, no research to date has been found that was conducted on the effects of such training on reading motivation in future years. Lastly, most morphophonological awareness training research has investigated segments of age groups and offers a disjointed view of reading advancement by means of such training. What is
urgently required is a longitudinal study of the same sample or samples of pupils which extends from the beginning of reading instruction (with the introduction and termination of morphophonological awareness training) to beyond the three years of the Junior Primary phase of school. In this way the continued effects of such training of these pupils into the future school years and phases as well as developmental and motivational trends can be documented, based on an unbroken time span of investigation, providing thereby a more realistic view of this type of training.

The abovementioned studies and the ensuing criticisms serve a twofold purpose. They guide the present study through the pitfalls of previous research attempts regarding morphophonological awareness training. Furthermore, they suggest the need for a longitudinal study of the same sample(s) of school pupils from start to finish to attempt to determine the existence of far reaching benefits of the MAT programme. This can only be accomplished in an investigation which spans the reading development of the same sample(s) of pupils from the elementary reading skills phase to a more advanced reading level such as is found in the Senior Primary school phase. The reading motivational level during this latter phase is presumed by the present researcher to set the tone, not only for future reading motivation, but for motivation for school work and school attendance in general. If the MAT programme can assist potential problem readers to feel motivated to read, in particular, and to work hard in other school subjects, in general, well into future years, then such a programme ought to be introduced into all schools.
This programme has proved to be a powerful auxiliary tool for teachers during the year of implementation in 1989. It remains to be seen whether or not it can be just as formidable for the future reading motivation of pupils. This anticipation is a further motivation for a longitudinal study of this nature.

3.6 STUDIES ON ATTRIBUTIONS AND EMOTIONS

Over the past two decades a great deal of research has been conducted towards attributions and their emotional consequences (Howard, 1987; Kelley & Michela, 1980). Some studies reported that people experience more pride and satisfaction when they attributed their successes internally than externally (Weiner, 1979; Weiner et al., 1972). These same studies indicated that internally attributed failures lead to more shame or dissatisfaction.

Despite overwhelming support for the emotional consequences of attributions, investigations of the following facets of attribution theory have been meagre and have raised and left many unanswered questions:

- most attributional research has taken place in experimental settings. Can conclusions from such settings be generalized to classroom achievement? (Andrews & Debus, 1978). Attributional researchers have rarely ventured out of their experimental surroundings. It has been pointed out by Stipek and Weisz (1981) that unless the relationships between attributions and emotions
found in experimental settings are tested in classrooms, the validity of the findings for natural educational environments will remain in question;

- **are attributional schemata generalizable across a wide variety of tasks or situations?** Do children consistently make internal attributions for success or failure in some areas, and external attributions for success or failure in others? Marsh *et al.* (1984) were of the opinion that attributions do not generalize across outcomes; and feel that any theoretical or empirical analyses that assume that they do must be viewed sceptically. Frieze and Snyder (1980) argued that it does not appear as if a child uses the same type of causal explanations across situations. A child's causal explanations have been found to be situation specific and are dependent upon his/her maturity and experience with the situation. If this is true, then it means that a child can be assisted to develop productive and beneficial attributions in a situation like reading, by means of the MAT programme.

A cogent argument can be made for further research on a long-term and naturalistic basis in an attempt to answer, or begin to answer, the above questions which are quite relevant to the present research problem.
3.6.1 Self-serving bias

The basis of the origin of attributing success to internal causes and failure to external causes is not agreed upon. A substantial body of literature has demonstrated that when subjects attribute their own success to internal causes (ability, effort) while attributing failure to external causes (task difficulty, luck), this asymmetry in the attributional process may not necessarily reflect a true attribution, but may rather be a reflection of a self-serving bias (Baer, Stacy & Larimer, 1991; Zuckerman, 1979). Heider (1958) referred to this phenomenon as the hedonic bias. This type of bias is postulated as a person's attempt to protect or enhance self-esteem. Some researchers in this field have suggested that self-serving bias is a deliberate distortion to protect one's self-image, whereas others argue that this type of response may be quite rational and not represent a 'bias' at all (Riess, Rosenfeld, Melburg & Tedeschi, 1981). Hargreaves (1977) presents the impression that the existence of such biases may be nothing more than the creation of the researcher.

The view of self-serving biases adopted by the present researcher is that they are distortions of true attributions, and if detected, will serve the useful function of triggering further probing by the researcher as to their reasons for emergence. This will be accomplished against the background of the attributions of the pupils, their teachers and parents with regards to the academic outcomes that may have given rise to such biases.
3.6.2 Inappropriate measurement procedures

The probe for relevant literature in support of the present investigation revealed more about empirical obstacles faced by previous research. Such difficulties have hampered research progress in the direction that the present investigator now wishes to take. Attributional research is plagued by a disregard for important measurement issues and a lack of construct validation of the measurement devices employed (Elig & Frieze, 1979; Howard, 1987; Stipek & Weisz, 1981). Measurement procedures have not yet reached an adequate degree of sophistication. Issues such as reliability and validity have rarely been considered.

Historically, this unfortunate disregard for measurement issues is typical of research that focuses on experimental manipulations rather than the assessment of individual differences. Particularly in attributional research, the poor quality of measurement instruments and the lack of comparability of measurement procedures used by different researchers makes the comparison of results from different studies a problematic exercise of limited assistance for the present study. Furthermore, the unquestioned acceptance of inappropriate procedures used in some studies is not an acceptable way to establish comparability across studies (Marsh et al., 1984). Researchers need to seriously examine the constructs proposed by attribution theory and the construct validity of measures designed to assess those constructs.
3.6.3 Inadequate measurement instruments

There are no widely used instruments that are satisfactory as measures of attribution (Stipek & Weisz, 1981). Those that have been employed are either ad hoc measurement devices with untested psychometric properties or are locus of control instructions developed to measure one attributional dimension. A measurement device that has been frequently employed is the Intellectual Achievement Responsibility (IAR) scale constructed by Grandel et al. (1965). It is the only standardized instrument to measure separate attributional dimensions, and has been the basis of several hundred studies (Cooper, Burger & Good, 1981). It uses a forced-choice format to evaluate the relative strength of ability and effort in thirty-four academic outcomes (half success, half failure). It is a dispositional measure that asks about hypothetical situations that a student could encounter. Students have to choose from two responses: one representing an external cause and one representing an internal cause of an academic outcome. Separate scores for success and failure items and for their total are defined by the number of internal items that are selected. It is different to a situational measure which involves an actual achievement outcome.

Numerous criticisms have been levelled at the IAR. The ipsative approach of the IAR has the potential to distort reality. Recent evidence indicates that ability and effort attributions may be independent of each other rather than universally related as the ipsative system would assume (Marsh, 1984). Even
though the IAR has been used extensively in hundreds of studies, it does not thereby qualify as being effective. Cooley and Ayres (1988) argued that it may not be a particularly sensitive instrument in evaluating individuals. Even the originators of the IAR cautioned almost three decades ago for the need to further refine this instrument (Crandall et al., 1965). They also reported low internal consistency coefficients (between 0.54 and 0.60) and low correlations between the IAR and IQ (none of the six correlations exceeded 0.26). IAR correlations with school grades were somewhat higher. The forced-choice format of the IAR is dubious because perceived causes can be assumed to vary along a single internal-external dimension (Marsh, 1984).

Although many studies contributing to the attribution model of achievement behaviour have used the IAR as their attribution measure, there has, as yet, been no simple direct test to show how far the IAR is predictive of the causal schemata people employ in actual behaviour in specific situations (Weiner et al., 1972; Weiner & Kukla, 1970). Judged by current standards, the IAR is an inadequate measurement instrument for attributional research. The extent of reliance on it by so many previous studies underscores the deficiency of measurement sophistication in this field (Marsh et al., 1984).

A measurement procedure used in studies by Nicholls (1976, 1978, 1979) involved a paired-comparison format. This forced children to choose one attribution for each pair representing all the possible pairings of ability, effort, task difficulty and luck. This procedure had several flaws:
- with only four alternatives, the ipsative properties of this response format has the potential to produce large, artificially negative correlations among the subscales and complicate their comparison with external criteria. The more positively ability attributions correlate with self-concept, for instance, the more negatively each of the other scales (including the effort scale) will correlate with the same criteria (Marsh et al., 1984);

- the forced-choice format does not allow children to indicate the degree of difference between any pair of options. This produces a strictly ordinal scale that makes the application of inferential statistics questionable. Moreover, responses are better represented on a rating scale than an ipsative type format. Elig and Frieze (1979) demonstrated that students themselves felt that they were better able to represent their responses on a rating scale.

As a result of the abovementioned measurement weaknesses, the support for predictions arising from studies in the field of attribution is more an artifact of the type of response scale that was used. The emerging conclusions are, therefore, of limited assistance.
3.6.4 Incorrect generalization of artificially induced attributions

Most attributional research has asked some captive population (typically college undergraduates) to give causal explanations for their own behaviour or emotions or that of another person in a hypothetical or fairly trivial situation usually based on highly contrived vignettes or simulated scenarios (Jung, 1991; Lau & Russell, 1980; Ng, Giles & Moody, 1991). These attributions were almost always recorded on forced-choice, close-ended scales. The type of attribution that can be made is therefore generally determined by the experiment. It is difficult to determine by these means how relevant the results of such laboratory-based experiments are to real-world settings in which such attributions are assumed to occur.

The role of individual differences has also been disregarded by means of forced-choice scales in experimental surroundings. The limited amount of work that has been done in addressing these measurement issues clearly indicates that the causal dimensions that underlie individual differences in self-attributions may be different from those found in laboratory-based research (Marsh et al., 1984).

One needs to exercise a great deal of caution in generalizing attribution theory and its research to educational settings which forms the basis of the present research. Asking subjects to make attributions about a hypothetical person in an experimental setting is considered by some researchers to have
its advantages. It allows the researcher greater freedom in the type of information given to the subject and avoids effects that are sometimes assumed to distort self-attributions, like inflated beliefs about personal efficacy, the self-serving bias. However, this methodology provides a weak basis for inferring self-attributions in a more natural setting like a school where the situation is not so highly structured anyway. Some researchers have shown that in less structured situations where students made self-attributions to both ability and effort (when neither is controlled or manipulated), the two covaried positively (Elig & Frieze, 1979; Retich, 1983). In a structured situation, students’ attributions of ability covaried negatively with the given level of effort; more effort was required to achieve the same outcome is seen to imply less ability (Covington & Omelich, 1979). These studies, although convincing in their own rights, are conflicting; their conclusions cannot be generalized to a school environment without further research within such an academic setting, using school members rather than college or university students.

The present study will be based on a naturalistic setting comprising real school pupils, their teachers and parents. Attributions and emotions will be from real experiences, about real people within contexts that are real. It is assumed that the research conclusions generated by this educational reality will be more generalizable to scholastic settings than the studies to date.
3.6.5 IQ

Conclusions regarding IQ and attributions are striking and, as yet, unequivocal. A study by Licht, Kister, Ozkaragoz, Shapiro and Clausen (1985) revealed that IQ scores did not seem to be related to ability attributions within the learning disabled (LD) group, $r(24) = 0.06$. Yet IQ scores were related, albeit negatively, to ability attributions in the non learning disabled (NLD) group, $r = -0.38$, two tailed $p = 0.06$.

In a study by Butkowski (1982), the male subjects had higher IQ scores than those in the Licht et al. (1985) study. It was discovered by Butkowski (1982) that the NLD male group of high IQ levels made fewer attributions of failure to insufficient ability as compared to the lower IQ NLD male group of Licht et al. (1985). A possible implication here is that the contrasting results of these two studies may be either related to experimental design factors, that is, using males of differing IQ levels, or to IQ per se. Conclusions are muddled by too many unaccounted for factors and suggest more careful and specific research.

3.7 INDIVIDUAL DIFFERENCES

Licht et al. (1985) have pointed out that not all students are affected by repeated academic failure in the same way. Age, significant others and sex may mediate these differences.
3.7.1 Age

Kun (1977) found that children's attributions varied with age. Some studies, based on hypothetical others, have shown that in the initial school years, pupils tended to attribute ability to a direct positive function of how hard one tries (Harari & Covington, 1981; Nicholls, 1978; Stipek & Tannatt, 1984). They felt that the harder they tried, the more they would learn and the cleverer (ability) they would become. Bandura and Dweck (1983) illustrated that intelligence is viewed by young children to be continually incrementing through effort. Similar conclusions were reached by Nicholls and Miller (1984): continued success at a task creates in a child a feeling of high ability. For grade one children it was shown that effort and ability attributions covaried positively (Kun, 1977). Young children did not appear to be able to distinguish between effort and ability. In this same study, children in grades three and five formed different attributions about effort and ability; less effort was required by hypothetical others who had more ability (a negative covariation between causes).

In the beginning years of school, social comparisons by children of how they are progressing academically enters less prominently into the judgements of young children (Feld, Ruhland & Gold, 1979; Rubie, Parsons & Ross, 1976). Failure at tasks is not experienced as debilitating. Younger pupils between seven and ten years of age are less likely to decrease their efforts as a result of failure. Ability is still seen as changeable through effort. However, over the
years, comparison information begins to play an important role in the
judgements of pupils regarding their ability. Pupils begin to become aware
that they must perform better than their peers to be considered high in ability
(Nicholls, 1978).

The above literature suggests that for children less than ten years old,
attributional dimensions vary with age and evolve. Although this may be the
case, some researchers have criticized the experimental methods by which
these suggestions have been reached. Fiedler (1982) contended that most
of the attribution research required subjects to make semantic judgements
rather than empirical ones. Semantic judgements in this case means that
subjects deal with the meanings of descriptions like ability, effort, task
difficulty and luck. Empirical judgements require subjects to translate
information from direct experience into attributions. The crucial difference is
that for empirical judgements, subjects need to encode stimulus information
with regard to relevant and personal attributions. For semantic judgements,
the encoding is already done by the experimenter.

Another reason for viewing the above documentation cautiously is that it had
employed ratings of hypothetical others. Such results may not necessarily
generalize to naturalistic studies employing self-attributions. Sohn (1977)
argued that results based on attributions about hypothetical others need not
agree with those based on self-attributions. In a study by Cauley and Murray
(1982) it was found that students younger than ten years of age (second and
third grade), when asked to make self-attributions about causes of success and failure, treated the relationship between ability and effort in the manner predicted by adults. This suggests that young children's self-attributions may be more logical than their attributions about hypothetical others.

However, most researchers agree that by the age of ten years and beyond, school children believe that ability is stable, and this belief limits the utility of their efforts (Rholes, Blackwell, Jordan & Walters, 1980). Pupils evolve the opinion that effort is not going to make them clever or able to succeed. Research seems to suggest that with increasing age advances increasing vulnerability to the crippling effects of failure.

Although data suggests that younger pupils are less vulnerable to the effects of lack of success, this does not mean that they are immune to these effects. Pupils in first grade and younger rated their mood more negatively after experiencing failure on a consistent basis. Constant feedback that one's answers are incorrect is not as pleasant as feedback about success. This can cause even younger pupils to dislike or want to avoid academic tasks (Torgesen & Licht, 1983). A research review by Harter (1978) on effective motivation suggested that failure by a child to master intellectual tasks decreases the reinforcement value of such tasks for the child. Stipek (1981) found a significant relationship between children's achievements and self-ratings as early as the second grade.
The research suggests that earlier success at academic tasks ought to increase or enhance future success experiences. This, in turn ought to promote positive attributions, emotions and subsequent motivation. The MAT programme will be scrutinized more closely to see whether or not its effects in 1989 provided the necessary success experiences for younger pupils as reflected in their present day self-attributions regarding reading tasks.

3.7.2 Significant others

Numerous studies have demonstrated the attributions of children regarding their own successes and failures (Frieze, Fisher, Hanusa, McHugh & Valle, 1978; Weiner, 1979). However, less is known about the views held by the significant others in the life of the child, like parents and teachers (Fyans & Maehr, 1979).

3.7.2.1 Parents

The intimate knowledge that parents possess concerning their children within the home context cannot be ignored in a study of this nature (Bush, 1983; Himelstein, Graham & Weiner, 1991; Peck, Carlson & Helmstetter, 1992). The data of Buck and Austrin (1971) suggest that mothers were quite accurate in rating their child's competence in the intellectual area. Mothers' ratings were highly realistic in that their stated ratings of competence and their child's actual intellectual ability were found to be congruent.
Mothers formed the dominant parent in this present study for two reasons. Firstly, they usually occupy a high position of importance as a significant other in the early school lives of children. Secondly, mothers were more accessible for participation. Chapman and Boersma (1979) concur with this.

There is increasing support for the value of parental attribution in research. Attributions of mothers about their children’s successes and failures were similar to those made by the children themselves (Bar-Tal & Gutman, 1981; Pearl & Bryan, 1982). It was difficult to determine from these studies whether these maternal attributions were more a cause or a result of their children’s performances. Relatively small samples were used and may indicate that further examination of parental attributions may be helpful in furthering understanding of the milieu of which readers are a part. However, Bar-Tal (1982) has indicated that parents do communicate their attributions to their children. Being important agents of socialization, parents can influence their children’s attributions.

Gupta, Stringer and Meakin (1990) showed how the verbal reinforcement of parents proved advantageously potent for the reading motivation of their children. These results confirm once again the important role of parents in the academic progress of their children. Some parents are not as motivating, especially when their children are experiencing difficulties. Some investigators revealed that mothers of children with learning and reading difficulties expressed negative attributions toward their children (Buck & Austrin, 1971;
Owen, Adams, Forrest, Stolz & Fisher, 1971). It is hoped that the long-term effects of the MAT programme will be able to positively affect the attributions of parents about the reading performance of their children.

In the present study, parental attributions will be tapped to determine the MAT programme influences on the attributions of parents concerning the reading achievement of their children. Parents are known to be powerful models of positive attitudes (Stone, 1981). It is hoped that the MAT will develop positive attitudes, attributions and emotions in parents that will help confirm or advantageously change the attitudes, attributions and emotions formed by their children with regards to reading.

3.7.2.2 Teachers

Teachers make judgements about pupils: attempting to explain why a certain event has taken place, or predicting what will happen under given circumstances. Teachers are generally charged with the responsibility of reaching certain objectives. Attribution theory is concerned with the making of explanatory judgements, making decisions regarding the causes of events that have already taken place, and predicting the effects of such events on a person's feelings and behaviour (Rogers, 1982).

The beliefs of teachers about the reasons for the success and failure of their pupils has been widely documented (Bradley, 1978). Numerous previous
investigations were conducted in a laboratory setting, often employing inexperienced college students as 'teachers', and deliberately attempting to minimize the degree of teacher-pupil acquaintanceship (Ames, 1975; Beckman, 1970; Ross et al., 1974). Such procedures afforded investigators a certain degree of control over the variables examined. However, these contrived situations do not result in meaningful attribution-behaviour relationships as do actual classroom situations. Furthermore, findings from laboratory investigations may not be applicable to real teachers attempting to explain typical academic problems of pupils. Several researchers found that the emotional investments of teachers in the performances of their pupils are undoubtedly much higher than laboratory subjects assigned to a teaching role in a contrived experiment (Brophy & Good, 1974; Dusek, 1975).

Teachers have also been found to influence pupils' causal perception of success and failure and resultantly influence pupils' motivation (Brophy & Good, 1974; Cooper, 1979; Sharp & Green, 1975; Silberman, 1969; White & Kistner, 1992). Bar-Tal and Guttman (1981) found that the causal perceptions of success and failure were more similar to that of their teachers than that of their parents. Furthermore, it was found that the teachers' causal perceptions are important determinants of teachers' behaviour towards their pupils (Bar-Tal & Darom, 1979). This can be explained through the mediating process of teachers' expectations regarding pupils' future outcomes. If the teachers believe that the success or failure of their pupils is a result of stable causes, they might expect the same outcome to be repeated, since it is believed that
stable causes do not change over time. If the success or failure is attributed to unstable but controllable causes, the teachers might believe that the pupils will experience success in the future, on the assumption that pupils want to succeed. If the success or failure is attributed by the teachers to unstable or uncontrollable causes, then the teachers cannot predict the future achievement outcome of pupils. Rist (1970) has argued that such causal attributions by a teacher can establish an educational caste system in that teacher's class. It is believed by some researchers (Jackson, Silberman & Wolfson, 1969) that it is not always possible for a teacher to maintain the pupil objectivity that is required by the teaching profession.

It was shown by Cooper (1977) and Dweck and Bush (1978) that teachers tend to approach boys and girls differentially. They more often approach boys than girls with negative verbal appeals about non-intellectual aspects of their work. Teachers also provide girls more often than boys with negative appeals regarding the intellectual quality of their work. In cases of failure, teachers refer more to boys lacking motivation than girls. These differential reactions of teachers were found to determine differences in boys' and girls' perceptions of their success and failure and general motivation. The teachers' positive appeal towards boys which focused mainly on intellectual performance, provided a good indicator to boys of their ability. The teachers' use of the effort attribution regarding the boys' failure indicated to the boys that their failure was due to effort neglect. Since teachers seldom use the effort attribution to refer to girls' failure, girls do not use this attribution to refer
to their own failure. Teachers use the ability attribution more when referring
to girls' failure.

It was felt by some researchers that teacher attributions may be biased
(Medway, 1979). Personal responsibility of a pupil's failure is usually denied
by teachers. This enhances or defends their professional image. Teachers do
not readily admit their own inadequacies or limitations as attributable to the
failures of pupils. To circumvent this, Bradley (1978) recommended that
teachers can provide consensual validation for their academic opinion by
consulting with the school principal. This will be one way of controlling bias
which may emerge. Hargreaves (1977) has stated that teachers' biases may
be no more than a creation of the researcher and nothing else.

Some studies that have investigated teachers ascriptions regarding pupils' academic performance have generally been contradictory. Beckman (1970)
and Brandt, Hayden and Brophy (1975) found that the pupils' performance
had the tendency to influence teachers to ascribe ego enhancing or ego-
defensive causal perceptions of pupils' outcomes. Teachers tended to take
credit for their pupils' successes and attributed their pupils' failure to causes
other than teachers. Studies by Ames (1975) and Beckman (1973) arrived at
conflicting results. They found that teachers tended to take responsibility for
their pupils' failures, and gave credit to pupils when they succeeded. It seems
as if the different conclusions arrived at by these studies could have been the
result of the various experimental conditions used in each study. In the
investigation of Brandt et al. (1975), the pupils were hypothetical; in the study by Beckman (1973), the subjects could see the pupils, but could not interact with them. In the Ames (1975) study, the subjects were able to interact with the pupil for fifteen minutes. The above studies were conducted in a laboratory setting. In view of the limitations regarding the ecological validity of these investigations, the present study was designed to extend the scope of investigation of causal perceptions of real teachers to real situations in school settings.

In the current study, teachers' attributions about the causes of their pupils' reading performance will serve to strengthen or weaken the validity and impact of the MAT programme.

3.7.2.3 Pupil perceptions about significant others

Research on pupils' perceptions about their teachers and parents is limited and meagre (Marsh, Rosser & Hamé, 1978; Rogers, 1980, 1982). The reasons for a lack of researcher interest in pupils' own perceptions about significant others within their educational environment is that the personal statements of pupils were not considered as important as those of adults. Previously, the perceptions of pupils were relegated a curiosity rather than an explanatory value (Rogers, 1982). The current research addresses the need to examine pupils' perceptions about the adults in their educational lives. In
this manner it is hoped that further gaps in scientific and attributional knowledge can be closed.

3.7.3 Sex

There is an abundance of evidence to suggest that success and failure outcomes are experienced differently by males and females (Deaux & Emswiller, 1974; Nicholls, 1975). Failure in competitive contexts like a classroom may be more ego threatening to males than to females.

Profound sex stereotypes appear to operate in achievement contexts. Male success is ascribed to internal causes like ability and female success to external causes like luck (Bar-Tal & Frieze, 1977; Dweck & Gilliard, 1975; Feldman-Summers & Kiesler, 1974; Nicholls, 1975). When successes do occur, it has been found that females are less likely to take credit because success is sex role inappropriate and therefore less expected from women (Feather & Simon, 1971).

The above results are not unequivocal owing to research methodological factors. Research on the stereotype denigration of female success has relied almost exclusively on the evaluation of others. Whether or not these same biases will persist when the focus of evaluation is one's own performance, is not clear. Furthermore, much of these investigations have employed adults in colleges, universities or high school students (Torgesen & Wong, 1986).
The results of Bar-Tal and Frieze (1977) concur that sex differences vary depending on the type of research design and research requirements. Sex differences emerged in some research when a pupil expressed his or her views about his or her personal success and failures. However, few sex differences were noted when boys and girls expressed their views on success and failures in general. It appeared that they were not necessarily relating to their own experiences but rather to what they thought other individuals happen to view success and failure.

An investigation by Dweck, Davidson, Nelson and Enna (1978) on younger pupils (grades three and five) is more detailed than the others reviewed so far. It indicated that boys attribute success to stable internal ability factors, and their failure to stable but external factors (inappropriate teacher attitudes) or to unstable but internal factors (their own lack of effort). Girls attributed their successes to external factors (teachers’ appropriate attitudes or behaviour) or to internal factors other than ability (their tendency to follow the formal demands of the teacher and thus to receive praise even when they had not attained objective success). Failures were attributed by girls to stable internal factors (lack of ability). Boys shrugged off the effects of failure by attributing it to external factors or to the internal factors under their own control (effort) and thus to emerge with higher hopes for the future. For girls, failure suggested inadequacy: trying one’s best and still failing. This tends to lead to negative attributions about ability and reduced expectations for future achievements at similar tasks (Brophy, 1981).
The results of Licht et al. (1985) has delineated and compared sex differences between LD and NLD girls and boys in grades three, four and five. It was found that LD boys and girls were less likely to attribute their failures to insufficient effort. LD girls were more likely than NLD girls to attribute their failures to insufficient ability, whereas LD boys were more likely than NLD boys to attribute their failures to external factors. More LD girls than LD boys were generally more vulnerable to the debilitating effects of experiencing failure. It was furthermore suggested that these sex differences do not emerge in all achievement situations or in all samples of children. A history of learning difficulties seems to be a factor that may interact with sex such that LD girls, but not LD boys are more likely to be more vulnerable to the effects of non-success.

3.8 HYPOTHESES

The literature discussed in chapters 2 and 3 provide grounds for the formulation of various hypotheses.

In chapter 3 three hypotheses were postulated predicting higher achievement on reading and reading related activities for children who followed the MAT programme. These hypotheses are reiterated below for convenience sake.

An additional five hypotheses (four to eight) have been formulated utilizing principles contained within the theory of naive analysis of action proposed by
Heider (1956) and the theory of achievement motivation and emotion of Weiner (1972, 1979, 1985, 1988). Aspects of both these theories as well as literature discussed in this chapter have generated hypotheses four to eight, which refer to attributional, emotional and motivational processes activated by the MAT programme.

The specific hypotheses which directed the present investigation are therefore as follows.

3.8.1 Hypothesis one

Pupils exposed to the MAT programme in 1989 will, during three subsequent years, achieve significantly higher reading achievement scores than the pupils not exposed to this programme.

3.8.2 Hypothesis two

Pupils exposed to the MAT programme in 1989 will, three years later, score significantly higher in reading-related subjects than the control group.

3.8.3 Hypothesis three

Pupils exposed to the MAT programme in 1989 will, over three years, voluntarily read more library books than the control group.
3.8.4 **Hypothesis four**

Significantly more reading at-risk pupils exposed to the MAT programme in 1989 will perceive that they read well in 1992 owing to successful reading outcomes as compared to those not exposed to this programme.

3.8.5 **Hypothesis five**

Teachers will perceive significantly more at-risk pupils exposed to the MAT programme in 1989 as reading well in 1992 as compared to those pupils not exposed to this programme.

3.8.6 **Hypothesis six**

Significantly more parents of reading at-risk pupils exposed to the MAT programme in 1989 will perceive that their children read well in 1992 as compared to parents whose children were not exposed to this programme.

3.8.7 **Hypothesis seven**

Pupils exposed to the MAT programme in 1989 will, together with their teachers and parents, harbour differential and motivational attributions about reading outcome in 1992 than pupils not exposed to this programme, their teachers and parents.
3.8.8 **Hypothesis eight**

Pupils exposed to the MAT programme in 1989 will attain higher scores on positive emotions as a function of motivational causal attributions in 1992 than pupils not exposed to this programme.

### 3.9 CONCLUSION

Research into attributions of pupils, teachers and parents alone would prove inadequate. Information regarding classroom and home contexts and pupil-adult interpersonal relations within these contexts will be assimilated into the attributional feedback for purposes of contextual perspective. As contexts vary, so may the attribution vary (Rogers, 1982).

The abovementioned documentation is pock-marked with numerous flaws. However, it does serve the important role of heightening awareness of a great deal of research that still lags behind to unearth more reliable information and conclusions (within a naturalistic setting) about attributions and emotions, and their potentially motivating effects for school children. The present study will attempt to address some of the methodological weaknesses of previous research and thereby hopes to close some gaps in psychological knowledge. Furthermore, this investigation adds a new dimension to the investigation of attributions by comparing the attributions of pupils, their parents and their teachers.
CHAPTER 4

RESEARCH DESIGN, METHOD OF INVESTIGATION AND INSTRUMENTATION

4.1 INTRODUCTION

This chapter will discuss and motivate the research design that was used in this current investigation. Included in this discussion is the size and characteristics of the sample, the sampling procedure that was implemented, the measuring instruments used, the procedure followed in obtaining and processing the test data, and the techniques of statistical analysis.

4.2 METHOD (1): RESEARCH DESIGN

4.2.1 Design

The research design of the present study was a longitudinal time design. It is an extension of the randomized two-group (pretest-posttest) design previously implemented in 1989 by the researcher (Windell, 1990). This research design is a procedure whereby individuals can be assigned to experimental conditions, and whereby an appropriate statistical analytical method can be selected (Robinson, 1981). This design is characterized by its
simplicity: it is easy to conduct and analyze statistically, yet it provides all the factors necessary for an exploratory scientific analysis.

4.2.1.1 Motivation for this design

This research design was prompted by the current research problem mentioned in chapter one, namely:

What are the long-term effects of a morphophonological awareness training programme on motivation for reading?

The morphophonological awareness training (MAT) programme referred to by the research question is an active independent variable which in this case is an instructional method. The independent variable is active in the sense that, when implemented in 1989, it actively influenced the dependent variable, namely, reading skill development (Windell, 1990). The current research question also refers to reading performance, and its continuance by a pupil over a longer period of time, that is, reading motivation as activated by the MAT programme. Motivation in this present research is viewed as a longitudinal pay off of the independent variable. Although motivation is used here with specific reference to reading, general scholastic motivation will also be monitored. In a research design of this nature, the dependent variables are readily observable and capable of being measured with no distress to the individuals involved. This design also guards against the violation of the rights
of individuals to privacy, and ensures that research ethics will not be breached.

Another reason for this research is that it permits random assignment. Since the research question implies evaluating the long-term effects of the MAT programme, comparison samples of pupils, namely experimental and control groups, were decided upon, already in 1989. Random assignment was possible with these two groups. It is a means by which the effects of potentially confounding secondary variables can be equated by randomly assigning pupils to experimental and control groups. The two-group experimental design allows comparison between the measures of reading motivation influenced by the MAT programme and measures of reading motivation influenced by other methods. The effect of the MAT programme can be isolated as the difference between the measures of the experimental and control groups. This difference would demonstrate the effects of the MAT programme because, ideally, both treatment groups (experimental and control) have been equated on all secondary variables by means of random assignment. Pupils were previously assigned to one of these treatment groups in 1989 in such a manner that each pupil had an equal probability of being assigned to one of these two groups.

The inclusion of another group (control) in this research design also allows the demonstration of the difference in reading performance and kind of motivation between:
the experimental and control groups. This difference would represent the amount of variation due to the MAT programme;

- the scores within each of these two treatment groups. This difference gives a measure of the amount of fluctuation in the dependent variable between subjects due to uncontrolled nuisance variables.

By taking the differences in the dependent variable between the experimental and control groups and dividing it by the difference between the scores within these two groups, a numerical indicator is computed which tells how many more times the variation between the groups was larger than chance fluctuations between scores (Robinson, 1981). Prior to this calculation, it is not known whether or not the differences on the dependent variable are due to the MAT programme or due to uncontrolled secondary variables. The chances are that the dependent variable scores of the control group will differ in any case from those of the experimental group even if the MAT programme had no effect on the experimental group. However, by means of the extra group in this research design, it is possible to determine whether the difference between the two groups is significantly larger than the amount of random fluctuation usually found between scores when no independent variable is present.
A final motivation for this research design is generated by the research question. It needs to be determined whether or not the effects of the MAT programme extend beyond the year of implementation. This design permits a year by year evaluation of these effects while providing the necessary statistical control as outlined above. The initial year of the commencement of the study of the MAT programme effects, that is, 1989, provides a baseline of reading performance data against which the extensive data of the present investigation can be compared. The remaining members of the original randomly assigned experimental and control groups will be used for the period of the current study.

This is an exploratory investigation regarding the influence of the MAT programme over a long period of time. This design enables an in-depth exploration as to this influence which is not possible with any other design. Regular encounters (interviews, classroom observation, testing, casual discussions) with pupils and their teachers and parents are made possible in a research design of this nature. It is assumed by the researcher that these longitudinal encounters will yield a wealth of exploratory data of a more meaningful nature like developmental trends of the effects of the MAT programme on reading motivation. The researcher’s knowledge of the individuals for at least four years (the initial study in 1989 and the 1990 to 1992 period) ensures a high degree of researcher confidence, and stability in interpreting the results.
4.2.1.2 Design structure

The research design structure is a modified and extended version of the one suggested by Kozling (1975). It is depicted in Fig. 1.

FIGURE 1: Schematic presentation of the design structure of this current research
4.2.1.3 Design symbolism

The symbolism underlying the research design is:

\( X \) : The experimental manipulation performed in the experimental group by means of the MAT programme in 1989.

\(-X\) : No experimental manipulation performed in the control group.


\( Y_{\text{MA}} \) : The pretest measure of one of the dependent variables in 1989, namely, morphophonological awareness (MA), before (b) the manipulation (experimental group) or non-manipulation (control group) of \( X \).

\( Y_{\text{MA}} \) : The posttest measure of morphophonological awareness in 1989, after (a) the manipulation (experimental group) or non-manipulation (control group) of \( X \).

\( R \) : The random assignment of pupils in 1989 to the two treatment groups and the random determination which of these two groups would receive the experimental treatment: experimental (above the \( R \) line), control (below the \( R \) line).
The solid boundary lines represent the basis of the previous research design of 1989; the broken boundary line indicates the longitudinal time design extension. The position of X shows the central prominence of the MAT programme in this design.

4.2.2 Internal validity

In this research it was necessary to demonstrate that changes in the dependent variable (reading performance and reading motivation) could be attributed largely and beyond reasonable doubt to the independent variable (the MAT programme). Such a demonstration would, if successful, strengthen the internal validity of this design.

Some researchers have warned that nuisance or irrelevant variables, if not taken into account, can pose a threat to internal validity (Ekwall & Shanker, 1983; Kerlinger, 1975; Van Dalen, 1979). The extraneous variables that will receive consideration in this present investigation are gender, previous exposure to phonological-type games in a preprimary school, parental education qualifications, IQ, history and motivation.
4.2.2.1 Built-in control of confounding variables

In an attempt to promote and strengthen internal validity, this design incorporates several methods to take into account the above and other possible unknown nuisance variables.

4.2.2.1.1 More than one treatment group

In addition to the group exposed to the MAT programme (experimental) in 1989 (Windell, 1990), another group exposed to a completely different reading scheme (control) was also included. This extra group allows not only for randomization to be implemented but also for comparisons of differences between the experimental and control groups in this current investigation as outlined in 4.2.1.1.

4.2.2.1.2 Equating treatment groups

By means of randomization techniques used in the research of 1989, the nuisance variables were statistically equated between the experimental and control groups. In this design, it is assumed that the probable effects of known nuisance variables (gender, preprimary school attendance, parental education qualifications, IQ, maturity and history) and unknown extraneous variables on the results of the experimental group would have already been
counterbalanced with their opposite quality or quantity in the control group by means of randomization in 1989.

4.2.2.1.3 Double randomization

After the two treatment groups were formed by means of randomization in 1989, it was randomly determined which of these groups would be accorded experimental status. In this way double use was made of a method for equating nuisance variables.

4.2.2.1.4 Restructuring intact classes

An oft-quoted field experiment weakness is the unwillingness of school personnel to break up their existing class groups for the purposes of the random assignment of pupils to experimental and control groups. However, in 1989, staff members involved in the investigation agreed to the randomized reassigning of their pupils to the experimental and control groups for the daily 30 minute manipulation (experimental) and non-manipulation (control) of the MAT programme. After this thirty minute period, pupils once more returned to their originally intact classes for the rest of the school day. Pupils were randomly reassigned to the experimental and control groups only once. Thereafter, pupils knew which group and classroom to go to for their half hour when their class reassembled. This daily pupil rearrangement became another routine to which pupils easily and quickly adjusted. The advantages
of this pupil rearrangement were two randomly composed groups which could be compared for differences between performances and which were equated for nuisance variables.

4.2.2.1.5 Permanent pupil-group composition

When the experimental and control groups disassembled each day after the thirty minute investigation period in 1989, the pupils reassembled in their original class groups. Each class group then consisted of a mixture of experimental and control group members. This initial composition of experimental and control group mixture had remained constant during the present period of study, even though the original number of pupils has diminished over the past three years owing to family moves, failures, remedial school transfers and for confidential reasons (cf., 4.2.2.1.7). This mixture of original experimental and control group members in each class bodes well for the control of another probable nuisance variable, namely, changing teachers over the past three years. In the current study, mixed members of the experimental and control groups in a classroom are well equated with regards to this extraneous teacher variable by being exposed to exactly the same instructional methods and educational environment during each year. At the end of each school year, the results of the experimental and control groups in each class will be compared with each other to determine the long-term effects of the iMAT programme.
4.2.2.1.6 Well-coordinated instructional skills of teachers

The teachers involved in this present research have, as a matter of internal school policy, coordinated their teaching skills under the regular supervision of the heads of department of the Junior and Senior Primary phases. This ensures that each class, irrespective of a teacher, receives the same type of instructional method between 1990 to 1992. For this reason it is assumed that each of the classes of mixed experimental-control groupings as outlined in 4.2.2.1.5 are equated in terms of a probable nuisance variable of teacher and instructional method. This enables comparisons to be made between the experimentals and controls which will once again demonstrate the long-term effects of the MAT programme on reading motivation.

4.2.2.1.7 Stable home and experiential background

Being members of a small town community and having been uninterrupted at this school since the outset of their school careers, these pupils and their family backgrounds are relatively well known to the school staff. When pupils' experiential or home backgrounds indicated traumatic proportions during any stage of the current study, it was decided to react to this in two ways. Such pupils were tested but their results were excluded from the statistical analyses that compared the differences between experimental and control groups to avoid unnecessary biasing of these differences. The second way of dealing with the results of pupils exposed to some traumatic event was to separately
compare the test results of traumatized experimentals with the rest of the experimentals from stable backgrounds. In this way the performance scores of the traumatized experimentals need not bias the overall comparisons nor be entirely discarded. Moreover, this information between experimentals from stable backgrounds and those few exposed to some form of recent trauma can be used to indicate to what extent the effects of the MAT programme on reading performance and motivation can transcend the possible effects of a pupil’s traumatic experience over a long period of time. The comparative results would also be representative of this programme’s effects with regards to less stable experiential and family background. To only include pupils from stable backgrounds might introduce a representational bias to the final conclusions regarding this programme and its effects (Van Dalen, 1979). The traumatic elements of pupils’ experiential and home backgrounds considered conjointly by the teachers, a local social worker and the researcher as biasing to experimental-control comparisons are parental divorce, paternal retrenchment lasting more than three months, reports and confirmation of any form of child abuse (physical, emotional, sexual).

4.2.2.1.8 Parental involvement in reading

Previous research has shown the numerous significant benefits of parental involvement with their children’s reading instruction at home (Brown, Weinberg & Cromer, 1986; Criscuolo, 1980; Hamilton, 1987; Hymes, 1958; Johnston, 1989; Young & Tyre, 1983). Various techniques used by some
parents include paired/shared reading, listening only, correcting only a few mistakes at a time, modelling to the child various aspects of fluency and intonation. Extra exposure to reading under parental supervision is known to improve reading skills and motivation for many beginning readers (Young & Tyre, 1983). Although a boon for pupil reading progress and enjoyment, parental involvement in this current study could emerge as a nuisance variable that not only could confound the effects of the MAT programme but also could threaten the internal validity of this design. To resolve this issue, it became necessary, at the culmination of pupil assessments, to determine which pupils in the experimental and control groups relied on parental assistance for reading and for how long (prior to, during and after the MAT programme implementation) and to interpret the results against this backdrop. During this process, another new insight began to crystallize, namely, that the MAT programme effects may not necessarily be boosted by parental involvement but rather that the opposite may be true, namely, that parental involvement is boosted by the MAT programme. This possibility warranted further investigation and will be discussed in chapter five.

4.2.2.1.9 History

In educational research especially, history is a common extraneous variable (Kerlinger, 1975). In the case of the current study, it refers to the events specific to the 35 week period of the MAT programme implementation in 1989. Events like physical and emotional well-being could have stronger
negative or positive effects than the programme on reading performance and future reading motivation. These probable historical events were already statistically controlled in the 1989 investigation by means of the abovementioned double randomization technique and by engaging a control group (Van Dalen, 1979).

4.2.2.1.10 Maturity

Pupils involved in this longitudinal study will have changed in several ways: ever increasing mental ages, improving vocabulary, growing successes and/or failures in academic and non-academic spheres, all or some of which may serve to motivate or demotivate future reading irrespective of the MAT programme. Maturity is viewed in this study as a confounding variable. Although randomization was employed in 1989 to statistically control for maturity variables, it does not necessarily mean that the experimental and control groups remain in reality equal across these variables (Kerlinger, 1975). Nevertheless, it is felt that the control group, as its name implies, is the vanguard of maturity control in this present investigation. Pupils in the control group will also have matured over the past three years as will be the case in the experimental group. Furthermore, if the randomization effects were effective, then it is assumed that the effects of maturity will have been equal in both the experimental and control groups, ensuring additional control for this nuisance variable.
4.2.3 External validity

Demonstrating the influence of the MAT programme on the school pupils in this investigation by means of controlling secondary variables (internal validity) is not sufficient. It is also essential to state that this programme will affect similar subjects in similar situations, outside the present field experiment. This design, to a degree, enables the researcher to make such a statement of generalizability of these results, that is, it displays a certain measure of external validity.

4.2.3.1 Built-in requirements of external validity

This design fulfills several important requirements that enhance its external validity.

4.2.3.1.1 Inferential statistics

Inferential statistics used in this study will enhance the generalizability of the results of this population to another population because the samples were drawn randomly from the one particular population (Huysamen, 1976). This condition was already fulfilled in 1989 in the previous study (Windell, 1990).
4.2.3.1.2 Realism

The previous (1989) and present (1990-1992) research was conducted in an actual school and in a real classroom setting. Facets of classroom realism comprised structure (large, well ventilated and heated, good lighting, well stocked with desks and books, carpeted), composition (co-educational), syllabus (uniformity in all provinces) and distractors (shifting of chairs, interruptions, intercom announcements, pupils and teachers walking to and fro). These real-life conditions encountered in the one school in this investigation are generally similar to those in other white schools in other towns, cities or provinces and thereby increase the generalizability of the findings of this research to similar educational situations (Neale & Liebert, 1973). This realism contributes to the external validity of this design.

4.2.3.2 Possible external validity restrictions

There are a few sources of secondary variation which may influence the generalizability of these findings.

4.2.3.2.1 One-school samples

Pupils of the present study were drawn from only one particular school in 1989 because of easier and regular access and a more reliable control of the research. However, samples from one school might adversely affect the
external validity of this design: this research does not provide an indication of the effectiveness of the MAT programme in other white schools in this town or in the rest of the country.

4.2.3.2.2 Representativeness

This current research is aimed at all problem readers irrespective of language or ethnicity. The language of the MAT programme is English. The school at which this programme was implemented is parallel medium which also includes approximately 43% of Afrikaans speaking pupils, numerous of which also experience reading difficulties and may have benefited from an Afrikaans MAT programme. The intention was to first examine the worth of the existing MAT programme before suggesting its translation into Afrikaans or any other languages. However, translation of this programme and subsequent follow-up studies is beyond the scope of this current investigation, but does nevertheless point in the direction of further research potential. Nonetheless, the external validity of this design is limited by this restriction to one language.

Furthermore, these results are restricted to one population group that was previously taught exclusively at this school, namely Caucasian pupils. English speaking African and Asian pupils were only admitted to the school under study at the beginning of 1991 and were therefore not available for the 1989 investigation. Resultantly, they could not be considered for the current longitudinal investigation which is based on participation of pupils from the
beginning of 1989. To have also included neighbouring African farm schools would have meant translating the MAT programme into the vernacular, since Zulu and not any other language is the medium of instruction up to standard five in the province of Natal. The MAT programme is still an English version. Owing to the abovementioned conditions, the conclusions of this research are restricted to one population group. The effects of the MAT programme in a different social or cultural setting are not indicated in this investigation, thus weakening the external validity of this design.

The above restrictions, although limiting generalizability, avoid this longitudinal study from becoming unwieldy. For a design to subscribe to all the criteria of external validity can result in cumbersome conclusions incapable of generalizability as initially envisaged (Robinson, 1981).

4.2.4 Conclusion

This research design has a strong internal validity. Its external validity has a balance of strengths and weaknesses regarding the representativeness of the results. Meeting all the criteria for internal and external validities is difficult: satisfying one kind of validity seems to restrict the other type of validity to a degree. Any restrictions does not necessarily mean invalidation of the results of this study, but serve to suggest greater care in their interpretation, which in future may stimulate further scientific enquiry in this field. This design has
great potential for demonstrating the effectiveness of the MAT programme for reading motivation over three years.

4.3 METHOD OF RESEARCH

The method of research was conducted within a realistic educational setting, namely, an actual school. Numerous methods were employed as set out below.

4.3.1 The researcher

The researcher is a psychologist assigned by the former Northern Natal School Psychological Clinic eight years ago to evaluate and assist with some of the difficulties experienced by pupils, teachers and parents at various schools in the Northern Natal region. Resultantly, access to these schools was always sanctioned by the Department of Education, was frequent and at least once a week. In terms of this current research, the investigator could monitor the experimental and control groups at Egerton Primary School at least twice weekly owing to more official visits scheduled for the pupils there, warranted in turn by the annual increase of pupil numbers. Testing and interviews by the researcher were restricted to several strategic periods of long leave since the commencement of this study.
The researcher has been known to the present school staff since 1985. Relationships of friendship and trust, essential to this current research, between the researcher and the pupils, teachers and parents were quickly formed, based on the researcher being a familiar figure at the present school. Many of the pupils knew the investigator from his involvement in the school readiness groups at several of the preprimary schools in Ladysmith. No waiting period to form researcher-pupil acquaintances or rapport was therefore necessary in the current investigation. To these pupils, the implementation of the MAT programme in 1989 and the subsequent testing and interview sessions seemed to be part of the usual and regular routine of the researcher as psychologist to which they were already accustomed in that school.

In 1992 the researcher was engaged in this study on a full-time basis. The psychometric tests, projective techniques, clinical and research observation and interviews in this investigation are procedures that are well known to and used extensively by the investigator.

4.3.2 Teachers

All of the teachers involved in this investigation have been at the present school for at least six years: they are experienced and well known to the researcher. The purpose of this research was outlined to them comprehensively, as well as the harm of bias. They were requested to
monitor and record, on a daily basis, the occurrence and frequency of any unusual behaviour, attitude, mood and academic changes, of the experimental and control group members. Any reason for such out of the ordinary pupil responses (teacher perceived opinion or actual fact as a result of teacher follow-up with the parents) and the teacher’s reaction to this was noted by the researcher. This teacher input has provided extra useful data against which a pupil’s (control or experimental) emotional status and attributions could be interpreted.

4.3.3 Parents

At the outset of this current study parents were informed of the longitudinal purpose of this research with regards to reading motivation. On an annual basis parents underwent short interviews with the researcher regarding parent-child relationships and expectations. Some of this information was later incorporated in the attributional questionnaire. Parents also supplied data that related to an updating of biographical information via the Parent Questionnaire, as used in the 1989 study. Towards the end of the study, small groups of parents at a time were invited to the school for two reasons:

- parental input: filling out an attributional questionnaire;

- researcher input: parents could ask the investigator any further questions publicly or privately (by arranging for an interview).
All parents know the researcher well as a result of his regular contact with the school.

4.3.4 Research authorization

Written authorization and signed permission to conduct this research at Egerton Primary School in Ladysmith, was requested and obtained at the beginning of the term from the:

- Executive Director of Education of the Natal Education Department of the Department of Education and Culture;
- school principal;
- parents.

All parties were assured of the anonymity of the pupils and the confidentiality of their results.

4.3.5 Previous research of 1989

The outcome of the previous research of 1989 provided an invaluable data bank of information regarding some of the short-term effects of the MAT programme. This data was used for comparative purposes to relate to the long-term effects on reading motivation over the past three years.
The previous research of 1989 (Windell, 1990) was guided by the following sequence of events:

- permission from the Director of Education, school principal and parents to conduct this research (September 1988 and January, 1989, first week of the first term);

- testing for morphophonological awareness amongst the population of class one and class two pupils not only as a sampling procedure but as a pretest (second week: first term);

- random assignment of morphophonologically unaware pupils to two treatment groups (second week: first term);

- Parent Questionnaire dispatched to parents, filled in by them and returned to the researcher (third week: first term);

- daily implementation (30 minutes per day) of the MAT programme for the experimental group and the Ginn reading scheme for the control group (third week: first term to second week: fourth term);

- regular testing of pupil reading performance (first, second and fourth terms);

- IQ tests (fourth term);
- morphophonological awareness posttest (fourth term);


The Parent Questionnaire requires parents to provide biographical data (birth, developmental history, visual and auditory acuity, preprimary school history, parental marital, educational, and occupational status) on their child(ren) (Windell, 1990, Appendix I). The Parent Questionnaire data was updated on an annual basis subsequent to the 1989 study.

4.3.6 Current research

During the past three years the researcher obtained data by means of the following methods:

4.3.6.1 Quantitative measures

4.3.6.1.1 Standardized tests of the Human Sciences Research Council (HSRC)

4.3.6.1.1.1 Reading tests

Tests were administered annually during the fourth term as stipulated in the tester’s manual of the HSRC. The scholastic achievement tests, English first
language for grade ii/sub B, standard 1, standard 2, standard 3 (1973) were used for this purpose.

4.3.6.1.1.2 Tests of emotions

The Children's Personality Questionnaire (1973) is a standardized measure of emotions and was used towards the end of the third term of 1992.

4.3.6.1.1.3 Tests of motivation

The Children's Personality Questionnaire was also used to determine a pupil's motivational status.

4.3.6.1.1.4 Tests of intelligence

The results of two types of intelligence tests were used in this study:

- the Senior South African Individual Scale (SSAIS) was administered by the researcher to pupils during the second term of 1992. The reasons for this recent IQ testing was to update the 1989 IQ scores and to study verbal-non verbal IQ discrepancies as another possible source of information about the emotional status of experimental pupils as compared with that of control groups;
the New South African Group Test (NSAGT) was administered to the current standard three groups in the third term of 1991, and to the current standard two groups in the third term of 1992 by the same accredited teacher. The reason for including the results of this test was to determine how experimental and control pupils compare concerning coping with reading under timed testing conditions. The verbal subtests of the NSAGT are dependent upon a pupil's reading capability: fluency (speed) and comprehension. Slow readers generally omit many test items and do not finish the verbal subtests, thereby achieving low scores, even if the few completed test responses are correct. Test answer sheets were scrutinized for such omissions of test items for experimental-control comparison purposes. Some pupils achieve low scores for other reasons, like inadequate vocabulary, nervousness, uncertainty about test instruction requirements. Nevertheless, the qualitative and quantitative information supplied by this IQ test was considered supplementary to other test measures and not singularly conclusive. The NSAGT results were evaluated within a global context for each pupil thereby attempting to avoid premature or incorrect conclusions.
4.3.6.1.2 Non-standardized tests:

4.3.6.1.2.1 Attributional tests

The Reading Attributional Survey (Appendices A, B and C) was constructed by the researcher and administered to pupils, teachers and parents in the fourth term of 1992. The motive for such a test was to elicit information about individuals' attributions in one domain, namely reading. Such attributional data will relate to the theories of Heider (1958), Weiner (1972, 1980, 1982, 1985) and Weiner et al. (1971) regarding the possible reasons that people attribute to success and failure and to the motivational features of such reasons, as well as to the long-term effects of the MAT programme on reading motivation. This test is described in further detail later in the chapter.

4.3.6.1.2.2 Academic tests

At the end of each year, for the past three years, the final marks for the various academic subjects, including a separate reading mark, as assessed by the class teacher, was recorded by the researcher from the school records for inclusion in this study. The reason for this information was to determine experimental-control comparisons with regards to actual scholastic tasks. School data was secured only if based on records that indicated a test or examination result that was based on the same question paper written by both the experimental and control groups. Scores attained from homework assignments were disregarded since the implication of peer, sibling or
parental assistance could not be controlled as would be the case under examination conditions where uniformity of conditions are generally assured.

4.3.6.1.3 Independent reading evaluation

The total number of library books read by each pupil, as co-ordinated and recorded by the class teacher and school librarian on an annual basis, was also used in this study as an indication of reading motivation. The choice of a library book is personal, and uniformity was not possible. However, teachers did note the level of reading a pupil chose: higher or lower than the recommended class level.

4.3.6.2 Qualitative measures

4.3.6.2.1 Standardized technique:

4.3.6.2.1.1 Emotions

The Thematic Apperception Test was administered by the researcher to the pupils in the third and fourth terms of 1992. This clinical tool is less structured than the Children’s Personality Questionnaire and may provide more spontaneous and varied material for studying human emotions and motivation.
4.3.6.2.2 Non-standardized techniques:

4.3.6.2.2.1 Biographical details

The aforementioned Parent Questionnaire was filled in by parents at the beginning of this study and updated by them on an annual basis. School records like the Medical Inspection card (which reflected data on visual and auditory acuity tests conducted by Medical Services each year), letters on file (containing parental explanations of a child's absenteeism, visits to medical practitioners or specialists, medical reports), staff comments on the pupil and interviews with parents supplemented the Parent Questionnaire data.

4.3.6.2.2.2 Emotions, attributions, motivation

In addition to the abovementioned tests and techniques, the researcher also made frequent use of the interview situation for pupils, teachers and parents. During this time, unstructured, open-ended expressive procedures were employed by the investigator as a means of improving acquaintance not only with the research individuals but also with their test responses. Interview sessions were generally of short duration and served to cement a relationship of openness and trust. Several initial misunderstandings were furthermore resolved by means of these interviews.
4.4 SIZE AND CHARACTERISTICS OF THE SAMPLE

4.4.1 Size

4.4.1.1 Standard two

The current samples consisting of standard two pupils were initially drawn from the class one population in 1989. They comprised 30 pupils in the experimental group and 30 pupils in the control group. Over the past three years, these original samples have been reduced in number, mainly owing to home moves to other towns and a few academic failures, remedial school and special class placements, and traumatic experience exclusions. The reduction tendency of the present standard two experimental and control group members during the 1990 to 1992 period of this current research is illustrated in Table 1. Numbers represent pupils accounted for only at the end of each year. Totals in brackets refer to pupil numbers at the beginning of a year.

Pupils who failed a standard in one year or were transferred to a remedial school or special class were not included in future statistical analyses since they subsequently received different levels of instruction and were in different classroom situations to the experimental and control groups. A pupil who lost a year owing to failure could not catch up with his or her original classmates in their same class in the same year. Failure, remedial or special education transferrals and known traumatic experiences of a pupil are potential sources of bias for the arguments for this current research and are regarded as
TABLE 1: Reduction in sample size trend of the present standard two experimental and control groups during 1990 and 1992

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Home moves</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>5</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Failure</td>
<td>-</td>
<td>3</td>
<td>1</td>
<td>-</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Remedial school</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Special class</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Trauma</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Year end totals</td>
<td>27</td>
<td>26</td>
<td>25</td>
<td>22</td>
<td>17</td>
<td>19</td>
</tr>
</tbody>
</table>

Nuisance variables. Results obtained by pupils affected by such variables were therefore excluded from the statistical analyses at the end of each year during the course of this investigation. Since home moves, educational transferrals and traumatic experiences may occur any time of the year, the tabulated reflection of final exclusions of potentially confounding results as described above were rather confined to the latter part of the fourth terms. Data at the end of a school year account for all completed or finalized events whereas this is not possible during a year where some events have not yet
occurred and relevant information may be excluded as a result. Candidates for failure were also being considered by the school at the end of the year and the outcome would only be announced then.

4.4.1.2 Standard three

The present samples consisting of standard three pupils were drawn from the class two population in 1989 which totalled 30 pupils, equally divided into 15 members per treatment group. For the same reasons as outlined above, these original samples have diminished in number during the duration of this research, as shown in Table 2. The numbers represent pupils accounted for only at the end of each year. Totals in brackets refer to pupil numbers at the beginning of a year.

4.4.2 Major characteristics of the sample

4.4.2.1 Language

All pupils spoke and were instructed in English since class one. It was also established that their home language was conducted through the medium of this vernacular.
TABLE 2: Reduction in sample size trend of the present standard three experimental and control groups during 1990 and 1992

<table>
<thead>
<tr>
<th>Reasons</th>
<th>Std. 1</th>
<th>Std. 2</th>
<th>Std. 3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1990</td>
<td>1991</td>
<td>1992</td>
</tr>
<tr>
<td>Home moves</td>
<td>Exp. (N=15)</td>
<td>Con. (N=15)</td>
<td>Exp. (N=14)</td>
</tr>
<tr>
<td>Failure</td>
<td>1</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Remedial school</td>
<td>-</td>
<td>-</td>
<td>2</td>
</tr>
<tr>
<td>Special class</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Trauma</td>
<td>-</td>
<td>-</td>
<td>1</td>
</tr>
</tbody>
</table>

Year end totals 14 15 10 12 9 8

4.4.2.2 IQ levels

A broader based IQ range was permitted in contrast to numerous learning disability theories and investigations which are based mainly on higher IQ scores within a select range (Ekwall & Shanker, 1983). The reason for rather including pupils of any IQ level was to study the long-term effects of the MAT programme on a scholastically representative group of pupils. It was assumed that the results based on a broader level of intelligence would reveal more
facets of this programme. Moreover, the results from such a group would provide more representative and possibly revolutionary conclusions than research based solely on the higher echelons of intelligence, a nuisance variable which, in itself rather than the proposed independent variable, could advantageously affect the results. To therefore avoid the possibility of misrepresentations of the MAT programme, all IQ levels were included. Regarding the most recent IQ scores, the lowest was 88 (SSAIS) and 81 (NSAGT). The highest IQ scores were 145 (SSAIS) and 139 (NSAGT). These IQ score extremes illustrate quite effectively the width of the IQ range in this research as well as the extent of the challenge across diverse intellectual levels which the long-term effects of the MAT programme is expected to meet. This investigation does not simplify or bias such a challenge by focusing only on the higher intelligence child.

4.4.2.3 Visual and auditory acuity

The visual and auditory acuity of pupils had been monitored annually by the class teachers, the school nurses attached to the provincial Medical Inspection Services and the occupational and speech therapist of the local Educational Psychological Support Services. Since the initial comprehensive evaluations of these perceptual modes in 1989, none of the remaining pupils in this current investigation required any form of optical or auditory correction. Only two pupils in this present research have worn spectacles recommended in 1989, solely for reading and writing, during the past three years. Three
pupils were treated (tympanic insertion/grommets) for auditory perceptual complications (fluid) at least two years before commencing formal schooling. As a controlling requirement for this research, parents were requested to have their children medically tested by specialists on an annual basis. The eye specialists and ear, nose and throat specialists, together with the speech therapists forwarded regular reports which indicated both acuity and perceptual stability over these past three years.

4.4.2.4 Preschool background

Children of both preschool and non-preschool backgrounds were included in this investigation. This information was supplied by the Parent Questionnaire. These pupils were not matched in any way but were randomly assigned to the experimental and control groups to statistically control for the confounding effects of the preschool background variable. Nevertheless, the reading motivation of pupils was examined each year against the background of this variable to determine any probable effects: the extent to which preschoolers differ from non-preschoolers in the experimental and control groups with regard to reading performance, motivation, emotions and attributions. The present ratio of preschoolers to non-preschoolers was 41:59 for standard two pupils and 67:33 for standard three pupils.
4.4.2.5 Mixed gender

Boys and girls together were included in this study for several reasons. Firstly, both sexes secure representativeness of the results. Secondly, the matching of boys with girls to observe sex differences in reading performance and motivation was unnecessary. This would only have expanded the already well documented research that more girls read better and are far more motivated to read than boys, and, therefore, matching was not required in this investigation (Ekwall & Shanker, 1983). However, to note whether or not gender differences in reading motivation still persist over a longer period of time as a result of the MAT programme, the results of boys and girls were nevertheless compared at the end of the study. Thirdly, to avoid gender as a possible interfering variable, boys and girls were randomly assigned to the two treatment groups in 1989. Finally, it is of vital importance to a real life study of this nature to observe boys and girls together in a natural environment of learning and reading as it occurs in most schools. Matching or physically separating boys from girls would have provided comparatively limited and non-representational statistical information and at the expense of the \textit{in situ} realism. The ratio of boys to girls at the conclusion of this investigation was approximately 50:50.
4.4.2.6 Social background

Children came from varying social backgrounds and parental income levels. They live in heterogeneous areas of owner-occupied, privately rented and factory rented houses or flats in Ladysmith. For most of them, both parents were employed outside of the home. For all of these pupils (after the exclusions had taken place as outlined above), the family was considered stable by the school staff and researcher, based on interviews. Most of the families were intact. Two pupils came from single parent families of at least five years standing.

4.4.2.7 Physical and emotional factors

None of the sample members displayed any physical handicaps. Emotional difficulties, when present, were recorded by the class teachers for the purposes of this present study. All of the teachers involved in this study are well known to parents and pupils for their threat-free classroom atmosphere.

4.4.2.8 Current ages

4.4.2.8.1 Standard two

The changing mean ages of the present standard two experimental and control groups over the past three years are outlined in Table 3.
TABLE 3: Changing mean ages of the present standard two experimental and control groups from 1990 to 1992

<table>
<thead>
<tr>
<th>Treatment groups</th>
<th>Mean ages in years and months</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Class two</td>
</tr>
<tr>
<td>Experimental</td>
<td>8.2</td>
</tr>
<tr>
<td>Control</td>
<td>8.4</td>
</tr>
</tbody>
</table>

4.4.2.8.2 Standard three

The changing mean ages of the present standard three experimental and control groups over the past three years are illustrated in Table 4.

To avoid misrepresentation of ages due to the gradual diminishing of the treatment groups (for reasons already explained above), annual mean ages were computed only at the end of the year, when the excluded pupils were taken into account. Furthermore, the reductions of the original experimental and control groups has caused an inconstancy of mean ages (in months) from year to year: the mean age of a previous year was not constant with that of a subsequent year.
TABLE 4: Changing mean ages of the present standard three experimental and control groups from 1990 to 1992

<table>
<thead>
<tr>
<th>Treatment groups</th>
<th>Mean ages in years and months</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Std. 1</td>
</tr>
<tr>
<td></td>
<td>1990</td>
</tr>
<tr>
<td>Experimental</td>
<td>8.11</td>
</tr>
<tr>
<td>Control</td>
<td>9.2</td>
</tr>
</tbody>
</table>

4.4.2.9 Two scholastic levels

The present standard two and standard three samples comprise the remainder of the initial class one and class two samples respectively, that have been monitored for the past three years. The reason for including these two scholastic levels rather than just the one level was for time comparison purposes: the effects of the MAT programme at the outset of a pupil's career (class one) as opposed to a later stage (class two); prevention rather than cure. Existing knowledge about the effects of morphophonological awareness training on reading is based mostly on pupils from standard one upwards, long after reading instruction and practice has already commenced (Perfetti et al., 1987; Wallach & Wallach, 1976). Little is known about the effects of such training or the effects of a training programme at the beginning
of or before reading instruction when the relationship between morphophonological awareness training and reading skill proficiency is at its strongest (Wagner, 1986).

4.5 SAMPLING PROCEDURE

4.5.1 Drawing a sample

In this investigation, a sample of readers was considered as a portion of and representative of a population of readers. The target population was all the potential and existing problem readers in South Africa at the time of drawing the sample, namely at the outset of 1989.

4.5.1.1 Standard two samples

The current standard two samples are the remaining pupils who were already drawn for this study as class one pupils at the commencement of their school careers in 1989. These samples were drawn by means of a device newly constructed by the researcher for the previous investigation (Windell, 1990). This device, the Morphophonological Awareness test, was based on the strengths of previous studies and comprises items known to be related to and to predict success in reading (Farmer, Nixon & White, 1976; Stuart-Hamilton, 1986; Vellutino & Scanlon, 1987). This test indicated which class one pupils:
- required higher levels of morphophonological awareness by means of training;

- were at risk concerning future reading performance.

The criterion validity of this test was highly satisfactory for these class one pupils and ranged between 0.51 and 0.91 (Windell, 1990). This was determined by correlating the results of this test with the end of year reading scores as awarded by the class teachers in 1989. The Pearson product-moment correlation method and a two-tailed test of significance was used for this purpose.

A sample of sixty morphophonological awareness needy pupils out of a population of 73, as at the beginning of 1989, was drawn by means of this test. The residue of this sample has been monitored over the past three years of this study.

4.5.1.2 Standard three samples

The present standard three samples were initially drawn three years ago when they were in class two. Two sampling methods were used for these pupils in 1989, namely,

- the same Morphophonological Awareness test as administered to the class one pupils;
- report card evaluations of November 1988 when they were in class one, as available in the personal file of each pupil. This information served the purpose of supplementing the Morphophonological Awareness test outcome of a pupil. These details were not yet available for the class one pupils since no previous formal scholastic evaluations had taken place at this stage.

The criterion validity of the Morphophonological Awareness test for the class two pupils of 1989 was also highly satisfactory and ranged between 0.65 and 0.91. This validity was computed in the same way as for the class one pupils; no reliability information is presently available.

The Morphophonological Awareness test was constructed because it:

- secured pupils with actual phonological deficiencies;

- is objective and prevents the operation of researcher bias.

4.5.2 Sample assignment

Having drawn the samples in the abovementioned manner in 1989, pupils were first of all randomly assigned to the two treatment groups which were not yet designated as experimental or control. Each sample member had an equal opportunity of being assigned to one of the two unnamed treatment groups. By means of this procedure, it was assumed that any nuisance
variables, known (intelligence, gender, preprimary education, social background, possible mood swings, maturation, history, emotional upsets) and unknown, would affect both groups to more or less the same extent. At this stage, pupils were only assigned to two groups. Only at the completion of this operation was experimental and control status accorded to one of these groups.

The method of random assignment in 1989 was as follows.

4.5.2.1 Pupils

4.5.2.1.1 Standard two

When in class one these pupils were assigned to the two treatment groups by means of a table of random numbers (Kerlinger, 1975). At the end of this process, each group consisted of an equal number of thirty pupils. Thereafter, the one group was designated experimental status, by means of a random procedure, i.e., flipping a coin. The remaining group was then named control.

4.5.2.1.2 Standard three

By means of the same process of randomization outlined above, the standard three pupils, when in class two, were assigned to one of two treatment groups. This resulted in each group consisting of an equal number of 15
pupils. Experimental and control designations were thereafter assigned to each of the two groups by means of tossing a coin.

The above sample assignments were a once-only procedure confined to 1989. Pupils assigned to either the experimental or control groups have retained this initial status throughout the course of this current study. Although considerably reduced in number, the experimental and control groups in the final stages of this investigation still allow for comparisons and statistical differences with regards to the effects of the MAT programme.

4.5.2.1.3 Teachers

After pupils had been assigned to groups and names were designated to these new groups, teachers were also randomly assigned to each of these groups, by means of flipping a coin. This procedure was applied to both the class one and class two groups in 1989.

4.6 METHOD (2): INSTRUMENTATION

Prior to and during this investigation, several types of instrumentation were required. The first type to be briefly discussed is the MAT programme, the independent variable, which was implemented in 1989 to generate a better reading skill, reading performance and subsequent motivation. The rest of the discussion will be devoted to the attempts to measure the dependent
variables, namely the effects of the MAT programme over a period of three years, immediately subsequent to its implementation.

4.6.1 The MAT programme

The MAT programme is an instructional method that was designed in 1988 by the researcher to assist at-risk readers, and was implemented from January to October in 1989. This programme heightens a pupil's awareness of the acoustic qualities of the spoken word and links these qualities to the written word. In this way a pupil's reading skills like decoding, fluency and comprehension is significantly and speedily developed and strengthened. The MAT programme is based on convincing research results (Stuart-Hamilton, 1986; Williams, 1979, 1980). It is furthermore a therapeutic adjunct to the conventional reading schemes.

The MAT programme was administered to the experimental groups only during 1989, while control groups worked through the Ginn reading scheme. The MAT programme was not administered to the experimental in later years. A comprehensive description about and copy of the MAT programme is available in the unpublished Master's dissertation of the researcher (Windell, 1990). To avoid a hiatus in the continuity of presented facts about the programme in this discussion, an annotated version of the programme description, rationale and objectives will follow.
The first section of the MAT programme introduces pupils to the underlying phonological facets of words and sentences. It is achieved at this stage by means of the vocal and auditory modalities; knowledge of the written alphabet as it relates to reading is not necessary. Pupils are trained by the teacher to vocally break up (segment/analyze) whole words and sentences that they hear verbalized. In the second section of this programme pupils are trained to put together (blend/synthesize) words that the teacher presents to them in an atomistic fashion. Physical manipulations (analysis/synthesis) of words are also included in this programme in the form of games to further increase and consolidate the morphophonological awareness acquired so far. After numerous revisional exercises, pupils enter the final phase when they are given ample opportunity to apply their morphophonological awareness skills to the realm of reading.

The rationale for such a programme is to provide a therapeutic means to assist the potential or existing problem reader in ways that are not generally or necessarily stressed or relevant in conventional reading schemes. These reading schemes are mostly constructed for children who already have a well-developed morphophonological awareness which can, at the outset of reading instruction, be applied to the written word with ease and understanding. The MAT programme comprehensively prepares morphophonologically unaware pupils for the benefits of these reading schemes, by means of:
- explicit and direct instruction;

- a structured step-by-step approach at a pace that suits the pupil;

- active and fun participation in a non-threatening manner;

- constructive feedback to the pupils during training. No criticism or negative comments are used by the teacher. This has been noted to promote pupil participation and achievement motivation, and reduces pupil withdrawal.

The objectives that this programme attempts to reach, are:

- pupil welfare: the prevention and/or the improvement of reading difficulties. Possible unpleasant scholastic experiences can be avoided by this means;

- reading scheme adjustment: the MAT programme trains pupils in pre-reading skills so that the aims of the conventional reading schemes can be effectively met;

- expanding teachers' instructional repertoire: this programme provides alternative methods for the teachers to use for pupils diagnosed as potential or existing problem readers. Teachers require no further training to implement this programme: the script and instructions are self-explanatory and easy to follow;
- school curriculum extensions: to recommend and introduce the very early diagnosing and treatment of problem readers rather than at a later stage, as was observed by the researcher in current educational practice.

4.6.2 Measurement of the dependent variable

In this investigation, the dependent variable is reading motivation which comprises several sub-variables, namely, reading, motivation, emotions and attributions. Several methods of instrumentation were employed to measure the dependent variable.

4.6.2.1 Reading: The scholastic achievement tests, English first language for grade ii/sub B, standard 1, standard 2, standard 3 (1973)

These tests were constructed in 1973 by the Institute for Psychological and Edumetric Research of the Human Sciences Research Council for use in South African schools (Kritzinger, 1984).

4.6.2.1.1 Rationale

These tests were included in this investigation because they:

- provide a measurement of reading performance, in particular, as well as a range of other academic facets in general, namely,
vocabulary, language usage and spelling, which can be related to
the attributions that pupils, teachers and parents have of academic
performance;

- yield developmental progress trends in reading performance over a
  period of time. As pointed out by Owen and Taljaard (1989), these
  results can also be used to determine or evaluate the long-term
  effects of an instructional method (like the MAT programme) on
  reading performance and can be linked to reading and its motivation;

- are standardized and supply a norm of the level of reading
  achievement against which the reading performance of pupils of the
  age range in the current research can be compared;

- have predictive value for future reading performance. The
  predictiveness of these reading test results can also strengthen or
  weaken evidence regarding the predictiveness of the MAT
  programme effects on reading motivation.

4.6.2.1.2 Description

These are group tests. The subtests measure pupil achievement in major
areas of the school curriculum, i.e., language usage, vocabulary, reading
comprehension and spelling (for standards 1, 2 and 3) with the exclusion of
language usage in class two. Apart from the importance of reading test
scores, the other subtests were included to highlight possible other reasons for a pupil's reading performance: well or underdeveloped language usage and vocabulary may favourably or adversely affect reading comprehension in English literature and content subjects. Emotions, attributions and motivation may also be related to language usage and vocabulary, and needs further scrutiny. Spelling performance, especially in the primary school phase, tends to receive a high degree of emphasis by teachers and parents alike and has been observed by the researcher to affect a pupil's scholastic motivation in numerous ways. Spelling subtest scores in this study might shed more light on how spelling performance may also be related to a pupil's emotions, attributions and general scholastic motivation from year to year.

The items in the language usage subtest refer to language manipulation and the application of grammatical rules. The vocabulary subtests confront pupils with words from word lists, prescribed reading and other books that form part of the vocabulary of class two, standard 1, 2 and 3 pupils. The words are sometimes in context or isolated from syntax. The reading comprehension subtest contains several passages of prose on which are based one or more questions about the ideas and meanings of these passages.

The print in the grade two test booklets is handwritten to approximate that of the primary school teacher and because pupils in grade two are more familiar with this type of print than with cursive or typewritten print. Standard 1, 2 and 3 test booklets comprise a typewritten print with which pupils in these
academic levels were already familiar in their English reading, mathematics and content subject text books.

Test application directions, time limits, conditions for testing, test materials needed, scoring and test construction details are detailed in the test manual.

4.6.2.1.3 Administration

These tests were administered annually by the researcher between 1990 and 1992 during the fourth term (end of October and beginning of November) in accordance with the test manual prescription. The testing locality was large, well ventilated, and situated some distance from the general classrooms in a quiet section of the school. Pupils were well spaced. Forms A and B of the test booklets were used. Norm tables in the 1984 test manual were used to convert pupils' raw scores to stanines for general comparison purposes.

4.6.2.1.4 Validity

Content validity was determined by examining the syllabi of each of the Departments of Education in South Africa to explore the skills and knowledge to be included as representative items in the subtests. These items were judged appropriate by a committee of language experts. The criterion validity of these tests were considered satisfactory and ranged between 0.45 to 0.75
(Kritzinger, 1984). This was determined by correlating the results of the subtests with the end of year marks obtained in class.

4.6.2.1.5 Reliability

Very high estimates of test-retest reliability were obtained. Kuder and Richardson formulae (K-R20 and K-R21) were used. The reliabilities varied from 0.80 to 0.96 and are satisfactory (Owen & Taljaard, 1989).

4.6.2.2 Intelligence: Senior South African Individual Scale (SSAIS)

This test was constructed by the Human Sciences Research Council for use in South Africa (Madge, 1980). When released it was formerly known as the New South African Individual Scale and has been referred to as the SSAIS since 1980. The SSAIS was standardized for Afrikaans and English speaking white pupils aged 6 to 17 years.

4.6.2.2.1 Rationale

This battery of tests was included for the following reasons:

- to provide a measurement of the pupil's general intellectual ability;

- it is well known to the researcher who has used it as a diagnostic and clinical aid for the past ten years;
- quantitative updating of the Junior South African Individual Scale Intelligence quotient scores of 1989;

- establishing the IQ range of these pupils to show to what extent the MAT programme has long-term effects on pupils of varying and similar IQ scores;

- provision of qualitative and clinical data to supplement the emotional profile of each pupil. The SSAIS enables the tester to observe the pupils' behaviours, and any other reactions that are indicators of emotional maturity, stability and instability (Madge, 1980). The general behaviour of a person in an individual test situation, like the SSAIS, is grist for the interpretation mill (Klopfer, Ainsworth, Klopfer & Holt, 1954). Madge (1960) mentions that the differential achievement of pupils' verbal and performance scales may indicate a specific learning problem (like reading) or emotional conditions which warrant further investigation. Many verbal-non verbal IQ score differences can be expected and are not necessarily predictive of scholastic problems. For the purposes of this research, differences in verbal-non verbal scores of 15 points or more are considered substantial and significant for further study with regard to the identification of learning or emotional problems. Furthermore, subtest scatter (the pattern of variability of subtest scores) is found more amongst pupils with emotional problems or who have a
negative emotional attitude toward school work. Behavioural indicators of emotional problems have been found to be irritability, apprehension, restlessness, lack of spontaneity, apathy, euphoria. Language indicators are speech and word finding difficulties, rambling, confabulation, and over-elaboration. These indicators are based on clinical observation and clinical intuition, without a statistical base for such observations. These emotional indicators may have other causes but are worth noting as possible supplementary evidence of a pupil's emotional condition;

- it provides IQ norms for the age groups in the present study. A testee's performance can be compared with his/her own age group.

4.6.2.2.2 Description

This is an individual IQ test which consists of nine subtests. The first five subtests constitute the verbal scale and the latter four subtests the non verbal scale. All these subtests have been named and are:

- verbal: vocabulary, comprehension, verbal reasoning, problems, memory;

- non verbal: pattern completion, blocks, absurdities, form board.
Smit (1981) has cautioned that the designated subtest names are not always necessarily indication of the ability being measured in those subtests. The subtests should rather be seen as covering a wide field of test responses which are assumed to be representative of intelligence.

Subtest instructions are verbalized by the tester to the testees. Testing time duration is approximately 60 minutes.

For correct responses, power scores are allocated, i.e., a score of 1 for a correct answer and 0 for an incorrect answer. A power score plus a time-bonus for each correct item completed within a specified time can also be determined in this test for IQ computation.

4.6.2.2.3 Administration

This test was administered by the researcher to each pupil individually in a quiet locality during the beginning of the second term of 1992. Test materials were left concealed in the case provided and used only when needed before being returned to the case to avoid unnecessary distraction and curiosity.

Actual administration time per pupil in the current investigation ranged between 45 and 65 minutes. Only power scores were allocated for correct responses. The raw score totals of the subtests were converted to normalized scale scores by means of the norm tables in the 1989 test manual, part 3.
The normalized scale has an average of 10 and a standard deviation of 3. The sum total of the scale scores of the verbal and non-verbal tests were converted by means of norm tables to a total IQ, each with an average of 100 and a standard deviation of 15.

4.6.2.2.4 Validity

Very little data is available on the validity of the SSAIS (Madge, 1982). It seems as if systematic investigation in this area has been scarce. The test manual indicates that predictive validity (to predict performance in school achievement) appears satisfactory. Correlations for predictive validity were tabulated for three age groups: 5 year olds \((r=0.66)\), 13 year olds \((r=0.52)\) and 16 year olds \((r=0.46)\) (Owen & Taijaard, 1989).

Internal validity was based on the correlation between the total and verbal and non-verbal scaled scores for the 13 year and 16 year age groups. Correlation coefficients indicated a satisfactory internal validity: verbal scaled scores were slightly higher \((r=0.62\text{ for }13\text{ year olds and }r=0.64\text{ for }16\text{ year olds})\) than non verbal scaled scores \((r=0.58\text{ for }13\text{ year olds and }r=0.50\text{ for }16\text{ year olds})\).
4.6.2.2.5 Reliability

Reliability data was presented for 5 age groups: 7 1/2 years, 9 1/2 years, 13 1/2 years, 15 1/2 years, 17 1/2 years (Madge, 1982). The coefficients were computed by the split-half technique (odd-even splits). The Spearman-Brown formula was used to correct the full length of the text. For all these age groups, reliability coefficients varied but were generally high especially for the verbal section. The verbal score (power) reliability coefficient varied from 0.87 to 0.92. Non verbal score reliability coefficients were slightly lower and varied between 0.70 and 0.76. The full scale score reliability coefficients varied between 0.83 and 0.98.

4.6.2.3 Intelligence: New South African Group Test (NSAGT)

This test was constructed by the Human Sciences Research Council in 1965 and measures the general intellectual abilities of white pupils.

4.6.2.3.1 Rationale

It was decided to include the results of the NSAGT in this research for the following reasons:

- clinical. The NSAGT presumes normal reading ability. The verbal subtests are answered by the testees through the medium of reading the printed instructions in the test booklets. The degree of
Incompletely subtests and unusual pupil behaviour was assumed by the researcher to reflect slow decoding, fluency or inadequate comprehension. Emotional difficulties outside the test locality or emotionality generated by the test conditions were not precluded here. This test-related information was noted by the accredited tester and supplied to the researcher.

- Comparison. The SSAIS (no reading of instructions required by the testees and therefore a higher score is generally acquired) and NSAGT (reading of test instructions by the pupil is required and a lower score is usually achieved) discrepancies have the potential to provide further information as to the extent of a pupil’s reading capability (especially weaknesses) and emotional status. At least ten years of SSAIS and NSAGT comparisons in primary schools by the current researcher have, more often than not, led to possible evidence of an emerging reading problem especially in the initial stages of the Senior Primary phase, which required closer inspection. These SSAIS-NSAGT comparisons have disclosed previously undiagnosed reading difficulties, which, in one way or another, have been camouflaged by a pupil;

- Standardized data. The NSAGT provides standardized data for the comparison purposes of this research.
4.6.2.3.2 Description

This is a group IQ test which consists of three verbal and three non-verbal subtests. Three different series for varying age groups are available: Junior (8-11 years), Intermediate (10-14 years) and Senior (13-17 years). Two equivalent forms are available for the Junior and Senior series. The NSAGT makes provision for three scores, namely, verbal IQ, non-verbal IQ and total IQ. The Junior NSAGT was administered in this present investigation. Each subtest has a time limit. Testing time is about two hours. Pupils record answers on an answer sheet.

4.6.2.3.3 Administration

The NSAGT (Junior Series, Form J and K) was administered by an accredited teacher to all the present standard three pupils during the third term of 1991 and to all the present standard two pupils at the beginning of the third term in 1992. Test manual instructions were read verbatim by the teacher to the testees. When it was ascertained that all testees understood the test requirements fully, only then was each subtest commenced. Time limits were strictly adhered to. For the verbal subtests, pupils had to rely on their reading abilities to comprehend the test items. Test sheets were marked by the same teacher who administered the NSAGT.
During the marking of the NSAGT, incomplete verbal subtests were noted by the teacher and passed on to the researcher for further follow-up. The reason for this was to determine whether low verbal scores could be related to slow reading speed (most IQ test items may have been answered correctly but not completed and scores could have been higher if the testees had more time to complete more items) or to other factors (like vocabulary underdevelopment). This data supplemented other test data concerning reading performance and emotional factors.

4.6.2.3.4 Validity

This was investigated by correlating the results on certain proficiency tests with the verbal, non-verbal and total IQ scores. However, although the correlation coefficients were not provided in the test manual, Owen and Taljaard (1989) present criterion validity correlations between IQ and English language proficiency tests: non-verbal ($r=0.75$); verbal ($r=0.88$); total ($r=0.85$). Furthermore, a significant relationship was found between the NSAGT scores and the full scale score of the SSAIS ($r=0.68$).

4.6.2.3.5 Reliability

The reliability indices for this test was calculated by means of the KR-20 formula. The reliabilities for non-verbal, verbal and total IQ scores were higher than 0.78, 0.70 and 0.84 respectively (Owen & Taljaard, 1989).
4.6.2.4 Emotions: Children’s Personality Questionnaire (CPQ)

The CPQ is based on the extensive research findings by the institute for Personality and Ability, Illinois, U.S.A. The American authors compiled personality questionnaires applicable to individuals at different age levels (Cattell, 1950; Cattell, Eber & Tatsuoka, 1970). The Human Sciences Research Council has standardized the American questionnaires to suit South African conditions (Du Toit & Madge, 1972). This has resulted in the CPQ in 1973.

4.6.2.4.1 Rationale

The CPQ was included in this research because it:

- provides data on dimensions important for this study, namely the emotional status (stability or instability) and motivational levels of pupils in line with the theory of Weiner (1980, 1982, 1986);

- is suitable for the 8 to 13 year age range, which therefore accommodates pupils of the current investigation;

- is standardized for this age group;

- generates quantitative information which lends itself better to statistical analyses than that of qualitative, non-standardized
projective techniques. Validity and reliability data (discussed below) is also available for the CPQ which further strengthens the research findings of this study;

- can be administered in a group in order that members can relate the questionnaire items to themselves as part of an actual social unit as it exists;

- is useful in evaluating and predicting the course of a pupil's emotional, academic and personal development in future years.

4.6.2.4.2 Description

The CPQ can be used as a group or individual test. It consists of two separate question booklets: Form A and Form B. Each form has 140 items divided into two sections: Part 1 and Part 2 for scheduling convenience in school settings.

This questionnaire provides data on 14 separate personality dimensions. Each dimension is presented as a bipolar continuum and only the two poles are described: reserved-warmhearted, less intelligent-more intelligent, emotionally unstable-emotionally stable, phlegmatic-excitable, submissive-assertive, serious-carefree, expedient-conscientious, timid-venturesome, realistic-sensitive, vigorous-internally restrained, forthright-shrewd, self
assured-guilt prone, casual-socially controlled, relaxed-tense. These dimensions are relatively independent of each other.

Pupils up to standard two answer the questions in the test booklets. Children in the higher standards answer questions on a separate answer sheet. Testing times range between approximately 45 to 60 minutes per form.

Norms for the CPQ are expressed in stens. Separate norms exist for boys and girls in various age groups. A high score does not necessarily imply good neither does a low score imply bad. Guidelines to the interpretation of the CPQ are given in the test manual.

4.6.2.1.3 Administration

The CPQ was administered firstly to the standard two and then to the standard three experimental and control groups towards the end of the third term of 1992 in a quiet locality. Form A was administered simultaneously to both the standard three experimental and control groups because of the small sample numbers, followed by Form B on the following day, as recommended in the manual. The standard two experimental and control groups, by virtue of being larger, were tested separately but followed the same procedure of completing Form A and Form B on two separate but consecutive days.
The researcher undertook the test administration. Apart from the general directions and test item examples that were read to the pupils by the researcher, pupils were required to read the rest of the test items on their own. The actual administration duration for this test fell within the 45 to 60 minute range.

It was decided to test pupils in a group primarily for logistical reasons and because of friendly consideration for pupils and especially teaching staff. Testing of a group is a one-time operation with minimum classroom disruption, whereas a one-by-one psychological assessment adds to classroom and teacher disruption as was the case during the SSAIS and some attributional and emotional evaluations.

4.6.2.4.4 Validity

Validity coefficients as derived from equivalence of boys and girls together (N=2760) were regarded as satisfactory and ranged from 0.50 (Factor J) to 0.74 (Factor Q J) (Du Toit & Madge, 1972).

4.6.2.4.5 Reliability

The coefficients of reliability were based on the retest method of reliability calculation and varied from 0.49 (Factor J) to 0.79 (Factor E) for boys (N=89).
and from 0.59 (Factor O) to 0.78 (Factor D) for girls (N=89) (Du Toit & Madge, 1972).

The coefficients for boys and girls together (N=2760) based on the corrected split-half method provided indices that varied from 0.41 (Factor J) to 0.72 (Factor O). These are satisfactory indications of reliability. The test manual explains that the reliability coefficients are slightly lower than expected, but are of the same order of coefficients as those reported by the American authors and can be regarded by Cattell et al. (1970) as satisfactory.

4.6.2.5 Emotions: Thematic Apperception Test (TAT)

The TAT, as it is commonly known, was developed by Henry Murray and his staff at the Harvard Psychological Clinic (Murray, 1943) as part of a case study exploration of the normal personality.

4.6.2.5.1 Rationale

This projective technique is well suited to the present research because it is:

- widely used in research for the disclosure of covert tendencies, and for studying human emotions, attitudes, achievement, state of motivation which also forms an integral part of this research (Adcock, 1965; Brown, 1961; McClelland, Atkinson, Clark & Lowell, 1953). Unconscious aspects of an individual's thought processes
are more likely to be revealed by such a technique. The person is assumed to project these thought processes and feelings onto the test material. Information derived from this projective technique proves useful for the hypotheses based on Weiner's (1995) theory of emotional influences on achievement motivation. The TAT was used in this research to provide 'an appraisal of the subject's experiencing of his own world and of himself as part of it' (Holt, 1968, p. 465);

- standardized for children between the ages of 7 and 14 years and represents the age range of pupils in this current investigation;

- more structured than many other projective techniques. It focuses on story content and dynamics and not only on the formal organization of personality and perceptual processes as elicited by the Rorschach techniques;

- less structured than the CPQ and can therefore provide rich, varied and spontaneous reactions of pupils regarding their emotions and motivations;

- based on research that has indicated that the TAT can uncover to what extent pupils apperceive (translate) environmental or personal influences (or both) as affecting their interpretations of the outcome of their actions. Murray (1938) was of the opinion that a persisting
emotional state, past experiences, present wants or other environmental influences can dynamize perception. The image on the TAT card may look like or is interpreted by a person as the cathexed image of the personal need or environmental influence. Individuals tend to draw on their fund of experiences to interpret the TAT test material, and express their sentiments and needs, whether conscious or unconscious (Murray, 1943). The TAT pictures are meant to stimulate the imagination in order for the covert needs to be expressed. Information derived in this way can also contribute to the validation/invalidation of the hypotheses of the current research concerning the personal-environmental sources of attributions as theorized by Heider (1958) and Weiner (1972);

- entertaining. Pupils become quite involved with the characters/events in the TAT pictures and tend to forget their own present sensitivities, self-consciousness and problems. It is a useful ice-breaker;

- further interpreted against the known background of an avalanche of available information on each pupil. The TAT has clinical usefulness in that it can provide a wide range of qualitative data that is less susceptible to faking. Children being assessed have no idea of the ways that the examiner is likely to interpret their responses;

- easily scored for statistical analyses.
4.6.2.5.2 Description

This is an individual and group pictorial projective technique and clinical tool. The TAT materials consist of 19 cards depicting black and white pictures of an ambiguous content, and one blank card. Individuals are requested to construct a story to fit each picture, telling (or writing about) what led up to the event shown in the picture, describing what is happening at the moment, and what the characters are feeling, thinking and what the outcome is of the story. Concerning the blank card, individuals are instructed to imagine some picture on the card, describe it to the examiner and then to tell a story about it following the same procedure as for the other cards. The term 'apperception' refers to a person's interpretation of what is perceived on the cards (Klopfer et al., 1954). Murray (1943) prescribed two one-hour sessions, ten cards being employed during each session. The final session makes use of cards which are more unusual and bizarre. Four overlapping sets of twenty cards are available: for boys, girls, men over 14 years, and women over 14 years. Anastasi (1968) has pointed out that most clinicians employ abridged sets of specially selected cards, and respondents are seldom given more than ten cards.

4.6.2.5.3 Administration

The TAT was administered by the researcher to each pupil on an individual face-to-face, 'across-table basis in two phases. The first phase involved
explaining to the pupil what is required in this situation and then application of this to four selected cards (nos. 1, 2, 6BM/7GF, 16) shown one at a time. Pupils responded to the cards verbally while the researcher recorded these responses on paper in telegraphic fashion. All sample members were tested in this manner. The second phase, a few weeks later, required the same pupils to verbalize their responses to another four different cards (nos. 5, 11, 14, 19), also presented one at a time. The reason for presenting groups of the TAT cards on two separate occasions, is that some evidence exists that the production of meaningful material may be facilitated in this way (Anastasi, 1968). Presenting all of the TAT cards on one day to a particular pupil could result in responses that reflect a current emotional condition particular to events on that day, and nothing more. Spreading this projective technique over two phases increases the probability of ensuring a more representative view of a pupil's emotional condition. This information was nevertheless interpreted against the backdrop of a subsequent interview (explained below) and other sources of the emotional status of a pupil. Moreover, since the TAT was not the only means of emotional data gathering, it was decided by the researcher to employ only eight cards, especially including those which might be perceived by the pupil to have an achievement theme. All of the cards generally elicit the pupil's attitude towards duty and achievement (card 1) and their conceptions of family relationships (cards 2, 5, 6BM, 7GF). In addition to this, the cards afford expression of frustrations, anxieties, insecurities, hopes and ambitions (cards 11, 14, 16, 19). These cards, especially, appear to have the potential to elicit responses about the pupils' perception of their
world especially within the realm of social relationships and their motivating and demotivating outcomes. All of these cards were suitable for both sexes. Card 6BM was only used for the boys as indicated by the letters 'BM': it yields information about the mother-son relationship. Card 7GF was only used for the girls to permit expression of the mother-daughter relationship. Furthermore, intra-scorer reliability can be maximized by using a standardized set of at least eight cards.

The mean testing time per pupil was 24 minutes during the first phase and 15 minutes during the second phase. Some pupils took considerably longer to respond to the first one or two cards during the first phase while still familiarizing themselves with the requirements of this procedure.

A subsequent interview with each pupil was held to determine the sources of the stories previously recorded by the researcher. In this way it was possible to determine whether or not the theme of each story was derived from own experience, films, books or family. Pupils were reminded of the plots of the stories and encouraged to speak freely. It was hoped that this follow-up process would disclose a great deal more information since TAT responses by pupils are not pivotal facts but merely suggest further avenues of probing by the researcher.

The interpretation of the TAT responses was based on the system proposed by Rapaport, Gill and Schefer (revised by Holt, 1968). This system, in
contrast to most others, does not rely on paraphrasing each story as a whole but attempts to elicit abstract categories of story content which are 'characteristic of the patient's idealism' (Holt, 1968, p. 496). Four categories of information have been isolated by Rapaport et al., namely, the prevailing tone of the narrative, the characterization by the subject of himself or herself and of the outstanding figures of his world, the strivings and attitudes of the subject that may be derived from the characters in the stories, and the obstacles that the subjects seem to be facing. Some of these categories form the outline of the tabulated results of the TAT responses in chapter five.

It was also possible to interpret the TAT responses with reference to Murray's list of 'needs' and 'press'. The former represents personal forces (needs, emotions, achievement, aggression) which may be literal or fantasized symbolic tendencies (past, present, anticipated) of the pupil. The latter represents environmental forces (criticism by others, receiving praise and affection) which may be literal or fantasized symbolic tendencies as perceived by the pupil. Press and needs are likely to be projected into the pupil's interpretations of his/her world and into the TAT cards. Personal and environmental information, as supplied by pupils by means of the TAT cards, will supply further supporting or non-supporting evidence for the Heider (1958) and Weiner (1972) theories about the internal and external sources of attributions, and is therefore relevant for this study. Even the uniqueness of a TAT response was assumed to have significance for a pupil and was considered worthy of follow-up by the researcher.
4.6.2.5.4 Validity

No information on the validity of the TAT technique was available in the test manual. A possible reason for this is that validation studies are fraught with procedural deficiencies in either experimental controls or statistical analyses and are generally inconclusive (Cronbach, 1948; Zubin, 1950). Validities in projective technique studies have been found to be generally low (Henry & Farley, 1959). Attempts to evaluate projective methods in terms of psychometric tests would be inappropriate and misleading because of the unstructured nature of projective methods.

4.6.2.5.5 Reliability

A number of quantitative scoring schemes and rating scales have been developed which have yielded good scorer reliability (Anastasi, 1968). The TAT responses reflect a fleeting mood and resultantly the repeat reliability cannot be expected to be high. Data on this matter is lacking (Murray, 1943).

4.6.2.6 Attributions: unstructured open-ended procedure and the structured Reading Attributional Survey (RAS)

There are several commonly used techniques for the assessment of causal attributions. The two techniques considered important for this current research was an unstructured open-ended expressive procedure which preceded the structured response measure.
4.6.2.6.1 The rationale for attributional measurement

Attributional measurement was employed in this investigation to help identify and categorize possible causal attributions of pupils, teachers and parents with regard to success and failure in the various scholastic dimensions. This attributional information has potential to form a vital link in the solution of the research problem: self-attributions of pupils and pupil-perceived attributions of their teachers and parents are known to motivate or demotivate school children (Heider, 1958; Weiner, 1979).

Furthermore, attributional measurement was used to attempt to determine to what extent the MAT programme has influenced specific and positive pupil attributions which in turn may have motivated their reading behaviour over the three year period of this study. Common-sense explanations of lay persons (pupils, teachers and parents) can be elicited in response to questions about the causes of success or failure, as suggested in Heider's (1958) theory.

Attributional measurement was conducted to generate information and conclusions based on actual and real-life experiences and thoughts of individuals. Responses can be elicited by the actual academic performances of each pupil, and not only by means of simulative procedures like imagined scenarios about themselves or vignettes about others. This is a distinguishing feature of the way attributions were measured in this current investigation as compared to other studies. In this way, attributions would be less constrained
in form and content than those generated in laboratory settings (Lau & Russell, 1980). The present study of attributions shows how previous outcomes of reading performance can influence future motivation for a pupil and provides more attributional data about South African pupils.

Attributional measurement, especially during open-ended procedures, furthermore furnishes qualitative information about the reaction of pupils to a subject like reading. Some researchers who have used these procedures have shown that qualitative responses, like pauses between words, a smile, a gaze, can provide useful data on the perceived ease or difficulty of reading, and can also indicate indices of anxiety and defensiveness (Argyle, 1972; Bryan, Sherman & Fisher, 1980; Grogan, 1988). Emergent or existing poor readers have been found to use more filled pauses than adequate readers. The qualitative responses will be followed up in classroom observations in this investigation to determine their generalizability when pupils are faced with classroom realities.

4.6.2.6.2 Description of attributional measurement devices

4.6.2.6.2.1 The unstructured open-ended procedure

It commenced in the beginning of the second term of 1992, and required the respondents (pupils, teachers, parents) to spontaneously say why they think
an event occurred and what their emotional responses to this event were. This procedure took place in a one-to-one conversational structure.

The types of questions asked of the respondents by the researcher were based largely on those used in the Grogan (1988) study. Questioning took the following format for pupils:

- what do you like doing when you're not at school?
- (depending on answer) why do (don't) you like it?
- what did you do and see during the holidays that have just passed?
- what do you like doing when you're at school?
- what is your favourite lesson?
- what do you like best about it? (the favourite lesson)
- is there anything about school you don't like?
- why is that, do you think?
- how do you think you read?
- why do you think you read this way?
- what do you think your parents think of your reading?
- why do you think they say that?
- what do you think your teacher thinks of your reading?
- why do you think she says that?
- how does your reading make you feel?
- why do you feel this way, do you think?
- how does your reading make your teacher feel?
why do you think your teacher feels like that?
how does your reading make your parents feel?
why do you think they feel like that?

Non-school related questions were always presented first, but at random, across pupils. School related questions followed, also at random. However, the questions referring to reading were always presented last. The researcher asked these questions from memory to make the conversation seem as casual and as non-threatening as possible. In response to the questions pupils were allowed to speak for as long as they liked without being stopped.

Teachers and parents were asked parallel questions of a particular child:

what do you think of x's reading?
what is your opinion of the cause of this?
can you think of any other causes?

The open-ended procedure is claimed by some to be psychometrically inferior to the more structured test situations. It has been found to have lower reliability for coding the responses (Elig & Frieze, 1979). However, it was useful in this current research for providing relevant attributional categories that were included in the RAS prior to its administration. To only use closed-ended rating scales to gather attributional data (typical of much attributional research) generally precludes the possibility of participants not making causal
attributions or that they can vary the number of attributions made (Lau & Russell, 1980).

For the open-ended questions, no causal categories existed since they needed to emerge from the data itself rather than be imposed. The procedure for analyzing the responses of pupils, their teachers and parents to the open-ended questions was based on recommendations made by Holsti (1969). Firstly, all the responses recorded by the researcher were read to gain a general overview. Secondly, the responses were re-read to ascertain common elements. Thirdly, a number of attributional categories were formed (known as coding) which were exhaustive and mutually exclusive. Fourthly, the pupil, teacher and parent responses were analyzed in terms of the non-overlapping categories and whether or not the subject mentioned the relevant categories. This was then recorded. Finally, a second independent rater was asked to code the data in the same way without any knowledge of the outcome of the responses of the first rater. Inter-rater reliability coefficients for pupil, teacher and parent attributional categories about reading performance and emotional outcome are presented in tables 5 and 6. The magnitude of inter-rater concordance for these categories was high. Check-coding of a randomly chosen 20% of the data by a third coder showed 91% agreement between the coders.
TABLE 5: Intercoder reliability correlations of the categorized responses of the standard two and standard three experimental and control group members, their teachers, and parents to an open-ended attribution measure regarding reading outcome

<table>
<thead>
<tr>
<th>Std.</th>
<th>Group</th>
<th>Ability</th>
<th>Effort</th>
<th>Library books</th>
<th>Teacher help</th>
<th>Parent help</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Pupils</td>
<td>0.90</td>
<td>0.96</td>
<td>0.90</td>
<td>0.94</td>
<td>0.85</td>
</tr>
<tr>
<td></td>
<td>N⁵</td>
<td>4</td>
<td>15</td>
<td>8</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Teachers</td>
<td>0.95</td>
<td>0.94</td>
<td>0.97</td>
<td>c</td>
<td>0.90</td>
</tr>
<tr>
<td></td>
<td>N⁵</td>
<td>6</td>
<td>18</td>
<td>6</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Parents</td>
<td>0.97</td>
<td>0.98</td>
<td>c</td>
<td>0.91</td>
<td>0.96</td>
</tr>
<tr>
<td></td>
<td>N⁵</td>
<td>3</td>
<td>13</td>
<td>0</td>
<td>13</td>
<td>7</td>
</tr>
<tr>
<td>3</td>
<td>Pupils</td>
<td>0.89</td>
<td>0.90</td>
<td>c</td>
<td>0.95</td>
<td>0.85</td>
</tr>
<tr>
<td></td>
<td>N⁵</td>
<td>3</td>
<td>7</td>
<td>0</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Teachers</td>
<td>0.86</td>
<td>0.88</td>
<td>c</td>
<td>c</td>
<td>0.88</td>
</tr>
<tr>
<td></td>
<td>N⁵</td>
<td>3</td>
<td>8</td>
<td>0</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Parents</td>
<td>0.98</td>
<td>0.93</td>
<td>1.00</td>
<td>0.97</td>
<td>0.91</td>
</tr>
<tr>
<td></td>
<td>N⁵</td>
<td>4</td>
<td>4</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

*a* Correlations of the frequency of individuals' attributions being coded

*b* Number of individuals

*c* This attribution was not named by any individual
TABLE 6: Inter-coder reliability correlations of categorized emotions about reading performance for standard two and standard three experimental and control group members

<table>
<thead>
<tr>
<th></th>
<th>Happiness</th>
<th>Confidence</th>
<th>Pride</th>
<th>Sadness</th>
<th>Frustration</th>
<th>Shame</th>
</tr>
</thead>
<tbody>
<tr>
<td>Std.</td>
<td>0.96</td>
<td>0.94</td>
<td>0.90</td>
<td>1.00</td>
<td>0.88</td>
<td>0.96</td>
</tr>
<tr>
<td>N</td>
<td>12</td>
<td>10</td>
<td>8</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>1.00</td>
<td>0.98</td>
<td>1.00</td>
<td>0.98</td>
<td>0.85</td>
<td>1.00</td>
</tr>
<tr>
<td>N</td>
<td>5</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>1</td>
</tr>
</tbody>
</table>

* Correlations of the frequency of individuals' attributions being coded

* Number of individuals

4.6.2.6.2.2 Structured category rating scales

The Reading Attributional Survey (RAS) was constructed by the researcher in 1992 to meet the needs of this research (Appendices A, B, C). This is a group paper-and-pencil measuring instrument. Responses are recorded on the RAS. It consists of three similar forms: one of each was administered to pupils, teachers, and parents. The RAS used by adults (teachers and parents) contained parallel structured questions concerning perceptions of causality which were slightly altered (by virtue of pronoun changes and facts not
applicable to the adults) and shorter to that used by the pupils. Apart from this, the three forms were similar in content.

The pupil RAS comprises statements with specific reference to a pupil's performance (success or failure) in and emotion caused by reading. The adult RAS excludes references to emotions since the theoretical focus of this research is on pupil emotional reactions that may be motivational or demotivational. In the pupil's version of the RAS, some of the statements refer to a pupil's perception of how significant others (teachers and parents) view his/her reading performance. In the teacher and parent versions of the RAS, the statements refer to the adults' perception of the pupil's reading performance.

Each statement is counterbalanced by one of opposite meaning: a statement referring to a pupil's successful reading activity is counterbalanced by a statement that tells of his/her reading difficulty. Respondents choose between a success or failure statement as it applies to the actual reading experience of the pupil.

There are seven statements in the pupil version and seven statements in the teacher and parent versions of the RAS. The adult questionnaires contain parallel statements about perception. It was decided to limit these statements for pragmatic reasons: respondent fatigue, especially teachers who had to fill out one questionnaire per child. Nevertheless, these statements cover
sufficient facets of reading considered relevant for this study. Below each statement are listed several attributions. In chapter two, it was outlined that attributions are based on several causes, the most salient being ability, effort, task, luck (Heider, 1958; Weiner et al., 1971). These causes are generally activated by a prior performance outcome and emotions (Weiner, 1985). The motive for an attribution is the determination by an individual of the causes of an event. The four basic attributions, namely, ability, effort, task ease/difficulty, and luck were also included in the RAS for theoretical reasons and because of their frequent mention or use in the literature. Other attributions were derived from the abovementioned unstructured open-ended technique implemented prior to the construction of the RAS. These attributions focus mainly on internal factors like extra reading of books and external factors like teachers and parents. Opposite the listed RAS attributions are five blocks each containing one of the following headings: false, mostly false, sometimes true/false, mostly true, and true. These columns represent a five-point scale with 1 on the left (false) and 5 on the right (true), and 2, 3 and 4 in between. Respondents are requested to indicate by means of a cross the extent of the attribution that relates to the statement.

This numerical rating scale yields numbers that can be easily computed in statistical analyses. The numbers are assumed to represent equal intervals in the minds of the respondents and may approach a closer approximation of
interval measurement (Robinson, 1981). The statistics regarding the RAS will be tabulated in chapter five.

4.6.2.6.3 Administration

4.6.2.6.3.1 Unstructured open-ended procedure

The unstructured open-ended procedure was conducted by the researcher at the outset of the second term of 1992 with pupils, teachers and parents in an individual setting. For pupils, the mean administration duration was 16 minutes. Some parents, mostly mothers, conversed within a 10 minute period of time especially when they perceived their child as reading very well, whereas others elaborated on their concerns about the causes of their child's reading difficulties or lack of reading progress. The latter kind of parent spoke for at least 20 minutes. Appointments were made with class teachers for any time that suited them - free periods, break times and mainly after school - to discuss the pupils involved in this research.

No scoring was necessary here, only the recording of the responses to the open-ended questions of pupils from the experimental and control groups, as well as of their teachers and parents.
4.6.2.6.3.2 Reading Attributional Survey (RAS)

The researcher administered the RAS during the fourth term of 1992 to pupils in a group setting: the standard two experimental and control pupils together and then the standard three experimental and controls together. Pupils in each group were randomly assigned to a place in the testing locality. Testing materials included the RAS, a pencil and a rubber. Parents were invited to school in groups of ten during the lunch time period to fill in the adult version of the RAS. Bearing in mind the centrality of this school, the short travelling distances in the town, and the short duration of the RAS, all parents were present. Teachers filled out the RAS for each pupil during their spare time.

For pupils, the test purpose was explained and the examples were worked through by pupils and the researcher together. Pupils were reassured that the RAS is not a test and that there are no right or wrong answers. Furthermore, it was pointed out to them that their responses were confidential and that their school marks would in no way be affected by these responses. They were also encouraged to quietly check the decoding or meaning of a word with the researcher, if necessary. After it was determined that every pupil in the group understood what was required of him/her, the responding to the RAS commenced. This is not a timed procedure: pupils were able to relax and consider their responses carefully. The purpose and completion requirements were also explained to the teachers and parents.
The administration time for pupils (including the instruction section) ranged between 31 and 36 minutes, whereas that for parents varied between 17 and 24 minutes. Teachers generally filled in the RAS concerning their pupils over a two week period.

Scoring the RAS involved recording under separate headings of 'experimental' and 'control' the choices of these pupils regarding:

- success/failure statements;

- attributions about the success/failure statement. These attributions and their intensities (1 to 5) were then analyzed.

4.6.2.6.4 Validity and reliability

Prior to the administration of the RAS, no validity and reliability data were available. However, such data formed part of this investigation and will be discussed in chapter five.

4.6.2.7 General observations

The qualitative data which emerged from the several test situations, interviews and classroom observations was employed as supplementary information to interpret the quantitative data. Furthermore, frequent observations by the researcher in the classroom served to validate the
interview data, as suggested by Crandall (1973). Some of the teacher and parent ratings of pupils on the RAS initially appeared to be phenomenologically distinct from the pupils' self-ratings, but only became meaningful when the researcher observed pupils within a wide range of situations. This idea, recommended by Wells and Marwell (1976), was followed throughout the course of this study.

4.6.3 Processing the test data

Before analyzing the available test data, it was necessary to process the vast amount of quantitative and qualitative information. The unprocessed raw scores attained by means of the abovementioned measuring instruments and techniques were meaningless since they failed to show a valid comparison between testees or tests. Two forms of test data processing was implemented in this study, namely, manual and computer processing.

4.6.3.1 Manual processing

Manual processing of test results involved transforming the raw scores into standardized normative scores or scales.

4.6.3.1.1 Stanine scale

The scholastic achievement tests, English first language for grade two, standard 1, standard 2, standard 3, transform raw scores to stanine scores
by means of the stanine norm tables in the test manual. The term 'stanine' is a contraction of 'standard nine point scale', and constitutes a normalized nine point scale that ranges from 1 (low) to 9 (high) with an average of 5.0 and a standard deviation of 1.96. Each stanine score represents a certain percentage of pupils who attained a particular level of achievement in each test, including reading.

4.6.3.1.2 Sten scale

The Children’s Personality Questionnaire can convert raw scores to standard scores on the sten scale by means of the norm tables in the test manual. The word 'sten' represents the terminology in 'standard scale of ten units'. The sten constitutes a normalized ten point scale that ranges from 1 (low) to 10 (high) with a mean of 5.5 and a standard deviation of 2.0. One sten is approximately half a standard deviation.

4.6.3.1.3 Deviation IQ scale

The raw scores obtained by pupils in the Senior South African Individual Scale and the New South African Group Test were converted to standard scores expressed on the deviation IQ scale as prescribed in the test manual. The deviation IQ is a normalized IQ score distribution with an arbitrarily accepted mean of 100 and a standard deviation of 15 that applies to all age
groups. It is a measure 'which expresses information concerning the individual's mental ability' (Noll & Scannell, 1972, p. 112).

4.6.3.1.4 Advantages

These scales have numerous advantages. Firstly, they indicate an individual's position in relation to the normative sample. Secondly, they are appropriate for comparisons of scores over various age groups. Thirdly, they are easily understood and interpreted. Fourthly, they are expressed on an interval scale and are therefore statistically processable and meaningful (Ghiselli, 1954; Nunnally, 1967; Smit, 1981). Finally, the stanines and stens enable the grouping of scores into intervals which permit the use of a single digit to represent each interval.

4.6.3.2 Computer processing

All the available scores of pupils derived from the aforementioned tests and techniques were entered into the computers of the Department of Statistics and Biometrics of the University of Natal, Pietermaritzburg. The computer quattro programme was selected for this purpose of data capture. Furthermore, the commercially available Statistical Package for the Social Sciences (SPSS) as well as the EPINFO programme, version 5 (Statcalc), was implemented for data processing and analysis.
4.6.4 Techniques of statistical analysis

The techniques of statistical analysis were defined by the research design and confined to the hypotheses as outlined in the previous chapters.

4.6.4.1 Mean

The mean was selected to summarize a host of data. The long-term effects of the MAT programme can be inferred from the differences between means of the experimental and control groups. The greater the differences between the two means, the greater the effect of the MAT programme will be thought to be.

4.6.4.2 The t-test of statistical significance

The two-sample t-test, a parametric statistical technique, was employed to determine whether or not the MAT programme caused significant empirical differences between the data of the experimental and control groups. The t-ratio was computed by means of SPSS.

4.6.4.3 The chi-square technique

The chi-square technique was applied to indicate the frequency with which pupils and adults attributed a cause to a certain event. The differences among the frequencies between the experimental and control group members and
their teachers and parents was calculated by means of EPIINFO. The chi-square technique was selected since the responses to the Reading Attributional Survey are on an interval scale. For the purposes of this investigation, the Yates corrected chi-square result and the Fisher exact one-tailed p values were chosen amongst the other possible results computed by EPIINFO.

4.6.4.4 The Pearson product-moment correlation

This technique of statistical analysis was selected for this study to indicate the magnitude of the relation between reading motivation and performance, and attributions and emotions of the experimental and control groups. Furthermore, by means of the Pearson product-moment correlation technique, the criterion validity of the RAS could be computed. This measuring instrument was wholly constructed by the researcher and necessitates validation.

4.6.4.5 Levels of significance

The statistically significant differences between the results of the experimental and control groups indicate a low probability of occurring by chance alone. The greater the likelihood that a difference is not due to chance alone, the more confidence the researcher will place in these results. Researchers usually accept that a probability level of 0.05 shows that a difference between
group means or frequencies was significant. This 5% significance level indicates a 95% probability that the difference was significant. The current researcher will, wherever indicated on computer, reflect results that are significant also at the 0.01 and 0.001 levels of significance, since these levels show an even lower probability that results were due to chance.

4.6.5 Minimization of error variance

Error variance is the variability in the dependent variables generated by unknown factors. In this current research, error variance was reduced by experimental control. All individuals were treated in the same way. Randomization procedures and test and interview instructions and conditions were kept the same. This increased the possibility of detecting a difference between the experimental and control groups that could be called significant.

Furthermore, by increasing the accuracy of measuring the dependent variables, the error variance was minimized, as suggested by Robinson (1981). The 'standardized measures of the Human Sciences Research Council used in this research have been found to have satisfactory reliability and little measurement error.
4.7 CONCLUSION

Reading research is notoriously fraught with numerous challenges and difficulties as mentioned above. Although this study has by no means employed the ultimate research design, it has taken formidable strides to control and/or prevent as many pitfalls as possible that are commonly encountered in many investigations on reading.
CHAPTER 5

RESULTS

5.1 INTRODUCTION

For the presentation of the results of this investigation, the following format will be followed:

Firstly, the long-term effects of the morphophonological awareness training (MAT) programme on the reading performance of pupils during the 1990 to 1992 period will be analyzed (hypotheses one and two).

Secondly, the long-term influence of the MAT programme on reading motivation will be examined (hypotheses three to eight) by evaluating the attributional and emotional responses of pupils, their teachers and parents.

Thirdly, the criterion-related validity of the Reading Attributional Survey (RAS) constructed for the purposes of this research will be discussed.

Finally, the long-term influence of IQ, previous preprimary school attendance, gender, parental qualifications on the current research results will be probed.
5.2 LONG-TERM EFFECTS OF THE MAT PROGRAMME ON PUPILS' READING PERFORMANCE

Innumerable investigations have chronicled the overarching importance of morphophonological awareness training for reading performance (Amqvist, 1992; Coleman, 1970; Williams, 1980). Despite the cogent evidence marshalled in support of the advantages of such training, the conclusions drawn were of limited assistance. These conclusions were locked in the time frame when the morphophonological awareness training occurred. The question which warranted amplification, namely, what are the effects of this training beyond the initial period of implementation, was granted a position of lesser importance.

Documentation on the long-term effects of morphophonological awareness training and related programmes is scarce. A few studies, however, have shown that longitudinal research designs in reading remediation, for instance, can isolate a host of data by virtue of the advantage of extended time advantages (Gittelman & Feingold, 1983; Simm, 1988). Such an advantage is not always possible with short-term investigations. It is useful, therefore, for research to explore the effects of morphophonological training over a longer period of time.

The MAT programme implemented in 1989 supports the conclusions situated in morphophonological awareness training literature. Yet its long-term effects
remain unknown. There exists an urgent need in psychological research for longitudinal studies on the long-term effects of morphophonological awareness training (Lenchner et al., 1990). On the basis of this need, the following hypotheses were advanced.

**HYPOTHESIS ONE:** Pupils exposed to the MAT programme in 1989 will, during three subsequent years, achieve significantly higher reading achievement scores than the pupils not exposed to this programme.

The annual outcome of the scholastic achievement rests, English first language for grade ii/sub B, standard 1, standard 2, standard 3, are displayed in Tables 1 to 11. Reading, vocabulary, language usage and spelling performance, spanning the period 1990 to 1992, has been tabulated in raw scores as opposed to stanines. Expressing test outcomes in terms of raw scores enhances statistical power to direct experimental-control differences. Raw scores, on an interval scale, range from 0 to 30 in most of the reading subtests, whereas the stanines, on an ordinal scale, range only from 1 to 9, which, when examining the results, showed potential to lose statistical power. However, for the purposes of comparing all these pupils with the norm group, the raw scores were nonetheless converted to stanines. The mean stanine for the experimental and control groups was computed and then compared with the ranking scales in the manual (e.g., very good, good, average, weak,
very weak). The ranking scale for the experimental and control groups will be indicated in parentheses.

To test for significant empirical differences between the data of the experimental and control groups, t-tests were carried out on the raw scores. This process is justified by the fact that the mean for each group will be approximately normally distributed by the central limit theorem (J. Levin, personal communication, 19 March 1993). The experimental and control group differences were investigated by means of one-tailed t-tests.

5.2.1 Reading: standardized HSRC results

The reading performance of standard two and standard three experimental and control groups is displayed in Tables 1 and 2. The mean score for the standard two experimental (M=25.24) reflects a higher reading score in 1992 than the mean score for controls (M=14.53), in accordance with the hypothesis stated earlier. A t-test for independent groups indicated that the difference between these two means is statistically significant, t(34)=8.98; \( p(\text{one-tailed})<0.001 \). The reading performance of the experimental group when compared with the norm group (indicated by means of ranking scales) is good, whereas that of the control group is average.
TABLE 1: Comparative HSRC reading achievement test scores of the standard two experimental and control groups during the period 1990 to 1992, following the MAT programme

<table>
<thead>
<tr>
<th>Year</th>
<th>Std.</th>
<th>Group</th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>t*</th>
<th>df</th>
</tr>
</thead>
<tbody>
<tr>
<td>1990</td>
<td>i</td>
<td>Experimental</td>
<td>17</td>
<td>21.06</td>
<td>3.79</td>
<td>5.37***</td>
<td>34</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Control</td>
<td>19</td>
<td>14.84</td>
<td>3.07</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1991</td>
<td>1</td>
<td>Experimental</td>
<td>17</td>
<td>24.41</td>
<td>2.53</td>
<td>7.74***</td>
<td>34</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Control</td>
<td>19</td>
<td>16.58</td>
<td>3.42</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1992</td>
<td>2</td>
<td>Experimental</td>
<td>17</td>
<td>25.24</td>
<td>3.01</td>
<td>8.98***</td>
<td>34</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Control</td>
<td>19</td>
<td>14.53</td>
<td>4.01</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* One-tailed t-tests
*** p<0.001

The means of both the experimental and control groups reveal different growth trends in reading performance. The experimental group shows a steady improvement in reading since class two: a baseline mean of 21.06 (good) in 1990, an increase to 24.41 (good) in 1991, and the mean settling at 25.24 (good) in 1992. The control group reading development shows an erratic pattern with a baseline of M=14.84 (average) in 1990, an increase to
16.58 (average) in 1991 and a decrease to M=14.53 (average) in 1992. The t-ratios indicate that the means of the experimental and control groups are significantly different at the 0.001 level of significance over the past three years (1990 to 1992).

In Table 2, the mean score for the standard three experimentals (M=20.89) indicates a higher reading score in 1992 than the mean score for controls (M=16.46), in support of the previously stated hypothesis. A t-test showed that the experimental-control mean differences are statistically significant, t(15)=5.22; p(one-tailed)<0.01.

The reading development trend of the experimental group over a period of three years shows slow progress: a baseline of M=19.33 (average) in 1990, a slight increase to M=20.11 (average) in 1991 and a stabilization of M=20.89 (average) in 1992. The control group reading progress profile also indicates a sluggish upward trend: a baseline of M=14.12 (average) in 1990, up to M=16.36 (average) in 1991, and M=16.46 (average) in 1992. The t-tests indicate that for the three years subsequent to the implementation of the MAT programme, the means of the experimental and control groups remained significantly different, at the 0.05 and 0.01 levels of significance.
TABLE 2: Comparative HSRC reading achievement test scores of the standard three experimental and control groups during the period 1990-1992, following the MAT programme

<table>
<thead>
<tr>
<th>Year</th>
<th>Std</th>
<th>Group</th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>t</th>
<th>df</th>
</tr>
</thead>
<tbody>
<tr>
<td>1990</td>
<td>1</td>
<td>Experimental</td>
<td>9</td>
<td>19.33</td>
<td>4.42</td>
<td>2.60*</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Control</td>
<td>8</td>
<td>14.12</td>
<td>3.76</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1991</td>
<td>2</td>
<td>Experimental</td>
<td>9</td>
<td>20.11</td>
<td>5.39</td>
<td>3.15**</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Control</td>
<td>8</td>
<td>16.36</td>
<td>4.46</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1992</td>
<td>3</td>
<td>Experimental</td>
<td>9</td>
<td>20.89</td>
<td>5.30</td>
<td>5.22**</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Control</td>
<td>8</td>
<td>15.46</td>
<td>4.33</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* One-tailed t-tests
* p<0.05
** p<0.01

Although the experimental groups show improvement from year to year, it is evident that the standard two group made rapid improvement and remained constantly within the 'good' range of the norm group as compared to the far slower progress of the standard three group who fell within the 'average' range of the norm group.
Further revealed by the above tables is the influence of time of preventative or corrective intervention on the future reading of at-risk readers. The experimental group (standard two) that was exposed to the MAT programme at the outset of schooling reflects consistently higher scores three years later (class two to standard two) than the experimental group (standard three) exposed to this programme a year later.

These results illustrate quite cogently that the MAT programme together with traditional reading instruction addresses potential and existing reading difficulties more effectively and over a longer period of time than does conventional reading instruction in isolation. Although control group members were exposed to an extra conventional reading scheme in 1989 as a substitute for the constructive effects of the MAT programme, this additional exposure to reading instruction was insufficient for some at-risk readers. Their annual reading achievement scores show slow progress trends. Several of these control group members displayed increasing frustration levels in trying to remain abreast with the ever-expanding volume of reading text in the advanced school years. Some showed strong signs of reading deterioration and demotivation and were subsequently referred for remedial reading.

5.2.2 Reading: teacher rated performance

The classroom reading performance of pupils based on an accumulated year percentage computed by the class teacher is presented in Tables 3 and 4.
The mean percentage for the standard two experimental (M=85,29) shows a higher reading score in 1992 than for the controls (M=54,75), as predicted by hypothesis one. A t-test indicated a statistically significant difference between the experimental and control group means, t(34)=10,00; p(one-tailed)<0,001.

**TABLE 3:** Comparative teacher rated reading test scores (percentages) of the standard two experimental and control groups during the period 1990 to 1992, following the MAT programme

<table>
<thead>
<tr>
<th>Year</th>
<th>Std.</th>
<th>Group</th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>t*</th>
<th>df</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Experimental</td>
<td>17</td>
<td>78,24</td>
<td>8,83</td>
<td>4,75***</td>
<td>34</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Control</td>
<td>19</td>
<td>64,21</td>
<td>8,86</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Experimental</td>
<td>17</td>
<td>80,59</td>
<td>8,99</td>
<td>6,32***</td>
<td>34</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Control</td>
<td>19</td>
<td>61,32</td>
<td>9,26</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Experimental</td>
<td>17</td>
<td>85,29</td>
<td>6,24</td>
<td>10,00***</td>
<td>34</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Control</td>
<td>19</td>
<td>54,74</td>
<td>11,11</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* One-tailed t-tests

*** p<0,001
The means of the experimental and control groups reveal vastly different growth trends. The experimental group shows a steady climb in percentages since class two: a baseline mean of 78.24 in 1990 to 80.59 in 1991 and 85.29 in 1992. The control group growth trend indicates a downward movement: a baseline mean of 64.21 in 1990, to 61.32 in 1991, and 54.74 in 1992. The t-tests show that during the three years of this investigation, the experimental-control group means have remained significantly different at the 0.001 levels of significance.

In Table 4, the mean percentage for the standard three experimentals (M=72.00) in 1992 is higher than that of the controls (M=61.38). A t-test provides supporting evidence for the hypothesis that the difference between these two means is statistically significant, t(15)=2.41; p(one-tailed)<0.05.

The reading development trend for both the experimental and control groups shows slow progress over the three years subsequent the MAT programme implementation. For the experimental group, the percentage mean varied between 66.87 and 72.00, whereas the mean percentage of the control group ranged from 55.00 to 61.38.
### Table 4: Comparative teacher rated reading test scores (percentages) of the standard three experimental and control groups during the period 1990 to 1992, following the MAT programme

<table>
<thead>
<tr>
<th>Year</th>
<th>Std.</th>
<th>Group</th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>t*</th>
<th>df</th>
</tr>
</thead>
<tbody>
<tr>
<td>1990</td>
<td>1</td>
<td>Experimental</td>
<td>9</td>
<td>66.67</td>
<td>11.73</td>
<td>2.29*</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Control</td>
<td>8</td>
<td>55.00</td>
<td>8.85</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1991</td>
<td>2</td>
<td>Experimental</td>
<td>9</td>
<td>68.22</td>
<td>10.64</td>
<td>1.90*</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Control</td>
<td>8</td>
<td>60.25</td>
<td>11.88</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1992</td>
<td>3</td>
<td>Experimental</td>
<td>9</td>
<td>72.00</td>
<td>13.46</td>
<td>2.41*</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Control</td>
<td>8</td>
<td>61.38</td>
<td>11.16</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* One-tailed t-tests

* p<0.05

### 5.2.3 Qualitative Outcome

Although a timed subtest, the experimental group members generally finished the HSRC reading test far sooner than the control group members. Three pupils of the standard three control group were unable to finish within the prescribed time. They only completed about 75% of the test. This slow
reading style was regularly presented over the past three years of this study by these three pupils, not only during the HSRC reading test, but also during the teacher evaluations.

Pupils generally seemed much more relaxed and their performance scores were higher when they were required to read silently during the HSRC reading test than when having to read vocally to their class teachers. This contrast of emotional state contingent upon the type of reading performance (silent vs vocal) was particularly evident amongst the control group members who have become aware that their reading performance is different to that of the better readers. Four control group members in standard two, and six in standard three tended to lower their voices when reading aloud to their class teachers, a reading style observed by the researcher since the commencement of this investigation. This vocal mode during reading aloud may be related to teacher and/or parent feedback about their reading performance, pupil attributions and emotions based on prior reading experiences. All of the experimental group members read orally to their class teachers with the utmost confidence: quick walking pace to the teacher’s desk to read, alert and quick to commence reading, loud vocal tones when reading in front of the class or to the teacher.

Teachers expressed more end-of-year concern for control group members about their reading performance and lack of reading progress. Furthermore, teachers observed that some of these pupils were more inclined to subtle
reading avoidance behaviours: dropping the reading book in class to lose the place in the text being read, forgetting books at school required for supplementary reading at home, frequent visits to the cloakroom. These avoidance styles merely served to exacerbate their reading difficulty because they were depriving themselves of the reading exposure they drastically needed. When professionally addressed, this avoidance behaviour revealed latent reading performance anxiety based on causal attributions and emotions related to previous unpleasant experiences in reading.

The abovementioned qualitative observations indicate that the MAT programme fosters an effective reading mode, which, in itself can be motivating. Obvious reading variables, like speed of decoding (during vocal reading), tone and volume of voice, teacher and parent feedback, provided cues for the researcher as to the effects of this programme for the experimental groups. For some members of the control groups however, different cues emerged, and developed into anxiety-provoking dimensions for them, which, if left untreated, may become difficult to extinguish in future years.

The potential reading difficulties of the experimentals were addressed by means of the MAT programme for thirty minutes a day during 1989. At the same time, the controls were being helped to boost their reading skills by means of the additional phonological and reading exercises of the Ginn reading scheme. Pupils of both the experimental and control groups were
fairly treated by teachers, not only in 1989, but also during the subsequent three years of the current study. No self-fulfilling prophecy which may have affected the reading performance, attributions or emotions of pupils was sensed by the researcher. However, over the years, the control group members themselves began to sense their inferior reading skills which resulted in their behaviour as described above. This behaviour, once again, justifies the necessity of the MAT programme as an adjunct to conventional reading schemes to address the potential and existing reading difficulties of the at-risk reader.

5.2.4 Other reading-related subtests of the HSRC test

The vocabulary, language usage and spelling subtests of the HSRC scholastic achievement test was included as measures of reading ability to expand the evidence in support of the aforementioned hypothesis, and not only to measure those elements of language these subtests are alleged to represent. From standard one onwards, these subtests can only be responded to via the medium of silent reading. The scores derived from these subtests will be used to reflect the reading performance of experimental and control group members.
5.2.4.1 Vocabulary

The vocabulary scores of the standard two and standard three experimental and control groups may be viewed on Tables 5 and 6. The mean score for the standard two experimental (M=17.12) is higher in 1992 than the mean score for the controls (M=9.89). A t-test indicated that the difference between these two means is statistically significant, t(34)=8.44; p(one-tailed)<0.001.

**TABLE 5:** Vocabulary subtest scores of the HSRC scholastic achievement test of the standard two experimental and control groups during the period 1990-1992, following the MAT programme

<table>
<thead>
<tr>
<th>Year</th>
<th>Std.</th>
<th>Group</th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>t*</th>
<th>df</th>
</tr>
</thead>
<tbody>
<tr>
<td>1990</td>
<td>ii</td>
<td>Experimental</td>
<td>17</td>
<td>19.68</td>
<td>3.03</td>
<td>0.93</td>
<td>34</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Control</td>
<td>19</td>
<td>18.32</td>
<td>3.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1991</td>
<td>1</td>
<td>Experimental</td>
<td>17</td>
<td>16.71</td>
<td>3.14</td>
<td>5.35***</td>
<td>34</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Control</td>
<td>19</td>
<td>11.79</td>
<td>2.35</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1992</td>
<td>2</td>
<td>Experimental</td>
<td>17</td>
<td>17.12</td>
<td>2.69</td>
<td>8.44***</td>
<td>34</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Control</td>
<td>19</td>
<td>9.69</td>
<td>2.45</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* One-tailed t-tests

*** p<0.001
Reading progress for the three years subsequent to the application of the MAT programme generally differs for the experimental and control groups from standard one onwards: the means for the experimental group increased slightly from 16.71 (average) to 17.12 (good) and those for the control group decreased from 11.79 (average) to 9.89 (weak). However, the means of the experimental and control groups in 1990 (class two) shows negligible differences. The reason for this may be associated with the test characteristic, namely, that the test instructions and vocabulary items were read orally by the tester to the pupils while they followed what was being read in their test booklets. No reading skill application by the pupils to decipher meaning was necessary for this subtest. Mere listening to the tester and placing a circle on the letter next to the word that fits the sentence was required. Members of both the experimental and control groups were quite adept in performing this function when in class two. Furthermore, these results suggest that these two groups were on a par regarding vocabulary development in class two at least. When the test characteristic changed a year later (1991: standard one) and included the independent act of self-reading of the instructions, the control group members began to experience difficulties as supported by the t-tests.

As displayed in Table 6, the mean score for the standard three experimental (M=14.44) in 1992 is higher than the mean score for the controls (M=10.25).
A t-test confirmed that the difference between these two means is statistically significant, \( t(15)=4.01; p(\text{one-tailed})<0.01 \).

**TABLE 6:** Vocabulary subtest scores of the HSRC scholastic achievement test of the standard three experimental and control groups during the period 1990-1992, following the MAT programme

<table>
<thead>
<tr>
<th>Year</th>
<th>Std.</th>
<th>Group</th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>( t^* )</th>
<th>df</th>
</tr>
</thead>
<tbody>
<tr>
<td>1990</td>
<td>1</td>
<td>Experimental</td>
<td>9</td>
<td>12.89</td>
<td>2.52</td>
<td>3.08**</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Control</td>
<td>8</td>
<td>9.50</td>
<td>1.93</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1991</td>
<td>2</td>
<td>Experimental</td>
<td>9</td>
<td>14.22</td>
<td>2.99</td>
<td>3.72**</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Control</td>
<td>8</td>
<td>11.13</td>
<td>2.80</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1992</td>
<td>3</td>
<td>Experimental</td>
<td>9</td>
<td>14.44</td>
<td>2.85</td>
<td>4.01**</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Control</td>
<td>8</td>
<td>10.25</td>
<td>2.96</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* One-tailed \( t \)-tests

** p<0.01

It is noted that the vocabulary development trend for the experimental group is characterized by a baseline mean of 12.89 (average), 14.22 (average) and
14.44 (average). The means for the control group vary from 9.50 (average), 11.13 (average) to 10.25 (average).

When comparing the scores of the standard three experimental and control groups with the norm group it would appear from the ranking scale that the vocabulary development of these two treatment groups is on par. The ranking for the standard two experimental is average to good and for the controls is average to weak, whereas the ranking for the standard three experimental and controls is average.

The statistical differences that do exist between the means of the experimental and control groups might not necessarily reflect varying vocabulary levels between these groups, but rather variations in reading abilities. The experimental, on the basis of the previously discussed reading test results, may have decoded the instructions and vocabulary more effectively than the controls resulting in higher vocabulary subtest scores. On the other hand, the lower means of the controls might signify a vocabulary deficiency due to inadequately developed reading skills. Not being able to adequately decode new words in print can have a ripple effect by depriving a person of learning the meaning of a new word that can be added to his or her vocabulary base. A vocabulary deficiency can, in turn, slow down or halt completely the reading fluency of a person thereby eroding reading comprehension. This reading style can create more reading difficulties and frustration. The downswing in the means of the standard two controls
especially, has alerted the researcher and class teachers to monitor the pupils concerned in this area and plan the necessary intervention for 1993.

5.2.4.2 Language usage

The language usage results for the standard two and standard three experimental and control groups are presented in Tables 7 and 8. The mean score for the standard two experimental (M=20.00) is significantly higher than that of the controls (M=11.79) as indicated by a t-test, t(34)=8.84; p(one-tailed)<0.001.

Language usage scores for the standard two pupils are only reflected from standard one onwards since this subtest was not constructed by the HSRC for class two pupils. The language usage progress for experimental remained stable: M=20.94 (average) in 1991 and M=20.00 (average) in 1992. Controls showed a decrease in means: M=14.63 (average) in 1991 to M=11.79 (weak) in 1992.

The comparison of the means of the experimental and control groups with the norm group suggests average language usage for the experimental group and average to weak language usage for the control group.
**TABLE 7:** Language usage subtest scores of the HSRC scholastic achievement test of the standard two experimental and control groups during the period 1990-1992, following the MAT programme.

<table>
<thead>
<tr>
<th>Year</th>
<th>Std.</th>
<th>Group</th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>t*</th>
<th>df</th>
</tr>
</thead>
<tbody>
<tr>
<td>1991</td>
<td>1</td>
<td>Experimental</td>
<td>17</td>
<td>20,94</td>
<td>4,08</td>
<td>5,16***</td>
<td>34</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Control</td>
<td>19</td>
<td>14,63</td>
<td>3,24</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1992</td>
<td>2</td>
<td>Experimental</td>
<td>17</td>
<td>20,00</td>
<td>2,76</td>
<td>8,84***</td>
<td>34</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Control</td>
<td>19</td>
<td>11,79</td>
<td>2,80</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* One-tailed t-tests

*** p<0.001

Note: No language usage subtest was constructed for class two pupils by the HSRC.

As shown in Table 8, the mean score for the standard three experimentals (M=14,89) is significantly higher than the mean score for the controls (M=11,38), t(15)=2,07; p(one-tailed)<0,05.
TABLE 8: Language usage subtest scores of the HSRC scholastic achievement test of the standard three experimental and control groups during the period 1990-1992, following the MAT programme.

<table>
<thead>
<tr>
<th>Year</th>
<th>Std.</th>
<th>Group</th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>t*</th>
<th>df</th>
</tr>
</thead>
<tbody>
<tr>
<td>1990</td>
<td>1</td>
<td>Experimental</td>
<td>9</td>
<td>18.38</td>
<td>5.27</td>
<td>3.46**</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Control</td>
<td>8</td>
<td>14.19</td>
<td>3.39</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1991</td>
<td>2</td>
<td>Experimental</td>
<td>9</td>
<td>15.56</td>
<td>3.64</td>
<td>1.85*</td>
<td>15</td>
</tr>
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<td>8</td>
<td>13.13</td>
<td>3.75</td>
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<tr>
<td>1992</td>
<td>3</td>
<td>Experimental</td>
<td>9</td>
<td>14.89</td>
<td>3.26</td>
<td>2.07*</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Control</td>
<td>8</td>
<td>11.38</td>
<td>3.74</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* One-tailed t-tests

* p<0.05

** p<0.01

The developmental trends for both the experimental and control groups show a distinct dip in means. The experimental means range from 18.38 (average), 15.56 (average) to 14.89 (weak). The means of the controls vary from 14.19 (average), 13.13 (weak) to 11.38 (weak).
For both the experimental and control groups, norm group comparisons indicate average to weak language usage. In the light of the previously discussed reading scores of the experimental which suggests strongly developed reading skills, it would seem that their weak language usage in 1992 is a reflection of a specific difficulty in that area and not a problem of reading as is suggested by the scores of the controls. This subtest is timed and requires fast decoding and comprehension skills with which the control group members were not yet adept. This, coupled with possible language usage deficiencies, may have resulted in the deflated scores of the controls.

5.2.4.3 Spelling

The spelling scores are summarized in Tables 9 and 10. The mean score for the standard two experimental (M=18.24) is higher than that of the controls (M=9.84). A t-test reveals that the difference between these two means is statistically significant, t(34)=11.32; p(one-tailed)<0.001.

Spelling means for the experimental show a steady increase from the baseline mean of 15.41 (good) in 1990, to 17.53 (good) in 1991 and finally to 18.24 (good) in 1992. The controls, on the other hand, indicated stabilized means for the first two years, 11.53 and 11.11 (both average) and then a lowered mean of 9.84 (average) in 1992.
TABLE 9: Spelling subtest scores of the HSRC scholastic achievement test of the standard two experimental and control groups during the period 1990-1992, following the MAT programme

<table>
<thead>
<tr>
<th>Year</th>
<th>Std.</th>
<th>Group</th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>t*</th>
<th>df</th>
</tr>
</thead>
<tbody>
<tr>
<td>1990</td>
<td>ii</td>
<td>Experimental</td>
<td>17</td>
<td>15.41</td>
<td>3.37</td>
<td>3.54***</td>
<td>34</td>
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<td></td>
<td></td>
<td>Control</td>
<td>19</td>
<td>11.53</td>
<td>3.18</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1991</td>
<td>1</td>
<td>Experimental</td>
<td>17</td>
<td>17.53</td>
<td>1.94</td>
<td>6.01***</td>
<td>34</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Control</td>
<td>19</td>
<td>11.11</td>
<td>2.75</td>
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<td></td>
</tr>
<tr>
<td>1992</td>
<td>2</td>
<td>Experimental</td>
<td>17</td>
<td>18.24</td>
<td>1.79</td>
<td>11.32***</td>
<td>34</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Control</td>
<td>19</td>
<td>9.84</td>
<td>2.54</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* One-tailed t-tests

*** p<0.001

Comparing these means with the norm group indicates good spelling ability for the experimental group and average spelling performance for the controls.

In Table 10, the mean score for the standard three experimentals (M=14.22) is significantly higher than the mean for the control group (M=9.00), as supported by the t-test, t(15)=2.20; p(one-tailed)<0.05.
TABLE 10: Spelling subtest scores of the HSRC scholastic achievement test of the standard three experimental and control groups during the period 1990-1992, following the MAT programme

<table>
<thead>
<tr>
<th>Year</th>
<th>Std</th>
<th>Group</th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>t*</th>
<th>df</th>
</tr>
</thead>
<tbody>
<tr>
<td>1990</td>
<td>1</td>
<td>Experimental</td>
<td>9</td>
<td>13.22</td>
<td>2.11</td>
<td>2.16*</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Control</td>
<td>8</td>
<td>9.87</td>
<td>2.70</td>
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<td></td>
</tr>
<tr>
<td>1991</td>
<td>2</td>
<td>Experimental</td>
<td>9</td>
<td>14.78</td>
<td>1.79</td>
<td>2.58*</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Control</td>
<td>8</td>
<td>9.36</td>
<td>1.92</td>
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<td></td>
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<tr>
<td>1992</td>
<td>3</td>
<td>Experimental</td>
<td>9</td>
<td>14.22</td>
<td>1.99</td>
<td>2.20*</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Control</td>
<td>8</td>
<td>9.00</td>
<td>2.20</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* One-tailed t-tests
* p<0.05

The pattern of spelling development as suggested by the means indicates minimal upward movement for the experimental group: 13.22 (average) in 1990 to 14.78 (average) in 1991 and 14.22 (average) in 1992. The control group means show a plateau profile throughout, ranging from 9.87 to 9.00 (average).
The comparison of these means with the norm group shows that the experimentals and controls have made average progress in spelling over the past three years of this investigation.

An interesting feature of the long-term effects of the MAT programme emerges when comparing the spelling and reading performances of the experimentals, as displayed in Table 11. Since the spelling and reading subtest totals of the standardized HSRC scholastic achievement test differ, the performance of experimentals is expressed in percentages for purposes of uniform scores. Spelling means are consistently higher than the reading means.

The spelling-reading performance discrepancy seems to suggest another dimension of the MAT programme hitherto unknown. This programme affects not only reading growth, but spelling development as well by virtue of the morphophonological components involved in spelling a word accurately. Furthermore, these comparisons together with teacher and parent comments suggest that the MAT programme may influence word spelling development at a faster rate than it effects word reading development. The standard two and standard three spelling-reading differences seem to be dependent on the time of onset of the MAT programme. The earlier this programme was implemented, the greater the reading-spelling divergence appears to be as evidenced by the standard two means. The standard three experimental
group was exposed to this programme one year later and its impact on spelling development was not as powerful as with the standard two group.

**TABLE 11:** Reading-spelling performance differences of the standard two and standard three experimental groups

<table>
<thead>
<tr>
<th>Std.</th>
<th>Year</th>
<th>Reading</th>
<th>Spelling</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>1990</td>
<td>70.20</td>
<td>77.05</td>
</tr>
<tr>
<td></td>
<td>1991</td>
<td>81.37</td>
<td>87.65</td>
</tr>
<tr>
<td></td>
<td>1992</td>
<td>84.13</td>
<td>91.02</td>
</tr>
<tr>
<td>3</td>
<td>1990</td>
<td>64.43</td>
<td>66.10</td>
</tr>
<tr>
<td></td>
<td>1991</td>
<td>67.03</td>
<td>73.90</td>
</tr>
<tr>
<td></td>
<td>1992</td>
<td>69.63</td>
<td>71.10</td>
</tr>
</tbody>
</table>

These results demonstrate that the prevention or rectification of spelling can be approached in much the same way as for reading, namely, by means of the MAT programme. However, this conclusion warrants further investigation.
5.2.5 Conclusion

The abovementioned reading performance data have emerged from standardized (HSRC scholastic achievement tests) and non-standardized (teacher scores and comments) sources. From each instance of testing, a great deal of evidence has accumulated which unequivocally amplifies the constructive and creative long-term effects of the MAT programme on reading development. These effects sustain the reading skills initially imparted by the programme and creatively extend to other morphophonological domains like spelling. The findings strongly support hypothesis one.

The significance of these findings is twofold. Firstly, they provide hope for especially those pupils within the Junior Primary phase of schooling. Reading difficulties, if diagnosed and treated early enough, can be effectively avoided or rectified for most children. This augurs well for the at-risk reader. Secondly, the MAT programme seems to be pregnant with possibilities. One of these was discovered during the period of this study, namely, the effect of this programme on spelling development. Other possibilities include extending this programme to assist older inefficient readers at a later stage of their identification, having it translated into Afrikaans and the various ethnic languages and experiment with it within a multicultural or cross-cultural context.
HYPOTHESIS TWO: Pupils exposed to the MAT programme in 1989, will, three years later, score significantly higher in reading related subjects than the control group.

The 1992 year-end percentages of standard two and standard three pupils for history, geography and general science are displayed in Tables 12 and 13.

**TABLE 12**: Year-end percentages of reading-related subjects for the standard two experimental and control groups in 1992

<table>
<thead>
<tr>
<th>Subject</th>
<th>Group</th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>t*</th>
<th>df</th>
</tr>
</thead>
<tbody>
<tr>
<td>History</td>
<td>Experimental</td>
<td>17</td>
<td>90,06</td>
<td>5,49</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>19</td>
<td>68,16</td>
<td>13,04</td>
<td>6,43***</td>
<td>34</td>
</tr>
<tr>
<td>Geography</td>
<td>Experimental</td>
<td>17</td>
<td>86,82</td>
<td>6,31</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>19</td>
<td>72,90</td>
<td>6,79</td>
<td>5,38***</td>
<td>34</td>
</tr>
<tr>
<td>Science</td>
<td>Experimental</td>
<td>17</td>
<td>86,53</td>
<td>6,07</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>19</td>
<td>71,32</td>
<td>8,64</td>
<td>6,05***</td>
<td>34</td>
</tr>
</tbody>
</table>

* One-tailed t-tests

*** p<0,001
The mean percentages for the standard two experimentals for history, geography and science are higher than the mean percentages of the controls, in accordance with the stated hypothesis. Several t-tests for independent groups showed that the differences between the means of the experimental and control groups for each of these school subjects are statistically significant, t(34)=6.43 for history, t(34)=6.38 for geography, and t(34)=6.05 for general science; p(one-tailed)<0.001 in each t-test.

**TABLE 13:** Year-end percentages of reading-related subjects for the standard three experimental and control groups in 1992

<table>
<thead>
<tr>
<th>Subject</th>
<th>Group</th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>t*</th>
<th>df</th>
</tr>
</thead>
<tbody>
<tr>
<td>History</td>
<td>Experimental</td>
<td>9</td>
<td>68.99</td>
<td>7.40</td>
<td>2.75**</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>8</td>
<td>59.38</td>
<td>6.78</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Geography</td>
<td>Experimental</td>
<td>9</td>
<td>77.22</td>
<td>10.64</td>
<td>2.98**</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>8</td>
<td>58.13</td>
<td>15.57</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Science</td>
<td>Experimental</td>
<td>9</td>
<td>72.78</td>
<td>7.04</td>
<td>2.09*</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>8</td>
<td>68.13</td>
<td>10.03</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* One-tailed t-tests

* * p<0.05

** ** p<0.01
In Table 13 it can be seen that the means of the standard three experimentals for history, geography and science are higher than the means of the controls, again in support of the hypothesis. The t-tests indicated that these experimental-control differences in percentages are statistically significant, $t(15)=2.75$ for history and $t(15)=2.98$ for geography, $p(\text{one-tailed})<0.01$ in each test, whereas $t(15)=2.09$, $p(\text{one-tailed})<0.05$ for science.

Table 13 furthermore reveals that the difference between means for the experimental and control groups for science, although significant, is not as high as is the case for the other two school subjects. This may be related to the science test and examination paper structure which incorporated many diagrams that required labelling by the pupil. Very little reading comprehension was required to successfully complete this kind of test or examination question, and the control group members generally found this technique much more favourable. However, where the testing or examination relied on a greater proportion of typewritten text that required reading comprehension, like history and geography, the experimental-control group differences in means were more pronounced.

The data lends support for hypothesis two. The MAT programme seems to establish a firm reading skill foundation that is maintained for at least three years after its implementation. The higher percentages of the experimental group members bode well for their future reading and academic performance. The lower percentages of the control group members do not necessarily
reflect their inability or a lack of effort in these content subjects. For most of these pupils, their low scores reflect rather a degree of reading difficulty: slow decoding, inadequate fluency, and insufficient comprehension. Their teachers and parents agree that these control group pupils do remember a great deal of what they were taught in class or may have painstakingly memorized at home with their parents. However, the transfer of such knowledge onto an examination or test script is hampered by a deficient level of reading ability. For such pupils, reading becomes a barrier rather than a facilitator in reading test or examination questions.

In order to establish whether or not the experimental-control differences in history, geography and science as indicated on non-standardized measures of reading ability are reliable, it was decided to compare these scores with the 1992 scholastic achievement test scores of reading by means of the Pearson Product-moment correlations, as summarized in Table 14.

The data indicate that there are strong significant correlations between the standardized and non-standardized tests of reading (p<0.01), and adds further support to hypothesis two.

Another reading related test is the verbal subtest of the standardized HSRC New South African Group Test (NSAGT). Results obtained by the experimental and control groups on this test and a test requiring no reading skill (SSAIS) is to be found in Tables 15 and 16.
TABLE 14: Correlations between the HSRC scholastic achievement test scores of reading comprehension and the percentages of content subjects attained by standard two and standard three experimental and control groups in 1992

<table>
<thead>
<tr>
<th>Std</th>
<th>Subject</th>
<th>Group</th>
<th>N</th>
<th>r*</th>
<th>df</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>History</td>
<td>Experimental</td>
<td>17</td>
<td>0.88</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Control</td>
<td>19</td>
<td>0.85</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td>Geography</td>
<td>Experimental</td>
<td>17</td>
<td>0.91</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Control</td>
<td>19</td>
<td>0.77</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td>Science</td>
<td>Experimental</td>
<td>17</td>
<td>0.83</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Control</td>
<td>19</td>
<td>0.87</td>
<td>17</td>
</tr>
<tr>
<td>3</td>
<td>History</td>
<td>Experimental</td>
<td>9</td>
<td>0.76</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Control</td>
<td>8</td>
<td>0.95</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Geography</td>
<td>Experimental</td>
<td>9</td>
<td>0.84</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Control</td>
<td>8</td>
<td>0.73</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Science</td>
<td>Experimental</td>
<td>9</td>
<td>0.90</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Control</td>
<td>8</td>
<td>0.81</td>
<td>6</td>
</tr>
</tbody>
</table>

*p<0.01*
**TABLE 15**: Individual and group IQ verbal test score comparisons of the standard two experimental and control groups

<table>
<thead>
<tr>
<th>Test</th>
<th>Group</th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>t*</th>
<th>df</th>
</tr>
</thead>
<tbody>
<tr>
<td>SSAIS</td>
<td>Experimental</td>
<td>17</td>
<td>108.77</td>
<td>10.47</td>
<td>0.52</td>
<td>34</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>19</td>
<td>107.16</td>
<td>7.93</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NSAGT</td>
<td>Experimental</td>
<td>17</td>
<td>110.53</td>
<td>7.47</td>
<td>5.28*</td>
<td>34</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>19</td>
<td>95.95</td>
<td>5.94</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Two-tailed t-tests

* p<0.01

The mean NSAGT IQ score (verbal scores) for the standard two experimental group (M=110.53) is significantly higher than the mean of the control group M=95.95), as indicated by the t-test result, t(34)=5.28; p(two-tailed)<0.01. However, no such significant experimental-control group mean difference is evident in the verbal scores of Senior South African Individual Scale (SSAIS), substantiated by the t-test, t(34)=0.52; p(two-tailed)<0.01. The reason for the NSAGT and SSAIS discrepancy in results between the experimental and control groups seems to be related to the structure of these tests. The SSAIS instructions are vocalized by the tester, and comprehension of these instructions and test items is not contingent upon reading ability, as is the
case with the NSAGT instructions and test items. Control group members especially found the verbal subtest of the NSAGT more time-consuming and difficult to understand because of the reliance on the written text for understanding as opposed to the oral nature of the SSAIS. The control group members generally lost a great deal of time and marks in the NSAGT as indicated by the lower mean. The experimentalists performed significantly better than the controls in the NSAGT because of their reading advantage gained from the MAT programme, even after it had been implemented three years previously.

Furthermore, the absence of any significant statistical difference between the experimental and control group performance on the SSAIS seems to suggest that these group members are well matched for intelligence and that this factor is not somehow contributing to reading performance differences.

SSAIS test behaviour was similar for the experimentalists and controls, and the verbal-nonverbal differences were negligible, indicating no behavioural or emotional problems for these two treatment groups. This was also the case with the standard three SSAIS results.

Table 16 reveals no statistical difference in the NSAGT verbal subtest scores between the experimental and control groups, $t(15)=0.44; p$ (two-tailed)$<0.05$. 
TABLE 16: Individual and group IQ verbal test score comparisons of the standard three experimental and control groups

<table>
<thead>
<tr>
<th>Test</th>
<th>Group</th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>t</th>
<th>df</th>
</tr>
</thead>
<tbody>
<tr>
<td>SSAIS</td>
<td>Experimental</td>
<td>9</td>
<td>110.78</td>
<td>7.92</td>
<td>0.23</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>8</td>
<td>109.75</td>
<td>10.71</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NSAGT</td>
<td>Experimental</td>
<td>9</td>
<td>99.67</td>
<td>5.66</td>
<td>0.44</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>8</td>
<td>97.13</td>
<td>8.90</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Two-tailed t-tests

Subsequent enquiry of the experimentals indicated that several of them experienced high levels of anxiety during the testing time of the NSAGT, resulting in the depression of the mean. The source of anxiety for these pupils emanated from an unpleasant situation to which they had been exposed prior to sitting for this test. It seems as if their concentration and attentional span had been affected by this event. However, this matter was not known to the tester at the time. Nevertheless, the feedback from these pupils suggests that their NSAGT reading performance was not influenced by a reading difficulty but by emotional factors.
The NSAGT verbal subtest results also support the aforementioned hypothesis two.

**HYPOTHESIS THREE:** Pupils exposed to the MAT programme in 1989 will, over three years, voluntarily read more library books than the control group.

Library book reading was included in this study as a visible measure of the motivation of a pupil to read, and for further support of the long-term effects of the MAT programme. The number of books each pupil read from the class library and general school library was monitored by the class teacher, and is displayed in Tables 17 and 18.

The data indicates that the mean of the standard two group exposed to the MAT programme (M=33.83) is higher in 1992 than the mean of the group not exposed to this programme (M=22.95). A t-test disclosed that the differences between these two groups are statistically significant, t(34)=5.12; p(one-tailed)<0.001, and lends support to the hypothesis.
TABLE 17: Annual total number of library books voluntarily read by the standard two experimental and control groups during the period 1990-1992 following the MAT programme

<table>
<thead>
<tr>
<th>Year</th>
<th>Std.</th>
<th>Group</th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>t*</th>
<th>df</th>
</tr>
</thead>
<tbody>
<tr>
<td>1990</td>
<td>ii</td>
<td>Experimental</td>
<td>17</td>
<td>52.94</td>
<td>12.03</td>
<td>6.57***</td>
<td>34</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Control</td>
<td>19</td>
<td>30.05</td>
<td>8.30</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1991</td>
<td>1</td>
<td>Experimental</td>
<td>17</td>
<td>45.47</td>
<td>8.13</td>
<td>6.55***</td>
<td>34</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Control</td>
<td>19</td>
<td>26.78</td>
<td>8.89</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1992</td>
<td>2</td>
<td>Experimental</td>
<td>17</td>
<td>33.83</td>
<td>6.59</td>
<td>5.12***</td>
<td>34</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Control</td>
<td>19</td>
<td>22.95</td>
<td>6.17</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* One-tailed t-tests

*** p<0.001

The experimental group and control group show large differences in library book consumption over the past three years of this investigation. The mean library book number of the experimental group ranges from 52.94 to 33.83 and the control group varies from 30.05 to 22.95.
Table 18: Annual total number of library books voluntarily read by the standard three experimental and control groups during the period 1990-1992 following the MAT programme

<table>
<thead>
<tr>
<th>Year</th>
<th>Std.</th>
<th>Group</th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>t*</th>
<th>df</th>
</tr>
</thead>
<tbody>
<tr>
<td>1990</td>
<td>1</td>
<td>Experimental</td>
<td>9</td>
<td>34,33</td>
<td>7,54</td>
<td>2.59*</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Control</td>
<td>8</td>
<td>26,88</td>
<td>3,18</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1991</td>
<td>2</td>
<td>Experimental</td>
<td>9</td>
<td>31,56</td>
<td>8,35</td>
<td>1.65</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Control</td>
<td>8</td>
<td>25,13</td>
<td>7,68</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1992</td>
<td>3</td>
<td>Experimental</td>
<td>9</td>
<td>29,22</td>
<td>7,23</td>
<td>2.32*</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Control</td>
<td>8</td>
<td>22,38</td>
<td>4,37</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* One-tailed t-tests
* p<0.05

Table 18 shows that the mean number of library books read by the standard three experimental is significantly higher in 1992 (M=29,22) than the mean of the controls (M=22,38), t(15)=2,32; p(one-tailed)<0,05. Between 1990 and 1992, the means of the experimental group varied from 34,33 to 29,22, and
for the control group, from 26.88 to 22.38. There was no significant difference between these two groups in 1991 regarding the number of library books that they had read. Further investigation revealed that many of the control group members had worked one hour daily with some of the experimentals on a group project in the library for one term. It seems as if this regular contact with the library had influenced these controls to browse the shelves more often, modelling themselves on the book extracting behaviour frequently displayed by the experimentals during these daily one hour sessions. This conclusion, although the most plausible within the library confines, would warrant further study.

The tabulated results divulge that the earlier an at-risk reader is exposed to the MAT programme, the sooner the motivation to read more and more will be cultivated. The standard two experimentals had, on average, read considerably more library books in 1990 (M=52.94) than the standard three experimental group that year (M=34.33). By 1992 this gap had narrowed somewhat (Std. 2: M=33.83; Std. 3: M=29.22). Nevertheless, the standard two experimental group, by reading more books earlier, had gained a headstart in vocabulary (Std. 2: M=17.12; Std. 3: M=14.44), language usage (Std. 2: M=20.00; Std. 3: M=14.89), spelling (Std. 2: M=18.24; Std. 3: M=14.22), and of course, reading performance (Std. 2: M=25.24; Std. 3: M=20.89) still evidenced in 1992 (cf., Tables 1 to 10).
Closer inspection of the summarized results reveals a decrease in library book reading for both the experimental and control groups over the past three years of this investigation. At face value only, this downward trend is disconcerting. However, further probing into the possible reasons for this pattern of reading consumption revealed from pupils, teachers and parents alike, that the time spent on increasing extra-curricular activities, homework, television viewing, and a reduction of pictures in the age appropriate literature coupled with an increase in written text could have eroded the initial enthusiasm of taking out library books at a higher frequency. Therefore, seen within the actual framework of especially the increasing academic and extra-academic demands placed on most school children, the above data is realistically situated.

The decreasing library book numbers of pupils is not unusual, as is illustrated in Tables 19 and 20. In 1992, a randomly chosen independent group of top readers from standard two and standard three was compared with the experimentals and controls. Table 19 shows that the mean number of library books taken out by the standard two experimentals (M=33.83) is not significantly different to the mean of the top readers (M=35.16), t(34)=1.56; p(two-tailed)<0.01. The mean number of library books read by the control group (M=22.95) was significantly different to the mean of the same top readers (M=35.16), t(36)=6.43; p(two-tailed)<0.01.
**TABLE 19:** Year-end number of library books read by the standard two experimental and control groups in 1992 as compared with a randomly chosen group of good readers

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>t*</th>
<th>df</th>
<th>Group</th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>t*</th>
<th>df</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exp.</td>
<td>17</td>
<td>33.83</td>
<td>3.22</td>
<td>1.55</td>
<td>34</td>
<td>Con.</td>
<td>19</td>
<td>22.95</td>
<td>3.22</td>
<td>6.43*</td>
<td>36</td>
</tr>
<tr>
<td>Good</td>
<td>19</td>
<td>35.16</td>
<td>5.84</td>
<td></td>
<td></td>
<td>Good</td>
<td>19</td>
<td>35.16</td>
<td>5.84</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Two-tailed t-tests
* p<0.01

In Table 20, the mean number of library books read by the standard three experimental group (M=29.22) is not significantly different to that of the top reader group (M=31.65), t(16)=0.59; p(two-tailed)<0.01. The mean number of library books read by the control group (M=22.38) is lower than the mean of the same top reader group (M=31.65) used for comparison purposes t(15)=8.22; p(two-tailed)<0.01.
TABLE 20: Year-end number of library books read by the standard three experimental and control groups in 1992 as compared with a randomly chosen group of good readers

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>t</th>
<th>df</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exp.</td>
<td>9</td>
<td>29.22</td>
<td>8.43</td>
<td>0.59</td>
<td>16</td>
</tr>
<tr>
<td>Good</td>
<td>9</td>
<td>31.65</td>
<td>10.49</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>t</th>
<th>df</th>
</tr>
</thead>
<tbody>
<tr>
<td>Con.</td>
<td>8</td>
<td>22.38</td>
<td>4.08</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Good</td>
<td>9</td>
<td>31.65</td>
<td>10.49</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Two-tailed t-tests

p<0.01

The comparison of the number of library books read between the two treatment groups and the top reader group sample indicates that the pupils exposed to the MAT programme three years earlier are well motivated to read more each year and that their annual library book input is on par with the best readers of their particular academic level. Furthermore, these comparisons show that even among avid readers, the volume of library books does tend to decrease from year to year (cf., standard three experimental/best reader totals are less than those in standard two). Experimentals generally read library books of the recommended class level, whereas approximately 50% of the controls chose books of a level lower than recommended.
The significant differences between the experimental and control groups have remained constant throughout the 1990 to 1992 period, as predicted by hypothesis three. These differences exist despite both the experimentals and controls being exposed to the same types of nuisance variables like sport and hobby interests, homework and favourite television programmes. This seems to suggest that the MAT programme also immunizes pupils against the frustrating and demotivating effects of increasing academic pressures which can result when reading is faulty.

5.3 LONG-TERM INFLUENCE OF THE MAT PROGRAMME ON READING MOTIVATION

The study of motivation, and specifically reading motivation, can be approached in many ways. The path chosen for this current research was to examine the reading outcome of pupils in an attempt to determine how outcome can influence motivation, as postulated by attribution theory. Thus far it has been shown that the MAT programme has a profound influence on the reading performance of pupils way beyond its implementation period. The following results will attempt to illustrate how reading outcome, as boosted by the MAT programme, can influence the attributions and emotions of pupils. Attribution theory is embodied in the hypotheses discussed below. Data was gathered by means of the Reading Attributional Survey, and analyzed using the chi-squared technique and t-tests of significance.
HYPOTHESIS FOUR: Significantly more reading at-risk pupils exposed to the MAT programme in 1989 will perceive that they read well in 1992 owing to successful reading outcomes as compared to those not exposed to this programme.

The 1992 frequencies of reading perceptions of standard two and standard three experimental and control groups are displayed in Table 21. More standard two experimentals (N=17) rated themselves as reading well than the controls (N=13), in accordance with the hypothesis. Six of the control group members perceived themselves to be reading badly. A chi-squared test indicated that the frequency differences between the experimental and control groups were significant, $X^2(1)=4.37; p\text{(one-tailed)}<0.05$.

The frequencies of the standard three pupils indicate that more experimentals (N=7) rated themselves as reading well as compared with the frequency of the controls (N=4). However, two experimentals and four controls perceived themselves to be reading badly. A chi-squared test showed that the experimental-control frequency differences were not statistically significant, $X^2(1)=0.47; p\text{(one-tailed)}<0.05$. 
TABLE 21: Chi-square tests of differences in choice of reading success or failure sections of the Reading Attributional Survey by the standard two and standard three experimental and control group members, their teachers and parents in 1992

<table>
<thead>
<tr>
<th>Std.</th>
<th>Group</th>
<th>Success</th>
<th>Failure</th>
<th>( \chi^2 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Pupils:</td>
<td></td>
<td></td>
<td>4.37*</td>
</tr>
<tr>
<td></td>
<td>Experimental</td>
<td>17</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>13</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Teachers:</td>
<td></td>
<td></td>
<td>5.22*</td>
</tr>
<tr>
<td></td>
<td>Experimental</td>
<td>16</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>12</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Parents:</td>
<td></td>
<td></td>
<td>3.23*</td>
</tr>
<tr>
<td></td>
<td>Experimental</td>
<td>17</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>14</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Pupils:</td>
<td></td>
<td></td>
<td>0.47</td>
</tr>
<tr>
<td></td>
<td>Experimental</td>
<td>7</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>4</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Teachers:</td>
<td></td>
<td></td>
<td>0.47</td>
</tr>
<tr>
<td></td>
<td>Experimental</td>
<td>7</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>4</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Parents:</td>
<td></td>
<td></td>
<td>1.92</td>
</tr>
<tr>
<td></td>
<td>Experimental</td>
<td>9</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>5</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

* \( \chi^2 \) values for differences among the frequencies of the experimental and control groups

* \( p<0.05 \) (Fisher exact)
This hypothesis is supported by the data of the standard two treatment
groups. An investigation into the reading development of the two standard
three experimental's who perceived themselves to be reading badly indicates
reading difficulties already present in their initial year of schooling (1988) prior
to the implementation of the MAT programme (1989). Such a reading
outcome spawned negative perceptions of reading for these two pupils and
their teachers (cf., Table 21). The MAT programme has certainly made a
long-term impact on their reading progress which ought to have modified their
previously held attributions. However, it seems as if teacher reinforcement of
these negative pupil attributions may have contributed to their present
perceptions about their reading. This matter will warrant further attention by
the researcher in an attempt to allow the effects of the MAT programme to
proceed unhindered for these two pupils.

HYPOTHESIS FIVE: Teachers will perceive significantly more at-
 risk pupils exposed to the MAT programme in
1989 as reading well in 1992 as compared to
those pupils not exposed to this programme

The 1992 frequencies of reading perceptions of teachers are shown in Table
21. It is noted that more of the standard two experimental's (n=16) than the
controls (N=12) are perceived by the class teacher to be reading well, which
supports the above hypothesis. Also noted is that more controls (N=7) than
experimental's (N=1) are perceived as reading badly by the teacher. The chi-
squared test result indicated that the frequency differences between the
experimental and control groups were statistically significant, \( X^2(1)=5.22; \) 
p(one-tailed)<0.05.

The standard three teachers perceived more experimentals (N=7) than controls (N=4) as reading well, and a higher frequency of controls (N=4) than experimentals (N=2) as reading badly. The chi-squared test of frequency differences indicates no statistical difference, \( X^2(1)=0.47; \) p(one-tailed)<0.05.

**HYPOTHESIS SIX:** Significantly more parents of reading at-risk pupils exposed to the MAT programme in 1989 will perceive that their children read well in 1992 as compared to parents whose children were not exposed to this programme.

The data in Table 21 indicates that more parents of standard two experimentals perceive their children to be reading well (N=17) and fewer parents of the controls (N=14) perceive this. These data support the hypothesis, and the frequency differences between the parents of experimentals and controls is statistically significant, \( X^2(1)=3.23; \) p(one-tailed)<0.05.

More parents of standard three experimentals (N=9) were of the opinion that their children read well than parents of the controls (N=5). Three parents of the controls felt that their children read badly, whereas none of the parents of the experimentals thought this. The chi-squared test indicates that these
frequency differences between parents are not significant, $X^2=1.92; p$ (one-tailed)<0.05.

The data of Table 21 also demonstrates that the perceptions of the experimentals and controls were generally or exactly the same as that of their teachers and parents, suggestive of the two-way influence of person-perception as theorized by Heider (1958). The reading outcome of the pupils affected not only their self-perception (Weiner, 1985) but the perceptions of their teachers and parents as well. The reading results of pupils affect the attributions of their teachers and parents who in turn influence pupils' attributions by means of verbal communication (Bar-Tal, 1982). The parents' and teachers' perceptions were obviously influenced by the very fact that the experimentals had received morphophonological awareness training by means of the MAT programme. However, if the reading behaviour had not been sustained positively over time, as pointed out earlier, such perceptions will have changed. It is also evident from previous data that these perceptions are associated with prior reading outcome, which, for the experimentals was boosted by the MAT programme. These perceptions, coupled with continuous reading efficiency, bode well for the future reading motivation of the experimentals especially. The extra reading for the control groups has not made as dramatic an impact on their own perceptions or the perceptions of their teachers and parents. This is likely to affect to some extent their motivation for reading as well as the related benefits of reading, like vocabulary enrichment, though not necessarily affecting their reading performance. Since the MAT programme has resulted in generally higher
reading scores for the experimentals, the possibility exists that attributions for this group and the controls would be different and result in different motivational levels.

**HYPOTHESIS SEVEN:** Pupils exposed to the MAT programme in 1989 will, together with their teachers and parents, harbour differential and motivational attributions about reading outcome in 1992 than pupils not exposed to this programme, their teachers and parents.

Tables 22 and 23 show the mean ratings on the scales of the seven listed attributions for reading well and reading badly of standard two and standard three experimental and control group members, their teachers and parents. The ratings were obtained from the Reading Attributional Survey. Data was analyzed by means of t-tests (two-tailed).

An inspection of Table 22 shows that the standard two experimentals, their teachers and parents, generally attributed reading well to the internal locus of causality attributions of ability, effort and library books more often, whereas the controls, their teachers and parents ascribed reading well to the external locus of causality attributions of teacher and parent help. The experimental-control group differences between means regarding some of these attributions are significant (p<0.01), and support the above hypothesis. The t-values for pupils are $t(28)=4.23$ (ability), $t(28)=5.08$ (effort), $t(28)=5.10$
(library books), t(28)=2.80 (teacher help), t(28)=3.33 (parent help). For the teachers t(26)=5.83 (effort), t(26)=3.86 (library books), t(26)=9.21 (teacher help), t(25)=9.16 (parent help). The t-values for parents are t(29)=13.06 (effort), t(29)=2.78 (task), t(29)=6.09 (parent help). Parents ascribed reading well for the experimental's to teacher help as well, whereas parents of the controls were ambivalent about teacher help. No experimental's perceived themselves as reading badly, whereas some controls (N=6) attributed their reading badly to themselves (i.e. internal locus of causality attributions of a lack of ability and reading too few library books). Teachers perceived a few controls (N=7) as reading badly owing to a lack of effort, difficulty of reading and reading too few library books. No parents of the experimental's perceived their children as reading badly. Some parents (N=5) of the controls perceived their children to be reading badly owing to the task of reading being too difficult.

The attributions of luck was generally not accorded much significance by anyone. Task difficulty was seen as a cause of reading outcome mainly by the teachers and parents of the controls who were perceived by these adults as reading badly.
TABLE 22: Means of Reading Attributional Survey ratings\(^a\) of the causal attributions of reading success and failure of the standard two experimental and control group members, their teachers and parents in 1992

<table>
<thead>
<tr>
<th>Perceived reading outcome</th>
<th>Group</th>
<th>N(^b)</th>
<th>Ability</th>
<th>Effort</th>
<th>Library books</th>
<th>Task</th>
<th>Luck</th>
<th>Teacher help</th>
<th>Parent help</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pupils:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Well</td>
<td>Exp.</td>
<td>17</td>
<td>4,18</td>
<td>4,05</td>
<td>4,29</td>
<td>2,94</td>
<td>2,88</td>
<td>3,47</td>
<td>3,35</td>
</tr>
<tr>
<td></td>
<td>Con.</td>
<td>13</td>
<td>3,15</td>
<td>3,31</td>
<td>3,31</td>
<td>3,15</td>
<td>3,23</td>
<td>4,23</td>
<td>4,15</td>
</tr>
<tr>
<td>Badly</td>
<td>Exp.</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Con.</td>
<td>6</td>
<td>4,33</td>
<td>3,50</td>
<td>4,33</td>
<td>3,83</td>
<td>3,50</td>
<td>3,83</td>
<td>3,16</td>
</tr>
<tr>
<td>Teachers:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Well</td>
<td>Exp.</td>
<td>16</td>
<td>3,13</td>
<td>4,06</td>
<td>4,13</td>
<td>3,06</td>
<td>1,88</td>
<td>3,06</td>
<td>2,81</td>
</tr>
<tr>
<td></td>
<td>Con.</td>
<td>12</td>
<td>3,41</td>
<td>3,16</td>
<td>3,33</td>
<td>3,16</td>
<td>2,17</td>
<td>4,33</td>
<td>4,25</td>
</tr>
<tr>
<td>Badly</td>
<td>Exp.</td>
<td>1</td>
<td>2,00</td>
<td>4,00</td>
<td>4,00</td>
<td>3,00</td>
<td>1,00</td>
<td>2,00</td>
<td>2,00</td>
</tr>
<tr>
<td></td>
<td>Con.</td>
<td>7</td>
<td>2,14</td>
<td>4,14</td>
<td>4,42</td>
<td>4,00</td>
<td>1,28</td>
<td>2,14</td>
<td>2,71</td>
</tr>
<tr>
<td>Parents:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Well</td>
<td>Exp.</td>
<td>17</td>
<td>3,35</td>
<td>4,82</td>
<td>4,05</td>
<td>3,35</td>
<td>1,82</td>
<td>4,17</td>
<td>3,18</td>
</tr>
<tr>
<td></td>
<td>Con.</td>
<td>14</td>
<td>3,85</td>
<td>3,14</td>
<td>4,14</td>
<td>2,43</td>
<td>1,57</td>
<td>3,86</td>
<td>4,07</td>
</tr>
<tr>
<td>Badly</td>
<td>Exp.</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Con.</td>
<td>5</td>
<td>2,80</td>
<td>3,60</td>
<td>3,40</td>
<td>4,20</td>
<td>3,40</td>
<td>2,00</td>
<td>2,80</td>
</tr>
</tbody>
</table>

\(^a\) 1 = False; 2 = Mostly false; 3 = Partly false, Partly true; 4 = Mostly true; 5 = True (see Appendices A, B, C)

\(^b\) Number of pupils perceived as reading well or badly
TABLE 23: Means of Reading Attributional Survey ratings\(^a\) of the causal attributions of reading success and failure of the standard three experimental and control group members, their teachers and parents in 1992

<table>
<thead>
<tr>
<th>Perceived reading outcome</th>
<th>Group</th>
<th>N(^b)</th>
<th>Causal attributions</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Ability</td>
<td>Effort</td>
</tr>
<tr>
<td><strong>Pupils:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Well</td>
<td>Exp.</td>
<td>7</td>
<td>3.57</td>
<td>4.14</td>
</tr>
<tr>
<td></td>
<td>Con.</td>
<td>4</td>
<td>3.75</td>
<td>4.50</td>
</tr>
<tr>
<td>Badly</td>
<td>Exp.</td>
<td>2</td>
<td>3.50</td>
<td>2.50</td>
</tr>
<tr>
<td></td>
<td>Con.</td>
<td>4</td>
<td>4.00</td>
<td>3.00</td>
</tr>
<tr>
<td><strong>Teachers:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Well</td>
<td>Exp.</td>
<td>7</td>
<td>3.71</td>
<td>4.28</td>
</tr>
<tr>
<td></td>
<td>Con.</td>
<td>4</td>
<td>3.50</td>
<td>4.00</td>
</tr>
<tr>
<td>Badly</td>
<td>Exp.</td>
<td>2</td>
<td>2.00</td>
<td>4.50</td>
</tr>
<tr>
<td></td>
<td>Con.</td>
<td>4</td>
<td>2.50</td>
<td>3.50</td>
</tr>
<tr>
<td><strong>Parents:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Well</td>
<td>Exp.</td>
<td>9</td>
<td>3.56</td>
<td>3.89</td>
</tr>
<tr>
<td></td>
<td>Con.</td>
<td>5</td>
<td>3.60</td>
<td>4.00</td>
</tr>
<tr>
<td>Badly</td>
<td>Exp.</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Con.</td>
<td>3</td>
<td>2.33</td>
<td>3.67</td>
</tr>
</tbody>
</table>

\(^a\) 1 = False; 2 = Mostly false; 3 = Partly false, Partly true; 4 = Mostly true; 5 = True

(see Appendices A, B, C)

\(^b\) Number of pupils perceived as reading well or badly
Table 23 reveals that the attributional patterns of the standard three pupils, their teachers and parents are somewhat different to those discussed previously. The experimental and controls attributed reading well to the internal locus of control causality of effort and the reading of library books but not to ability. No experimental-control differences between the means for effort and library book reading were noted. The experimental and controls also attributed their reading success to teacher help as opposed to the controls, t(9)=3.68; p(one-tailed)<0.01. The controls felt that they read well because of parent help, an attribution not shared by the experimental, t(9)=2.84; p(one-tailed)<0.01, in support of the above hypothesis. Teachers attributed the successful reading of the experimental and controls to effort (internal) and teacher help (external). Parent help (external) was also accorded influence by the teachers in causing controls to read well. Parents felt that their children (experimental and controls) read well because of their help. Effort and teacher help was also perceived by parents of the controls to be responsible for the reading outcome of their children.

Of the pupils who perceived themselves to be reading badly, two experimental attributed their reading outcome to most of the listed attributions, but their ratings indicate an ambivalence. They do indicate that a lack of effort and teacher help are not responsible for their reading badly. The controls (N=4) ascribed their reading performance to both internal (ability, library books) and external (task, parent) causes. Teachers perceived the same experimental (N=2) to be reading badly because of a lack of effort
(internal), whereas the same controls (n=4) were perceived to be reading badly owing to few library books being read by them. Parents perceived none of their experimentals to be reading badly, whereas parents of the controls (N=3) perceived the reading outcome of their children to be caused by a lack of teacher help and by the reading being too difficult. Generally, the results show that the unsuccessful reading of these pupils was not attributed to a lack of ability or bad luck.

An overall impression of these results is that the standard two experimentals, their teachers and pupils do harbour distinctly different types of attributions about their reading outcome as compared with the controls and their teachers and parents. These results provide strong evidence for the above hypothesis. The attributional differences, although visible in many instances, are not as distinct for the standard three groups. This disparity between the standard two and standard three groups once again stresses the necessity for earlier implementation of the MAT programme for distinctive motivational attributions.

The invested effort of especially the MAT exposed pupils is recognized by pupil, teacher and parent alike as influencing reading outcome. Helder (1958) theorized that effort ('try') is a motivational factor and Weiner (1979) postulated that the effort attribution is motivational because it allows an individual to control future reading outcome.

The data indicates thus far that those pupils exposed to the MAT programme, particularly at the outset of learning to read, have a higher potential for
reading motivation in the future as predicted by Weiner (1979) than pupils not exposed to this programme or are exposed to it later. The ratings of the teachers and parents of standard two pupils and their library book consumption seem to substantiate the motivational prospects of these pupils.

Another motivational variable is reward. The experimental, by virtue of their reading outcome and their internal locus of causality attributions like ability, effort, library book reading, stand a better chance of reward from teachers and parents than the controls as predicted by Weiner (1979).

The abovementioned differential attributions also indicate that the attributions of the observer are not always the attributions shared by the actor. Such one-sided attributions, if not proved further, can lead to misunderstandings. However, in comparing the attributions of all individuals constituting this study, a multifaceted view of especially the reader and his or her reading motivation can be formed.

However, Heider (1958) does caution that attributions need also to be viewed against the backdrop of personality traits which can also determine motivation, and not necessarily the effects of the MAT programme. It is for this reason that the data of the Children's Personality Questionnaire (CPQ) was included in this study, and is tabulated in Tables 24 and 25.
<table>
<thead>
<tr>
<th>Factor</th>
<th>Group</th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>t*</th>
<th>df</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Experimental</td>
<td>17</td>
<td>15.77</td>
<td>2.54</td>
<td>6.67***</td>
<td>34</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>19</td>
<td>8.51</td>
<td>3.92</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>Experimental</td>
<td>17</td>
<td>16.24</td>
<td>1.89</td>
<td>0.44</td>
<td>34</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>19</td>
<td>15.10</td>
<td>2.37</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>Experimental</td>
<td>17</td>
<td>16.53</td>
<td>1.70</td>
<td>9.53***</td>
<td>34</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>19</td>
<td>6.31</td>
<td>4.11</td>
<td></td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>Experimental</td>
<td>17</td>
<td>4.52</td>
<td>1.38</td>
<td>8.22***</td>
<td>34</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>19</td>
<td>13.37</td>
<td>4.23</td>
<td></td>
<td></td>
</tr>
<tr>
<td>E</td>
<td>Experimental</td>
<td>17</td>
<td>12.41</td>
<td>1.81</td>
<td>1.32</td>
<td>34</td>
</tr>
<tr>
<td></td>
<td>Control</td>
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<td>3.83</td>
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</tbody>
</table>

* One-tailed t-tests
*** p<0.001

A: Reserved-Outgoing; B: Less intelligent-More intelligent; C: Emotionally stable-Emotionally unstable; D: Phlegmatic-Excitable; E: Submissive-Dominant; F: Sober-Happy-go-Lucky; G: Expedient-Conscientious
<table>
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<th>SD</th>
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<td>2.74</td>
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<td>11.82</td>
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<td>3.57</td>
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</table>

* One-tailed t-tests

*** p<0.001

H: Shy-Venturesome; I: Tough-minded-Tender-minded; J: Vigorous-Doubting; N: Naive-Shrewd; O: Placid-Apprehensive; Q₂: Undisciplined self-control; Q₃: Controlled; Q₄: Relaxed-Tense
The CPQ outcome for 1992 has been recorded in raw scores to enhance the statistical power to detect experimental-control group differences. The raw score totals of each CPQ subtest range from 0 to 20 on an interval scale whereas the standardized scores of the norm tables, on an ordinal scale only, range from 1 to 10, which, when examining the results, showed potential to lose statistical power for comparison purposes.

However, in order to compare the scores of pupils with the norm group, the raw scores were nevertheless converted to stens, and the mean sten for the experimental and controls was compared with the norm group in the CPQ manual to determine the position of the sten on the bi-polar continuum. To test for significant empirical differences between the data of the experimental and control groups, one-tailed t-tests were conducted on the raw scores, and not the stens. This process is justified by the fact that the mean for each group will be approximately normally distributed by the central limit theorem (J. Levin, personal communication, 19 March 1993).

An inspection of Table 24 shows statistically significant differences between the standard two experimental and control groups for factors A, C, D, F, G, H, I, O and Q (P<0.001). Factor A scores for experimental (M=15.77) indicate an outgoing, good-natured pupil, whereas the scores of the controls (M=8.51) express reserved traits t(34)=6.67. The scores on factor C showed experimental (M=16.53) who were emotionally stable, and controls (M=6.31) that appear to be emotionally unstable, t(34)=9.53. Factor D scores indicated experimental (M=4.52) to be self-sufficient and constant as compared to the
dependency of the controls (M=13,37), t(34)=8,22. The experimentalists (M=12,82) are seen to be happy-go-lucky as measured by the F factor while the scores of the controls reveal them to be brooding and depressed (M=6,84, t(34)=6,90). Factor G scores indicate the experimentalists (M=16,88) to be persevering at tasks, conscientious, emotionally mature, determined, whereas the scores of the controls show them to be unreliable, lack perseverance, emotionally immature (M=7,63), t(34)=9,23. Responsiveness characterises the scores of the experimentalists (M=15,00) for factor H, as compared to the withdrawn nature of the controls (M=9,05), t(34)=5,66. Factor I scores show the independence of experimentalists (M=7,94) and dependence of controls (M=13,05), t(34)=5,43. Experimental scores (M=5,18) on factor O indicate self-confidence, and scores for the controls (M=14,05) express their anxiety, t(34)=8,34. Factor Q₂ indicates that the experimentalists (M=16,47) are self-disciplined and self-controlled whereas the controls (M=6,36) are lax and prone to undisciplined self-conflict, t(34)=10,08.

Some of the control group members (N=4) showed factor patterns (E,F,G,Q₂) associated with behaviour problems. Other controls (N=7) displayed an anxiety factor pattern (C,D,H,O,Q₂, Q₃). No experiment-control differences between means are noted for factors B, E, J and N. Both these treatment groups show similar scores for (B) intelligence (t=0,44), (E) obedience (t=1,32), (J) accepting (t=1,57) and (N) vacillating between naivety and shrewdness (t=1,23).
TABLE 25: Children's Personality Questionnaire scores of the standard three experimental and control groups in 1992

<table>
<thead>
<tr>
<th>Factor</th>
<th>Group</th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>t*</th>
<th>df</th>
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<td>1.14</td>
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</tr>
<tr>
<td>C</td>
<td>Experimental</td>
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<td>13.33</td>
<td>2.45</td>
<td>2.89*</td>
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<tr>
<td></td>
<td>Control</td>
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<td>8.13</td>
<td>4.76</td>
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<td>11.88</td>
<td>4.05</td>
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<td>2.77</td>
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</table>

* One-tailed t-tests
** P<0.01
*** P<0.001

A: Reserved-Outgoing; B: Less intelligent-More intelligent; C: Emotionally Stable-Emotionally Unstable; D: Phlegmatic-Excitable; E: Submissive-Dominant; F: Sober-Happy-go-Lucky; G: Expedient-Conscientious
<table>
<thead>
<tr>
<th>Factor</th>
<th>Group</th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>t</th>
<th>df</th>
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</thead>
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<td>1.83</td>
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<td>14.09</td>
<td>2.73</td>
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<td></td>
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<td>2.13</td>
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<td>1.81</td>
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<td>3.82</td>
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<td>2.01</td>
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<td>2.62</td>
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<tr>
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<td>15.22</td>
<td>2.54</td>
<td>7.19**</td>
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<td>8</td>
<td>6.50</td>
<td>2.45</td>
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<tr>
<td>Q₄</td>
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<td>3.02</td>
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* One-tailed t-tests
** P<0.01
*** p<0.001

H: Shy-Venturesome; I: Tough-minded-Tender-minded; J: Vigorous-Doubting; N: Naive-Shrewd; O: Placid-Apprehensive; Q₂: Undisciplined self-control -Controlled; Q₄: Relaxed-Tense
The standard three CPQ scores, displayed in Table 25 reveal statistically significant differences between the standard three experimental and control groups for factors C, D, E, F, G, I, J, N, O and Q. Factor C scores for experimental (M=13,33) are higher than the scores of the controls (M=8,13), \( t(15)=2.89 \) (one-tailed); \( p<0.01 \). The experimental appear to be emotionally stable whereas the controls appear to be emotionally unstable. Experimental (M=4,22) are seen to be self-sufficient and constant on factor D, and controls (M=11,88) are seen as dependent. \( t(15)=5.11 \) (one-tailed); \( p<0.001 \). The scores on factor E indicate expressiveness for the experimental (M=8,00) and solemnness for the controls (M=12,38), \( t(15)=2.95 \) (one-tailed); \( p<0.01 \). Factor F express happy-go-lucky experimental (M=13,67) as opposed to brooding and depressed controls (M=7,00), \( t(15)=4.89 \) (one-tailed); \( p<0.001 \). Experimental (M=12,56) express more emotional maturity, task perseverance, determination and conscientiousness than the controls (M=5,75), \( t(15)=5.49 \) (one-tailed); \( p<0.001 \). Factor I indicates the experimental (M=8,11) to be more independent than the controls (M=14,00), \( t(15)=5.29 \) (one-tailed); \( p<0.001 \). More internal restraint is expressed by the experimental (M=12,56) than the controls (M=7,88) on factor J, \( t(15)=4.85 \) (one-tailed); \( p<0.001 \). Factor N discloses that the experimental (M=8,89) are shrewd, whereas the controls (M=4,38 tend to naiveté, \( t(15)=2.63 \) (one-tailed); \( p<0.01 \). Experimental scores (M=5,44) on factor O indicate self-confidence, whereas the scores of the controls (M=13,55) show anxiety states. The Q, factor scores of the experimental (M=15,22) indicate more self-discipline and control than for the controls (M=6,50), \( t(15)=7.19 \) (one-tailed); \( p<0.01 \).
The means of the experimental and controls show no statistical differences for factors A (reserved), B (high intelligence), H (shy) and Q (tense). A few of the controls (N=3) displayed anxiety factor pattern (C,D,H,O,Q,R,Q).

The data of the CPQ demonstrates personality differences between pupils exposed to the MAT programme and those not exposed to this programme adding further support to the above hypothesis. These differences indicate that the MAT programme has the potential to influence the personality of pupils and can develop initially at-risk readers into confident, independent and emotionally stable readers. Pupils not exposed to this programme present like so many individuals who experience the daily difficulty of trying to make sense of written text and not succeeding, resulting in general sombreness, worry and emotional upset.

The above results also reveal that not only are pupil attributions influenced by the MAT programme, but pupil personality as well, as suggested by the experimental-control mean differences. This finding suggests that the personality traits of the experimentalists have the potential to influence their attributions about reading. The motivational attributions of the experimentalists reflect their motivationally triggered personality traits, both of which seem to have been positively affected by the long-term effects of the MAT programme. The attributions of the controls also appear to reflect their personality traits but both of these components of cognition do not seem to have been dramatically affected by the extra reading from the Ginn reading scheme to have
generated the same level of reading motivation observed and measured in
the experimentals.

These data also identify numerous control group pupils who need help with
emotional difficulties, behaviour disorders or who require careful teacher and
parent handling for unusual temperamental sensitivity. Early treatment of
such problems can prevent or avoid future complications that may become
resistant to change.

**HYPOTHESIS EIGHT:** Pupils exposed to the MAT programme in
1989 will attain higher scores on positive
emotions as a function of motivational causal
attributions in 1992 than pupils not exposed
to this programme.

Tables 26 to 28 reveal the mean ratings of the perceived emotions as a
function of the causal attributions of reading success and failure of the
standard two and standard three experimental and control groups. The
ratings were obtained from the Reading Attributional Survey filled in by each
pupil.
TABLE 26: Means of the Reading Attributional Survey ratings of the perceived emotions as a function of the causal attributions of reading success of the standard two experimental and control group members in 1992

<table>
<thead>
<tr>
<th>Perceived Emotion</th>
<th>Group</th>
<th>Ability</th>
<th>Effort</th>
<th>Library Books</th>
<th>Task</th>
<th>Luck</th>
<th>Teacher Help</th>
<th>Parent Help</th>
</tr>
</thead>
<tbody>
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<td>Happiness</td>
<td>Exp.</td>
<td>4,00</td>
<td>4,00</td>
<td>4,50</td>
<td>4,00</td>
<td>4,00</td>
<td>4,50</td>
<td>4,00</td>
</tr>
<tr>
<td></td>
<td>Con.</td>
<td>4,20</td>
<td>4,17</td>
<td>4,29</td>
<td>4,20</td>
<td>4,33</td>
<td>4,17</td>
<td>4,20</td>
</tr>
<tr>
<td>Confidence</td>
<td>Exp.</td>
<td>4,36</td>
<td>4,23</td>
<td>4,00</td>
<td>2,85</td>
<td>3,66</td>
<td>3,61</td>
<td>4,44</td>
</tr>
<tr>
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<td>Con.</td>
<td>3,00</td>
<td>3,93</td>
<td>3,23</td>
<td>3,14</td>
<td>3,55</td>
<td>4,53</td>
<td>4,44</td>
</tr>
<tr>
<td>Pride</td>
<td>Exp.</td>
<td>4,14</td>
<td>4,45</td>
<td>4,13</td>
<td>2,87</td>
<td>1,99</td>
<td>3,59</td>
<td>4,43</td>
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<td>Con.</td>
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<td>3,80</td>
<td>4,32</td>
<td>2,14</td>
<td>2,74</td>
<td>4,00</td>
<td>4,43</td>
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</tbody>
</table>

* 1 = False; 2 = Mostly false; 3 = Partly false, Partly true; 4 = Mostly true; 5 = True (see Appendix A)

* No pupil rated this emotion as a function of the causal attribution
Table 26 shows that for reading well, the means of the standard two experimentals and controls indicated no statistical difference for the emotion of happiness on each of the seven listed attributions. Both experimentals and controls achieved high ratings within the 'mostly true' range. The hypothesis is not supported by the emotion of happiness as measured on the reading attributional scale. Furthermore, this response pattern of both these treatment groups depicts what Weiner et al. (1979) have termed an outcome-dependent attribution-independent emotion of happiness. This suggests that one source of the achievement-relaxed outcome, like happiness, is linked with the perception of reading well, regardless of the reason of the outcome. The reading outcome-linked emotion was notably dominant in this study.

The data also shows that the experimentals attained higher scores than the controls for confidence when the causes of reading well were perceived to be due to ability, effort and library book volume, in support of the above hypothesis. The controls felt confident about reading well when they attributed this to teacher and parent help. Experimentals and controls experienced a sense of pride when they attributed their reading success to ability and library book volume. The experimentals experienced pride when they attributed their reading outcome to effort and the controls attributed pride to teacher and parent help.
<table>
<thead>
<tr>
<th>Perceived Emotion</th>
<th>Group</th>
<th>Ability</th>
<th>Effort</th>
<th>Library Books</th>
<th>Task</th>
<th>Luck</th>
<th>Teacher Help</th>
<th>Parent Help</th>
</tr>
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<tr>
<td>Happiness</td>
<td>Exp.</td>
<td>5.00</td>
<td>3.67</td>
<td>4.00</td>
<td>2.75</td>
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<td>4.00</td>
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<td>Con.</td>
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<td>4.50</td>
<td>5.00</td>
<td>4.00</td>
<td>3.14</td>
<td>4.00</td>
<td>3.00</td>
</tr>
<tr>
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<td>Exp.</td>
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<td></td>
<td>3.00</td>
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<tr>
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<td>4.00</td>
<td>4.00</td>
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</tr>
<tr>
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<td>Exp.</td>
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<td>4.00</td>
<td>4.00</td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

1 = False; 2 = Mostly false; 3 = Partly false, Partly true; 4 = Mostly true; 5 = True (see Appendix A)

* No pupil rated this emotion as a function of the causal attribution
In Table 27, it can be seen that the standard three experimental and control pupils experienced feelings of happiness when their reading success was attributed to ability, library book reading and teacher help. Their ratings for the first two attributions differed, in accordance with the hypothesis. These two treatment groups differed with regard to effort and task as being linked to the emotion of happiness in support of the hypothesis. Unlike the standard two data, happiness with the standard three groups was noted as an outcome-independent attribution dependent emotion, since happiness at reading well was perceived to be due to specific causes as outlined above and not outcome. Experimentals did not experience happiness entirely because of parent help. Individual interviews with experimentals revealed that parent help, in some cases (N=3) proved to be an unpleasant ordeal. The parents of these pupils were anxious that their reading might deteriorate, based on the mediocre reading outcome of these pupils during the year prior to the implementation of the MAT programme. Resultantly, these pupils do not associate happiness with present day parental help.

The means of the experimentals were higher than the means of the controls for ability, effort, library book volume and parent help as the causes of confidence, as predicted by the hypothesis. The means for both these treatment groups ranged between 4 and 5. The controls also ascribed confidence to teacher help, which received a lower rating by the experimentals. Task and luck was not rated at all by the experimentals, and luck and parent help was not accorded significance as a cause of confidence by the controls.
The emotion of pride was experienced by the experimentals as caused by the attributions of ability, effort and library book reading, whereas the controls felt that pride for their successful reading resulted from teacher help, task ease and library book reading.

Of the controls that perceived themselves to be reading badly, those in standard two (N=6) attributed their resultant emotion of sadness as associated with the attribution of bad luck, as can be viewed in Table 28. A lack of teacher help, in particular, was not perceived as a cause of sadness. The emotion of frustration was perceived to be associated with insufficient effort and the reading task being too difficult by some controls. A lack of ability, teacher and parent help and book volume was given a low rating of 2 (mostly false) by other pupils. No one accorded luck as a cause of frustration. Shame was linked by most controls with reading badly due to a feeling of low ability.

The means of the standard three controls, also depicted in Table 28, indicates that the emotion of sadness for some pupils was attributed to ability, effort, task difficulty, parent help variables. Frustration was associated by some controls as a lack of effort and the reading being difficult for them. The low library book volume rating of 2 suggests that these pupils felt they read enough library books, even if they thought reading was difficult. Insufficient teacher help was not experienced as a source of frustration by any control pupil. Shame for reading badly was attributed strongly to a lack of effort, task difficulty, bad luck and insufficient parent help.
TABLE 28: Means of the Reading Attributional Survey ratings of the perceived emotions as a function of the causal attributions of reading failure of the standard two and standard three control group members in 1992

<table>
<thead>
<tr>
<th>Std.</th>
<th>Perceived Emotion</th>
<th>Ability</th>
<th>Effort</th>
<th>Library Books</th>
<th>Task</th>
<th>Luck</th>
<th>Teacher Help</th>
<th>Parent Help</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Sadness</td>
<td>3.33</td>
<td>3.66</td>
<td>3.50</td>
<td>*</td>
<td>4.00</td>
<td>2.00</td>
<td>3.50</td>
</tr>
<tr>
<td></td>
<td>Frustration</td>
<td>2.00</td>
<td>4.00</td>
<td>2.00</td>
<td>4.00</td>
<td>*</td>
<td>2.00</td>
<td>2.00</td>
</tr>
<tr>
<td></td>
<td>Shame</td>
<td>4.00</td>
<td>*</td>
<td>*</td>
<td>3.00</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>3</td>
<td>Sadness</td>
<td>4.00</td>
<td>4.00</td>
<td>1.50</td>
<td>4.00</td>
<td>3.50</td>
<td>2.50</td>
<td>4.00</td>
</tr>
<tr>
<td></td>
<td>Frustration</td>
<td>3.50</td>
<td>4.00</td>
<td>2.00</td>
<td>4.00</td>
<td>*</td>
<td>*</td>
<td>3.50</td>
</tr>
<tr>
<td></td>
<td>Shame</td>
<td>3.00</td>
<td>4.00</td>
<td>*</td>
<td>5.00</td>
<td>4.00</td>
<td>*</td>
<td>4.00</td>
</tr>
</tbody>
</table>

* 1 = False; 2 = Mostly false; 3 = Partly false, Partly true; 4 = Mostly true; 5 = True
   (see Appendix A)

* No pupil rated this emotion as a function of the causal attribution
The data indicates that those pupils who were exposed to the MAT programme in 1989 attribute the emotions of especially confidence and pride as a consequence of attributing reading well to the self (ability, effort, library book volume) as opposed to the controls who ascribe these emotions to others (teacher and parent help). The emotions of the experimentalists that are linked to the self attributions promote approach behaviour and motivational episodes to a greater degree than the emotions of the controls that are associated with 'other' attributions. This data is supported by the overwhelming evidence of previous sections of this chapter regarding reading outcome of the experimentalists and controls and the motivational attributions associated with reading success.

Also indicated by the above data is that pupils not exposed to the MAT programme have a greater potential for emotions like sadness, frustration and shame which can promote withdrawal behaviour and motivational inhibition.

The emotions and achievement needs of pupils were probed further by means of the thematic apperception test (TAT) to obtain varied and spontaneous reactions regarding motivation. The 1992 frequencies of TAT categorized responses of the standard two and standard three experimental and control groups is displayed in Tables 29 and 30. TAT categorized data was analyzed by means of the chi-squared technique.
TABLE 29. Chi-squared tests* of differences in TAT categorized responses between the standard two experimental and control group members in 1992

<table>
<thead>
<tr>
<th>TAT Category</th>
<th>Group</th>
<th>Frequency</th>
<th>X²</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Present</td>
<td>Absent</td>
</tr>
<tr>
<td>Achievement</td>
<td>Experimental</td>
<td>14</td>
<td>3</td>
</tr>
<tr>
<td>needs</td>
<td>Control</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td>Persistence</td>
<td>Experimental</td>
<td>12</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>7</td>
<td>12</td>
</tr>
<tr>
<td>Hopefulness</td>
<td>Experimental</td>
<td>10</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>7</td>
<td>12</td>
</tr>
<tr>
<td>Anger</td>
<td>Experimental</td>
<td>4</td>
<td>13</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>11</td>
<td>8</td>
</tr>
<tr>
<td>Frustration</td>
<td>Experimental</td>
<td>3</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>12</td>
<td>7</td>
</tr>
<tr>
<td>Guilt</td>
<td>Experimental</td>
<td>0</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>6</td>
<td>13</td>
</tr>
</tbody>
</table>

* X² values for differences among the frequencies between the experimental and control groups

* p<0.05

** p<0.01
Table 29 depicts that significantly more standard two experimentals (N=14) expressed covert achievement needs than the controls (N=9), $X^2(1)=3.95$; $p<0.05$. Persistence was categorized for more experimentals (N=12) than controls (N=7), $X^2(1)=3.99$; $p<0.05$. More controls (N=11) indicated feelings of anger than the experimentals (N=4), $X^2(1)=4.24$; $p<0.05$. Frustration was suggested by more controls (N=12) than experimentals (N=3), $X^2(1)=5.69$; $p<0.01$. No experimentals expressed feelings of guilt as compared to the controls (N=6), $X^2(1)=4.37$; $p<0.01$. Although more experimentals (N=10) than controls (N=7) indicated feelings of hopefulness, the differences in frequencies between these two treatment groups were not statistically significant.

The data of the standard three pupils are displayed in Table 30. Significantly more controls (N=7) than experimentals (N=3) were categorized for anger responses on the TAT, $X^2(1)=3.14$; $p<0.05$. An additional category for the standard three controls emerged, namely, hurt, expressed by significantly more controls (N=4) than experimentals (N=0), $X^2(1)=3.43$; $p<0.05$. More experimentals generally expressed achievement needs, persistence and hopefulness than controls, but the differences in frequencies were non-significant. It was noted that more controls suggested frustration and guilt than the experimentals.
**TABLE 30:** Chi-squared tests* of differences in TAT categorized responses between the standard three experimental and control group members in 1992

<table>
<thead>
<tr>
<th>TAT Category</th>
<th>Group</th>
<th>Present</th>
<th>Absent</th>
<th>$X^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Achievement needs</td>
<td>Experimental</td>
<td>6</td>
<td>3</td>
<td>0.51</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>3</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Persistence</td>
<td>Experimental</td>
<td>3</td>
<td>6</td>
<td>1.35</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>0</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Hopefulness</td>
<td>Experimental</td>
<td>5</td>
<td>4</td>
<td>0.61</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>2</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Anger</td>
<td>Experimental</td>
<td>3</td>
<td>6</td>
<td>3.14*</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>7</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Frustration</td>
<td>Experimental</td>
<td>2</td>
<td>7</td>
<td>1.42</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>5</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Guilt</td>
<td>Experimental</td>
<td>0</td>
<td>9</td>
<td>1.92</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>3</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Hurt</td>
<td>Experimental</td>
<td>0</td>
<td>9</td>
<td>3.43*</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>4</td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>

* $X^2$ values for differences among the frequencies between the experimental and control groups

* $p<0.05$
The TAT data lends strong support for the aforementioned hypothesis and augment the attributional findings. More pupils exposed to the MAT programme in 1989 do attain scores on positive emotions than the controls. The higher achievement need and persistence frequencies for the standard two experimentals especially are attitudes that augur well for future scholastic motivation. The experimental-control differences in frequency data suggests that the MAT programme has the potential to influence the emotions of pupils that, in turn, can favourably affect future motivation for reading and other scholastic tasks.

5.4 CRITERION-RELATED VALIDITY OF THE READING ATTRIBUTIONAL SURVEY

The criteria employed in validating the Reading Attributional Survey (RAS) was the index of academic achievement reading performance measured by the HSRC achievement test, year-end class mark for reading and general scholastic achievement in history. The relationship between the RAS ratings for pupils and the criteria is presented in Table 31. Data was analyzed by means of the Pearson product-moment correlation technique, using a two-tailed test of significance.
### TABLE 31: Criterion-related correlations between the attributional scores of reading success of the Reading Attributional Survey and three tests of reading. HSRC, teacher, history, for standard two and standard three pupils

<table>
<thead>
<tr>
<th>Std</th>
<th>Tests</th>
<th>Group</th>
<th>Ability</th>
<th>Effort</th>
<th>Library books</th>
<th>Task</th>
<th>Luck</th>
<th>Teacher help</th>
<th>Parent help</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>HSRC</td>
<td>Exp.</td>
<td>0.72</td>
<td>0.85</td>
<td>0.88</td>
<td>0.38</td>
<td>0.20&lt;sup&gt;NS&lt;/sup&gt;</td>
<td>0.66</td>
<td>0.70</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Con.</td>
<td>0.64</td>
<td>0.62</td>
<td>0.65</td>
<td>0.70</td>
<td>0.60</td>
<td>0.90</td>
<td>0.85</td>
</tr>
<tr>
<td></td>
<td>Class</td>
<td>Exp.</td>
<td>0.83</td>
<td>0.91</td>
<td>0.93</td>
<td>0.43</td>
<td>0.31&lt;sup&gt;NS&lt;/sup&gt;</td>
<td>0.55</td>
<td>0.64</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Con.</td>
<td>0.74</td>
<td>0.70</td>
<td>0.68</td>
<td>0.65</td>
<td>0.55</td>
<td>0.84</td>
<td>0.90</td>
</tr>
<tr>
<td></td>
<td>History</td>
<td>Exp.</td>
<td>0.80</td>
<td>0.90</td>
<td>0.93</td>
<td>0.47</td>
<td>0.26&lt;sup&gt;NS&lt;/sup&gt;</td>
<td>0.72</td>
<td>0.80</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Con.</td>
<td>0.78</td>
<td>0.69</td>
<td>0.73</td>
<td>0.70</td>
<td>0.46</td>
<td>0.79</td>
<td>0.88</td>
</tr>
<tr>
<td>3</td>
<td>HSRC</td>
<td>Exp.</td>
<td>0.62</td>
<td>0.81</td>
<td>0.90</td>
<td>0.62</td>
<td>0.39&lt;sup&gt;NS&lt;/sup&gt;</td>
<td>0.88</td>
<td>0.71</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Con.</td>
<td>0.70</td>
<td>0.93</td>
<td>0.86</td>
<td>0.53</td>
<td>0.44&lt;sup&gt;NS&lt;/sup&gt;</td>
<td>0.69</td>
<td>0.89</td>
</tr>
<tr>
<td></td>
<td>Class</td>
<td>Exp.</td>
<td>0.73</td>
<td>0.78</td>
<td>0.83</td>
<td>0.69</td>
<td>0.14&lt;sup&gt;NS&lt;/sup&gt;</td>
<td>0.80</td>
<td>0.85</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Con.</td>
<td>0.76</td>
<td>0.85</td>
<td>0.91</td>
<td>0.62</td>
<td>0.36&lt;sup&gt;NS&lt;/sup&gt;</td>
<td>0.75</td>
<td>0.81</td>
</tr>
<tr>
<td></td>
<td>History</td>
<td>Exp.</td>
<td>0.67</td>
<td>0.84</td>
<td>0.87</td>
<td>0.48</td>
<td>0.41&lt;sup&gt;NS&lt;/sup&gt;</td>
<td>0.77</td>
<td>0.92</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Con.</td>
<td>0.81</td>
<td>0.79</td>
<td>0.82</td>
<td>0.57</td>
<td>0.38&lt;sup&gt;NS&lt;/sup&gt;</td>
<td>0.84</td>
<td>0.91</td>
</tr>
</tbody>
</table>

<sup>*</sup> p<0.05 (two-tailed)
<sup>NS</sup> Non-significant
Generally, the RAS for pupils indicates a moderate to high criterion-related validity ($p<0.05$) for the listed attributions. This data suggests that the attributional ratings of pupils are satisfactorily related to their actual and prior reading performance and experiences. Particularly high correlation coefficients are noted for effort and library attributions of teacher and parent help. This information implies that pupils who perceive themselves to read well because of effort and library book reading, are more highly motivated to read in particular, and to tackle academic tasks in general, not only in the present, but in the future as well.

The relationship between the RAS results for parents and teachers and the HSRC achievement test results for reading is presented in Table 32. The correlation coefficients depict moderate to high correlations between the attributional ratings of teachers and parents and the HSRC reading test scores ($p<0.05$) for their children. The moderate correlations suggest that the attribution ratings are not as reality based as those representing higher correlations. Furthermore, teacher or parent bias might be suggested by the lower correlations. The higher correlations of especially effort and library book reading are indicative of good reading habits and reading motivation observed in pupils by their parents and teachers.

The RAS appears to be a significant prediction of reading motivation and shows great promise.
**TABLE 32.** Criterion-related correlations between the attributional scores of reading success of the Reading Attributional Survey for teachers and parents, and the HSRC reading test scores of the standard two and standard three pupils

<table>
<thead>
<tr>
<th>Std</th>
<th>Adults</th>
<th>Pupils’ Group</th>
<th>Ability</th>
<th>Effort</th>
<th>Library books</th>
<th>Task</th>
<th>Luck</th>
<th>Teacher help</th>
<th>Parent help</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Teachers</td>
<td>Exp.</td>
<td>0.64</td>
<td>0.93</td>
<td>0.87</td>
<td>0.48</td>
<td>0.32&lt;sup&gt;NS&lt;/sup&gt;</td>
<td>0.68</td>
<td>0.50</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Con.</td>
<td>0.70</td>
<td>0.62</td>
<td>0.68</td>
<td>0.55</td>
<td>0.40</td>
<td>0.93</td>
<td>0.89</td>
</tr>
<tr>
<td></td>
<td>Parents</td>
<td>Exp.</td>
<td>0.76</td>
<td>0.89</td>
<td>0.90</td>
<td>0.67</td>
<td>0.29&lt;sup&gt;NS&lt;/sup&gt;</td>
<td>0.87</td>
<td>0.71</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Con.</td>
<td>0.69</td>
<td>0.60</td>
<td>0.83</td>
<td>0.45</td>
<td>0.33</td>
<td>0.66</td>
<td>0.92</td>
</tr>
<tr>
<td>3</td>
<td>Teachers</td>
<td>Exp.</td>
<td>0.59</td>
<td>0.92</td>
<td>0.66</td>
<td>0.50</td>
<td>0.39</td>
<td>0.94</td>
<td>0.69</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Con.</td>
<td>0.65</td>
<td>0.84</td>
<td>0.73</td>
<td>0.39</td>
<td>0.22&lt;sup&gt;NS&lt;/sup&gt;</td>
<td>0.90</td>
<td>0.85</td>
</tr>
<tr>
<td></td>
<td>Parents</td>
<td>Exp.</td>
<td>0.62</td>
<td>0.70</td>
<td>0.68</td>
<td>0.74</td>
<td>0.58</td>
<td>0.67</td>
<td>0.90</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Con.</td>
<td>0.72</td>
<td>0.91</td>
<td>0.76</td>
<td>0.62</td>
<td>0.44</td>
<td>0.87</td>
<td>0.84</td>
</tr>
</tbody>
</table>

<sup>*</sup> p<0.05 (two-tailed)

<sup>NS</sup> Non-significant
5.5 THE EFFECTS OF OTHER VARIABLES ON THE RESEARCH RESULTS

In order to strengthen the internal validity of the research design, randomization was implemented. By means of randomization, the possible effects of unknown nuisance variables on the results of the experimental group would have been counterbalanced with their opposite quality or quantity in the control group. However, known nuisance variables like IQ, gender, preprimary school attendance, parental qualifications, have been documented to affect the independent variable (Deaux & Emrswiller, 1974; Licht et al., 1985).

5.5.1 IQ

The IQ scores of the standard two and standard three experimentals were compared with the HSRC reading test results and the RAS ratings. Data was analyzed by means of the Pearson product-moment correlation technique. Correlation coefficients are displayed in Table 33. IQ does not seem to be related to the reading performance or attributional ratings of these pupils. This suggests that intelligence could not have influenced these results and strengthens the case for the MAT programme.
**TABLE 33:** Correlations between scores of the Senior South African Individual Scale (IQ), HSRC reading test and the Reading Attributional Survey of standard two and standard three experimental group members in 1992

<table>
<thead>
<tr>
<th>Std</th>
<th>r Reading</th>
<th>r Attributions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>HSRC Test</td>
<td>Ability</td>
</tr>
<tr>
<td>2</td>
<td>0.02</td>
<td>0.12</td>
</tr>
<tr>
<td>3</td>
<td>0.09</td>
<td>0.03</td>
</tr>
</tbody>
</table>
5.5.2 Gender

Gender differences with regard to reading performance and attributions of the experimentals in 1992 are depicted in Table 34. Data was analyzed by means of two-tailed t-tests. The boy girl ratio was roughly 50:50

No significant difference in means of the HSRC reading test was indicated between males and females in standard two and standard three. Sex differences were however noted for the attributions. Boys in standard two and standard three attributed reading well to unstable internal factors (effort). The mean rating of the standard two boys (M=4.88) was significantly higher than that of the girls (M=3.50), t(15)=4.40; p(two-tailed)<0.05. The mean rating of the standard three boys (M=4.75) was also significantly higher than that of the girls (M=3.60), t(7)=3.12; p(two tailed)<0.05.

Among the standard two pupils, gender differences were also revealed for task and parent help. For task ease, the mean rating of girls (M=3.88) was significantly higher than that for boys (M=2.00), t(15)=7.08; p(two-tailed)<0.05. Boys (M=3.87) attributed reading well to parent help as compared to girls (M=2.50), t(15)=5.41; p(two-tailed)<0.05. Standard three boys (M=4.00) attributed their reading success to ability, as compared to the girls (M=3.00), t(7)=4.40; p(two-tailed)<0.05.
TABLE 34: Comparisons between gender and the HSRC reading test and the Reading Attributional Survey for standard two and standard three experimental males and females in 1992

<table>
<thead>
<tr>
<th>Std</th>
<th>N</th>
<th>Sex</th>
<th>HSRC Test</th>
<th>Reading</th>
<th>t*</th>
<th>Ability</th>
<th>Effort</th>
<th>Library books</th>
<th>Task</th>
<th>Luck</th>
<th>Teacher help</th>
<th>Parent help</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>9</td>
<td>M</td>
<td>25,13</td>
<td>4,32</td>
<td></td>
<td>4,88</td>
<td>4,24</td>
<td>2,00</td>
<td>2,06</td>
<td>3,78</td>
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<td>8</td>
<td>F</td>
<td></td>
<td>25,33</td>
<td>4,00</td>
<td></td>
<td>3,50</td>
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<td>4,00</td>
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<td>3</td>
<td>4</td>
<td>M</td>
<td>20,13</td>
<td>4,00</td>
<td></td>
<td>4,75</td>
<td>4,25</td>
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<td>5</td>
<td>F</td>
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<td>21,64</td>
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<td>3,60</td>
<td>4,00</td>
<td>4,00</td>
<td>3,60</td>
<td>4,50</td>
<td>3,50</td>
<td></td>
</tr>
</tbody>
</table>

* p<0.05 (two-tailed)
The data suggest that gender has not influenced reading outcome in this study: the HSRC reading test scores of the experimentals are similar for boys and girls. The MAT programme has similar effects on all pupils. However, regarding the attributions of pupils, sex does appear to influence some of them (ability, effort, task, parent help) for some pupils. Yet, it is not known whether these gender-based causal judgements (attributions) followed or preceded the effects of the MAT programme. This warrants further investigation. There exists the possibility that this programme may have influenced these gender differences.

5.5.3 Preprimary school attendance

Table 35 depicts the preprimary and non-preprimary school comparisons of experimentals with regard to their reading outcome (HSRC test) and attributions (reading attributional survey). Data were analyzed by means of two-tailed t-tests. The preschool/non-preschool ratio was approximately 41:59 for standard two pupils, and 67:33 for the standard three groups.

Three significant differences were found with the attributions. The standard two non-preschooler group (M=3.80) attained higher ratings for attributing their successful reading to task ease than the preschooer pupils (M=2.00), t(15)=5.59; p(two-tailed)<0.05. These preschoolers were not of the opinion that reading was altogether easy, when individually interviewed about this attribution.
**TABLE 35:** Preprimary school and non-preprimary school comparisons of the HSRC reading test and the Reading Attributional Survey results of the standard two and standard three experimental units in 1992

<table>
<thead>
<tr>
<th>Std</th>
<th>N</th>
<th>Preschool Exposure</th>
<th>t*</th>
<th>Reading</th>
<th>t*</th>
<th>Attributions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>t*</td>
<td>HSRC Test</td>
<td>Ability</td>
<td>Effort</td>
</tr>
<tr>
<td>2</td>
<td>7</td>
<td>Preschool</td>
<td>24.33</td>
<td>4.14</td>
<td>4.29</td>
<td>3.90</td>
</tr>
<tr>
<td>2</td>
<td>10</td>
<td>Non-preschool</td>
<td>26.10</td>
<td>3.90</td>
<td>4.10</td>
<td>4.20</td>
</tr>
<tr>
<td>3</td>
<td>6</td>
<td>Preschool</td>
<td>22.77</td>
<td>3.33</td>
<td>4.00</td>
<td>3.67</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
<td>Non-preschool</td>
<td>19.00</td>
<td>3.67</td>
<td>4.33</td>
<td>4.67</td>
</tr>
</tbody>
</table>

* p<0.05 (two-tailed)
The standard three non-preschoolers (M=4.67) attained a statistically significant higher mean rating for attributing library book reading to their reading well than the non-preschoolers (M=3.67), t(7)=3.22; p(two-tailed)<0.05. The preschoolers (M=3.50) ascribed their reading success to task ease and attained higher mean ratings than the non-preschoolers (M=2.66), t(7)=8.86; p(two-tailed)<0.05.

These data indicate that preschool education had no significant effects on the reading outcome of this research. The standard two reading test scores for the non-preschoolers are slightly higher than for preschoolers. This latter group may have been previously exposed to morphophonological awareness games at preprimary school and yet do not evidence an advantage over the non-preschoolers. This suggests that the morphophonological awareness development that could occur at a preprimary school is not always sufficient for at-risk readers to safeguard them against reading difficulties in future years (Windell, 1990). Also indicated by the lower means of the preprimary group is their possible over-confidence about their previous acquaintance with morphophonological awareness tasks at preprimary group, thus losing out on the consolidational properties of the MAT programme for them in 1989 and its long-term effects on reading for them over the 1990-1992 period. Classroom observations showed the restless behaviour of some of the preschoolers and their comments of having 'done that before'. The non-preschoolers in comparison showed no such behaviour and benefitted fully from the effects of the MAT programme, appearing engrossed with and very interested in each activity.
The attributional difference of library books between these two groups indicates a motivational advantage for the non-preprimary group. The task attribution differences shows that non-preschoolers, when exposed to the MAT programme at the commencement of their reading instruction can find reading easy in later years, as compared to the preschoolers. However, when this programme is implemented a year later, that is, after the commencement of reading instruction has already taken place, it seems as if the preschooling experience of morphophonological awareness advantageously effects the attribution of task ease for the preschoolers, as opposed to the lower task ease rating of the non-preschoolers, suggested by the standard three results.

5.5.4 Parental qualifications and home background

Exploratory scrutiny of the biographical data of pupils revealed no apparent effect of parental qualifications on these results. The home backgrounds of the pupils constituting the data base of this research were stable. Pupils from unstable home backgrounds who were initially exposed to the MAT programme, were also monitored over the three year period of this study, but their scores were excluded from the final analysis to avoid unnecessary biasing of the overall results. However, an informal comparison of the results of pupils from stable and unstable homes indicated that an unstable home background can generally have deleterious effects on reading performance and motivation. The numerous home moves, unemployed fathers, and unsettling home conditions resulted in slowed down reading performance and emotions of sadness, frustration and anger. Parents from unstable homes
were mostly unavailable for interviews or generally unco-operative. Statistical analyses and tabulation for this group and the group from a stable home background for comparison purposes was not plausible because of the inconsistent nature of the lifestyle and home background of these pupils. The data do however suggest that the MAT programme has long-term effects on reading motivation, especially when home backgrounds are stable.

Parental involvement in vocal reading revealed interesting styles for pupils from stable homes. The few parents (N=7) of experimentals who initially supervised the vocal reading of their pupils, withdrew from this supervisory role within the first year of this study. These parents observed that their children no longer required their self-appointed assistance, which seems to have arisen from previous reading experiences with older siblings who showed reading difficulties and needed parental help. Parents of the control group increasingly and voluntarily felt the need to supervise the vocal reading of their child, based on current reading performance. The number of control group parents supervising reading grew from 7 to 15. It is not known whether the present level of reading performance and motivation of these controls will persist if parental supervision is terminated at a later stage for whatever reason, as generally occurs in reality.

The parents of the seven experimentals, although withdrawing from their supervisory roles regarding listening to their pupils reading aloud, nevertheless showed an active interest in the reading material of their children, often making helpful suggestions for project work. The observed
relationship between parents and experimental was relaxed, and it was observed by the researcher and concurred by the class teacher that these pupils were generally of a happier disposition than the controls. The parent-child relationship of some of the controls was usually strained, although not all controls and their parents evidenced this.

The above observations suggest that parental involvement of a less exacting kind and a sense of mutual trust and respect between parent and child is generated by the MAT programme. Parental involvement, in its initial form at the beginning, has become transformed into a creative engaging relationship, which in itself will sustain the reading motivation boosted by the MAT programme.

5.6 TEACHER AND PARENT COMMENTS

Teachers and parents generally felt that this research has increased their awareness of attributions and emotions as motivators of academic success. Parents of standard three experimental noted the happiness, confidence and reading motivation that began to develop in their children after the implementation of the MAT programme. During their class one year of schooling, prior to this programme, these pupils were observed and remembered by their parents as struggling to read, unhappy, lacking in any confidence and much unmotivated to read.
The teaching staff welcomed the annual reading test results which not only indicated a performance trend in relation to the norm but also confirmed or questioned the reading score of the teacher. The results of 1992 were only revealed to the class teachers after they had completed the Reading Attributional Survey in order not to bias their attributional ratings. In the previous two years the reading test scores were discussed with teachers as soon as they were available in the third or fourth terms in accordance with the manual recommendations.

Teachers were unanimous that the Reading Attributional Survey, if administered annually, could be a powerful tool in determining motivational or demotivational trends in pupils which could then receive immediate attention. Parents disclosed that their own Reading Attributional Survey ratings alerted themselves to underlying anxieties or biases that they may personally have about their children or the teachers of their children which need to be addressed within an open and honest forum. Having had regular contacts with teachers, these issues could be dealt with effectively.

Group co-operation was frequently observed among experimental members in the class. Teachers felt that this co-operative structure contributed strongly to group commitment and motivation.
5.7 THE EFFECTS OF THIS STUDY

The main effect of this study was the significantly improved reading success and motivation of 26 initially at-risk readers generated by the MAT programme in 1989. The residual effect was its monitoring functioning in alerting teaching staff and parents about pupils who required alternative types of intervention to improve the reading of their children.
CHAPTER 6

DISCUSSION AND CONCLUSIONS

6.1 INTRODUCTION

In the previous chapter, the results of this study were presented, interpreted and several avenues of further research were recommended. This chapter is an extension of chapter 5 and will endeavour to critically appraise the contribution of these findings to psychological knowledge.

6.2 CONTRIBUTIONS OF THESE RESULTS TO PSYCHOLOGICAL KNOWLEDGE

These results make a constructive impact on psychological knowledge in several ways, as outlined below, and thereby fill a number of gaps regarding the promotion of reading motivation among at-risk readers. Furthermore, these findings unequivocally suggest that behavioural research can be applied to a real and practical problem in the life of an individual, like reading.

6.2.1 Morphophonological awareness training: multiple roles

Psychological knowledge is expanded by this research-based information regarding the multiple roles of morphophonological awareness training for the timeously diagnosed at-risk reader. A great deal has been documented on the
effects of such training on reading only. However, this investigation informs that morphophonological awareness training, as epitomized by the MAT programme, has more than just the single role of reading skill facilitator. It is also a reading motivator, vocabulary and spelling enhancer, personality builder. Each of these roles have already been discussed in chapter 5. These roles also suggest the far-reaching losses for at-risk readers who do not undergo the MAT programme and experience its many effects.

6.2.2 Morphophonological awareness training: long-term effects

The findings of this current study further contribute to psychological knowledge by demonstrating that the effects of morphophonological awareness training as defined by the MAT programme do not necessarily wane after implementation. This adds a new dimension to morphophonological awareness training, namely, durability. The constructive effects of the MAT programme on reading skill development as documented previously, have remained robust throughout the ensuing three year period (1990-1992) and indicate steady reading skill advancement.

Other long-term effects of the MAT programme isolated in this study are facets of pupil reading motivation (ability, effort, library book attributions and emotions of happiness, confidence and pride) and pupil personality (emotional stability and maturity, conscientiousness, self-sufficiency, being realistic). The differential focusing by experimentals and controls of their
attributions, emotions and personality suggests that the motivational outcomes of these focusings have long-term implications for reading and academic success. The effects of the programme, over time, appear to be proactive and self-affirming, not only restoring morphophonological awareness deficits that existed prior to the implementation of the MAT programme, but also reconstructing and restructuring the individual cognitively to strive to reach his or her fullest potential. Readers diagnosed as morphophonologically deficient run the risk of slower reading progress or none at all as well as advancing demotivation as evidenced among several of the control group members.

6.2.3 Motivation: application to reading

The results of this study add an exciting feature to psychological knowledge, namely, that reading motivation also comprises an accumulation of prior outcomes, most of which can generate positive emotions like happiness, confidence and pride. These emotions affect the cognitions (attributions and personality) of a pupil which instigate further actions to replicate more positive emotions. This motivational sequence is energized and sustained by the MAT programme which initially generated successful reading outcomes in this study.

Furthermore pupil reading motivation is strengthened by interpersonal relations with teachers and parents. The causal attributions that each of these
individuals harbour determines the type and quality of their interactions with each other, which, in turn, can be motivational for all parties concerned. The findings in this current study reveal that motivation is not only cognitively and intrapersonally triggered, but also interpersonally gauged and maintained. Reading motivation is really a social event that is much overlooked by theorists and educational practitioners.

Initial vocal reading is also very much a social event, prior to the privacy of silent reading. Motivation can be short-lived or stunted if reading outcomes are emotionally unpleasant. This and signs of demotivation was noted with some members of the control group and was reinforced by their teachers and parents. Reading motivation can be a dynamic cognitive process if preferably fostered at the outset of reading instruction. However, reading motivation can still be developed after the commencement of reading instruction, but not as effectively.

These new views of motivation raises the sights of researchers, teachers and parents above the traditional concern about coaxing, threatening, shaping or bribing pupils to read and to learn, and rather focuses on a greater awareness of and appreciation for the overarching importance of causal attributions, emotions, personality, interpersonal support and the MAT programme as hallmarks of what is regarded as reading motivation.
6.2.4 Theoretical explanations vs practical applications

Early motivational concepts were developed from research based mostly on subhuman species that were motivated by deprivation of tissue or organic needs. The theoretical concepts of motivation derived this way showed little functional application to the realities of the school classroom, which primarily focuses on higher cognitive activities in human beings whose biological needs are mostly satisfied (Brophy, 1983).

The findings of this investigation contribute to psychological knowledge by providing research-based information and practical ideas on how teaching staff can optimize pupil motivation. Teachers require prescription and actual methods on how to motivate pupils. Too often they are only given concepts to explain the reasons for a pupil's demotivation, and no means to change or prevent this. The current research is based on motivational issues of real people and offers meaningful practical methods on how to motivate reading and other academic tasks by means of the MAT programme. Such a programme empowers teachers to motivate and it also empowers pupils to motivate themselves to read well and to read more.

6.2.5 Longitudinal study

This study, owing to its longitudinal nature, has isolated new ideas about morphophonological awareness, its training, the MAT programme, motivation
(its elements and its application) and reading development that would not have been possible in a short-term investigation. Longitudinal studies in morphophonological awareness training are scarce and very seldom span the number of years comprising this present investigation. Moreover, this study is an extension of the previous one (Windell, 1990) and allows therefore for comparisons and developmental trends in reading progress based on the same pupils. The findings from such a longitudinal extension study contribute greatly to psychological knowledge and underlines once more the pressing need for more such research in the exciting arena of morphophonological awareness training for better reading.

### 6.2.6 Implications for correctional reading

The findings of this study supplement psychological knowledge by indicating that reading remediation itself can be motivational, as revealed by the results of the standard three pupils. These at-risk readers were exposed to the MAT programme one year after the commencement of reading instruction. Their previous reading outcomes and the resultant adult reactions to their reading performance prior to this study generally proved demotivational. However, when their reading difficulties were addressed by means of the MAT programme, their motivation to read was restored. Standard three pupils not exposed to this programme, but who underwent the conventional methods of extra reading to improve their skills, indicated a lower degree of motivation to read. Some of the controls experienced these traditional methods as stressful
and others found them to be boring, whereas pupils exposed to the MAT programme found it to be enjoyable because of the wide range of socially engaging word games and the therapeutic and non-competitive atmosphere that prevails during its implementation.

The implication for correctional reading is that motivation for reading and its systematic development needs to be a primary goal when helping problem readers to rehabilitate. Motivational development in these pupils can be gauged by systematic administration of the Reading Attributional Survey for pupils. It is the opinion of the writer that reading remediation will prove ineffective if this motivational variable is ignored.

6.2.7 Reading Attributional Survey (RAS)

The RAS has elicited a great deal of information which enriches psychological knowledge by pointing out strong links between certain attributions and emotions and motivation to read. This measuring instrument furthermore indicates a marriage between previous research and this current study that can be effective in gauging developing or declining motivational levels of reading.

The RAS includes not only the frequently quoted attributions, but also those that emerged as a result of the open-ended assessment of attributions. This suggests that the RAS was suitable for the measurement of the specific
objectives of this research, which leads not only to the improvement of attributional measurement in general, but also leads to the illumination of more theoretical concerns as will be discussed in Section 6.6.

6.2.8 Attributions and reading and academic performance

This study suggests that the interpretation of (attribution) and the feeling about (emotion) the cause of reading performance is an important factor in contributing to reading performance differences and academic performance differences between the experimental and control group members. Further indicated is that the reading motivation and academic motivation differences shown between the experimental and controls are related to these interpretations and feelings. Moreover, these attributions and emotions may become resistant to change if allowed to persist too long as indicated by some of the standard three experimental group members whose reading difficulties were addressed when they were in class two.

6.2.9 Reading motivation: attributions, feelings and the MAT programme

These findings expand psychological knowledge because they introduce a new element of reading motivation, namely, morphophonological awareness training for those who lack this type of awareness of the sound qualities of words. This suggests that causal ascriptions and emotions alone do not necessarily motivate reading as previously theorized. The attributions and
emotions related to the reading outcomes of the control groups were not sufficient to motivate these pupils to the extent demonstrated by the experimental groups who had the added motivational element generated by the MAT programme. These results furthermore reveal another exciting dimension of morphophonological awareness and the MAT programme, namely, reading motivation.

6.3 EFFECTS ON THESE RESULTS OF:

6.3.1 Sampling procedure

The samples for this study were initially drawn in 1989 by means of the Morphophonological Awareness test (Windell, 1990). The effect of this sampling procedure was to secure a sample of the school population that was representative of at-risk readers who lacked morphophonological awareness. The results of this current study reflect changes to these at-risk readers as a result of the MAT programme. The effect on these results of this purposive and focused type of sample selection was to increase the power of detecting whether or not the MAT programme is effective in improving the motivation of previously diagnosed morphophonologically deficient pupils. Random sampling would not have ensured this type of population and would have resultantly muddled the effects of this programme.
Pupils were randomly assigned to the experimental and control groups. The effects of randomization on these results increased the probability that nuisance variables would influence both these treatment groups to more or less the same extent. Since each sample member had the same opportunity of being assigned to one of these groups by means of randomization, the findings of this study were not influenced by nuisance variables but by the independent variable, namely, the MAT programme.

6.3.2 Sample size

The standard two sample size of 36 (experimental: 17; control: 19) has diminished from the initial size of 60 (equal numbers for both treatment groups). Larger sample sizes are purported to generate statistics that are closer to those of the population (Kerlinger, 1975).

In spite of the decreasing sample size during 1990 and 1992, the reading, spelling, vocabulary and language usage developmental trends of faster advancement for the experimentals and slower progress for the controls remained constant. Annual intergroup and intragroup comparisons of these variables were possible and indicated no significant effect of size on these results. Other variables (attributions, emotions, personality) were only evaluated once, when the sample size was at its lowest. One would assume that the same progressive trends observed for the frequently measured reading related variables even when sample sizes diminished would be
indicated for the single measurement of attribution, emotion and personality. The results for the standard two samples seem to suggest that these findings accurately reflect the long-term effects of the MAT programme on reading motivation for at-risk readers.

The standard three sample size (experimental: 9; control: 8) is approximately half the number of pupils of the standard two group. This smaller sample lends the findings less validity and generalizability than would a larger sample. However, since the experimental-control group trends of the standard three group are similar to that of the standard two group with regard to MAT programme effects, the findings of the smaller sample size may be deemed valid and generalizable.

Longitudinal studies expect vacillations or decreases in sample sizes. The additional advantage of diminishing sample sizes is an increase in insight. An in-depth study cannot be performed on a sample that is too large. For this current study, the effect of smaller sample sizes spawned new ideas and insights about the MAT programme.

6.3.3 Uncontrollable error variables

In this naturalistic setting, conditions could not be controlled, as in a laboratory, and validity can be threatened in many ways. An uncontrollable error variable was the class teacher. Teaching style and interpersonal
relationships with the experimentals and controls may have favoured some pupils and disadvantaged others, thus biasing the research results.

Another uncontrollable error variable was the parents. Child rearing practices, religious and subcultural differences could not be controlled for in this investigation. This rather than the MAT programme, may have contributed to the motivation of some pupils.

The RAS is an uncontrollable error variable because of its unknown test reliability. It is not yet known to what extent a second administration of the same test, within a short-term span, would yield similar attributional patterns. This variable of unknown test reliability has the potential to generate erroneous research data and conclusions.

Despite the potential effects of these uncontrollable error variables, the added precautions of this research, namely, randomization, a comparison group and qualitative information would serve to circumvent any erroneous research conclusions. Furthermore, the gains shown by the experimentals relative to those of the controls are significant and seem unaffected by these uncontrollable error variables. Moreover, the avalanche of qualitative research from classroom observations by the researcher has helped to temper premature conclusions.
6.3.4 Shortcomings in measuring instruments

The RAS has a glaring shortcoming, namely, that it has not yet been subjected to standardization on a nationally representative group. Its test reliability is also unknown as stated previously. This instrument, together with the TAT and interviews, is not absolutely objective for data collection. An element of subjectivity is unavoidable on behalf of the researcher, teacher and parents. Nevertheless, these instruments are still very useful for data collection in naturalistic studies. The RAS and TAT have yielded good inter-scorer reliability (as discussed in chapters 4 and 5) as a result of the quantitative scoring scheme and rating scales of these tests which highlights one of their strengths.

6.3.5 General limitations of this study

One general limitation of this study is sample generalizability. As mentioned in chapter 4, sample generalizability, for this current investigation, has been a difficult criterion of external validity to satisfy. Although the inferential statistics and realism of this study enhances its generalizability, several other factors may restrict external validity.

Firstly, pupils constituting this research were only drawn from one school. Although the general and specific aims of this study apply to all at-risk and existing problem readers, the statistical findings and inferences of this project...
may only apply to the pupils of this single school. This research does not show the effectiveness of the MAT programme in other schools in its immediate surroundings or further afield.

Secondly, the findings of this study are restricted to one language group, namely, English. The long-term effects of the MAT programme on reading and its motivation is unknown for other language groups.

Finally, these results are based on pupils from one population group, namely, Caucasian children. The difficulties in including at-risk readers from other population groups and cultures was highlighted in chapter 4. Despite these difficulties, it is not known to what extent the MAT programme can boost the reading and reading motivation of the African, Asian and Coloured at-risk readers in South Africa.

The above restrictions, although limiting the generalizability of these findings, are also provocative of further MAT programme investigation.

6.4 COMPARISON OF THESE FINDINGS WITH THOSE OF PREVIOUS RESEARCH

The findings of this investigation as a whole support the current interest in morphophonological awareness training, and its importance in beginning reading instruction (Gathercole et al., 1991; Golinkoff, 1978; Wagner, 1986).
Moreover it has been demonstrated that the MAT programme can also achieve similar constructive effects on reading performance for at-risk readers as has been claimed by other training programmes (Venezky, 1976; Wallach & Wallach, 1976; Williams, 1979). Unlike these training programmes, the MAT programme has revealed extra facets of the effects of morphophonological awareness training, namely, long-term benefits on reading skills and reading motivation as well as personality development.

Previous research on morphophonological awareness training has focused on higher IQ ranges (Fox & Routh, 1980; Stanovich, Cunningham & Cramer, 1984). The present investigation included pupils within a broad IQ range, and the findings show that the effects of the MAT programme can influence pupils within the 81 to 145 IQ range.

Most attributional studies have not met the external validity requirements necessary for the generalization of achievement motivation to real classroom situations (Jung, 1991; Lau & Russell, 1980; Ng et al., 1991). University or college populations were used in contrast to the school pupils in the current study. Other investigations have required students to make attributions about a hypothetical person in a laboratory or experimental setting (Covington & Ormelich, 1979; Reich, 1983). Results based on attributions about hypothetical others need not necessarily agree with those based on self-attribution (Sohn, 1977). The findings of the present study are generalizable to real classroom settings.
The present research results are consistent with previous research that concludes that causal attributions and emotions related to prior outcomes of success have important effects on subsequent motivation (Harter, 1978; Howard, 1987; Kelly & Michela, 1980). The results are also congruent with the earlier findings that motivational difficulties and demotivation already emerge in the early school years (Harari & Covington, 1981; Stipek & Tannatt, 1984). The current research findings are in accord with some studies that have shown that individuals experience more pride when success at a task is attributed to internal causes like ability and effort (Weiner, 1979; Weiner et al., 1972). Moreover, the results of this study are also in agreement with these same investigations that have demonstrated that internally attributed failures can lead to feelings of shame.

The results of the present study support the finding that by the age of ten years and beyond, school children believe that ability is stable, and that this belief limits the utility of their efforts (Rholes et al., 1980). This was evident with the 11 year old standard three controls who perceived themselves to be reading badly. They were of the opinion that effort was not going to make them clever or able to read better. Suggested here is that with increasing age, at-risk readers, whose reading difficulties are not appropriately addressed by means of the MAT programme, advance in vulnerability to the crippling effects of failure.
Past research on the similarity of the attributional ratings of mothers and those of their children with regard to successes was supported by the findings of the standard two experimental groups (Bar-Tal & Guttman, 1981; Pearl & Bryan, 1982). It was difficult to determine from the previous and current studies whether maternal attributions were more a cause or an effect of the performances of their children. The attributional ratings of mothers of controls were found to be highly realistic in that their stated ratings of ability at reading well and their child's actual level of intellectual ability were found to be congruent. This lends support for the data of Buck and Austrin (1971).

Parents of the standard two experimental group and the standard three control group credited the teacher for their child's successful reading performance. These findings are not congruent with those of Beckman (1970) where teachers were credited by parents more because they were afraid that their responses would be exposed to the teachers. The parents of the current study maintained a regular contact with the class teachers and the researcher, and have generally displayed a genuineness and openness.

The results of this present investigation generally support the findings of Medway (1979) that personal responsibility of a pupil's failure is usually denied by teachers. These results contrast strongly with those of Beckman (1970) and Brandt et al. (1975) who found that teachers take responsibility for their pupils' failures. The studies of Beckman (1973) and Ames (1975) that
revealed that teachers gave credit to pupils when they succeeded are supported by the findings of the current study.

The profound sex differences or stereotypes reported by previous research with reference to specific attributions about reading success are not in accord with the present findings (Deaux & Emswiller, 1974; Dweck & Gilliard, 1975; Feldman-Summers & Kiesler, 1974; Nicholls, 1975). Whereas previous findings reflected males ascribing success to ability and females ascribing success to luck, the current findings for 10 year olds (standard two) indicated no such sex differences in attributions of ability and luck. Although the 11 year olds (standard three) in this study indicated a sex difference for the ability attribution, the difference itself was not persuasive. Boys ascribed ability to reading success, but the girls generally had mixed feelings on this matter ("sometimes false/true"). The effort attribution findings of this present study indicates significant sex differences for the 10 and 11 year olds. The boys took personal credit for their reading well whereas the girls were not quite sure to whom responsibility should be ascribed.

When comparing sex difference findings with regard to the broader dimensions of attributions, and not specific attributions only, then the current findings are in accord with those of previous research. Male success is ascribed to internal causes and females ascribe success to external causes. These findings seem to be consistent despite methodological differences in the earlier and current research: age(adult vs child), educational level
(college/university student vs primary school pupil), subjects (real vs hypothetical persons). However, the findings of the present research, although indicating sex differences, do not necessarily suggest set stereotypes or the stereotypic denigration of female success, as implied by previous research. When compared with other findings, the current results indicate a change in female perceptions of the causes of their success which is beginning to approximate the perception of the causes of success for males. Owing to fast changing family socialization practices and unisex influences, the present findings provide a more accurate reflection of the merging male-female attributional patterns regarding achievement and motivation than the earlier studies that reflected the conventional sexual stereotypes of the time (Crockenberg & Bryant, 1978).

Control group members who have experienced a reading difficulty over the past three years, have judged their ability to be a determining variable of their reading failure. This finding supports the results of Frieze and Weiner (1971) that if the history of performance is consistent with current performance, then an individual's ability is judged as a major causal factor and leads to demotivation. While history of failure may prove to be a critical factor in some attributional patterns, repeated failure did not necessarily facilitate the development of personal helplessness. Not all controls indicated signs of learning helplessness because of past failures. These current findings stand in contrast to the earlier findings in related learned helplessness literature (Dweck, 1975; Weisz, 1979). Pupils in this present investigation judged effort
as just as important in determining reading success or failure, and not only ability, and supports the findings of Palmer et al. (1982). These findings may be interpreted to suggest that a relatively few failure experiences are not so potent as to permanently change pupils’ perceptions concerning their competencies as may be implied from the learned helplessness literature.

The observations of the current investigation concerning the co-operative behaviour of the experimental group members that emerged support the work of Slavin (1983) where the co-operative group structure contributed to pupil motivation. Effort or trying, as a dominant peer norm, was perceived as the route to follow in mastering a task. The co-operative tendencies of these experimentals in the current study also lend support to numerous models of co-operative learning (Aronson, 1978; Johnson & Johnson, 1975). How co-operative situations influence a pupil’s attributions is still speculative, partly owing to the meagre research that addressed this question (Ames & Ames, 1984).

These current findings question three of the attributions of Heider (1958) and Weiner et al. (1971). During the unstructured open-ended procedure so few pupils spontaneously mentioned ability as a causal attribution of reading well or badly. Task ease/difficulty and luck attributions were not mentioned at all by pupils and significant adults alike. It seems that the viability of ability, task and luck as causal attributions can be questioned in this context.
6.5 HOW THESE FINDINGS CONTRIBUTE TO A BETTER UNDERSTANDING OF THE RESEARCH PROBLEM

These findings indicate a relationship between the MAT programme and the motivation to read and learn more. It now seems possible that pupils can be systematically motivated to read by a tangible and educationally researched method, namely, the MAT programme. This method seems to stimulate a long-term interest in academic matters like reading, and not fear and anxiety as is common with the more conventional forms of motivation like threats and unpleasant verbal coxing.

Further emerging from these findings are the motivational internal dimension attributions (effort, ability, library book volume) ascribed more by the experimentals and which appear to have been generated by the MAT programme. These causal explanations are based on the real experiences of real children and increase understanding of the attributional process as it actually operates in children rather than in often-reported adults.

The present study indicates that reading skills need to be developed as early as possible in order to foster long-term reading motivation. The MAT programme can address potential reading difficulties far more effectively when implemented before and during reading instruction. This sequence of implementation ensures quicker morphophonological awareness enrichment and more successful and enjoyable reading outcomes which, in turn, motivate
pupils to want to read more in order to repeat these outcomes. At-risk readers
who are rehabilitated by means of the MAT programme one year later can still
experience reading motivation but with not quite the same intensity as those
who are rehabilitated from the outset of their schooling careers. These
findings also seem to suggest that reading remediation will be more effective
when addressed earlier. Later reading rehabilitation might change and
improve reading skills, but not necessarily improve or develop motivation.
This matter warrants further investigation.

These findings also contribute to a better understanding of the long-term
effects of the MAT programme on reading motivation by indicating the
influence of this programme on the attributions of significant adults like
teachers and parents. The reading outcomes of experimentals evoked
different types of attributions in teachers and adults than the reading
outcomes of controls. These adult attributions of experimentals appear to
have more of a motivational influence on pupils than the adult attributions of
controls. These influences are potent and cannot be excluded from an
investigation on reading motivation. Further suggested by these findings is
that reading remediation needs to take cognizance of the attributions of these
significant adults and needs to enlist the motivational elements of these
attributions to thereby develop reading motivation. The promotion of reading
motivation is not only contingent upon pupil attributions, but is also contingent
upon the attributions of teachers and parents. If the motivational attribution
differences between pupils and their teachers and parents are too great, then
the influences of these attributions may counteract each other and prevent long-term motivation. However, it seems as if the MAT programme generally fosters similar attributional patterns of motivation in pupils, their teachers and parents, thereby engendering joint consolidation of the pupils' reading motivation.

6.6 IMPLICATION OF THESE RESULTS FOR THE THEORY UNDERLYING THE HYPOTHESES

This current research suggests that attribution theory needs to consider classroom reality. It ought to accommodate itself to this pupil or student reality rather than require this type of reality to assimilate into the neat framework of attribution theory. The current study has indicated the importance of realism in the field of attributions and motivation. In the naturalistic classroom settings, various achievement events were examined by the writer who found that children do not only attribute causes to events, but also offer elaborate accounts and stories. The theories of Heider (1958) and Weiner et al. (1971) fail to take this into account which indicates a weakness in these formulations of motivation. The evidence about the causal structures as postulated by these theorists will be expanded when more research is conducted on these elaborate accounts and stories as to why an event occurred within a naturalistic setting. The writer proposes not only a move to more realistically based sources of data, but also a complete attribution theoretical reorientation and refurbishment which addresses the action orientation of the accounts of
pupils for a realistic event that has occurred. Without this reality element, these two attribution(al) theories become mere descriptions of attributional processes lacking realistic application. The evidence from the present investigation also implies that motivation is not entirely contingent upon specific types of attributions but also upon the spontaneous reasons and stories elicited by an event.

Although the results of the current research strongly support the motivational element of the effort attribution as postulated by Heider (1958) and Weiner et al. (1971), very little evidence was found for the ability attribution and none at all was found for the task and luck categories in the spontaneous accounts of reading performance causes. The lack of verification might indicate a further weakness in and a necessary modification of these theoretical formulations.

The results of this investigation imply that motivational attribution processes cannot only be instigated within an interpersonal setting but can also be maintained by such an environment. The theories of Weiner et al. (1971) and Heider (1958) suggest that actor-observer inferences can influence motivation but fail to address the potency of these inferences over any length of time. Motivation can be short-lived or a temporary phenomenon if not sustained by significant others. This aspect of motivation needs to be incorporated into these two theories of attribution. The end product ought then to be a
motivational theory that describes and explains the necessary interactions of pupils, teachers and parents which together motivate reading in pupils.

The findings of the current study suggest the importance of timing in motivation. The earlier that the motivational development commences, the longer-lasting motivation will be. The attribution(al) theories of Heider (1958) and Weiner (1986) are not specific about this and give the impression that motivation developed at any time can be durable. This is not necessarily the case with reading. Motivation is interest-linked generally, and many at-risk readers if not adequately assisted, would be motivated to do something else, rather than to read.

The abovementioned observations that some of attribution theory requires modification should be viewed as an index of scientific advance fostered by the results of this investigation.

6.7 FURTHER INVESTIGATION NECESSARY FOR A BETTER UNDERSTANDING OF THE TOPIC

This study is pregnant with possibilities of how the topic can be better understood by means of further investigation. A most profitable direction for future research would be to address the long-term effects of the MAT programme on motivation in other schools on a nationwide basis. In this way
the generalizability of the MAT programme and its long-term effects that characterized the current study, can be verified.

It will be worthwhile to have the MAT programme translated into languages other than English. A great void still exists regarding the long-term effects of this programme on reading skills and reading motivation for other language groups in South Africa.

The hitherto undiscovered and unchallenged cross-cultural influences of the MAT programme encourages urgent research prospects to not only extend its validity but also to enhance the literacy potential and motivation of members of other population groups, that are more dominant in size and need for literacy enhancement.

All attribution theories are purported to reflect a North American bias of individualistically based explanations (Louw & Louw-Potgieter, 1986). There exists the possibility that more socially based explanations might exist in other cultures (Bond, 1983). The use of unstructured methods has been demonstrated in this current study, and these same methods can be applied cross-culturally to tap more information about attributional processes and their motivational influences in a South African context. This type of investigation will challenge the theoretical postulates of Heider (1958) and Weiner et al. (1971) and may fashion an attribution theory of motivation suited to South African conditions.
From the researcher's point of view, an important next step is further studies of the parents of the experimentals in the search for other kinds of parental attributions that may motivate reading and academic success, as related to the long-term influences of the MAT programme. It remains to be seen whether the motivational attributions of the parents of the experimentals are peculiar to the one school under investigation, or whether these attributions can be elicited by the MAT programme in other schools as well. The relative effectiveness of such parental attributions in enhancing and sustaining reading motivation in children is certainly open to empirical verification.

It would be most productive to compare the reading motivation of at-risk readers who were timeously exposed to the MAT programme and at-risk readers who were not exposed to this programme but were remediated by conventional means after the reading difficulty had been identified some years later. Such a study would verify the importance of early identification or rectification of reading difficulties. Moreover, this type of study can provide evidence of the advantages of assisting early-identified at-risk readers within their own class group rather than having them withdrawn from the class or school which in itself can be demotivating.

6.8 POTENTIAL APPLICATIONS OF THESE FINDINGS

These findings have clear implications for at-risk readers concerning interventions that may serve as a valuable adjunct to the more traditional
techniques used to prevent or to rectify reading difficulties and to promote reading motivation.

6.3.1 Educational

These findings have introduced a new tool into the educational market place, namely, the MAT programme. Its long-term effects have not only been shown to be a boon for reading skill development but can also influence reading motivation. Such a teaching instrument cannot be ignored and needs to be introduced to schools.

The attributional findings imply that educators will need to reconceptualize motivation in the classroom. The causes that pupils ascribe to scholastic success and failure have strong emotional reactions which can motivate or demotivate. The classroom environment needs to be non-threatening and needs to provide scholastic experiences that will create motivational causal attributions and emotions. One way of doing this is to ensure that pupils are morphophonologically aware in order to read adequately from the outset of reading instruction. The Morphophonological Awareness test and MAT programme has proved its validity in this regard. Furthermore, it does not seem premature to recommend that in-service training can inform teachers more about causal attributions and their role in reading motivation.
For those pupils who do not respond adequately to the long-term effects of the MAT programme for whatever reasons, educators will need to reconceptualize failure as a necessary component of the learning process of these pupils, and not as a damaging experience to be avoided. Such pupils must be directed to think more adaptively about their reading or other scholastic failures. As such, failure will need to be built into some remedial programmes to enable these pupils to adapt an attributional style suited to their circumstances.

6.8.2 Familial

This study has practical significance not only in education, but for the home as well. Parents of at-risk readers can be informed how their attributions about their children’s reading performance can motivate or demotivate future reading and learning by virtue of the parent-child interpersonal interactions. The need for realistic parental expectations of at-risk readers seems crucial, and should indicate to the child, in a supportive and encouraging manner, a genuine belief in the child’s efforts.

6.8.3 Financial

The MAT programme can be implemented at no cost to the school or the parents. Schools, therefore, do not need to invest in costly teacher training, and parents do not need to budget for remedial school expenses.
6.8.4 Personal

These findings imply that the potential personal discontent of at-risk pupils can be avoided or prevented by the MAT programme. Pupil happiness, confidence and pride can be developed even though at-risk reading has been diagnosed in the beginning stages of schooling.

6.9 CONCLUSION

This study has fostered important advances in the conceptualization and treatment of at-risk readers. It has proven equally fruitful in unravelling some of the long-term effects of the MAT programme on reading motivation, and it has taken us one step closer to meaningfully tapping the phenomenological experiences of pupils, their teachers and parents.
REFERENCES


and observers. *Journal of Research in Personality, 10*, 256-265.

and their dimensions as a function of SES and gender: a 
phenomenological analysis. *British Journal of Educational Psychology, 54*, 
51-61.

parents' attributions regarding pupils' achievement. *British Journal of 
Educational Psychology, 51*, 301-311.

Beckman, L.J. (1970). Effects of students' performances on teachers' and 
observers' attributions of causality. *Journal of Educational Psychology, 61*, 
76-82.

Beckman, L.J. (1973). Teachers' and observers' perception of causality for 

Beery, R.T. (1975). Fear of failure in the student experience. *Personnel and 
Guidance Journal, 54*, 190-203.

reasoning: an attribution theory analysis. *British Journal of Clinical 
Psychology, 30*, 13-23.

determinants of helping behaviour: an interpretive approach*. Unpublished 
doctoral dissertation, University of California, Los Angeles.

& W.F. Lambert (Eds), *Handbook of Personality Theory and Research*. 
Chicago: Rand Mc Nally.


Nicholls, J.G. (1976). Effort is virtuous, but it’s better to have ability: evaluative responses to perceptions of effort and ability. *Journal of Research in Personality, 10*, 306-315.


APPENDIX A

READING ATTRIBUTIONAL SURVEY
(PUPIL)

Name ________________________________  Boy/Girl ____________

Standard _____  Age (years) _______  Teacher _______________ _______

INSTRUCTIONS

This is a chance to look at yourself, your teacher and your parents. There are no right or wrong answers, and everyone in your class will have different answers. No one else, except Mr Windell, will know how you answered the questions. Your answers will be kept private. Be sure your answers show how you think and feel about yourself, your teacher and parents. Please do not talk about your answers with anyone else.

DO NOT TURN OVER THE PAGE
On this page is number 1(a). The sentence next to it tells you of something that you might do well in. On the next page is number 1(b). The sentence next to it looks almost the same but tells of something that you might do badly in. Now put your finger only on the one sentence (1a or 1b) that may apply to you. Only choose the ONE sentence.

<table>
<thead>
<tr>
<th>1(a)</th>
<th>I do well in maths because I try hard</th>
<th>FALSE</th>
<th>MOSTLY</th>
<th>SOMETIMES</th>
<th>MOSTLY</th>
<th>TRUE</th>
</tr>
</thead>
</table>

This reason makes me feel:

- happy OR
- sad OR
- proud OR
- frustrated OR
- ashamed OR
- confident OR

OR
1(b) I do badly in maths because I don’t try hard

<table>
<thead>
<tr>
<th></th>
<th>FALSE</th>
<th>MOSTLY FALSE</th>
<th>SOMETIMES FALSE/TRUE</th>
<th>MOSTLY TRUE</th>
<th>TRUE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>

This reason makes me feel:

- happy OR
- sad OR
- proud OR
- frustrated OR
- ashamed OR
- confident

The sentence also tells you why something is easy or difficult to do. What word in the sentence gives you an idea of ‘why’? Yes, the word ‘because’.

Now look at the five blocks next to the sentence. Let’s read aloud together what each block says. What do the words above each block have to do with the sentence? Choose only ONE of these blocks that may have something to do with the reason WHY you may do badly in maths. Someone has already made a cross in one of the blocks. Which one? What does this mean? What would the sentence mean if the person had made a cross (X) in the FALSE block? And in the TRUE block? In the MOSTLY TRUE block? In the SOMETIMES FALSE/TRUE block?
Put your finger on the sentence that tells how you might FEEL if you do well in maths or if you do not do well in maths. Which block has already been crossed out? Why? What do all the words next to these blocks mean?

The person who has done this example for you shows you how to do two things. First, choose only (a) or (b) of a number that could apply to you. Then make a cross (X) in ONE of the blocks opposite the 'because' sentence you have chosen. After this, look at the 'feel' sentence. Choose ONE feeling that suits you and then make a cross (X) in the block opposite it.

It is important to be honest. Don't be afraid to say if you find something easy or difficult to do. Now turn over this page and do number 2 on your own.
<table>
<thead>
<tr>
<th>2(a) I do badly in maths because I am unlucky</th>
<th>FALSE</th>
<th>MOSTLY</th>
<th>SOMETIMES</th>
<th>MOSTLY</th>
<th>TRUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>This reason makes me feel:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- confident OR</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- ashamed OR</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- frustrated OR</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- proud OR</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- sad OR</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- happy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

OR

<table>
<thead>
<tr>
<th>2(b) I do well in maths because I am lucky</th>
<th>FALSE</th>
<th>MOSTLY</th>
<th>SOMETIMES</th>
<th>MOSTLY</th>
<th>TRUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>This reason makes me feel:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- confident OR</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- ashamed OR</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- frustrated OR</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- proud OR</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- sad OR</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- happy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
All of you seem to know what to do. Let's look at the sentence and feelings that some of you have chosen. Remember that your answers are going to be different most of the time because everyone has different feelings about maths.

Remember to say what is true or false about you, and not what you think Mr Windell wants.

If you want to change an answer, rub out the cross, and draw another cross in the block you have chosen.

If you have any questions or cannot read a word, quietly raise your hand and I will help you. I will walk around to make sure that each of you are making your crosses in the right place. I'm here to help all of you.

There is no time limit.

Once you have started, do not talk to your friends around you, or stare at them or look at their work.

When you have finished, close your booklet, lay your head on your arms and wait for the others to finish.

DO NOT TURN THE PAGE
<table>
<thead>
<tr>
<th>3(a) I read badly because it's difficult</th>
<th>FALSE</th>
<th>MOSTLY FALSE</th>
<th>SOMETIMES FALSE/TRUE</th>
<th>MOSTLY TRUE</th>
<th>TRUE</th>
</tr>
</thead>
</table>

This reason makes me feel:
- frustrated OR
- ashamed OR
- confident OR
- happy OR
- sad OR
- proud

OR

<table>
<thead>
<tr>
<th>3(b) I read well because it's easy</th>
<th>FALSE</th>
<th>MOSTLY FALSE</th>
<th>SOMETIMES FALSE/TRUE</th>
<th>MOSTLY TRUE</th>
<th>TRUE</th>
</tr>
</thead>
</table>

This reason makes me feel:
- frustrated OR
- ashamed OR
- confident OR
- happy OR
- sad OR
- proud

TURN OVER
<table>
<thead>
<tr>
<th>4(a) I read well because my teacher helps me</th>
<th>FALSE</th>
<th>MOSTLY FALSE</th>
<th>SOMETIMES FALSE/TRUE</th>
<th>MOSTLY TRUE</th>
<th>TRUE</th>
</tr>
</thead>
</table>

This reason makes me feel:
- sad OR
- confident OR
- frustrated OR
- proud OR
- happy OR
- ashamed

OR

<table>
<thead>
<tr>
<th>4(b) I read badly because my teacher does not help me</th>
<th>FALSE</th>
<th>MOSTLY FALSE</th>
<th>SOMETIMES FALSE/TRUE</th>
<th>MOSTLY TRUE</th>
<th>TRUE</th>
</tr>
</thead>
</table>

This reason makes me feel:
- sad OR
- confident OR
- frustrated OR
- proud OR
- happy OR
- ashamed
### 5(a) I read well because
I am clever

<table>
<thead>
<tr>
<th></th>
<th>FALSE</th>
<th>MOSTLY FALSE</th>
<th>SOME TIMES FALSE/TRUE</th>
<th>MOSTLY TRUE</th>
<th>TRUE</th>
</tr>
</thead>
</table>

This reason makes me feel:

- ashamed OR
- happy OR
- proud OR
- frustrated OR
- confident OR
- sad

### 5(b) I read badly because
I'm not clever

<table>
<thead>
<tr>
<th></th>
<th>FALSE</th>
<th>MOSTLY FALSE</th>
<th>SOME TIMES FALSE/TRUE</th>
<th>MOSTLY TRUE</th>
<th>TRUE</th>
</tr>
</thead>
</table>

This reason makes me feel:

- ashamed OR
- happy OR
- proud OR
- frustrated OR
- confident OR
- sad

TURN OVER
### 6(a) I read well because
I try hard

<table>
<thead>
<tr>
<th></th>
<th>FALSE</th>
<th>MOSTLY FALSE</th>
<th>SOMETIMES FALSE/TRUE</th>
<th>MOSTLY TRUE</th>
<th>TRUE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

This reason makes me feel:

- confident OR
- happy OR
- sad OR
- ashamed OR
- frustrated OR
- proud

### OR

### 6(b) I read badly because
I don't try hard

<table>
<thead>
<tr>
<th></th>
<th>FALSE</th>
<th>MOSTLY FALSE</th>
<th>SOMETIMES FALSE/TRUE</th>
<th>MOSTLY TRUE</th>
<th>TRUE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

This reason makes me feel:

- confident OR
- happy OR
- sad OR
- ashamed OR
- frustrated OR
- proud

TURN OVER
<table>
<thead>
<tr>
<th>7(a) I read badly because I am unlucky</th>
<th>FALSE</th>
<th>MOSTLY FALSE</th>
<th>SOMETIMES FALSE/TRUE</th>
<th>MOSTLY TRUE</th>
<th>TRUE</th>
</tr>
</thead>
</table>

This reason makes me feel:
- proud OR
- frustrated OR
- sad OR
- ashamed OR
- confident OR
- happy

OR

<table>
<thead>
<tr>
<th>7(b) I read well because I am lucky</th>
<th>FALSE</th>
<th>MOSTLY FALSE</th>
<th>SOMETIMES FALSE/TRUE</th>
<th>MOSTLY TRUE</th>
<th>TRUE</th>
</tr>
</thead>
</table>

This reason makes me feel:
- proud OR
- frustrated OR
- sad OR
- ashamed OR
- confident OR
- happy
8(a) I read well because my parents help me

<table>
<thead>
<tr>
<th></th>
<th>FALSE</th>
<th>MOSTLY FALSE</th>
<th>SOMETIMES FALSE/TRUE</th>
<th>MOSTLY TRUE</th>
<th>TRUE</th>
</tr>
</thead>
</table>

This reason makes me feel:

- happy OR
- proud OR
- sad OR
- frustrated OR
- confident OR
- ashamed

OR

8(b) I read badly because my parents do not help me

<table>
<thead>
<tr>
<th></th>
<th>FALSE</th>
<th>MOSTLY FALSE</th>
<th>SOMETIMES FALSE/TRUE</th>
<th>MOSTLY TRUE</th>
<th>TRUE</th>
</tr>
</thead>
</table>

This reason makes me feel:

- happy OR
- proud OR
- sad OR
- frustrated OR
- confident OR
- ashamed
<table>
<thead>
<tr>
<th>9(a) I read well because</th>
<th>FALSE</th>
<th>MOSTLY</th>
<th>SOMETIMES</th>
<th>MOSTLY</th>
<th>TRUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>I read many library books</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

This reason makes me feel:

- frustrated OR
- happy OR
- ashamed OR
- proud OR
- sad OR
- confident

OR

<table>
<thead>
<tr>
<th>9(b) I read badly because</th>
<th>FALSE</th>
<th>MOSTLY</th>
<th>SOMETIMES</th>
<th>MOSTLY</th>
<th>TRUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>I read few library books</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

This reason makes me feel:

- frustrated OR
- happy OR
- ashamed OR
- proud OR
- sad OR
- confident

STOP
READING ATTRIBUTIONAL SURVEY
(TEACHER)

Name ___________________________ Boy/Girl (circle)

Standard _____ Age (years) _____ Teacher (initials only) ______

INSTRUCTIONS

This is a chance to look at your pupils and their parents. There are no right or wrong answers. Your answers will be kept strictly confidential.

This survey consists of two sentences that refer to the current reading performance of the abovementioned pupil. One sentence (a) states that this particular pupil reads well, whereas the other sentence (b) states that this pupil reads badly. The sentences are on the next two pages.

Each sentence is followed by seven reasons that may be related to why you think this pupil reads well or badly.

Kindly complete this Reading Attributional Survey about this pupil by doing the following:

- Choose sentence (a) OR sentence (b) based on your opinion of his/her present day reading performance. Only choose ONE of these sentences.
- Make a cross (X) in the appropriate block opposite each of the seven reasons below sentence (a) or (b). Each block is designated a name which indicates the degree to which you think the reasons are true/false or somewhere in between.

(a) This pupil reads well because:

<table>
<thead>
<tr>
<th>Reason</th>
<th>FALSE</th>
<th>MOSTLY FALSE</th>
<th>SOMETIMES FALSE/TRUE</th>
<th>MOSTLY TRUE</th>
<th>TRUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>s/he is clever</td>
<td></td>
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<tr>
<td>s/he tries hard</td>
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<tr>
<td>s/he is lucky</td>
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<tr>
<td>his/her teacher helps him/her with reading</td>
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<td></td>
</tr>
<tr>
<td>s/he reads many library books</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>s/he finds reading easy</td>
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<tr>
<td>his/her parents help with reading at home</td>
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</tbody>
</table>
(b) This pupil reads badly because:

<table>
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<th></th>
<th>FALSE</th>
<th>MOSTLY FALSE</th>
<th>SOMETIMES FALSE/TRUE</th>
<th>MOSTLY TRUE</th>
<th>TRUE</th>
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</thead>
<tbody>
<tr>
<td>- s/he is not clever</td>
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<tr>
<td>- s/he does not try</td>
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<tr>
<td>hard</td>
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<td></td>
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<tr>
<td>- s/he is unlucky</td>
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<tr>
<td>- his/her teacher did</td>
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<tr>
<td>not help him/her</td>
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<tr>
<td>with reading</td>
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<tr>
<td>- s/he reads few</td>
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<tr>
<td>library books</td>
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<tr>
<td>- s/she finds reading</td>
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<td>difficult</td>
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<td>- his/her parents do</td>
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<tr>
<td>not help with</td>
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<tr>
<td>reading at home</td>
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Thank you for your time in completing this survey.
APPENDIX C

READING ATTRIBUTIONAL SURVEY

(PARENT)

Name ___________________________ Boy/Girl (circle)

Standard _____ Age (years) _______ Teacher ___________________

INSTRUCTIONS

This is a chance to look at your child and his/her teacher. There are no right or wrong answers. Your answers will be kept strictly confidential.

This survey consists of two sentences that refer to the way your child is reading at present. One sentence (a) states that your child reads well, and the other sentence (b) states that your child reads badly. Look at these sentences on the next two pages to help you understand these instructions.

Each sentence is followed by seven reasons that may have something to do with why you think your child reads well or badly.
Kindly complete this Reading Attributional Survey about your child by doing the following:

- Choose sentence (a) OR sentence (b) based on your opinion of whether your child reads well or badly. Only choose ONE sentence.

- Make a cross (X) in the appropriate block opposite each of the seven reasons below sentence (a) or (b). Each block indicates to what extent you think these reasons are true or false or somewhere in between. Please give your honest opinion.

(a) My child reads well because:

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(b) My child reads badly because:

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<tbody>
<tr>
<td>- s(he) reads few library books</td>
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<tr>
<td>- s(he) finds reading difficult</td>
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<td>- his/her parents do not help with reading at home</td>
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<td>- s(he) is not clever</td>
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<td></td>
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<tr>
<td>- s(he) is unlucky</td>
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<tr>
<td>- s(he) does not try hard at reading</td>
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Thank you for your time in this worthwhile matter.