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**Children's Expectancies and Teachers' Attributions
for Academic Achievement
in Some English Junior Schools**

by

MARIA APOSTOLOU, M.A.

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Thesis submitted to the School of Education
in the University of Durham for the Degree of Doctor of Philosophy

January 1985



-8. OCT. 1986

Men are not worried by
things,
but by their ideas about
things.

When we meet with
difficulties, become
anxious or troubled
let us not blame
others, but rather
ourselves, that is:
our ideas about things.

Epictetus

He who
submits to fate
without
complaint
is
wise.

Euripides

TO MY PARENTS
WITH RESPECT

A B S T R A C T

The Intellectual Achievement Responsibility (IAR) questionnaire was administered to 1292 English school pupils aged 9.8 to 12.5 years.

The 51 teachers of those pupils were asked, first, to assess their pupils' degree of acceptance of responsibility for school successes and failures, and secondly, to what they attributed the strength of educational motivation of each pupil.

A questionnaire was then given to 57 trainee-teachers to find what they would say to children who had failed to do some work successfully for (as the trainees thought) various different reasons.

The teachers proved poor judges of acceptance of responsibility in their pupils.

Also, they never referred to this as a factor influencing motivation. Teachers concentrated on influences not amenable to change.

When trainees were induced to attribute pupil failure to unchangeable influences, they would make comments to pupils that were less helpful and motivating than otherwise.

A C K N O W L E D G E M E N T S

This research project would have never been completed without the help and cooperation of several persons; to all of them I am gratefully thankful.

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Remember
that you are
only an
actor
in a play,
which the
manager
directs.

Epictetus

Everywhere man blames
nature and fate,
yet his fate is
mostly but the
echo of his character and
passions,
his mistakes and
weaknesses.

Democretus

INTRODUCTION

Some persons are confident that they control themselves and their destinies. They tend to be surer of themselves, richer and better educated, and to be more readily able to quit smoking, they are internals. Other persons feel that their fates are in the hands of powerful others, that they are pawns, and they tend to be docile and suspicious. They cry a lot. They are externals. (Rotter, 1971:37)

The fundamental concept the present study is concerned with is called 'Internal-External locus of control of Reinforcement', sometimes referred to as 'Locus of control'.

It is a term introduced by Julian Rotter in 1966 and it constitutes one of the major concepts of his Social Learning Theory of Personality.

Rotter regards the concept of perceived Internal-External locus of control of reinforcement as an important example of a problem-solving generalised expectancy. The generalised expectancy for internal locus of control of reinforcement refers to the belief that events, whether positive or negative, are a consequence of one's own behaviour, skills, actions or personal effort, and, thereby, potentially under personal control, while the generalised expectancy for external locus of control of reinforcement refers to the belief



of positive or negative events as being unrelated to one's own behaviour, as under the control of powerful others, luck, chance, fate, God, etc., and, thereby, beyond personal control.

In 1966 Rotter published his scale for the measurement of Internal-External locus of control of reinforcement beliefs. Since then the amount of attention researchers have given to the Internal-External locus of control of reinforcement concept is of astonishing proportions, and a great deal of research on the locus of control concept has appeared in the form of books, articles, masters' theses and doctoral dissertations.

Throop and MacDonald (1971), in an attempt to include at least all major articles that have appeared until 1969, have reported 339, while Rotter has said:

At this time, there are well over 1000 published papers having to do with individual differences in internal versus external control of reinforcement. And no one knows how many theses, dissertations or unpublished studies have been done. (Rotter, 1979:263)

Several reviews and analyses of the concept have been published (Rotter, 1966; Lefcourt, 1966; Joe, 1971; Phares, 1973; Strickland, 1977), and books with the theoretical background and general literature related to the Internal-External locus of control of reinforcement concept have been written (Rotter, Chance and Phares, 1972; Lefcourt, 1976; Phares, 1976). Quite recently, Lefcourt (1981) has published a book concerned with the various assessment methods of Internal-External locus of control beliefs. Furthermore, there are now over a dozen tests for the measurement of Internal-External locus of control beliefs.

Rotter has commented upon the popularity of the Internal-External locus of control of reinforcement research:

This research began before the Vietnam war, the student revolution, the black riots, the political scandals of Watergate, and the assassinations. Although no one could have predicted in advance the popularity of the I-E concept, postdiction is something else. These national disturbances have had far-reaching repercussions in our culture, social institutions, and in the everyday life of individuals. Certainly, these events have brought home to many both their inability to control events and the lack of predictability of events that are important in their lives. Perhaps less dramatic has been the ever-increasing complexity of life and the great increase in dependency on technical devices such as computers. Finally, the continuous increase in population and the constant increase in government control of individuals' lives in order to cope with the attendant problems has affected everyone's life. What all these forces add up to is that for many people, their lack of control over life events has been brought to conscious realization. Sociologists have dealt with the same concept for some time as alienation. In retrospect, it is not difficult to understand why psychologists have become so interested in problems of personal control. The interests and concerns of social scientists often reflect what is happening out there in the real world. (Rotter, 1979:263-264)

Despite the tremendous amount of research carried out in the United States of America, to the researcher's knowledge, based on a thorough examination of the research literature, quite surprisingly, this is the first time a study about the Internal-External locus of control of reinforcement concept is conducted with an English sample, primary school children for that matter.

This unusual lack of research in Britain may be due to the fact that the Internal-External locus of control of reinforcement concept is a relatively new psychological concept whose birth-place has been the United States, and all the adults' and children's instruments used to measure this personality dimension have been originated and developed in America.

Our interest in the study of the Internal-External locus of control of reinforcement concept has been provoked, to a certain

extent, by the bearing this concept has upon the study of Education.

As we will discuss later, beliefs about the Internal-External locus of control of reinforcement can make a difference to educational success. And there is research evidence, which will be mentioned later, suggesting that, among other variables, experiences in school can influence Internal-External locus of control orientation, since personal control orientation is considered by Social Learning Theory, from which it has emanated, an attitude rather than a drive, which does imply that it is learned, and, therefore, changeable and manipulable.

It is reasonable to assume that there is a link between Internal-External locus of control beliefs and academic achievement-related behaviours; common sense suggests that the perception of independence between one's own behaviours and outcomes should inhibit achievement striving. It appeals to common sense to suggest that children, who perceive a non-contingency between their behaviour and the positive or negative reinforcements they receive in school, do see little, if any, benefit in getting involved with any kind of educational activity, and in exerting any effort in an attempt to increase the probability of achieving success and avoiding failure.

On the other hand, children who expect their behaviour to determine outcomes will, most likely, exhibit more initiative and persistence in seeking achievement goals, and, as a result, they will acquire more information, concepts, facts, and appropriate problem-solving skills which ultimately will, in all probability, lead to greater academic achievement.

Nevertheless, we have to stress here, in passing, an important

point, which we will discuss in the next chapter in a more detailed way. The belief that one's own positive and negative reinforcements are determined by, and are due to, one's own behaviour and personal effort does not necessarily mean that one will seek the attainment of those reinforcements. Another, equally crucial, factor in determining one's own behaviour is the value attached to the reinforcement. So, a student may actually have an expectancy for internal control of reinforcement in the intellectual-academic achievement area, but still be unwilling to get involved in any type of educational activity simply because s/he does not value the expected reinforcement.

In conducting this research project, one of our aims was to find out the level of the pupils' internal-external locus of control of reinforcement beliefs with reference to their school successes and failures. Were the children of the present sample expecting to be in control of their successes and failures in school or they tended to expect agents outside themselves to exert that control? And if such a tendency was evident, was it more characteristic of boys or girls? Did the age of the children make a difference in their Internal-External locus of control of reinforcement beliefs? Did the sex of the classroom teacher contribute to any differences in the children's beliefs about the locus of control of reinforcement? These were some of the questions we tried to answer in the present research project.

In addition, we tried to find out whether the classroom teachers were aware of their pupils' locus of control of reinforcement beliefs. Were the teachers in a position to distinguish, reasonably well, between different levels of their

pupils' Internal-External locus of control of reinforcement beliefs? This was another question the present research project tried to give an answer to. If the teachers are able to make this distinction they might be able to help their pupils, through the creation of appropriate school experiences, to overcome locus of control beliefs which impede their school performance.

Teachers' awareness of the Internal-External locus of control of reinforcement concept was also tested through the attributions they were asked to make for the strength of their pupils' educational motivation. Did the teachers, among the several attributions they made for their pupils' strength of motivation, refer to the pupils' Internal-External locus of control of reinforcement beliefs? We examined this question, alongside with what were the other attributions teachers made.

The different attributions teachers made served as a cue to examine the nature of the comments they make to their pupils in failure situations. What is the nature of the teachers' comments to their pupils in failure situations when the teachers are induced to attribute that failure to factors which are relatively beyond the teachers' power to influence, and what is the nature of their comments when they are induced to attribute pupils' failure to factors which are more amenable to change from the teachers' point of view? This was another question the present research project addressed itself to. If the nature of the teachers' comments to their pupils after failure differed as a result of attributing pupils' failure to different factors, it would be an indication that teachers' attributions for pupils' failure are not only of theoretical importance but of practical significance as well, since

they lead the teachers to make different comments, which may influence, in a positive or negative way, the pupils' expectancies for future success on similar tasks and their subsequent persistence behaviour on achievement-related tasks. The nature of the teachers' comments might reveal inadequacies in the ways they react to pupils' failure which would necessitate certain changes in their training.

The present research project has been divided into the following chapters.

Chapter 1 is concerned with the major assumptions and basic concepts of Rotter's Social Learning Theory of Personality, since the concept of Internal-External locus of control of reinforcement is an outgrowth of that theory. How the concept of Internal-External locus of control of reinforcement fits into Rotter's Social Learning Theory of Personality is discussed. Also, we refer to issues related to the assessment of Internal-External locus of control beliefs.

Chapter 2 is dealing with the effects and incidence of Internal-External locus of control of reinforcement beliefs. Reference is made to research which examines the relationship that exists between the variable of Internal-External locus of control of reinforcement and several other variables. Special attention is given to research which examines the relationship which exists between Internal-External locus of control of reinforcement beliefs and achievement-related behaviours, and, also, to the sex and age differences in Internal-External locus of control of reinforcement beliefs. Research referring to the effects race, ethnicity and social class variables have on Internal-External locus of control beliefs is also mentioned.

Chapter 3 is concerned with antecedents and changes of Internal-External locus of control of reinforcement beliefs. The effects social discrimination, disability, parental child-rearing practices, classroom teacher and different educational experiences may have on the development of Internal-External locus of control beliefs are discussed. The chapter is also concerned with changes of Internal-External locus of control of reinforcement beliefs. Research which has been done in educational settings is presented.

Chapter 4 gives an overview of the empirical work of the present research project. The questions we have tried to answer are presented in that chapter.

Chapter 5 is concerned with the schools' study of pupils and their teachers. The questionnaire administered to the pupils and the questions asked to their teachers are presented, together with what were our findings with reference to the six following issues:

The frequencies of the pupils' internal and external responses to the I+ (success) and I- (failure) subscales and I total (success and failure combined) scale of the IAR questionnaire, and the overall mean I+ (success) and I- (failure) subscores and I total (success and failure combined) score given by the pupils of the present sample. The correlation between the subscores given by the pupils to the two subscales, I+ (success), I- (failure), of the IAR questionnaire.

Age differences in Internal-External locus of control of reinforcement beliefs.

Sex differences in Internal-External locus of control of reinforcement beliefs.

The interactive effect of teachers' sex and pupils' sex on the

pupils' Internal-External locus of control of reinforcement beliefs.

How accurate would teachers be in assessing their pupils' degree of acceptance of responsibility for school successes and failures.

Teachers' attributions for the strength of educational motivation of their pupils.

Chapter 6 is concerned with the training college study of trainee-teachers. The questionnaire administered to the trainee-teachers is presented, together with what were our findings with reference to the following question. What is the nature of the comments the trainee-teachers make to their pupils after they have failed in a given homework exercise when the trainee-teachers are induced to believe that pupils' failure is due to factors which are relatively beyond the teachers' power to influence and when the trainee-teachers are induced to believe that pupils' failure is caused by factors which are relatively within the teachers' power to influence.

Chapter 7 presents the conclusions of the present research project together with several implications resulting from those conclusions.

C H A P T E R 1

I. Rotter's Social Learning Theory of Personality

The concept of perceived locus of control of reinforcement is an outgrowth of Social Learning Theory of Personality, it is in this theory that it occupies a central place within a systematic formulation, and we can understand perceived locus of control of reinforcement only by examining the general framework of Social Learning Theory of Personality.

So, in order to have a clear picture of what is the Internal-External locus of control of reinforcement concept and of how it relates to other variables which have an influence on behaviour, we are going to refer to Social Learning Theory of Personality and to the main concepts of which it has been made up.

Social Learning Theory of Personality has been developed over the past 30 years by Julian Rotter (1954) in collaboration with his students and colleagues, notably Phares, James, Seeman, Crowne, Liverant and MacDonald, with a joint commitment to psychological research and to clinical practice, and, as it is now developed, it makes only limited use of many specific 'laws' of learning developed on subhuman species; it does seek to use psychological concepts in behaviour prediction, without recourse to physiological concepts.

It is called Social, because it stresses the fact that the major or basic modes of behaving are learned in social situations and are inextricably connected with needs requiring for their satisfaction the mediation of other persons.

It is a theory which may be regarded as an attempt to integrate two diverse, but significant, trends in Psychology; that is, the 'S-R' or 'reinforcement' theories, on the one hand, and the 'cognitive' or 'Field' theories, on the other, while Rotter himself does admit that some of the major principles of Social Learning Theory of Personality are either the common property of many present writers or go back to antiquity.

1. The major assumptions of Social Learning Theory of Personality

The major assumptions of Social Learning Theory of Personality are the following:

The unit of investigation for the study of personality is the interaction of the individual and his meaningful environment. (Rotter, 1954:85)

This principle may be regarded as the basic postulate of a 'Field Theory' which emphasises the individual person interacting with, or reacting to, the environment that has meaning for her/him.

Social Learning Theory of Personality argues that in order to deal accurately with behaviour, and be able to make valid and useful behaviour predictions, one must not only rely upon traits, needs and habits, but, also, examine situational parameters and describe adequately the situation in which an individual finds her/himself. Both personal, general determinants, and specific, environmental determinants of behaviour must be considered.

For many years, some personality theorists supported the view that human behaviour is, to a very large extent, determined by broad, general traits and dispositions which tend to out-weigh situational variables. But, supposing this assumption was right, how could someone explain apparent behaviour inconsistencies across situations? How could someone account for quite dissimilar behaviours often emitted by the same person? Personality theorists were forced to take into account both dispositional elements and specific situational determinants in order to explain, understand and predict human behaviour; each one of these two variables makes a relative contribution to the display of human behaviour.

The term 'meaningful environment', as it is used by Social Learning Theory of Personality, refers to the acquired significance or meaning the environment has to a particular individual. It indicates that individuals respond subjectively to their environment on the basis of their specific learning history or experience. The 'meaningful world' must be differentiated from the real or objective world; the objective properties of the stimuli are important, but not enough; we must consider how people interpret them.

In this way personality and situation are integrated. Thus, this theory bypasses the debate (Mischel, 1968) about the relative importance of situation and personality.

Another assumption of Social Learning Theory of Personality is that:

The study of personality is the study of learned behavior. Learned behavior is behavior that is modifiable, that changes with experience. (Rotter, 1954:86)

The view-point supported by Social Learning Theory of Personality that the major portion of human social behaviour is learned behaviour, that is, attitudes, values, expectations and so forth, and, therefore, can be modified, does not deny the possibility that there may be meaningful manifestations of human behaviour which cannot be described from a learning point of view.

What Social Learning Theory adheres to is the belief that the best and most useful way to approach human social behaviour is a learning one and not one dealing with instincts, hormones, blood pressure or other physiological conditions.

The area of human behaviour which one chooses to deal with determines, to a great extent, what kind of concepts will be useful; in the realm of human social behaviour, with its social focus, the employment of such concepts as learned attitudes, values and expectations seems to be more useful than unlearned, biological determinants.

Social Learning Theory of Personality argues that personality has unity. A person's experiences, or her/his interactions with her/his meaningful environment, influence each other. According to Rotter:

New experiences are a partial function of acquired meanings, and old acquired meanings or learnings are changed by new experience. Perfect prediction of acquired behavior would ideally require a complete knowledge of previous experience. (Rotter, 1954:94)

Perhaps there is no other single principle in the Personality Theory as widely accepted as the principle proposing the unity of personality. Individuals' experiences, that is, their interactions with their meaningful environment, though varied, are interrelated, and accumulated knowledge from previous experiences affects and colours any new experience. In Social Learning Theory of Personality the individual and her/his experiences, or the results of her/his experiences, seem to be mutually influencing one another.

As the person grows older, s/he tends to select new experiences and interpretations of reality on the basis of previous experiences and conceptualisations, and so her/his personality becomes increasingly more stable.

However, Social Learning Theory of Personality makes a warning against the danger of over-emphasising the notion of personality

stability and fixity and ignoring the possible impact of new experiences and situational factors in determining behaviour, even after development of behaviour is well along.

Personality and behaviour may take on increasing consistency as the individual grows older, but, nevertheless, the interaction of the organism with its meaningful environment continues, and change is still possible through proper selection of new learning experiences.

According to Social Learning Theory of Personality we cannot understand or explain present human behaviour without investigating the conditions previous to its appearance.

Investigation of personality requires the study of experience or sequences of events. Its method is historical, for an analysis of any behavior involves the investigation of the conditions preceding its appearance. (Rotter, 1954:87)

And again:

One cannot truly speak of the 'cause' or 'etiology' of behavior as described by personality constructs but only of the conditions, present and antecedent, necessary for the occurrence of the behavior. Such descriptions are never 'ultimate' or 'final'. (Rotter, 1954:96)

Social Learning Theory of Personality is not adopting terms like 'cause', 'etiology', or 'single etiological factor', which, very often, imply something final or basic, because it believes that there may be many different explanations for a single piece of behaviour. It argues that, in order to explain the occurrence of a particular behaviour, we have to describe and specify relevant past and present conditions.

The determination of what are the relevant experiences and antecedent conditions and events one has to study in order to make

useful behaviour predictions or understand behaviour manifestations, and how thoroughly they must be studied, must be relied upon one's degree of predictive purposes and predictive accuracy and it is an empirical problem.

Social Learning Theory supports the criticism made to orthodox Psychoanalysis of carrying the investigation of past experiences beyond useful limits in order to change behaviour, instead of making only a sampling of past events in order to construct the present personality.

According to Social Learning Theory of Personality human behaviour has a purposeful quality; it is goal-directed, in the sense that people strive to attain or to avoid certain aspects of their environment. This principle is common to many different personality theories.

In Rotter's words:

Behavior as described by personality constructs has a directional aspect. It may be said to be goal-directed. The directional aspect of behavior is inferred from the effect of reinforcing conditions. (Rotter, 1954:97)

But reinforcement alone does not explain human behaviour adequately. In order to act an individual must expect that her/his behaviour will lead to the reinforcements s/he values. Expectancies are regarded by Social Learning Theory of Personality as prime determinants of behaviour. In Rotter's words:

The occurrence of a behavior of a person is determined not only by the nature or importance of goals or

reinforcements but also by the person's anticipation or expectancy that these goals will occur. Such expectations are determined by previous experience and can be quantified. (Rotter, 1954:102-103)

Expectancies are regarded by Social Learning Theory of Personality as learned and as depending upon previous experiences with certain behaviours and their outcomes; and just because expectancies are learned, they can be modified and change with the introduction of new experiences that alter previous patterns of success and failure.

2. Basic concepts of Social Learning Theory of Personality

Phares has said that:

Social Learning Theory of Personality is a theory of how choices are made by individuals from the variety of potential behaviours which are available to them.
(Phares, 1976:13)

It argues that, in order to be able to predict and determine which behaviour is most likely to be chosen by an individual from a repertoire of potential behaviours, we have to take into consideration three main variables; that is, expectancy, reinforcement value and the psychological situation. These three variables, together with the concept of behaviour potential, are the main four concepts of Social Learning Theory of Personality.

According to Social Learning Theory of Personality, the general formula for behaviour prediction and determination, in its most basic form, is:

$$BP_{x,s_l,Ra} = f(Ex, Ra, s_l \text{ and } RV_a)$$

which is read:

The potential for behavior x to occur in situation l in relation to reinforcement a is a function of the expectancy of the occurrence of reinforcement a following behavior x in situation l and the value of reinforcement a . (Rotter, 1954:108)

The utility of the above written formula is obviously limited since it deals only with the potential occurrence of a single behaviour in a specific situation in relation to a single reinforcement. But description at the level of personality constructs usually demands a broader, more generalised concept of

behaviour.

If we wanted to calculate the potential of the occurrence of behaviour x in situation 1 , we would have to combine a set of such behaviour potentials, each determined for a specific reinforcement.

The following formula expresses that behaviour potential:

$$BP_{x,s_1,R(a-n)} = f [E_{x,s_1,R(a-n)} \text{ and } RV(a-n)]$$

This formula says:

The potential of behavior x 's occurring in situation 1 in regard to all potential reinforcements for which the individual has expectancies is a function of the expectancies of the occurrences of these reinforcements (a to n) in situation 1 and the values of these reinforcements. (Rotter, 1954:109).

If we wanted to broaden our prediction to include a variety or group of situations, we would add to the formula additional situations and the formula would read as follows:

$$BP_{x,s(1-n),R(a-n)} = f [E_{x,s(1-n),R(a-n)}, \text{ and } RV(a-n)]$$

This reads as:

The potentiality of behavior x 's occurring in relationship to the reinforcements a to n in situations 1 to n is a function of the expectancies of these reinforcements' occurring in these situations and the values of these reinforcements. (Rotter, 1954:109)

If we wanted to broaden our prediction more, so that to include, instead of a single behaviour, a group of functionally related behaviours ($x-n$), which would be used to obtain one of a set of functionally related reinforcements ($a-n$), we would have the following formula:

$$BP_{(x-n),s(1-n),R(a-n)} = f [E_{(x-n),s(1-n),R(a-n)} \text{ and } RV(a-n)]$$

In this case:

The potentiality of the functionally related behaviors x to n to occur in the specified situations 1 to n in relation to potential reinforcements a to n is a function of the expectancies of these behaviors leading to these reinforcements in these situations and the values of these reinforcements. (Rotter, 1954:110)

Rotter has defined in the following way the concept of Behaviour Potential(BP):

Behavior potential may be defined as the potentiality of any behavior's occurring in any given situation or situations as calculated in relation to any single reinforcement or set of reinforcements. (Rotter, 1954:105)

Behaviour potential (BP) refers to the likelihood of occurrence of a behaviour or the relative strength to respond in a certain way.

The behaviour potential concept specifies Social Learning Theory of Personality as one concerned with the prediction of behavioural choices; that is, given any set of alternative behaviours, the behaviour with the highest potential would be the one which would actually occur.

Measurement of behaviour potential can be direct or indirect; direct measurement is the determination of the presence, or absence, or frequency of the behaviour, while behaviour potential may also be determined indirectly by the mathematical combination of expectancy and reinforcement value. For example, we could say that, when expectancy and reinforcement value are both high, behaviour potential is greater than when they are both moderate or both low; that, when expectancy is high and reinforcement value moderate, behaviour potential is higher than when both are moderate, and so on. At the moment, only gross behaviour predictions can be made on the basis of this mathematical combination, which is characterised by a 'more or less' quality, until its exact nature has been well established.

Because the potentiality for the occurrence of any behaviour has to be determined from its actual occurrence in any situation where other known alternatives are present, the concept of behaviour potential is a relative one, since in any given situation, the behaviour potential may be characterised as being stronger or weaker than some other known behaviour potential alternatives.

In Social Learning Theory of Personality the concept of behaviour is a broad one and it includes any action of the organism that involves a response to a meaningful stimulus. Rotter uses a broad concept of behaviour which covers any action of the organism that can be observed or measured directly or indirectly; his definition of behaviour includes emotional or implicit behaviours since he does not feel these behaviours require any special laws to govern their occurrence. Behaviour may be a response which can be directly observed (e.g. smiling, running), or it may be a cognitive activity (e.g. considering alternatives, planning) which can be inferred indirectly from the behaviour it produces; the principles which govern the occurrence of both types are considered to be the same.

How does Social Learning Theory of Personality define reinforcement? Learning theories current in the literature of Psychology disagree as to the extent to which the concept of reinforcement can be used in the prediction of behaviour and learning. Two major theories which illustrate differences in this dimension are those of Hull and Tolman. Hull (1943) conceptualised reinforcement, in the form of drive reduction, as a necessary and sufficient condition for all learning. Tolman (1932), on the other

hand, conceptualised reinforcement as being unnecessary for learning and as having an effect only upon performance variables. Instead of reinforcement, as a central concept, Tolman has emphasised the role of cognitive processes, expectancies or perceptions as the important determinant of behaviour. Although both points of view have some empirical evidence relating to and supporting their predictive value as theoretical constructs, they have usually been perceived as mutually exclusive and supporters of either view have engaged in a great deal of reciprocal criticism. But the concepts supported in the theories of Hull and Tolman persisted and survived through time and this may be considered as an indication of some degree of utility in both of them.

Lewin (1935) made preliminary attempts to logically combine and integrate these two concepts, expectancy and reinforcement, in a comprehensive theory of behaviour. He did not only emphasise the role of subjective expectancies or hypotheses as determinants of behaviour, but he, also, attached considerable importance to the properties of potential reinforcement of external goal objects as important determinants of behaviour.

The first systematic attempt to combine the concepts of expectancy and reinforcement can be seen in Rotter's Social Learning Theory of Personality. The restrictive definition of reinforcement as anything that leads to drive reduction seems to be appropriate when one is dealing with simple organisms or behaviours; with human social behaviour this definition is insufficient and does not seem to work. For example, how can someone explain the enduring nature of some persistent needs, such as affection and sex desire, even after they have been reinforced?

To define reinforcement in such cases and explain the fixation and repetition of behaviour patterns, Social Learning Theory of Personality utilizes an empirical law of effect, an empirical definition of reinforcement which is independent of assumptions about physiological drive reduction. It considers reinforcement not as anything that leads to drive reduction, but as any action, condition or state that affects movement toward a goal. Reinforcement is inferred on the basis of conditions which affect movement toward goals; it is anything that has an effect on the occurrence, direction or kind of behaviour. Conditions which produce approach behaviours are defined as positive reinforcements; while conditions which produce avoidant behaviour are defined as negative reinforcements.

The negative and positive reinforcements can be determined by observing the 'direction' of behaviour. An event or stimulus is identified as a positive reinforcement if the person's behaviour is directed toward the achievement of a goal; reinforcements which facilitate movement toward a goal, which produce approach behaviours, would be positive. On the other hand, when individuals seek to avoid something, it is inferred that the goal is a negative one; reinforcement which inhibits or frustrates movement toward a goal would be negative.

Reinforcement value (RV) refers to the degree of preference for the reinforcements which are contingently related to behaviour.

Rotter stated:

The reinforcement value of any external reinforcement may be ideally defined as the degree of preference for any reinforcement to occur if the possibilities of their

occurring were all equal. (Rotter, 1954:107)

The value of a reinforcement is determined by the value of those reinforcements it has been paired with, or has led to, or is perceived as leading to, from previous experience.

Like behaviour potential, reinforcement value is a relative term since it would have to be calculated in a choice situation, and any obtained value of reinforcement would be relative only to that of other known alternative anticipated reinforcements.

We can measure reinforcement value in a choice situation where the individual is given the opportunity to show her/his preference toward one reinforcement as compared to other known alternative reinforcements; reinforcement value must be measured with expectancy held constant for the alternatives present.

Expectancy (E) refers to the subjective probability held by an individual that a specific behaviour on her/his part will lead to the occurrence of certain events or reinforcements.

In Rotter's words:

Expectancy may be defined as the probability held by the individual that a particular reinforcement will occur as a function of a specific behavior on his part in a specific situation or situations. Expectancy is independent of the value or importance of the reinforcement. (Rotter, 1954:107)

Generally, expectancy is considered to be independent of the value of the reinforcement, e.g. even if we value much academic achievement, the expectancy of success in such a field is not always present; nevertheless, in specific conditions, a learned relationship exists between them. Phares (1976), referring to the

Western culture, says that people, in their majority, learn that highly valued achievement goals are difficult to attain, yet nothing demands that valued goals automatically create a low expectancy of occurrence.

Expectancy refers to the belief for behaviour-reinforcement sequences and it can be changed with new experience; in contrast to behaviour potential and reinforcement value which imply preference and, consequently, relativity, expectancy is measured on an absolute scale.

In order to estimate an expectancy more accurately, one must take into consideration a variety of conditions which may influence an individual's expectancy; factors such as uniqueness of events, ambiguous cues, number of past experiences, are some of the variables which may operate in specific instances to influence one's expectancy.

But expectancies and the value of the reinforcement are not enough for useful and meaningful behaviour prediction according to Social Learning Theory of Personality; the role of the psychological situation is heavily stressed, since the specific relationship between expectancy and reinforcement value holds only for a given specified situation.

Furthermore, one of the basic, already mentioned, assumptions of Social Learning Theory of Personality is that 'the unit of investigation for the study of personality is the interaction of the individual and his meaningful environment', (Rotter, 1954:85); by meaningful environment is meant the psychological situation in which the individual finds her/himself and which is described by

Social Learning Theory of Personality as that which is experienced by the individual with the meaning the individual gives to it.

It has been long recognised by the psychologists and the laymen that the behaviour of a normal individual is, to a large extent, determined by the situation s/he finds her/himself in, and that her/his behaviour is characteristically different in different situations.

But how does the concept of the situation specifically come into the basic formula for behaviour prediction used by Social Learning Theory of Personality? Rotter said:

The individual's expectancy that a given behavior will be followed by a given reinforcement is dependent upon how he characterises the situation. (Rotter, 1954:203-204)

Perhaps one of the greatest weaknesses of current psychological theories and practices has been their failure to deal analytically with the situations or contexts in which humans behave. Social Learning Theory's view about the psychological situation is in sharp contrast to those positions which adopt a 'core' approach to personality and assert that, once the basic elements of personality are identified, reliable behaviour prediction follows. Many theories are so preoccupied with identifying highly stable aspects of personality and with regarding that the major determinants of human behaviour reside in broad, general traits, that they fail to make systematic use of the psychological situation in the prediction of behaviour.

Social Learning Theory of Personality argues that such an approach severely limits prediction by permitting only global statements about future behaviour which are limited to very low

level of predictive accuracy.

It is the belief of Social Learning Theory of Personality that, besides the individual's personal characteristics, the manner in which a person perceives a given situation will determine her/his expectancies about which behaviours are likely to have reasonable probability or the highest probabilities of leading to some reinforcement; but not only the situation determines what reinforcements are most likely to occur in a given situation for a given behaviour, but, also, the value of the reinforcements themselves are frequently different in different situations as they may be expected to lead to different further reinforcements.

We must bear in mind that Social Learning Theory of Personality does not argue over the supremacy of either dispositions or specific situational determinants; behaviour is determined by both, situational factors and dispositional elements. Each one of these two variables makes its relative contribution to the exhibition of a certain behaviour.

It may seem a complicated task to take into account expectancies, reinforcement value and the psychological situation in order to make predictions about behaviour. But, in view of the complexity of human behaviour itself, the somewhat complicated nature of Social Learning Theory of Personality appears preferable instead of relying on a single variable such as traits, habits or other internal characteristics.

The formulas mentioned previously in this chapter, for the avoidance of verbal complexity, can be reduced to three broader concepts which are Need Potential (NP), Freedom of Movement (FM) and Need Value(NV); for convenience, these broader concepts may be

expressed in the following formula, which can be used for more general behaviour prediction:

$$NP = f(FM \text{ and } NV)$$

It says:

The potentiality of occurrence of a set of behaviors that lead to the satisfaction of some need (need potential) is a function of the expectancies that these behaviors will lead to these reinforcements (freedom of movement) and the strength or value of these reinforcements (need value). (Rotter, 1954:110)

Otherwise stated, the potentiality of occurrence of a set of functionally similar behaviours (NP) in relation to a set of similar reinforcements, is a function of the mean expectancy (FM) for these behaviours actually leading to these reinforcements and the mean value (NV) of the set of reinforcements.

The process of socialisation and experience are such that various specific behaviours become functionally related as a consequence of their substitutability in leading to classes of similar goals or reinforcements; to the extent that several behaviours are seen by an individual as leading to the same or similar reinforcements, those behaviours are functionally equivalent.

In Rotter's words:

The mean potentiality of a group of functionally related behaviors' occurring in any segment of the individual's lifetime is described by the concept of need potential. Such behaviors would be functionally related in that they lead to (or are directed toward) the accomplishment of the same (or similar) reinforcements . (Rotter, 1954:184)

Need potential is a more generalised behaviour concept; it is

the broader analogue of behaviour potential. We can say that it is a set of functionally related behaviour potentials which are established through learning because of the functional relatedness of the reinforcements with which they have been associated.

As various behaviours become functionally related, because they are seen by the individual as leading to the same or similar reinforcements, in the same way, various specific reinforcements become functionally related as a consequence of their interchangeability in reinforcing certain behaviours.

While Need Potential is a matter of selecting one group of behaviours that lead to one of a given set of reinforcements over another group of behaviours which lead to a different set of reinforcements, Need Value indicates preference for one set of functionally related reinforcements over another set.

Need Value has been defined by Rotter as 'the mean preference value of a set of functionally related reinforcements'. (Rotter, 1954:189)

Freedom of Movement refers to the mean expectancy of obtaining positive gratification which characterises a set of related behaviours.

Rotter has defined freedom of movement as:

the mean expectancy of obtaining positive satisfactions as a result of a set of related behaviors directed toward the accomplishment of a group of functionally related reinforcements. (Rotter, 1954:194)

An individual has a high freedom of movement in a given need

area when s/he feels that her/his behaviour will lead to the satisfaction of her/his goals; that is, when s/he has a high expectancy for attaining reinforcements which define a particular need area for her/him. On the other hand, when a person has a low expectancy for success as a result of the behavioural techniques s/he uses to obtain the reinforcements which constitute a particular need area, then this person has a low freedom of movement.

Freedom of movement deals with the expectancy for a variety of behaviours to lead to positive satisfaction, and in essence, is an expectancy for success resulting from man's ability to remember and reflect upon previous behaviour-outcome sequences; one's estimate of success in past related situations constitutes one's freedom of movement.

When a person, in seeking to satisfy a potential goal, behaves defensively in relation to that goal, that is, s/he resorts frequently to avoidant behaviour or to unreal and symbolic methods of satisfying her/his goal, such as fantasy, day-dreaming, rationalisation and so on, we can say that this person possesses low freedom of movement in that need area.

Defensive behaviour is the result of low expectancy for success in a highly valued area; the individual person does adopt such defensive ways of behaviour in cases where s/he values highly a need area for which s/he has low expectancy for success; that is a situation of conflict, and, in order to escape punishment and failure in an area of great importance to her/him, s/he employs these defensive behaviours which do not run the risk of causing failure or punishment. Most behaviours regarded as psychopathological are avoidant or unreal behaviours. But someone

must not confuse simple lack of interest with avoidant behaviour; we talk about the latter's existence only when we have established with certainty the fact that the individual does place a high value on the need in question.

Possible origins of low freedom of movement may be lack of knowledge necessary to attain desired goals; desire for certain goals which other people regard as undesirable and, as a result, the individual comes to anticipate punishment in the pursuit of these goals; faulty interpretations of past experiences in which the individual experienced failure or punishment and, as a consequence of those experiences, s/he tends to generalise erroneously from the past to the present and s/he may anticipate failure or punishment in all the experiences s/he encounters.

An example will illustrate more clearly the definition of the concepts of Need Potential, Freedom of Movement and Need Value.

The satisfaction of the need for academic recognition may be implemented by the employment of a set of behaviours such as studying, doing homework etc. (Need Potential). The need for academic recognition may be composed of many separate reinforcements, like praise, good grades, peer-group recognition, etc.; the mean value of those separate reinforcements is referred to as need value. Similarly, there is an expectancy for the occurrence of each of those individual reinforcements; the overall strength of those separate expectancies is called freedom of movement.

So, an individual is most likely to study and do her/his homework when her/his expectancies that these behaviours will lead to praise, good grades and peer-group recognition are high and when s/he values the above mentioned reinforcements.

Some investigators consider the concept of Internal-External locus of control of reinforcement as the central concept of Social Learning Theory of Personality, from which it has emerged. This assumption is wrong, and it is probably due to the fact that the increased understanding of that particular concept has given rise to a vast literature and made it possible to treat locus of control as an independent variable on its own right.

As we have already said, Social Learning Theory of Personality argues that in order to predict and determine which behaviour is most likely to be chosen by an individual from a repertoire of potential behaviours we have to take into consideration three main variables; that is, expectancy, reinforcement value and the psychological situation. Internal-External locus of control of reinforcement is considered as only one kind of expectancy.

3. Different kinds of expectancies

Expectancy has been defined by Rotter as the

probability held by the individual that a particular reinforcement will occur as a function of a specific behavior on his part in a specific situation or situations (Rotter, 1954:107)

and it is determined by the probability held by the individual that a specific reinforcement or group of reinforcements will occur based on previous experience in the same situation (specific expectancy) and by the probability held by the individual that a specific reinforcement or group of reinforcements will occur because it so happened in past related situations (generalised expectancy). In Rotter's words:

Expectancies in each situation are determined not only by specific experiences in that situation but also, to some varying extent, by experiences in other situations that the individual perceives as similar. (Rotter, 1975:57)

It is logical to assume that, in a relatively novel or unique situation, an individual's generalised expectancy from other related or similar situations will play a more important role in determining expectancy than will specific expectancy based upon prior experience in that situation. On the other hand, in a given situation in which an individual has had a lot of experience, specific expectancy will be the primary determinant of expectancy, while generalised expectancy will prove of little significance.

So, one of the determinants of the relative importance of generalised expectancy versus specific expectancy developed in the same situation is the amount of experience in the particular

specific situation. If we represent the frequency of previous experiences an individual has had in a given situation with the letter N, the above mentioned relationships can be expressed in the following formula:

$$Es_1 = f(E's_1 \text{ and } \frac{GE}{NS_1}), \text{ and we have:}$$

an expectancy (Es_1) as a function of the expectancy for a given reinforcement to occur resulting from previous experience in the same situation ($E's_1$) and as a function of expectancies generalized from other situations (GE) divided by some function of the number of experiences in the specific situation (NS_1). (Rotter, Chance and Phares, 1972:25)

Let us use an example to illustrate better what we have said previously. A student's expectancy that s/he will succeed in the first Psychology exam will be, to a large extent, determined by her/his experiences generalised from other past exam situations on related subjects. However, as the student gets on with her/his studies her/his expectancy of succeeding will be increasingly determined by her/his specific experiences in Psychology exams.

The generalised expectancies may be of many kinds and can be more or less inclusive; for example, generalised expectancies for academic success in Psychology may involve expectancies derived from all achievement situations, or just from achievement situations most similar to those being studied.

The consideration of generalised expectancies in terms of a probability for success that has been generalised from past related situations does imply that people categorise situations as being similar along a dimension of similarity of reinforcement. For example, pupils may categorise a present situation as being similar to one in the past in which being industrious has led to success or

approval.

Social Learning Theory of Personality proposes another kind of generalised expectancies which incorporates generalised expectancies that a given manner of categorising situations will prove useful.

This means that people categorise situations, involving different kinds of reinforcements, as similar when they perceive them as presenting similar problems to be solved; such a categorisation does help the individuals to cope better with the problems involved.

For example, very often an individual encounters the problem of whether to trust or not another person; interpersonal trust might be regarded as a problem-solving generalised expectancy that interpersonal problems can be solved by the technique of trusting other people.

The person who has failed in her/his attempt to achieve a certain goal might look for alternative solutions to her/his problem; this kind of behaviour is another example of problem-solving generalised expectancy that problems can be solved by the use of the technique of looking for alternative solutions.

Let us use any example to enlighten more what we have just said. Let us suppose that a male student has made his first date with a female colleague. Since it is the first time he is dating that particular girl, his expectancy that she will keep her word and meet him cannot be determined by his specific expectancy. His expectancy will be determined by his generalised expectancy for the attainment of his goal, which is based on previous experiences with dating other girls, and by his generalised expectancy about how this situation should be conceived from the point of view of problem-

solving. Whether women can be trusted for keeping their word is one way of looking at his problem. If the student has an average generalised expectancy for the attainment of his goal and he believes that women cannot be trusted, his expectancy for the attainment of his goal will be lower compared to that where he believes that women can be trusted.

The introduction of problem-solving generalised expectancies requires some change in the previously mentioned formula of expectancy, which now stands as:

$$Es_1 = f(E' \text{ and } \frac{GEr \text{ and } GEps_1 \text{ and } GEps_2 \dots \text{ and } GEps_n}{f(Ns_1)})$$

and it says that:

an expectancy in situation 1 is determined by the expectancy that a given reinforcement will occur based on previous experience in the same situation (E'), experiences generalised from other related situations (GEr), and a variety of problem-solving generalised expectancies (GEps₁.....GEps_n) divided by some function of the number of experiences the individual has had in the specific situation (Ns₁). (Phares, 1976:20)

It is possible that one or more problem-solving generalised expectancies might be involved in the prediction and determination of behaviour choices.

So, specific expectancies and two classes of generalised expectancies, in combination with the amount of experience in the particular specific situation, act to determine behaviour choice along with the value of the reinforcement and the psychological situation.

4. Internal-External Locus of control of reinforcement as a problem-solving generalised expectancy

We have said previously that one kind of generalised expectancies is the problem-solving generalised expectancies which take into consideration the nature of the situation itself; that is, situations are perceived as similar, regardless of the nature of the reinforcement they yield and which may vary, when the individual perceives them as presenting similar problems to be solved.

One problem people are faced with very often is whether or not they are in control of the positive or negative reinforcements which follow their actions; the problem of whether they can exert control over the occurrence of the reinforcements they receive or agents outside themselves exert that control.

The concept of perceived locus of control of reinforcement is an important example of a problem-solving generalised expectancy for internal as opposed to external locus of control of reinforcement. By internal-external locus of control of reinforcement we refer to an expectancy construct by means of which an individual categorises situations as being within or beyond the bounds of her/his personal control and responsibility.

From what has been said previously we understand that the problem-solving generalised expectancy for internal as opposed to external locus of control of reinforcement is only one variable in determining expectancy for some reinforcement to follow some behaviour in a given situation. And we must repeat that expectancy alone does not predict and determine behaviour choices; the value of the reinforcement and the psychological situation must be taken into

account as well.

Generation of interest in the concept of perceived locus of control of reinforcement began with problems encountered in Psychotherapy and in clinical practice, when it became apparent that, for some patients, reinforcement did not seem to have any implications for their future behaviour because it was considered by them as due to factors over which they thought they had not any kind of control.

In association to the effects of reinforcement on human behaviour, the assumption of Learning Theories was that, as an individual tries out various behaviours and witnesses their positive or negative outcomes, this would increase or decrease, respectively, both her/his expectancy that these and similar behaviours will be successful in the future and her/his willingness to repeat them.

But sometimes this is not the case. There are cases when reinforcement, either positive or negative, does not seem to have any implications for the future, as it does not enhance or reduce subsequent reinforcement-seeking behaviour by raising or lowering an individual's expectancy that the same or similar behaviour will lead to reinforcement again.

With animal learning and behaviour it would be safe to assume that reward and punishment act directly on behaviour and that the important factor is the strength and frequency of rewards and punishments. With human beings this is not enough. In their case it seems that what counts is not the simple registering and witnessing of success and failure experiences, but rather the interpretation of the cause of those experiences, which is related to individuals'

beliefs about how reinforcements are determined. In the case of human subjects the dimension of perception is added to the effect of reinforcement.

The effect of a reinforcement, following some behaviour on the part of an individual, depends upon the perception by the individual of the causal link between her/his behaviour and outcomes. It depends upon whether or not the person perceives a causal relationship between her/his own behaviour and the reinforcements s/he receives for that behaviour; upon whether the person believes that the rewards or punishments are produced by her/his behaviour and not by forces outside her/himself or independently of her/his own actions.

According to Rotter, no matter the experiences one has, if they are not perceived as the result of one's own actions, they are not effective in altering the ways in which one sees things and, consequently, functions. In Rotter's own words:

It follows as a general hypothesis that when the reinforcement is seen as not contingent upon the subject's own behavior that its occurrence will not increase an expectancy as much as when it is seen as contingent. Conversely, its nonoccurrence will not reduce an expectancy so much as when it is seen as contingent. It seems likely that, depending upon the individual's history of reinforcement, individuals would differ in the degree to which they attributed reinforcements to their own actions. (Rotter, 1966:261)

The concept of Internal-External locus of control of reinforcement has been based upon this need to revise the old concept of reinforcement and to refine our prediction of how reinforcements change expectancies.

Rotter has defined the Internal-External locus of control of

reinforcement concept in this way:

When a reinforcement is perceived by the subject as following some action of his own but not being entirely contingent upon his action, then, in our culture, it is typically perceived as the result of luck, chance, fate, as under the control of powerful others, or as unpredictable because of the great complexity of the forces surrounding him. When the event is interpreted in this way by an individual, we have labeled this a belief in external control. If the person perceives that the event is contingent upon his own behavior or his own relatively permanent characteristics, we have termed this a belief in internal control. (Rotter, 1966:261)

Lefcourt explains in reviewing the concept:

Internal control refers to the perception of positive and/or negative events as being a consequence of one's own actions and thereby under personal control; external control refers to the perception of positive and/or negative events as being unrelated to one's own behaviors in certain situations and therefore beyond personal control. (Lefcourt, 1966 :207)

Although the terms 'Internal' and 'External' do not appear in the Psychological or Educational literature until relatively recently, the question of a person's attitude toward the control of her/his fate has concerned mankind throughout the centuries.

Sophocles has said about 2,300 years ago:

But dreadful is the mysterious power of fate;
there is no deliverance from it by wealth
or by war, by fenced city, or dark, sea-beaten ships.

Shakespeare describes one view-point in 'Julius Caesar' when Cassius says:

Men at some time are masters of their fate;
The fault, dear Brutus, is not in our stars,
But in ourselves, that we are underlings.

Act I, Scene 2

Besides these early mentions of fate, theologians, philosophers and investigators in Psychology, Sociology and, in recent years, Education, have been concerned with man's ability to control actions and environment.

A variety of concepts have been used to describe this relationship, and the individual's need to control her/his environment has been well documented.

Angyal (1941) has noted the significance of the organism's motivation toward autonomy or the active mastery of the environment, and White (1956) has stated that competence, that is, an attempt to explore and master the environment, is characteristic of all species.

The concepts of competence and mastery denote a positive relationship between man and his ability to control actions and environment, while, on the other hand, the concepts of powerlessness and alienation indicate a negative association.

The concept of alienation, which has played an important role in Sociological theory for many years, does seem to be related to the concept of Internal-External locus of control of reinforcement, in the sense that the alienated individual feels unable to control her/his own destiny and s/he is at the mercy of forces too strong or too vague to control. Weber and Durkheim have placed great importance on this concept, and, more recently, Merton (1949) has stressed its importance in the study of asocial behaviour, while Marx has emphasised the consequences of extensive industrialisation in society by pointing out the increasing separation of the worker both from the product of her/his labours and from her/his peers.

This sociological view of alienation does focus on large social conditions without emphasising the role of the individual life history, including family dynamics or other learning conditions. A comprehensive account of alienation will have to consider both social and personality conditions, and Seeman (1959) was the person to link the concept of alienation, as it refers to powerlessness, to the Internal-External locus of control as a psychosocial variable, bridging thus the gap between Sociology and Psychology.

Alfred Adler (Ansbacher and Ansbacher, 1956) has theorised most extensively about man's need to develop mastery of the environment and to overcome helplessness. He created a universal basic motive called 'striving for superiority' which he considered as man's attempt to compensate for her/his innate inferiority and felt inadequacies. He argued that people discover, in one way or another, that they are inferior physically, psychically or socially, and seek to compensate for these weaknesses through learning and training; strivings for the development of power and influence are seen as outgrowths of feelings of inferiority, since to become powerful is to deny one's inadequacies by overcoming them.

All the above mentioned theorists, as well as Mowrer and Viek (1948) and Richter (1959) have emphasised instrumentality, the strength of contingency between acts and their effects. All felt that when man sees a situation as hopeless, s/he, in effect, becomes hopeless.

The personality concept called Internal-External locus of control of reinforcement is based upon the theoretical foundations previously mentioned and is related to those concepts, but it adds the dimension of perception; it is the degree of personal control

one perceives as having over her/his environment.

The effect of perceived Internal-External locus of control of reinforcement as a problem-solving generalised expectancy in determining an individual's expectancy for the success of her/his behaviour is particularly evident in those ambiguous situations which are not highly structured and which permit various conceptualisations and interpretations by the individual. Ambiguity of the situation and the lack of explicit situational cues present to the individual a situation in which s/he may be expected to react according to those perceptions and convictions most consistent with her/his personality functioning, that is, according to an internal or an external locus of control of reinforcement belief system. As Kelly (1967) has pointed out, there must be some degree of ambiguity in the evidence if there is to be room for personal interpretation in a situation.

Where the effect and importance of perceived locus of control of reinforcement as a problem-solving generalised expectancy is minimised is in highly structured situations which provide strong and explicit cues as to the contingency between behaviour and outcome. In such cases, no matter whether the individual is internally or externally orientated, s/he will behave in accordance to the way indicated by the presence of explicit situational cues. The very explicitness of the situation will overwhelm either the internal or the external orientation of the individual and will cause her/him to disregard it. Stated another way,

The presence of explicit environmental cues regarding the nature of the contingency between behavior and outcome should diminish the importance of generalised expectancy

for internal or external control. (Phares, 1973:5)

For example, regardless of whether an individual is external in her/his orientation, s/he will switch on the engine of a car in order to make it move. In the same sense, no matter how much internally orientated is an individual, s/he won't expect to solve a very difficult problem in mathematics if s/he does not have any kind of advanced mathematical knowledge.

The above notion has been supported in an experiment carried out by Phares, Wilson and Klyver (1971), who caused failure in their subjects in two different conditions, that is, a 'distraction' condition, in which the experimenters were talking audibly while the subjects were trying to work on an anagram task, and a 'non-distraction' condition, in which the subjects were working on the same task without being distracted in any way by the experimenters. When the experimenters asked the subjects to indicate the reasons for their failure, external subjects were more likely than internal subjects to attribute their failure in the 'non-distraction' condition to external factors, but blame assignment was similar between internal and external subjects in the 'distraction' condition. This happened because in the 'distraction' condition the external situational effect was so obvious that any differences in the subjects' locus of control orientation did not count for the attribution of blame for failure; on the other hand, the 'non-distraction' condition did not provide any obvious and clear reasons to the subjects which would compel them to assign blame for their failure to internal or external factors, and it left the subjects free to react according to their own locus of control orientation.

When we are talking about the Internal-External locus of control of reinforcement concept we must not think of it in terms of a typological concept or a bimodal distribution, but rather in terms of a continuum along which people can be ordered; a continuum that has at one extreme persons who feel they can control the occurrence of reinforcements through their own behaviour (internals) and at the other extreme those who feel that reinforcements occur independently of their own actions (externals). By this we mean that people are neither internally nor externally controlled, although, for the sake of convenience, usually we refer to 'internals' and 'externals'. It should be emphasised that a person may be described as being more or less internal than others, but to classify one as internal or external is a typological error. Phares has commented upon that:

While it is easy to use the terms internals and externals, it should be understood that I-E is not a typology. Rather, it is a continuum and a person can fall anywhere along that continuum from external at one end to internal at the other. Most people are clustered somewhere in the middle. Referring to internals and externals is merely a semantic convenience. (Phares, 1984:506)

The notion that it is wrong to think in terms of typology can be supported by the fact that, when Rotter first published his Internal-External locus of control scale for the measurement of internal-external locus of control beliefs, most studies used a median split to obtain groups characterised as 'internals' and 'externals'. But, although the mean at that time was a score of 8, since then it has risen to a score of 10 or 12, depending on the sample used. That means that, since the Rotter Internal-External scale is scored toward the external direction, if we were to use now median scores, subjects who were regarded in the early samples as

externals would now be regarded as internals, since the distribution of scores tends to be normal in early and in current samples.

5. Internal-External locus of control of reinforcement as a situation-specific expectancy

As we will see later in the chapter, at the present stage of the Internal-External locus of control research, it has been demonstrated that a problem-solving generalised expectancy regarding the nature of the causal relationship between one's own behaviour and its consequences can affect a variety of behavioural choices in a broad band of life situations, and the importance of the Internal-External locus of control of reinforcement concept in influencing a wide variety of behaviours has been well documented.

But besides being a rather general disposition that influences an individual's behaviour across a wide range of situations, Internal-External locus of control of reinforcement may be considered as a specific expectancy arising from a specific situation. For example, although an individual may perceive that s/he has very little control over her/his life, in general, nevertheless, there are certain specific situations where s/he perceives s/he can exert control.

The first general crude attempts to demonstrate that the behaviour of individuals, who believe that reinforcements occur independently of their own efforts or relatively permanent characteristics, will be different from the behaviour of individuals, who believe that there is a contingent relationship between their behaviour and subsequent outcomes, were studies using skill and chance instructions.

It was thought that, when a situation or task is such that the outcome is dependent solely on the skill of the performer, the

outcome will be seen by the performer as being under her/his personal control, whereas a situation in which the outcome is determined by chance will be seen as being beyond her/his personal control.

If differences in learning and performance were not able to be demonstrated in such highly structured situations, with great stimulus saliency, it was very unlikely that such behavioural differences would occur as a function of Internal-External differences in the personality level.

Also, the exhibition of different learning and performance in skill and chance situations would supply supportive evidence to the assumption of Social Learning Theory, mentioned earlier in the chapter, that situational factors are very important determinants in the definition of behaviour and sometimes can overshadow the influence of dispositional factors.

The first of these studies has been conducted by Phares (1957) and it involved a perceptual judgement task involving both colour and length matching; for both tasks a fixed order of partial reinforcement (right or wrong) was used. Phares, through the use of skill and chance instructions given to his subjects, found evidence to support the assumption that perceived Internal-External locus of control of reinforcement did matter to human behaviour. His findings suggested that, after success, increments in expectancy for future success experience, and, after failure, decrements in expectancy for future success experience were greater under skill than under chance conditions; measure of expectancy was the number of chips a subject would bet on her/his probability of being correct on the succeeding trial. He also found that the frequency of expectancy changes was

greater in the skill condition; and that there was a somewhat greater tendency to make 'unusual' shifts in expectancy in chance rather than in skill situations, which means that subjects under the chance instructions tended to increase their expectancy for future success after failure experience and decrease it after success.

Phares offered the following explanation for his findings:

The findings thus support the view that categorizing a situation as skill leads (the subject) to use the results of his past performance in formulating expectancies for future performances. In chance situations, on the other hand, past performance does not provide a basis for generalization to future trials since (the subject) is not the effective agent in obtaining reinforcements. (Phares, 1957:341)

And later on he stated:

...whenever an individual develops the expectancy that he does not control the occurrence of reinforcement, he finds it less useful to generalize from the past and cannot use successively increasing amounts of experience to develop better conceptions of what to expect in the future. Whether he is confronted with chance instructions, a task which he has learnt in the past is chance controlled, or a highly variable or unpatterned performance, the results seem the same. He learns a great deal less and this reduced learning seems directly attributable to the way expectancy is affected by a belief that he does not control the relationship between behavior and reinforcement in a given situation. (Phares, 1973:7)

James and Rotter (1958) examined the effects of perceived Internal-External locus of control of reinforcement on resistance to extinction of verbal expectancies for future success after learning trials which had been reinforced with 50% partial versus 100% reinforcement. Subjects performed an extrasensory perception (ESP) type task, and one group of subjects was instructed that success in guessing was a matter of ESP skill, while another group of subjects

was told that success in guessing was a matter of luck. Half of each group was given 50% partial reinforcement and the other half 100% reinforcement. The results revealed that the two groups were different with reference to subsequent extinction of verbal expectancies for future success; extinction was defined as stating an expectancy of 1 or 0 on a scale of 10 for three consecutive trials. Under skill instructions the extinction trials were longer for the 100% reinforcement condition than for the 50% reinforcement condition; under chance instructions the 50% reinforcement condition generated greater resistance to extinction compared to the 100% reinforcement condition.

The investigators explained their results by suggesting that subjects receiving chance instructions and 100% reinforcement would consider the extinction trials as a change in the experiment which implies a disappearance of the previous lucky guessing, while subjects receiving chance instructions and 50% reinforcement would not absolve the importance of lucky guessing so quickly, mainly because the shift from 50% to non-reinforcement was not so obvious.

On the other hand, subjects receiving skill instructions and 100% reinforcement, as opposed to those receiving 50% partial reinforcement, needed more time to accept the idea that they were not succeeding, because, according to Lefcourt (1976), these subjects might interpret the extinction trials more in terms of a sudden loss of the 'touch' or some such internal attribute that could be compensated for with concerted effort.

The results of the previously mentioned two studies have been confirmed in a study by Rotter, Liverant and Crowne (1961), who did not give to their subjects skill or chance instructions, but rather

the nature of the task itself was perceived by the subjects as skill or chance determined; the skill task was a hand steadiness task and the chance task was an ESP task.

Their results have revealed, first, that positive and negative reinforcements led to greater increments and decrements, respectively, in verbalised expectancies for success in the task which was perceived as skill determined rather than in the task which was perceived as chance determined. Second, subjects in the task perceived as skill determined who had received 100% reinforcement were more resistant to extinction of verbalised expectancies for success than were subjects who had received 50% reinforcement; the reverse was true for subjects in the task which was perceived as chance determined.

Similar results have been obtained in a study by Holden and Rotter (1962) who have used three groups of subjects, all receiving 50% partial reinforcement. The task they have used was an ESP task and one group of subjects was told that success on the task was skill determined, the other group that success on the task was entirely dependent on luck, while the third group received ambiguous instructions. Measure of expectancy for success was the amount of money each subject was willing to bet on each trial; extinction was defined as voluntarily quitting the experiment.

The results revealed that the groups which had received chance and ambiguous instructions needed almost twice as many extinction trials compared to the group which had received skill instructions.

Rotter, in summarising these and other studies, has said that:

Investigations of differences in behavior in skill and

chance situations provide relatively clear-cut findings. When a subject perceives the task as controlled by the experimenter, chance, or random conditions, past experience is relied upon less. Consequently, it may be said that he learns less, and under such conditions, he may indeed learn the wrong things and develop a pattern of behavior which Skinner has referred to as 'superstitious'. (Rotter, 1966:269-270)

There is another important element to be found in the above mentioned studies, which supports Social Learning Theory's view about the effects of reinforcement on human behaviour. In all these studies it has been necessary, in order to compare skill and chance learning tasks directly, to provide a similar sequence of reinforcement in both cases; that is, all subjects received the same sequence of 'success' and 'failures'. The exhibition of different kinds of behaviour in skill and chance situations, despite the similar sequence of reinforcement in both cases, supports the assumption that human learning and/or performance appears not only to be a function of reinforcement, but also is dependent on the individual's perception of the locus of control of reinforcement.

II. The assessment of Internal-External locus of control of reinforcement beliefs and the development of the concept

There are three important issues to be considered in the conduct of Internal-External locus of control research:

the issue related to the generalisation of Internal-External locus of control of reinforcement beliefs,

the issue related to the agents of external control, and

the issue related to the type of the reinforcement involved-positive versus negative.

1. The issue related to the generalisation of Internal-External locus of control of reinforcement beliefs

Rotter, in discussing two factor analyses of his Internal-External locus of control scale (Frankin, 1963; Rotter, 1966), has concluded that:

...much of the variance was included in a general factor. Several additional factors involved only a few items, and only a small degree of variance for each factor could be isolated. These additional factors, however, were not sufficiently reliable to suggest any clear-cut subscales within the test. (Rotter, 1966:282)

Contrary to what Rotter has reported, several other factor analyses of his Internal-External locus of control scale have reported the identification of more than one factor.

Mirels (1970) has revealed the existence of two factors. He described Factor I (felt mastery) as a belief concerning felt

mastery over the course of one's life, and Factor II (system control) as a belief concerning the extent to which the individual citizen is capable of having an impact on political and world affairs.

Abrahamson, Schludermann and Schludermann (1973) replicated Mirels's two factors and they gave some evidence for a third factor as well; items loading on the third factor deal with the question of control over personal likeability.

Joe and Jahn (1973), in their factor analysis of the Rotter Internal-External locus of control scale, replicated Factor II in Mirels's study; they also revealed a general factor, which accounted for much of the variance in item responses, and which was defined primarily by items that deal with a generalised expectancy for reinforcement, as intended by Rotter.

Viney (1974) has replicated the multidimensional structure of the Rotter Internal-External locus of control scale demonstrated by Mirels. Factor 1 (personal responsibility) was loaded with items which deal with control by the individual of her/his own life, while Factor 2 (social responsibility) was loaded with items which deal with control by the individual of society.

Reid and Ware (1974) added items to the original Rotter Internal-External locus of control scale that should theoretically load upon the 'felt mastery' factor and 'social system control' factor; additionally they devised a subscale concerned with beliefs about self-regulation, that is, control of inner drives, impulses and emotions. Their study offered evidence for the existence of three factors. Items pertaining to the control of more distant world affairs loaded on the social system control factor, while the more

personal items loaded on the personal control factor. Also, they found evidence that responses to items pertaining to beliefs about control of impulses, drives and emotions were independent from either the personal control or social system control factors of Rotter's Internal-External locus of control scale.

Collins (1974) altered the format of the Rotter Internal-External locus of control scale and he administered it to his subjects in a Likert agree-disagree format, which resulted in 46 alternatives. Using this technique, he isolated four factors which were labelled 'difficulty of the world', 'unjust world', 'predictability-luck', 'political responsiveness'.

Gurin, Gurin, Lao and Beattie (1969), using Black subjects, factor-analysed their responses to the items of the Rotter Internal-External locus of control scale, to the three items from the Personal Efficacy Scale which focus on the respondent's feelings of control over her/his own life and not upon her/his general beliefs about what makes for control in life, and to a set of questions written specifically to measure students' beliefs about the operation of personal and external forces in the race situation in the USA. They found two separate factors. Factor I (personal control), including items phrased in the first person, measures one's beliefs about how much control one personally possesses. Factor II (control ideology), including items phrased in the third person, measures one's beliefs about how much control one believes most people in society possess.

The factor analysis which was done on just the 14 race-related items has yielded two factors. The Individual-System Blame factor is composed of items dealing with the respondent's explanation for

social or economic failure among Black people. The internal end attributes responsibility for failure among Black people to their lack of ability, skill, training, effort or proper behaviour, while the external end attributes responsibility for failure to some systematic obstacles resulting from discrimination and segregation.

The Discrimination Modifiability factor is composed of items measuring the degree to which the individual believes that racial discrimination can be modified. The internal end represents a belief that discrimination can be wiped out; the external end represents a belief that discrimination cannot be eliminated.

Lao has said:

Although Rotter (1966) defined internal control as an individual's beliefs that rewards follow from, or are contingent upon his own behavior, the I-E control of reinforcement scale developed by Rotter and others contains only a few items that relate to the personal belief. Most of the items deal with the individual's adherence to ideological beliefs about what determines success for most people in society. This self-other distinction is important in the way Negro youth think about control. (Lao, 1970:263-264)

However, the important point is not whether the Rotter Internal-External locus of control scale is unidimensional or multidimensional. The results of the factor analyses depend upon the various methods of factor analyses used, upon the sex of the subjects whose responses to the scale's items are being factor analysed, upon the population characteristics. With reference to the separation of the personal and ideological levels in the locus of control beliefs, Gurin et. al. have commented:

This separation of self from other, or the personal and the ideological levels, is not typical of factor analytic

results from studies of white populations. Rotter and others report finding one general factor which includes both types of questions (Rotter, 1966)...why would we expect Negroes, but not Whites, to distinguish self from other in the way they think about internal control? Our rationale is that Negroes may very well adopt the general cultural beliefs about internal control but find that these beliefs cannot always be applied in their own life situations. Without the same experiences of discrimination and racial prejudice, Whites are less likely to perceive an inconsistency between cultural beliefs and what works for them. (Gurin et. al., 1969:35, 41-42)

Also, a critical issue when doing a factor analysis is what should be regarded as a significant factor loading.

Furthermore, some of the studies previously mentioned did not factor analyse responses to the items of the Rotter Internal-External locus of control scale itself. Reid and Ware (1974) and Gurin et. al. (1969) added items to the scale and, additionally, they devised new subscales, while Collins (1974) modified the format of the scale.

Phares has commented upon that:

...it is important to note that they constructed a special I-E scale for their purposes. It is important to distinguish between those studies that find evidence of multidimensionality in the I-E scale itself and those that, based on assumptions from previous research, build special scales to measure I-E. Obviously, if one constructs a scale so that it reflects several dimensions, it is not surprising to find evidence for such dimensions. Such studies are important since they do demonstrate the possibility of conceptualizing I-E along several different lines, however...it is important to recognize that one is no longer dealing with the I-E scale. In effect, a new scale has been built, which may or may not be valid. In short, specially constructed I-E scales cannot lay claim to the construct validity data that support the Rotter I-E scale. (Phares, 1976:50-51)

Rotter (1966, 1975) acknowledged that he too, together with M. Seeman and Shephard Liverant, had decided, initially, to construct an Internal-External locus of control scale consisting of subscales

which would measure Internal-External beliefs in several reinforcement areas, such as academic and social recognition, social and political events, love and affection, and general life philosophy. By attempting that, they expected to obtain subscores revealing Internal-External locus of control orientation in several areas; they felt that this strategy would be preferable to just a single Internal-External score, because it would enhance prediction.

Phares has commented with reference to that:

...it was recognized that for any given individual, behaviors based upon locus of control beliefs would be more highly related within a given need area than across different needs. An individual may well behave in a predominantly internal fashion when dealing with academic goals but be significantly more external in his behavior when love and affection goals are involved...this simply means that prediction ought to be enhanced when we measure perceived locus of control separately in different life areas. Such a strategy should be superior to that of using a single I-E score that must perforce be used in many different predictive situations. (Phares, 1976:40)

The first locus of control scale constructed by Rotter, Liverant and Seeman, contained 100 forced-choice items, later reduced to 60, each one having one internal and one external alternative.

But, finally, they abandoned the idea of constructing a test consisting of subscales, mainly because the subscales were not giving independent predictions, the social desirability effects on the achievement items were strong, and correlations between some of the subscales were about as high as the internal consistency of individual scales.

Following that unsuccessful attempt, Rotter, in cooperation with Liverant and Crowne, finally presented a 29-item version of the

60-item locus of control scale which came to be known as the Rotter Internal-External scale, usually referred to as the I-E scale. The scale's items represent an attempt to sample Internal-External beliefs across a range of different life situations where Internal-External locus of control beliefs might be relevant to behaviour.

Although, as we have said previously, several factor analyses of the Rotter Internal-External locus of control scale have revealed more than one factor, nevertheless, the potential value of such factor analyses is not in that they might prove the Rotter Internal-External locus of control scale to be multidimensional instead of unidimensional. The additive and generalised nature of the Rotter Internal-External scale implies multidimensionality, although its very short form militates against the creation of theoretically discriminable subscales. The intriguing element in such factor-analytic studies is their heuristic approach toward the study of locus of control beliefs which can, and indeed has helped, in the development of new, more elaborate and more sophisticated locus of control scales. Rotter himself has called for the development of new locus of control scales designed for more specific application than his general scale. With reference to the various factor analytic studies he said:

Such factor analyses are not interesting in themselves, but they may be important as a first step toward the building of new instruments. They may be useful if it can be demonstrated that reliable and logical predictions can be made from the subscales to specific behaviors and that a particular subscale score produces a significantly higher relationship than that of the score of the total test...whether or not the resulting factors are usable can only be demonstrated by showing that they have a logical and significant prediction to a set of criteria. (Rotter, 1975:63-64)

Reid and Ware (1974) reported some validity data for the use of separate factors. They found that social system control, but not personal control, was related to political cynicism, to political participation, and to causal attributions made about a videotaped interview which portrayed a person who had been evicted from his apartment because of a bylaw concerned with the number of occupants allowed in a single residence. On the other hand, they have found that subjects who scored as more internal on either personal or social system control held a student, who was discussing his academic failures on a prepared videotaped presentation, responsible for those failures.

Abramowitz (1973) has revealed similar results, using three separate measures of locus of control orientation. The first was a total external score based on the 23 items of the Rotter Internal-External locus of control scale; the second was the number of external endorsements of the non-political items that loaded on Mirels's Factor I, and the third was the number of external selections of the political items that loaded on Mirels's Factor II. He compared these three scores to scores on the Political Activity Scale (Kerpelman, 1972) which measures actual and desired political involvement. His results demonstrated that political, but neither the non-political nor the overall, Internal-External scores were associated with political commitment.

Discussing this lack of relationship between personal control and political commitment, Abramowitz concluded that:

The researcher who relies on a global Rotter I-E scale score thus appears to be combining variation on two independent dimensions of one's sense of mastery. A

consequence may be a decrease in prediction efficiency or, as the evidence of this study demonstrates, an unwitting obfuscation of meaningful findings. (Abramowitz, 1973:201)

Gurin et. al. (1969) have found in their study of Black youth that the personal and ideological belief measures operate differently in explaining the subjects' academic performance and occupational aspirations. Students who had a high sense of personal control over their own lives had higher achievement test scores, achieved higher grades in college, performed better on an anagrams task, held higher, as well as more realistic, occupational aspirations and expressed heightened expectancies for success and self-confidence about their abilities for academic and job performance. In contrast, students who were strongly internal in the sense of believing that internal forces are the major determinants of success in the culture at large performed less well in the achievement tasks than the more externally orientated students; also, the students' ideological beliefs about what generally determines success and failure had nothing to do with their self-confidence, personal expectancies or occupational aspirations. Additionally, Gurin et. al. have found that subjects who were external on the Individual-System Blame factor, that is, they focused on discrimination to explain the disadvantaged position of Black Americans, were more ready, compared to the subjects who relied on internal explanations, to participate in social activity and more likely to aspire for jobs which were not traditionally held by Blacks.

Lao (1970) has reported similar findings. Internality on the personal control factor predicted academic achievement, academic confidence and educational expectations and aspirations, but the

ideology measure - individual-system blame - was not related to these criteria. In contrast, individual-system blame was the only predictor of innovative behaviour in the social action arena, while personal control bore little or no relationship to how innovative a student was.

The validity data supplied from the factor analytic studies previously mentioned give support to the notion that the predictive capacity of the locus of control of reinforcement concept is enhanced when we distinguish between different behavioural spheres, upon which Internal-External locus of control beliefs have an influence, and between persons for whom attributions are made.

The differentiation between various reinforcement areas when measuring locus of control beliefs is in line with the thinking of Social Learning Theory of Personality. An individual's locus of control of reinforcement belief system is composed of many separate expectancies that relate to many diverse life areas or needs, and beliefs in Internal-External locus of control of reinforcement emanate from the kinds of experiences one has had in a variety of particular reinforcement situations. Since it is logical to assume that the experiences a given individual has had in a class of similar situations are different from her/his experiences in another class of similar situations, it is in accordance with common sense to argue that an individual's perceived locus of control orientation differs from one class of reinforcement situations to another, and that her/his pattern of Internal-External locus of control beliefs is not homogenous across all reinforcement areas.

For example, a large number of people may believe in the efficacy of personal effort in individual achievement situations,

but not with reference to social institutions. Whether one is internally or externally orientated depends upon what corner of one's life space is being examined.

Phares has said with reference to the generalisation of locus of control of reinforcement beliefs across various reinforcement areas:

Like any other behavioral variable, I-E does not possess complete generality. By this we mean that its effects on behavior are not uniform and invariant across all situations. As a generalized expectancy locus of control is regarded as affecting a wide range of human behavior. It will, however, affect some more than others, and different individuals will manifest differing patterns of effects. Individuals may show a series of specific or circumscribed beliefs about locus of control, each of which applies more to certain situation than to others. Taken together, these locus of control beliefs may average out a high level of internal control. However, just because those individuals show a mean level of internality that is high does not mean we can infer that they are high in internality in every situation. In certain specific situations, their beliefs may be quite external. (Phares, 1976:45-46)

In the conduct of locus of control research, the choice of a locus of control scale depends entirely upon the specific purpose of the investigator and upon the level of behaviour prediction required.

If the purpose is to predict, for example, exclusively socio-political behaviour, then it should be sensible to use a locus of control scale whose items pertain solely to sociopolitical events. If the purpose is to deal mainly with academic achievement, then the items should be directed entirely to academic-achievement situations, as it is the case with the IAR questionnaire; by concentrating upon the assessment of locus of control beliefs only in the intellectual-academic achievement area, there is more hope and possibilities that scores on the IAR questionnaire will be

relatively more homogenous when compared to scores on Internality-Externality measures related to a variety of situations, such as political, social, moral and intellectual.

If our purpose is broader, if we opt for generality rather than specificity, we need a locus of control scale which has some generality, that is, it samples Internal-External beliefs across a wide range of situations. Such a scale is the Rotter Internal-External locus of control scale. However, by choosing such a scale we must realise that prediction is, to a certain extent, hampered. Rotter has commented upon the predictive utility of his scale:

...it was developed as a broad gauge instrument - not as an instrument to allow for very high prediction in some specific situation, such as achievement or political behavior, but rather to allow for a low degree of prediction of behavior across a wide range of potential situations. (Rotter, 1975:2)

Crandall, Katkovsky and Crandall (1966), as we have already mentioned, were the first to concentrate on the assessment of locus of control beliefs in a specific reinforcement area; their IAR questionnaire was the first goal-specific measure, and the first measure to afford a more differentiated conceptualisation of the locus of control of reinforcement concept.

Following their example, several other investigators have presented goal-specific measures of locus of control beliefs.

Wallston and Wallston (1981) have constructed a health-focused locus of control scale in which the subjects are asked about their roles in maintaining their own health. The creators of the scale have also presented some evidence regarding discriminant validity for their measure in contrast to Rotter's Internal-External locus of

control scale. In brief, persons who expressed the belief that health is, at least partially, determined by their actions were more apt to seek out health-related information than were those who perceived health more fatalistically. In addition, 'health-internals' were more satisfied with weight reduction programs that were self-directing than were 'health-externals', who preferred the more externally directed group program. In both instances, Rotter's Internal-External locus of control scale failed to predict the criteria.

Reid and Ziegler (1981) have developed the 'Desired Control measure' which assesses elderly persons' beliefs about their ability to control reinforcements that they acknowledge are important to them. Their scale focuses on reinforcements such as privacy, having company when desired, keeping one's personal possessions, etc.

In the construction of their questionnaire, Reid and Ziegler (1981) took into consideration the assumption of Social Learning Theory of Personality that expectancies should interact with values as well as with situational determinants in the determination of human behaviour. So, their questionnaire consists of two parts. The first part contains 35 items which measure the degree to which an individual desires particular reinforcements, while the second part contains an additional 35 parallel items which measure the extent to which the individual feels s/he can obtain those particular reinforcements.

The hypothesis of the authors was that the degree to which an elderly person feels in control of desirable events is an important influence on the person's psychological adjustment and her/his general sense of well being. Their hypothesis was amply supported.

Their consistent finding was that the greater the expectancy for control of desired reinforcements, the more positive the psychological adjustment of the elderly people who took part in the research program was. Also, subjects who had a greater expectancy for control over desirable events were more active and they had more knowledge of existing services for the elderly.

Lefcourt has commented on the development of such a questionnaire by Reid and Ziegler:

...the power inherent in using value and expectancy should become evident...it reflects Rotter's (1975) recommendation that the locus of control variable be used within the theoretical framework from which it evolved. If that were to become more common, the locus of control variable might cease to be regarded as a singular trait with all the error that such a conception helps to create. (Lefcourt, 1981:8)

Paulhus and Christie (1981), having in mind the notion that an individual may have quite different expectancies for control in different behavioural spheres, have created the 'Spheres of Control (SOC)' battery, consisting of three subscales, each one having 10 items.

The first of these subscales, the Personal Efficacy Scale, refers to beliefs about the mastery of one's non-social environment and concerns personal achievement. The second subscale, the Interpersonal Control Scale, contains items dealing with the management of face-to-face interactions and relationships. The third subscale, the Sociopolitical Control Scale, contains items referring to social system control by the individual - matching the man against larger systems.

Paulhus and Christie (1981), using the SOC scales, found that

internality in the Interpersonal Control Scale and externality in the Sociopolitical Control Scale were associated with Machiavellianism. These findings shed some light and clarify previous, but conceptually contradictory, findings which have revealed a positive relationship between Machiavellianism and scores on the Rotter Internal-External locus of control scale (Prociuk and Breen, 1976; Solar and Bruehl, 1971). But how could a person with external locus of control beliefs be high in Machiavellianism, that is, experiencing a high expectancy of being in control when dealing with other people? The findings of the Paulhus and Christie study made clear that the positive relationship between scores on the Rotter Internal-External scale and Machiavellianism is attributable to the sociopolitical component of control expectancy, that is, the Machiavellian individual is cynical about political control, and, accordingly, scores external on the sociopolitical control measure. On the other hand, the Machiavellian individual has a high expectancy for control when dealing with other people and, consequently, scores internal on the Interpersonal control measure.

Paulhus and Christie have offered some more evidence supporting the concept validity of their SOC measure. Comparing university student athletes with non-athletes, they found that the first group was more internal with reference to Personal Efficacy and Interpersonal Control, a finding which, according to the authors, can be explained on the basis of their manifest skill and status in the campus community. No difference was found between athletes and non-athletes in their sociopolitical control beliefs. Football players were found to be most internal in interpersonal control, while tennis players scored most internal on personal efficacy; the

two groups did not differ in sociopolitical control beliefs. The authors explained the scores given by the tennis players as being 'in line with the individualistic, competitive character required in successful tennis players' (Paulus and Christie, 1981:172), while the scores given by the football players have been explained on the basis of the group's orientation 'toward team coordination and cooperative relationships in their athletic activities'. (Paulhus and Christie, 1981:172)

Donovan and O'Leary (1978) developed a specific drinking-related locus of control (DRIE) scale with the goal of achieving greater predictive power as well as less ambiguous results. They found that their specific drinking scale significantly differentiated between alcoholics and non-alcoholics, whereas Rotter's Internal-External locus of control scale did not.

Lefcourt, Von Baeyer, Ware and Cox (1979) have developed two locus of control scales, to be used with University-age samples, measuring locus of control beliefs in the achievement and the affiliation reinforcement areas. Their intention is to construct several goal-specific subscales measuring locus of control beliefs in such areas as work life, marriage, love and affection, social recognition, etc.

2. The issue related to the agents of external control

Crandall, Katkovsky and Crandall (1965) were the first investigators to point out the importance of distinguishing between different types of external environmental forces which could exert an influence on one's reinforcements. In their view, control by other people should be separated from control by impersonal forces, since academic success and failure may have little to do with chance or luck, but still be subject to external control through, for example, teachers' behaviour.

Following the example set by the creators of the IAR questionnaire, Levenson (1972) questioned the validity of assessing together, as it is the case with the Rotter Internal- External locus of control scale, expectancies for control by fate, chance and powerful others.

Levenson's attempt to reconceptualise the Rotter Internal-External locus of control scale was instigated by some conflicting and confusing results relating Internal-External locus of control beliefs to participation in social action. According to the definition of the Internal-External locus of control of reinforcement concept, internals should be more likely to get involved in social action because they expect that their behaviour will bring about desired goals, while externals should not become involved in the same activities because they perceive little connection between their behaviour and desired outcomes. This assumption has been supported by some studies (Gore and Rotter, 1963; Strickland, 1965), and contradicted by some others (Blanchard and Scarborough, 1972; Evans and Alexander, 1970; Gootnick, 1974).

Using the Rotter Internal-External locus of control scale, the first two studies have revealed that Black youths who were willing to participate in, or who had actually engaged in, civil rights activities held more internal locus of control expectancies than their less active Black peers. The other three studies have failed to find a relationship between Internal-External scale scores and social activism.

Furthermore, some other studies have revealed that externals were more politically active than internals. Ransford (1968) found a relationship between Black activism and externality, Sanger and Alker (1972) found that feminist activists scored more external than a control group, while the study by Gurin, Gurin, Lao and Beattie (1969) has indicated that Blacks who were willing to participate in protest behaviour scored the lowest in internal locus of control.

So, the question arises: Why should people become involved in social action if they feel they have no control over the situation?

Rotter has offered an explanation by saying:

My research over the past 12 years has led me to suspect that much of the protest, outcry and agitation occurs because students feel they cannot change the world, that the system is too complicated and too much controlled by powerful others to be changed through the students' efforts. They feel more powerless and alienated today than they did 10 years ago, and rioting may be an expression of their hostility and resentment. (Rotter, 1971:37)

However, Levenson (1981) disagreed with Rotter's assumption that involvement in social action by people who score in an external direction is a non-instrumental expression of hostility and resentment. She argued that rioting and protesting behaviour is instrumental in the sense that people engaged in that kind of

behaviour believe that the world is ordered and predictable, but is (externally) controlled by powerful others. People who believe that such is the case may also perceive enough regularity in the actions of those powerful others and such a perception may lead them to expect that they can obtain desired reinforcements through purposeful action. Such a view of externality is quite similar to Rotter's conceptualisation of internality.

Quite differently, in the case of people who believe that the world is unordered and unpredictable, because it is externally controlled by chance, there is no potential for control.

Because expectancies for control by powerful others may lead to different kinds of behaviour and thinking from expectancies for control by chance, Levenson argued that these two kinds of external expectancies should be assessed separately. She, together with Miller, suggested that the failure of the researchers to find consistent relationships between scores on the Rotter Internal-External locus of control scale and social activism:

may lie in the format and conceptualization of the scale. Unfortunately, because of the forced-choice format of the Rotter I-E locus of control scale, rejection of the internal items results in a high external score, which is defined as a belief that events are controlled by fate, chance or powerful others. Frequently, however, the expectancy of control by powerful others is not taken into consideration in interpreting the results...the global definition of externals might obscure the importance of perceptions of powerful others (system control) for understanding the instrumentality of protest behavior. (Levenson and Miller, 1976:200)

So, Levenson (1972) has presented her own version of the Rotter Internal-External locus of control scale. The I (Internal), P (Powerful Others) and C (Chance) scale consists of three 8-item

subscales, with a 6-point Likert (agree-disagree) format, which are presented to the subject as a unified scale of 24 items. The three subscales are comprised of several items adapted from Rotter's Internal-External locus of control scale and a set of statements written specifically to tap beliefs about the operation of the three dimensions of control - beliefs in personal control (Internal subscale), beliefs in powerful others (Powerful Others subscale), and beliefs in chance or fate (Chance subscale).

The validity and usefulness of the tripartite differentiation of Internal-External locus of control beliefs proposed by Levenson has been supported by the findings of three studies conducted by Levenson and Miller (1976).

In the first of those studies, 98 male University students completed a measure of conservatism-liberalism (Levenson and Miller, 1974), the Actual Activism subscale of Kerpelman's Political Activity scale (Kerpelman, 1969), and Levenson's Internal, Powerful Others, and Chance scales. The results revealed that, in general, conservative male students, in comparison to liberal male students, tended to score more internal on the Internal scale and less internal on the Chance scale. Controlling for the effects of political ideology, Levenson and Miller found that the more the politically liberal students perceived that powerful others played a major role in controlling their lives the more activist they became. On the other hand, the more the politically conservative students perceived that powerful others played a major role in controlling their lives the less activist they became. According to Levenson:

It may be that liberals perceive that others hinder the

realization of desired effects and therefore protest this situation...It may be that conservatives are more likely to see power as legitimate. (Levenson, 1981:50)

The subjects of the second study conducted by Levenson and Miller (1976) were 26 liberal activist and nonactivist female University students who completed Levenson's three locus of control scales. The results revealed that, with reference to the Internal and Chance scales, no significant differences existed between the two groups of activist and nonactivist liberal female students. In contrast to that, activist students expected significantly more control by powerful others compared to those who were nonactivists.

The third study conducted by Levenson and Miller (1976) employed two groups of 40 female college students; one group consisted of women who participated in activities for women's rights and the other consisted of inactive members of a feminist group. The results revealed that students in the activist group, in comparison to the inactive members of the feminist group, expected significantly more control by powerful others and they felt they had less personal control over their lives. The difference between the two groups on the Chance scale was not found to be significant.

Crandall, Katkovsky and Crandall (1965) argued in favour of the specificity of external forces for two main reasons.

First, they considered that it is quite possible, since there is not as yet available information to suggest the opposite, that children's beliefs in the power of various kinds of external forces are not to be characterised by any generality; it may be possible for the child to attribute different amounts of power or control to various external agents, e.g. the child might attribute a great deal of control to adults but disregard the influence of luck or fate on

her/his intellectual-academic achievement experiences and vice versa.

The second reason is concerned with an important aspect of children's development. Crandall et. al. (1965) argued that ascription of responsibility is developmental in nature. Early in life children tend to ascribe the satisfaction of their needs for instrumental help and emotional support to 'powerful others' in their immediate environment. But while it is only natural and expected to find infants and preschool children to credit or blame those persons for any positive or negative reinforcements they receive, it is equally expected, as the children grow up, to begin to feel that very often their actions are more determinative in causing various behaviour outcomes.

Similarly, Bialer (1961) believes that in early life there is no conception of the relation between one's own behaviour and the outcome of events, and that no internal attribution is made in terms of success and failure, since the child is only able to perceive pleasure or displeasure as the outcomes of her/his activities. At this early stage behaviour is contingent upon response to cues that are basically hedonistic in nature; however, as time passes and the child's conceptual development allows her/him to think in terms of personal success and failure, s/he begins to view outcomes more and more as internally controlled, and so internal locus of control beliefs become a growing possibility.

What both Crandall et. al. and Bialer seem to suggest is that although early in life the child is largely, and to a certain extent inevitably, external in her/his orientation, nevertheless, with increasing age and experience most children should begin to feel

that their own actions are often instrumental in the attainment of the various reinforcements they receive. This resolution of dependence upon persons belonging to the child's immediate environment and the following acquisition of independent problem-solving techniques are vital and necessary conditions for a sound personality development.

So, from a developmental point of view, it was thought better by Crandall et. al. (1965), the inventors of the IAR questionnaire, to concentrate particularly on children's beliefs in the instrumentality of their own actions as compared to that of other people in their immediate environment.

3. The issue related to the type of the reinforcement involved -
positive versus negative

The inventors of the IAR questionnaire (Crandall, Katkovsky and Crandall, 1965) thought that it might be possible for locus of control beliefs for success experiences to be independent and different from locus of control beliefs for failure experiences. It might be possible, for example, for a child to regard success as self-relevant and consider failure as being independent from her/himself. Also, it might be possible that girls and boys at different ages might perceive themselves as more responsible for failure than for success outcomes or vice versa; that is, it might be possible, at one age or for one sex, an internal locus of control belief system toward success to be a more salient characteristic of the child, while, at another age or for the other sex, beliefs in self-responsibility for failure might prevail.

Crandall, Katkovsky and Crandall argued with reference to that:

...the scale was constructed to sample an equal number of positive and negative events. It was felt that the dynamics operative in assuming credit for causing good things to happen might be very different from those operative in accepting blame for unpleasant consequences. It is possible that belief in personal responsibility for the two kinds of events may develop at differential rates, or that this may be so for some children but not others. Thus, the IAR was so constructed that, in addition to a total I (internal or self-) responsibility score, separate subscores could be obtained for beliefs in internal responsibility for successes (I+score) and for failures (I-score). (Crandall, Katkovsky and Crandall, 1965:94)

Rotter (1975, 1979) acknowledged that he, too, had examined the viability of having positive and negative subscales in his Internal-

External locus of control scale. But in Rotter's work, which has employed college students as subjects, scores for failure experiences and scores for success experiences correlated with each other almost as highly as the internal reliability of the subscales, indicating that adults do not appear to make a distinction between these two categories. Rotter speculated that college students feel some need for consistency in their responses; in his own words:

At the college level one cannot expect to get away with saying that good grades are a matter of hard work and ability but bad grades are a matter of luck. Not, at least, if one has to make both responses in a period of 15 minutes on the same test (Rotter, 1979:265-266)

However, for children, who are still developing their locus of control beliefs, this need for consistency is not so well developed and the positive-negative distinction is a salient one, whereas for adults locus of control beliefs are more general.

Crandall et. al. (1965) have offered research evidence which does seem to suggest that a child's expectancy for control of her/his successes is not necessarily correlated with her/his expectancy for control of her/his failures. Using a sample of 923 elementary and high-school students, they have correlated their scores to the two subscales of the IAR questionnaire, and they have revealed variable, but generally low, correlations between scores given to the I+ (success) and I- (failure) subscales. What they have actually found was that the associations of subscale scores for children in the third, fourth and fifth grades were respectively $r = .14$, $r = .11$, $r = .11$. The associations of subscale scores for children in the sixth, eighth and tenth grades were $r = .38$, $r = .40$, $r = .43$, respectively ($p < .001$), which indicate a somewhat more

generalised locus of control belief for successes and failures and a relationship between the two areas, but still makes it possible to deal with each category separately. The correlation between I+ (success) and I- (failure) subscores for children in the twelfth grade was $r = .17$.

Lifshitz (1973), using a sample of 183 children and the IAR questionnaire, correlated their responses to the questions that dealt with acceptance of responsibility for success (I+) and the questions that dealt with acceptance of responsibility for failure (I-). The correlation between the two was $r = .30$. The correlation between the total score and the responses to success situations was $r = .76$, and higher for situations of failure, $r = .84$.

Massari and Rosenblum (1972) found that the IAR subscales were significantly correlated for women, $r = .50$, but not for men, $r = .19$, suggesting that self-responsibility for success and failure were more similar orientations for women.

Weiner and Kukla (1970), using boys and girls attending the third, fourth, fifth, sixth and tenth grades and the IAR questionnaire, found that only the correlation, $r = .24$, between subscale scores given by boys attending the tenth grade reached statistical significance ($p < .05$).

The correlations between subscale scores given by boys in the third and fourth grades combined, fifth and sixth grades were respectively $r = .15$, $r = .17$, $r = .03$. The correlations between subscale scores given by girls in the same grades were $r = .08$, $r = .15$, $r = .13$.

Owing to the low correlations between scores on the success and failure subscales of the IAR scale, Crandall et. al. (1965) have

cautioned researches against combining the subscale scores and against using the IAR total score alone.

The findings of the above mentioned studies have received positive support by Mischel, Zeiss and Zeiss (1974), who utilised the Stanford Preschool Internal-External Scale (SPIES), a locus of control scale for preschool children which has been patterned partly after the IAR questionnaire and which does use, as well, separate measures of expectancies for control of success and failure outcomes. Their findings have revealed that the success (I+) and failure (I-) subscales of the SPIES were not related to each other, that is, correlations between the scores on the two subscales were $r = .03$, $r = .06$, and $r = .02$ for males, females and the total sample, respectively, and they were not significant.

Besides finding that locus of control beliefs for failure-success experiences may be relatively independent from each other, Mischel, Zeiss and Zeiss (1974) have supplied evidence suggesting that each may afford the prediction of events which the other does not. They found that internal locus of control beliefs for success experiences were predictive of persistent efforts in activity directed toward the attainment of desired goals, whereas internal locus of control beliefs for failure experiences were better at predicting behaviour aimed at avoiding aversive consequences.

Crandall, Katkovsky and Crandall (1965) have also supplied research evidence suggesting the usefulness of the division of the locus of control concept into components such as locus of control beliefs for success versus failure experiences. In their study they found that all measures (reading, language, arithmetic, and total achievement-test scores) of the Iowa Test of Basic Skills, and

report-card grades of the girls in grades 3 and 4 were highly related to internality for success 'indicating that the greater the young girl's sense of responsibility for her academic success, the more successful she is likely to be'. (Crandall et. al., 1965:107) On the other hand, internal locus of control beliefs for failure experiences were significantly related to all the same measures for the boys attending the 5th grade. For pupils attending the 9th grade, all measures (reading, language, arithmetic, and total test scores) of the California Achievement Tests were related to boys' (but not to girls') internal locus of control beliefs for success experiences.

III. Defensive externality

Rotter (1975), in a paper discussing certain problems and misconceptions related to the locus of control of reinforcement concept, among other issues, has been concerned with the issue related to the meaning of externality (external scores) on the Rotter Internal-External locus of control scale. He was surprised by the fact that, during the early studies involving expectancy stating in laboratory motor skill tasks, some external subjects

showed patterns of behavior much like the behavior of ambitious, aggressive, and competitive subjects previously identified in studies of level of aspiration. (Rotter, 1975:64)

This behavioural pattern seemed to be at variance with that of a person who, because of her/his external locus of control of reinforcement beliefs, would tend to behave in a relatively passive, unambitious and non-competitive style. Rotter was also amazed by the very high grades achieved by a number of external subjects, and by the wide spread of scores on college entrance tests manifested by externals. He was moved to comment:

...stated another way, particularly in competitive achievement skill situations, there were a number of externals who acted much as we expected internals to act and others who acted much as we expected externals to act. (Rotter, 1975:64)

Hersch and Scheibe (1967) supported Rotter's comments by observing that internals were more homogenous on their test performances than were externals. As a result, they suggested a diversity in the psychological meaning of externality.

Davis (1970) has distinguished between two kinds of externals: the 'defensive' and the 'congruent' externals.

Defensive externals are those people who, although express external beliefs in order to defend themselves against anticipated failures, nevertheless, they behave more like internals in actual performance situations which offer valued reinforcements that appear contingent upon behaviour.

Congruent externals, on the other hand, are those people who really believe, based on previous experiences, that reinforcements occur independently of their own behaviour.

Strickland (1977) said with reference to the two kinds of externals that in some cases a belief in external locus of control of reinforcement is a realistic appraisal and an accurate portrayal of an individual's reality. Persons who are assimilated into cultures with fatalistic attitudes and persons who are members of societies or minority groups with little control over their social and economic environments are expected to espouse external locus of control beliefs. On the other hand, there is another group of externals who defensively espouse an external locus of control orientation in order to protect themselves from the anxiety which results from personal inadequacies. The verbalisation of external beliefs by these persons is used as a means of reducing the distress which accompanies expectancies for success that are incompatible with their needs.

Generally, defensive externals are identified on the basis of their Internal-External scores plus other variables.

For example, Davis (1970), in an attempt to identify the two groups of externals in a college population employed an academic

action-taking questionnaire; action-taking is a certain kind of behaviour which past research has shown to discriminate in a reliable way between internals and externals (Gore and Rotter, 1963; Phares, Ritchie and Davis, 1968; Strickland, 1965).

Davis had defined as defensive externals those students who did not only score high external scores on the Rotter Internal-External locus of control scale, but also were willing to take action to improve their academic standing in college; a behaviour which is in disagreement with the passive behaviour exhibited by persons holding external locus of control of reinforcement beliefs. In agreement with her hypotheses, Davis found that, in comparison to congruent externals, defensive externals and internals engaged in more information-seeking behaviour. Additionally, she found that defensive externals, as compared to congruent externals, valued to a higher degree academic goals, and, also, showed a greater discrepancy between the value attached to these goals and the generalised expectancies for their attainment.

C H A P T E R 2

Effects and Incidence of Internal-External Locus of Control of Reinforcement Beliefs

I. Effects of Internal-External locus of control of reinforcement beliefs

1. Effects of Internal-External locus of control of reinforcement beliefs in general

The concept of Internal-External locus of control of reinforcement has been one of the most heavily investigated personality variables in the history of Personality Psychology, and as a result, there has been an astounding body of research on the relationship between the Internal-External locus of control variable and several other variables.

It is impossible, in the context of a dissertation, to refer to all that research in a detailed kind of way; so, we are going to refer, briefly, on the relationships found to exist between the variable of Internal-External locus of control of reinforcement and various other variables.

Since the concept of Internal-External locus of control of reinforcement refers to a generalised expectancy for control over one's life, it would be reasonable to assume that people with an internal locus of control belief system, in comparison to those with an external locus of control belief system, would be more active, more alert and more directive in their attempts to control and manipulate their environment.

Despite certain inconsistencies in research results, the majority of the findings has supported the above mentioned assumption.

Individuals with an internal locus of control belief system, as compared to those with an external locus of control orientation, have been found to have better knowledge of personally relevant information which is essential for the control of their immediate surroundings (Seeman and Evans, 1962; Seeman, 1963).

Also, they have been found to be more able and willing to control themselves and their impulses through the exercise of birth-control techniques (MacDonald, 1970), and quit-smoking behaviour (Straits and Sachrest, 1963; James, Woodruff and Werner, 1965).

Additionally, there is research evidence showing that internally orientated individuals, in comparison to externally orientated individuals, are more disposed toward behaviour which would enhance their personal efficacy through the correction of personal inadequacies (Phares, Ritchie and Davis, 1968), and are more able to induce greater attitude change in others (Phares, 1965).

It is possible the superior coping behaviour and tendency towards mastery of the environment and themselves exhibited by individuals with an internal locus of control belief system to be fostered by their superior cognitive processes.

Research findings seem to suggest that individuals with an internal locus of control belief system, in comparison to those with an external locus of control belief system, request significantly more information about the other person which will enable them to exert influence (Davis and Phares, 1967), are superior in the

utilisation of information when they try to solve a problem, even when they rely on the same amount of information available to externally orientated individuals (Phares, 1968), are more able to discover the rule which will help them in solving a problem (DuCette and Wolk, 1973) and are superior in the area of incidental learning (Wolk and DuCette, 1974). In addition, people with an internal locus of control belief system, more than those with an external locus of control belief system, are more likely to pay attention to potentially relevant informational cues when the situation is presenting inconsistencies (Lefcourt and Wine, 1969).

We have already referred to research evidence which has shown that internals, in comparison to externals, tend to be more active and controlling individuals. Having in mind that, we could assume that resistance to others' attempts to influence them would be an expected behaviour on the part of internal individuals, since to do otherwise would have as a consequence, and would be an indication of, the abrogation of personal efficacy and control.

There is research evidence, to which we will refer presently, which has either supported the previously mentioned assumption or has revealed that, when internal individuals conform with the dictates of another person or agency, they do it after they have first considered the positive and negative consequences which might follow from such conformity.

Research evidence revealing that individuals with an internal locus of control belief system are more able to resist group pressure than persons with an external locus of control belief system has been supplied by Crowne and Liverant (1963), and by Tolor (1971). Also, there exists research evidence which has shown that

internals, more than externals, tend to resist subtle attempts to influence them (Gore, 1962; Getter, 1966; Strickland, 1970); subtle influence may be considered as a corrosive form of influence which tends to deprive one's own freedom of choice.

With reference to attitude change, it seems that external individuals are influenced by the prestige of the source, while internal individuals are affected by the content of the communication (Ritchie and Phares, 1969). It, also, appears that individuals with an external locus of control belief system tend to respond more to a high-prestige source regardless of its relevance or irrelevance to the issue under consideration (Ryckman, Rodda and Sherman, 1972).

What seems to emerge from the previously mentioned research is that an internal locus of control of reinforcement orientation appears to be associated with diverse forms of behavioural effectiveness and certain desired sets of behaviours and attitudes.

But there are some research findings which seem to suggest that, sometimes, an internal locus of control orientation may lead to a rather frigid and inconsiderate encounter of other people. This research suggests that not only do highly internal individuals tend to attribute all their successes and failures to themselves, but they do also tend to view other individuals as having the ability to control events in their own lives. This tendency, which has been named assimilative projection, emanates from an egocentric inclination of people to assume that whatever applies to themselves does, also, apply to others (Heider, 1958). So, if one sees her/himself as being in control of, and responsible for, her/his own positive and negative reinforcements, it is quite possible that s/he

will extend the same notion to others in assessing their responsibility for an outcome. S/he might have, therefore, a tendency to attribute blame to the victim in many cases.

One of the studies, which has raised the question of the existence of a tendency in internally orientated individuals to attribute responsibility to others in the same manner as they do to themselves, has been carried out by Adams-Webber (1963). He used a story-completion test in which the story beginnings involved a certain character who had committed an immoral act; his 103 subjects were asked to state whether the consequences of the act in the story completions appeared to be caused by the individual's behaviour and his act or were a function of external conditions and agents.

The results of this study demonstrated that the Internality-Externality dimension had a significant effect upon the story completions, with externally orientated individuals tending to see punishment for moral transgression as being externally imposed, and internally orientated individuals tending to see the result as due to the immoral behaviour.

Sosis (1974), using 70 White male and female twelfth-grade students and an automobile accident paradigm, demonstrated that internal individuals assigned significantly more responsibility to the driver for the accident than did external individuals; also, the two groups differed significantly in the proposal of punishment, with internal subjects recommending a higher prison sentence for the defendant than did external subjects.

Similar to the above mentioned results have been found by Phares and Wilson (1972), who have used again an auto-accident paradigm in their research project; their findings clearly suggested the operation of assimilative projection, with internal individuals

holding the driver more responsible for the accident than did external individuals, and being more punitive in the proposed punishment.

In a study by Phares and Lamiell (1975) 146 male and female introductory psychology students were asked to think of themselves as being social caseworkers or professional decision-makers who deal with clients, and, therefore, are in a helping, not a quasi-legal judging role as it was the case in the previously mentioned two studies.

The authors decided upon this line of research because:

the manner in which people attribute responsibility or react to others may well be determined in part by the apparent purpose of the judgements they are asked to make. Judgements by a juror, for example, may differ substantially from those of a psychiatrist or a friend even though each is asked to assign responsibility or indicate his feelings (Phares and Lamiell, 1975:25).

The researchers asked the subjects to judge whether a Korean war veteran, an ex-convict and a welfare recipient, all of whom were applicants for help of some kind, were: a) deserving help, b) worthy of understanding, c) worthy of specific financial help, and d) worthy of sympathy; the case descriptions were varied so that the war veteran was pictured as a victim of circumstances, the ex-convict as responsible for his unfortunate situation, while in the case of the welfare recipient the responsibility was left ambiguous.

The results revealed that in all cases, that is, ambiguous and two structured descriptions, the internal orientated subjects tended to rate the person needing help as a) less deserving of help, b) less worthy of understanding, c) less worthy of specific financial

help, and d) less worthy of sympathy. The results, also, showed that attribution of responsibility by subjects considering themselves as jurors did not differ from the way the responsibility was attributed by subjects playing the role of a professional caseworker.

However, we must interpret the above-mentioned results with caution, having in mind that they were based upon paper-and-pencil tests, and considering the dangers of generalising to overt behaviours in more realistic settings.

For example, the results of two studies carried out by Midlarsky (1971), and Midlarsky and Midlarsky (1973) have contradicted the findings of the previously mentioned study which suggested that internal individuals are significantly less prone to regard other people in need as deserving. The results of these two studies have revealed that internally orientated subjects were more likely to exhibit helping behaviour in a face-to-face, actual experimental setting. It is possible that in a face-to-face situation the internally orientated individual, being more active and competent and having a sense of personal control over the environment, will actively engage in helping the other person more than will the external individual.

Of course, we cannot suggest that individuals with internal or external locus of control beliefs project upon others, without any kind of discrimination, their locus of control beliefs; at present, more research is needed in order to identify those parameters which influence a person's projection of her/his internal or external locus of control beliefs upon others. However, it appears that the personal perception of the contingency of reinforcement can have some influence on the way the person attributes responsibility to

others.

Although more research needs to be done in this area, the possible consequences of such an assimilative projection process in the field of Education are rather disturbing. It might imply that a highly internal teacher might tend to view the students in her/his charge as being responsible for most events in their personal and school lives, and believe that the students could succeed if they only tried. Such a belief could significantly influence the teacher-student interaction and relationship, it could, most possibly, create a tense classroom climate, and it might have the most negative effects especially upon programmes serving the disadvantaged students. It would appear safe to suggest that extreme teacher internality might cripple teaching effectiveness in some respects, in the same way as externality has been found to hinder performance in other areas.

As Phares and Lamiell have said:

...it seems reasonable to hypothesize that the extent to which one person holds another responsible for the latter's condition will be a significant determinant of numerous interpersonal reactions and judgements. Perhaps holding another responsible for a given situation is also to predetermine, to some extent, whether one likes that person, will help him or be kind to him. (Phares and Lamiell, 1975:24).

There is, also, research evidence suggesting that internally orientated individuals, compared to externally orientated individuals, under conditions of threat and failure, show higher recognition thresholds, poorer retention and a reduced willingness to admit to personal problems.

There has been the finding of Phares, Ritchie and Davis (1968)

who, using a sample of 19 University extremely external students and 21 extremely internal students, according to their scores on the Rotter Internal-External locus of control scale, reported that, after a rather negative psychological interpretation of their personality, extremely external students were able to recall a greater number of positive and negative interpretations than were extremely internal students. The authors concluded that individuals with an external locus of control belief system tend to have less need to forget a response since they attribute control of negative reinforcements to agents which are beyond their power to control.

Another study conducted by Efran (1963) has also revealed that 114 male high-school students with high scores on the Rotter Internal-External locus of control scale, that is with a highly external locus of control belief system, recalled their failures on scholastic and artistic tasks more accurately than did students with an internal locus of control belief system. Efran (1963), in interpreting his results, argued that, because externally orientated subjects tend to attribute their failures to luck, fate or other external forces, they do not need to resort to other kinds of defensive behaviour, e.g. memory distortion.

Similar results have been obtained by Lipp, Kolstoe, James and Randall (1968) who used 30 subjects aged 15-70 years suffering a variety of physical disabilities to prove that physically disabled subjects, who were externally orientated, would have a higher recognition threshold for threatening stimuli, that is, threat slides, than disabled subjects who were internally orientated.

Their hypothesis was not supported; they found that pictures of physically handicapped persons, when exposed tachistoscopically,

resulted in lower recognition thresholds by handicapped externally orientated individuals than by handicapped internally orientated individuals and by those possessing the middle range on the Rotter Internal-External locus of control scale.

This finding suggests that physical disability is more unacceptable and threatening to disabled individuals with an internal locus of control belief system who defend against it by the mechanism of denial; this denial of disability could have direct negative effects upon any successful rehabilitative efforts, since successful rehabilitation depends upon acceptance of the disability and adjustment to it.

The authors tried to explain their findings by suggesting that, because the internally orientated disabled person finds her/himself in an externally controlled situation, that of physical disability, s/he would feel more threatened by that situation and would try to deny it to a greater degree than an externally orientated disabled person.

Phares has commented upon the findings of the three previously mentioned studies:

...the foregoing work seems contradictory to the thesis linking defensiveness and externality. That is, if internals show higher recognition thresholds, poorer retention, and a reduced willingness to admit to personal problems, perhaps they are the defensive ones. But if so, it is only because the internal's generalized expectancy lessens the opportunity to reduce the effects of failure. The consequent anxiety then propels the internal into a kind of temporary or situational pathology. The external, already in possession of a generalized belief that serves nicely as a constant defense against threat from failure, can easily escape such situational pathology. (Phares, 1979:198)

Besides the research findings reported so far, we could also theorise about possible disadvantages associated with extreme internality and about the long-term consequences of a belief urging a person to assume always responsibility for either her/his successes or failures, some of which have to be due inevitably to external factors; in such cases the individual seems to be incapable of using her/his successes or failures in an adaptive and pragmatic manner. In the case of events that are due to luck or peculiar and unexpected behaviour of other persons, in the case of negative outcomes that are believed to depend upon an individual's skill and resources, extremely internal individuals find themselves under pressure to interpret such events as personal failures and attribute them to their own behaviour. It appears that in such cases the only alternative the extremely internal person has is either to change her/his view or withdraw from society.

It is also possible that a very strong internal locus of control belief system could create an obsession with personal responsibility which could lead to excessive guilt and remorse over any slight personal failure and constant thinking of potential failure when expectancy of success is slight, which could produce maladjustment.

According to this view, externally orientated individuals, by adopting a rather fatalistic view of events, do remain rather nonanxious whenever desired outcomes are not realised.

Another possible disadvantage associated with extreme internality could be that internally orientated individuals might enjoy less decision freedom compared to individuals with an external locus of control belief system; this hypothesis is based upon the

greater tendency of internally orientated individuals to base expectations on past experiences, which could mean that they are more likely than externally orientated individuals to believe that they have high freedom to obtain outcomes they have successfully sought in the past, and low freedom to obtain outcomes that they have previously eluded them.

There are some research findings which have suggested that, in certain environmental situations, an external locus of control belief system seems to be a highly adaptive and, to a certain degree, a realistic orientation leading to appropriate and useful behaviour.

Lao (1970), using 1493 male Black American college students, has found that those Black American students who attributed Black American disadvantages and problems to discriminatory practices of the system and not to personal Black American inadequacies, tended to participate more and have a higher degree of involvement and commitment in civil right activities.

Lao (1970), in commenting upon another finding of her study, that a belief in external locus of control is related to innovative behaviour, has argued that it is not always desirable for Black young people to have an internal locus of control belief system with reference to their successes and failures. According to her opinion, Black students, who can focus on system obstacles, seem to be able to assess the situation in a more realistic way and to distinguish between cultural and personal limitations, and, as result, they are more likely to choose innovative roles in the area of occupation as well as social action.

Another study conducted by Gurin and Katz (1966) supported the

research findings of the above mentioned study; they found that Black American college students, who resorted to discrimination factors in order to explain the disadvantaged position of Black Americans, held higher aspirations and were more likely to aspire for jobs not traditionally held by Black Americans than did those Black American students who resorted to internal factors in explaining Black Americans' inferior position.

Although, as it has already been said, certain qualities emanating from an internal locus of control belief system are neither desirable nor helpful to the individual, and, although, sometimes, having an external locus of control belief system is helpful to the individual, nevertheless, the manifestation of extreme external locus of control beliefs is incompatible with common sense which suggests that neither all failures nor all successes in a person's life are due to external agents. It is obvious that a person who attributes all her/his failures to external factors can never respond in an adaptive manner to negative feedback, since s/he never fails in her/his own eyes; this person is incapable of utilising the negative feedback of her/his failures in order to modify her/his future behaviour or performance in a more realistic and adaptive fashion and s/he will fail to adjust.

The constant attribution of responsibility to external factors reduces systematically feedback from the environment and it produces nonresponsiveness to reinforcement which results to an inability to modify behaviour as a consequence of such reinforcement and to long-term reduction in adaptability.

In the same sense, a person who attributes all her/his

successes to external factors will not respond to reward.

So, it appears that either complete acceptance of responsibility for success and failure outcomes or complete non-acceptance of such a responsibility will most likely lead an individual in having a completely erroneous and inaccurate perception of her/his ability. One wonders whether there might exist a 'happy medium', as Rotter (1966) has put it, as far as the possession of internality-externality is concerned; no doubt, further studies, ascertaining what level of internality is best, are required.

DuCette, Wolk and Soucar have concluded, with reference to the advantages of having an internal or an external locus of control belief system, by suggesting that neither internality nor externality in and of themselves are necessarily to be viewed absolutely as superior or inferior locus of control orientations; in their own words:

The general point would seem to be that neither internality nor externality is bad (or good) in itself; what is bad is a pattern of subjective perceptions for control that is out of balance. When this happens, the person will eventually be unable to utilize feedback from his environment, and will be left without the ability to adjust. (DuCette, Wolk and Soucar, 1972:295)

Being in agreement with that line of thinking, Solomon and Oberlander (1974) have argued that the optimal and most effective style of attributing blame and credit is the one that is most accurate. If an individual lives in an environment, in which her/his behaviour has reliable and predictive effects, it is rational and accurate for her/him to believe in internal locus of control of reinforcement, and it would be irrational for her/him to believe

that all outcomes are externally determined. If, on the other hand, an individual lives in an environment, which is unresponsive and in which behaviour outcomes do in fact depend on external causes, then an external locus of control belief system would be the most likely to be adaptive and effective and an internal locus of control belief system would be harmful.

This suggests that, before we draw any conclusions and make any value judgements about whether an internal or an external locus of control belief system is 'better' and most adaptive, we should examine first the consequences of an internal or an external locus of control orientation in the context of a particular situation; as Rotter has said:

it would help in such investigations if the researcher had not already predetermined that internals are always 'good guys' and externals are always 'bad guys'. (Rotter, 1975:61)

What we have to remember with reference to the possession of internal locus of control beliefs is that, although an internal locus of control belief system is most consistent with traditional personal achievement goals, an external locus of control belief system may be more suited for other goals that are equally valid, if less widely held; we have, also, to remember that there has to be a limit to the sense of personal control. Internality appears to be a desired orientation only to the extent an individual is aware of her/his capabilities and limitations; when an individual's locus of control beliefs are not based on reality, when an individual does feel that s/he has more control than is allowed by reality, s/he is bound to hurt her/his feelings sometime in the future, when s/he

will come face-to-face with the unavoidable fact of life that there are some events which s/he cannot control.

With reference to the relationship between the Internal-External locus of control variable and adjustment, although early thinking concerning the Internal-External locus of control concept used to assume that an individual, who perceives her/himself as responsible for the rewards and punishments that come her/his way, would be more adapted, while an externally orientated individual would be more maladjusted, nevertheless, in the recent years, there has been a growing awareness that the relationship between the Internality-Externality and the adjustment variables might not be linear, and that a curvilinear relationship might exist between them. This means that an extremely internal locus of control belief system or an extremely external locus of control belief system could be associated with pathology, being essentially unrealistic orientations. This line of thinking has challenged the assumption that a very highly internal orientation would suggest an increased tendency toward 'mental health'.

Rotter himself has discussed the possibility of a curvilinear relationship between Internal-External locus of control of reinforcement orientation and adaptive behaviour. In his well-known monograph he stated:

theoretically one would expect some relationship between internality and good adjustment in our culture, but such a relationship might not hold for extreme internal scores. (Rotter, 1966:282)

In the same monograph, Rotter has mentioned the possibility that an extremely internally orientated individual, who has a history of failure, must blame this failure on her/himself; an external locus

control belief system, then, might act as a defence against failure, but extremely high external scores, on the other hand, might imply a defensive behaviour related to significant maladjustment.

Certainly, the individual who perceives her/himself to be in complete control of her/his environment, and the opposite, the individual who perceives her/himself to have no control over her/his environment, experience similar adjustment problems or have distorted views of reality; nevertheless, this relationship is a complex one and it deserves further elaboration and research.

2. Effects of Internal-External locus of control of reinforcement beliefs on academic achievement-related behaviours

Of particular interest to the educational process is the investigation of achievement-related behaviours as related to the Internal-External locus of control of reinforcement beliefs, since the investigation of this relationship might provide a better understanding of the 'adequate achiever' and 'underachiever', and it might help in a better differentiation between the two.

a. Internal-External locus of control of reinforcement beliefs and academic achievement

The relationship between Internal-External locus of control beliefs and academic achievement has been studied at many educational levels, from the elementary school through to University, and the significant effect Internal-External locus of control beliefs can exert upon students' academic performance has been documented in the Coleman Report on Equality of Educational Opportunity (Coleman et. al., 1966), the 737-page monograph which has become one of the most controversial pieces of educational research of our time.

Coleman's sample was a nationwide sample covering nearly a million White and non-White pupils in the sixth, ninth and twelfth grades of 6,000 schools and three items of his questionnaire were related directly to Internal-External locus of control beliefs; the three items were:



'People like me don't have much of a chance to be successful in life.'

'Good luck is more important than hard work for success.'

'Every time I try to get ahead something or somebody stops me.'

Coleman found that - except for the oriental children - most of the variance of the non-Whites' achievement test scores was accounted for by their Internal-External locus of control beliefs, than by any of the many other attitudinal, school, teacher and familial variables studied.

In addition, it was the second most predictive variable for White students.

Some of the studies investigating the Internal-External locus of control and academic achievement relationship in children have used the Intellectual Achievement Responsibility (IAR) questionnaire (Crandall et. al., 1965) in order to assess Internal-External locus of control beliefs; the IAR questionnaire has been designed specifically to tap children's beliefs in the intellectual-academic achievement area.

One of these studies has been carried out by Messer (1972) who used 78 fourth-grade boys and girls whose average age was 9.8. Besides the IAR questionnaire, which was employed for the assessment of locus of control beliefs, school grades and scores on the Stanford Achievement Test were also used as measures of academic competence.

His results revealed that, in relation to school grades, higher grades were obtained from boys and girls who were more internally orientated, although more internal scores on the IAR subscale measuring acceptance of responsibility for failure were a better

predictor of higher grades for girls, while more internal scores on the IAR subscale measuring acceptance of responsibility for success were a better predictor of higher grades for boys.

With reference to achievement test scores, although again higher achievement test scores were obtained from boys and girls who scored more internally on the IAR questionnaire, nevertheless, no statistical significance was obtained. Once again, as it was the case with the grades, more acceptance of responsibility for failure predicted better achievement test scores for girls, while more acceptance of responsibility for success was a better predictor of achievement test scores for boys.

Two more studies, one conducted by Crandall, Katkovsky and Crandall (1965) and the other by McGhee and Crandall (1968), have yielded quite similar results to the ones mentioned above and constitute a most systematic investigation which uses the IAR questionnaire to study the relation between Internal-External locus of control beliefs and academic performance.

In the first of these studies, 923 boys and girls were used attending the third, fourth, fifth, sixth, eighth and twelfth grades. The Iowa Test of Basic Skills was used as a measure of academic competence for grades 3, 4, 5, while the California Achievement Test was employed for the same measure for grades 6, 8 and 12. Also, report-card grade averages were employed to assess the academic performance of all children.

The results demonstrated that, with reference to the report-card grades, boys and girls who scored more internally on the IAR questionnaire had significantly higher report-card grade averages; scores on the success and failure subscales were found to

be similarly good predictors of report-card grade averages in school.

In relation to the scores given to the Iowa Test of Basic Skills, it was found that girls, who were high in internality for acceptance of responsibility for success and failure, had higher achievement test scores than those who were low in internality. On the other hand, it was revealed that boys' more internal scores for acceptance of responsibility for failure were more often predictive of their achievement test scores, than were their scores for acceptance of responsibility for success, to the extent that the obtained relationship between acceptance of responsibility for success and failure scores and achievement test scores to be largely due to the relationship between the scores on the IAR failure subscale and the scores on the Iowa Achievement Test.

With reference to the scores given to the California Achievement Test, which had been administered to the sixth, eighth and twelfth grades, no significant relationship was obtained between scores on the IAR questionnaire and scores on the California Achievement Test.

In the study conducted by McGhee and Crandall (1968) 134 boys and girls attending the third, seventh and tenth grades were the subjects. The IAR questionnaire was used to assess Internal-External locus of control beliefs, and record-card grade averages were employed to estimate academic performance. For the girls it was found that, although those who were more internally orientated with reference to success, failure, and success and failure outcomes combined had higher record-card grade averages, nevertheless, the relationships were not statistically significant. As far as the boys

were concerned, those, who were more internally orientated with reference to failure, and success and failure outcomes combined, had significantly higher record-card grade averages.

Although in the Crandall et. al. (1965) study it was found that boys' more internal scores on the IAR success and failure subscales predicted their record-card grade averages, as far as their achievement test scores were concerned it was found that they were better predicted from the boys' more internal scores on the IAR failure subscale than from their more internal scores on the IAR success subscale. Similarly, in the study conducted by McGhee and Crandall (1968), it was revealed that boys' more internal scores on only the IAR failure subscale predicted their record-card grade averages.

In interpreting their finding McGhee and Crandall (1968) argued that a boy's belief that he is responsible for his own school failures may constitute a stronger incentive to academic effort than a belief that he is responsible for his own school successes. This could be attributed to the fact that his poor performance attracts, perhaps, more attention than his good performance. If that was the case, then we might expect that a concern about avoiding school failures would constitute a greater motivational influence than the expectancy of doing well.

On the other hand, in relation to the girls, more internal scores on both IAR success and failure subscales predicted their record-card grade averages and their achievement test scores. According to the researchers, this would seem to indicate that it might be less important to distinguish between locus of control beliefs for success as opposed to failure outcomes when one is

studying females of these ages than when one is studying male samples.

Contrary to the above reported sex differences, Messer (1972) consistently found that acceptance of responsibility for success was a better predictor of school grades and achievement test scores for boys, while acceptance of responsibility for failure predicted better these variables for the girls.

Messer tried to explain this finding in terms of culturally determined differences in what are considered by boys and girls to be socially acceptable motivators. According to him:

It appears that for girls, taking the blame for one's failures is tied more closely to academic performance, while for boys taking credit for successes is more saliently related to school success. Perhaps a girl who does well at school, that is, competes successfully with boys and girls, may consider it too assertive and thus too masculine either to take credit for her success or blame others for lack of it. She escapes from the undesired masculine stance and accounts for her superior performance by saying, in effect, 'It's my fault if I do poorly'. Boys who do well do not have to explain away their superior performance, since it is consonant with the masculine sex role to claim for oneself the credit for success. (Messer, 1972:1461)

The sex differences found in the three above mentioned studies may be due to differences in the nature of the samples, the measures of academic performance employed, or to some other factors, and obviously more research is needed in this area.

The lack of relationship between scores on the IAR questionnaire and scores on the California Achievement Test given by subjects attending the sixth, eighth and twelfth grades in the Crandall et. al. (1965) study has been contradicted by a study conducted by Chance (1965) who found internal locus of control

beliefs to be associated with California Achievement Test scores in her sample of third through seventh grade school-age children of both sexes. McGhee and Crandall (1968) attributed the different results of the two studies to the nature of the items of the California Achievement Test which may be a more valid measure when administered to elementary level school children.

The California Achievement Test and the IAR questionnaire were used as measures of academic achievement and Internal-External locus of control beliefs, respectively, in a study conducted by Crandall, Katkovsky and Preston (1962) using 40 boys and girls attending the first, second and third grades.

Their results revealed that responsibility attribution was significantly related to achievement-orientated activities for boys but not for girls. More specifically, it was found that boys attributing more responsibility for their everyday intellectual-achievement performances to themselves rather than to external factors tended to score higher on the California Achievement Test, spent more time in free-play intellectual activities, and demonstrate greater intensity striving in these activities than did boys who believed that the outcomes of their intellectual-academic achievement efforts were more a function of others than themselves.

With reference to the girls, the study demonstrated the opposite to boys' results; that is, girls' Internal-External locus of control beliefs did not predict any of their achievement-related activities.

The relationship between internal locus of control beliefs and academic achievement has been documented by Buck and Austrin (1971), as well, who used 100 eighth-grade economically disadvantaged

Afro-American students between the ages of 14 and 16 as their sample, and the Iowa Test of Basic Skills and the IAR questionnaire to assess academic achievement and Internal-External locus of control orientation, respectively. They found that boys and girls who had scored significantly more internal for acceptance of responsibility for success, failure, and success and failure outcomes combined, had also higher achievement scores, with only one exception; that is, boys who had higher achievement scores did not score significantly more internal for acceptance of responsibility for failure outcomes than did boys who had lower achievement scores.

The researchers tried to explain this last finding by suggesting that, due to the fact that the boys of their sample were members of a socio-economically disadvantaged group, they tended to view the world with some degree of anomie, and themselves as having little control over their destinies. For those boys an external locus of control belief system with reference to their failures might constitute an adaptation and a reaction to a real situation, and it might enable them to cope with feelings of despair and helplessness which develop from the realisation that they have no power in an 'all-powerful society' and that it is very difficult for them to attain achievement goals in the prevailing educational situation.

Better prediction of boys' higher school grades from acceptance of responsibility for success scores was also evidenced in the study conducted by Messer (1972), which has been mentioned earlier in the chapter.

Besides the IAR questionnaire, the Nowicki-Strickland locus of control scale for children (Nowicki and Strickland, 1973) has also

been used in order to assess Internal-External locus of control beliefs.

Nowicki and Roundtree (1971) used this scale, and the California Achievement Test, on the other hand, to assess school achievement, with a sample of 87 twelfth-grade high-school boys and girls. The expected relationship between academic achievement and internality was substantiated, to a significant degree, only in the case of the boys; no such relationship was found as far as girls were concerned. Contrary, girls' internality was associated with more involvement in extra-curricular activities.

According to the authors, this sex difference may be explained according to cultural norms, since the American society tends to reward males more than females for academic performance and females more than males for involvement in extra-curricular activities.

Quite similar results were obtained in a study conducted by Nowicki and Strickland (1973) who used achievement test scores for the assessment of academic achievement and the Nowicki-Strickland locus of control scale for children for the assessment of Internal-External locus of control beliefs; their sample were 1017 boys and girls ranging from the third through twelfth grades.

With reference to the boys they found significant correlations between achievement test scores and internality; contrary to that, no such relationship was found in the case of girls, with the exception of those attending the fifth and seventh grades where a significant relationship was obtained between internality and achievement test scores.

Nowicki and Walker (1974) used 35 female (20 Black and 15 White) and 28 male (14 Black and 14 White) fifth- and sixth- grade

students and Metropolitan Achievement Test scores as the measure of their academic achievement. Their results revealed that students who had an internal locus of control belief system, according to their scores on the Nowicki-Strickland locus of control scale for children, achieved more than those who had an external locus of control belief system.

Similar results were also obtained by Roberts (1971) who employed the Metropolitan Achievement Test as a measure of academic achievement and the Nowicki-Strickland locus of control scale for children. They found that internality was associated with reading achievement for the 75 disadvantaged boys and girls attending the seventh grade and with mathematic achievement only for boys. Internal locus of control beliefs and academic achievement were not associated in the case of third-grade students.

In another attempt to identify possible relationships between academic achievement and internal locus of control in children, Lessing (1969) used the Strodbeck's Personal Control Scale (Strodbeck, 1958) and grade point averages to measure academic achievement. She found that sense of personal control was related, to a significant degree, to grade point averages for a sample of 237 eighth-grade and 341 eleventh-grade Black and White children.

There are some studies which have examined the relationship between Internal-External locus of control beliefs and academic achievement using adult samples.

Hjelle (1970) used the Rotter Internal-External scale to assess locus of control beliefs and cumulative quality point averages as a measure of the academic achievement of his subjects, who were 139 male and female University students, 41 of whom had scored at the

internal end of the Rotter Internal-External control scale and 98 at the external end of the same scale. He found only minimal support for the prediction that internally orientated students would obtain significantly higher grades than externally orientated students.

Similar results have been reported by Eisenman and Platt (1968), who employed University students again, and the Rotter Internal-External locus of control scale and grades reported by the subjects as measures of Internal-External locus of control orientation and academic achievement respectively. Their subjects had been divided in internals (Internal-External score of 6 or below) and externals (Internal-External score of 10 or above). The authors did not find evidence that the Internal-External locus of control variable was a determinant of academic achievement, although we must treat with caution the reliance of self-report grades.

Similar results have been obtained by Brown and Strickland (1972) who found that internal locus of control was significantly related to higher cumulative grade point averages for males. As far as the girls were concerned, internal locus of control beliefs were not predictive of higher grades but of involvement in various kinds of campus activities; internal females were more likely than external females to engage in such activities.

The results of this study are quite similar to those reported previously in the Nowicki and Roundtree (1971) study, and the authors have suggested further research which would contribute to a better understanding of the development of Internal-External locus of control beliefs and sex-linked behaviours, especially with reference to academic achievement.

Lack of relationship between internal locus of control and

academic achievement has been evidenced in another study carried out by DuCette and Wolk (1973). They have used performance on mid-term and final course examinations as a measure of academic achievement, and their subjects were 35 internally orientated and 35 externally orientated high-school boys and girls; the Rotter Internal-External locus of control scale was employed for the assessment of Internal-External locus of control orientation. No difference between internally orientated or externally orientated students on the examination results was reported.

The expected relationship between internality and academic achievement not only has not been substantiated in the case of the male subjects, in a study conducted by Massari and Rosenblum (1972), but, even more, it was found that, as far as the women were concerned, more externally orientated women evidenced better academic performance. The investigators used as their subjects 133 male and female introductory psychology students who were administered the Rotter Internal-External locus of control scale and a version of the IAR questionnaire; their achievement criterion were grades obtained in the multiple-choice final examination administered to all subjects. Their results have revealed that male students who scored more internally on either the IAR or Rotter Internal-External locus of control scales did not perform better on the multiple-choice final examination than the male students who had scored toward the external orientation. As far as the female students were concerned, it was found that, contrary to expectations, female externality, on both IAR and Rotter Internal-External locus of control scales, was significantly associated with better performance on the examination.

Duke and Nowicki (1974) thought that the lack of relationship between academic achievement and internal locus of control beliefs in adults was due to certain deficiencies attributed to the Rotter

Internal-External locus of control scale which has been used in most of these studies as a measure of Internal-External locus of control beliefs; namely, the confounding effects upon the scale's items of the personal, social, political and ideological causation included in the Rotter Internal-External locus of control scale, and the difficulties arising for non-college populations from its forced-choice format and difficult reading level.

In order to overcome these research-based limitations of the Rotter Internal-External locus of control scale, Duke and Nowicki (1974) administered, alongside the Rotter scale, the Nowicki-Strickland Internal-External locus of control scale for adults (ANSIE) to a sample of 22 male and 26 female University students. This scale is a parallel form of the Nowicki-Strickland Internal-External locus of control scale for children (Nowicki and Strickland, 1973). Grade-point averages were used as a measure of academic competence. Their results revealed that, although with the Rotter Internal-External locus of control scale the relationship between locus of control and academic achievement was not substantiated neither for the male nor for the female students, with reference to the ANSIE scale it was found that internality for males was positively associated with achievement, while female externality was positively associated with achievement.

Prociuk and Breen (1974), in another attempt to overcome the research-based limitations of the Rotter Internal-External locus of control scale, used the Levenson locus of control scale (Levenson, 1972) in order to examine the relationship between Internal-External locus of control beliefs and study habits/attitudes and college academic performance of 89 psychology undergraduate students. They

examined students' study habits and attitudes through the conduct of a survey and the students' academic performance was assessed by their grade point averages. Their results revealed that study habits and academic performance were related positively to perceived internal control and negatively to chance control, and, although the powerful others and chance scales of the Levenson locus of control scale were positively correlated (.68), study habits and academic performance were more related to chance expectations than to powerful others orientations.

In interpreting their results, the researchers argued in favour of the differentiation between beliefs in external control by Powerful Others and beliefs in external control by Chance, and attributed any lack of significant findings in earlier research on Internal-External locus of control and academic achievement to the fact that the Rotter Internal-External locus of control scale does not differentiate between beliefs in control by Powerful Others and beliefs in control by Chance. According to them, the use of the Rotter Internal-External scale may attenuate any potential grade point average differences between internally and externally orientated individuals because of the differential levels of academic performance of individuals who perceive reinforcements to be controlled by powerful others as opposed to chance, luck or fate.

Based on the results of the studies which have examined the relationship between Internal-External locus of control beliefs and academic achievement we could say that an internal locus of control belief system has been shown to be positively related to greater academic achievement in children, although the results are more

consistent for boys than for girls.

This relationship with adult samples has, by comparison, been less impressive, and this could be attributed, partly, to the use of the general Rotter Internal-External locus of control scale. Furthermore, Rotter (1975) has offered another explanation. According to him, school is a highly structured and very familiar experience in the case of University students who know very well what is the relationship between effort, studying, etc., and academic achievement. Such things as study habits or other specific academic experiences may be much more important in University than Internal-External locus of control beliefs, whereas the reverse may be true in primary and secondary schools, which are perhaps more ambiguous or uncertain situations for students.

Also, there is something else we have to remember. The belief that one's own reinforcements are determined by, and are due to, one's own behaviour and effort does not necessarily mean that one will seek the attainment of those reinforcements. Another, equally crucial, factor in determining one's own behaviour is the value attached to the reinforcement. So, a student may actually have an expectancy for internal control of reinforcement in the intellectual-academic achievement area, but still be unwilling to get involved in any type of educational activity simply because s/he does not value the expected reinforcement.

b. Internal-External locus of control of reinforcement beliefs and need for achievement

Rotter (1966), in introducing the Internal-External locus of control of reinforcement concept, argued that it would be logical to assume that people with an internal locus of control belief system would show more overt striving for achievement compared to those who feel that they exert little control over their environment.

However, not all studies which have examined the relationship between need for achievement and Internal-External locus of control beliefs have supported Rotter's assumption.

Odell (1959) employed the Thematic Apperception Test (TAT) content analysis method in order to assess need for achievement, and the Liverant Internal-External scale (Liverant, 1958) in order to assess the Internal-External locus of control beliefs of 74 University male students. She reported a slight, $r = -.25$, but significant ($p < .05$) negative correlation coefficient between high, that is more external, scores on the Liverant Internal-External scale and need for achievement.

Mehrabian (1968), using the Mehrabian male and female need for achievement scales (Mehrabian, 1968), and 339 male and 446 female advanced undergraduates, sophomores and freshmen students, found that the male achievement scale correlated 0.64 with the Rotter Internal-External locus of control scale, while the female achievement scale correlated 0.41 with the same scale; the correlation coefficients were for both cases highly significant ($p < .01$). So, the obtained correlations indicated that high achievers perceived themselves as having a greater degree of control

over events which can influence their lives than low achievers.

Tseng (1970) found that internally orientated individuals were significantly higher ($p < .05$) than externally orientated individuals in need for achievement as measured by the Edwards Personal Preference Schedule (Edwards, 1957). He employed the Rotter Internal-External scale to assess locus of control beliefs, and his subjects were 95 male and 45 female clients enrolled in a vocational rehabilitation centre.

Pedhazur and Wheeler (1971), in order to determine the relationship between Internal-External locus of control beliefs and need for achievement, used the Bialer locus of control scale for children (Bialer, 1961) and the Graphic Expression Scale (Aronson, 1958) to assess the need for achievement of 44 minority sixth-grade students. The obtained correlation between the two variables was $r = -.29$, indicating that high perceived external control was related to low need for achievement to a statistically significant degree ($p < .05$).

Although the previously mentioned studies have reported positive relationships between internal locus of control beliefs and need for achievement, there are some other studies which have failed to substantiate such a relationship.

One of those studies has been carried out by Gold (1968) who used 36 University male students and 68 University female students to look for possible relationships between need for achievement, as measured by the French Test of Insight (French, 1958) and Internal-External locus of control scores on the Rotter Internal-External scale. She found that for both, male and female students, the correlation coefficients between the two variables were

insignificant, that is, $r = -.13$ for males, and $r = -.19$ for females.

Similar to the Gold's study results have been obtained by Lichtman and Julian (1964), who, using again the French Test of Insight (French, 1958) in order to assess need for achievement and the Rotter Internal-External locus of control scale, reported a non-significant correlation coefficient, $r = -.27$, between need for achievement and Internal-External scores of 28 subjects.

No significant correlations between measures of the need for achievement and locus of control have been reported in a study carried out by Wolk and DuCette (1971) who used as their subjects 60 male and female graduate students and 260 high-school females. The researchers employed the Rotter Internal-External control scale for the assessment of locus of control beliefs, while need for achievement was measured by the Mehrabian need for achievement scales (Mehrabian, 1968) and the Thematic Apperception Test (TAT).

The authors found that the relationship between locus of control and need for achievement was nonsignificant, even with intelligence partialled out. One exception was the significant ($p < .05$) correlation between the TAT and the Rotter Internal-External scale for college females; only for this group the two concepts were found to be significantly related, although the stability of this finding may be questioned due to the small number of the female subjects tested ($n = 29$).

There are two possible explanations for the negative correlations or the establishment of slight positive correlations between the variables of internal locus of control of reinforcement and high need for achievement reported in the previously cited

studies.

One of those explanations, offered by Rotter (1966), has to do with the existence of defensive externals who, as we have already said, are individuals with strong achievement needs and low expectations for success. Those individuals, while maintaining striving behaviour in clearly structured competitive situations, tend to verbalise external locus of control beliefs as a defence against possible future failure, and their defensive statement of external beliefs might lower any relationship between need for achievement and Internal-External locus of control of reinforcement.

Another explanation, offered by Phares (1976), is that the various tests employed to assess need for achievement do not separate the expectancy component of achievement from the need value aspect of achievement, as would be advocated by Social Learning Theory. An individual may have a high need for achievement and a low expectancy that s/he can achieve the desired goals, while another person may have a low need for achievement and a high expectancy for attaining the desired goals. In both cases, the scores of those two persons to a need for achievement measure might be similar and yet not represent an actual assessment of the persons' need for achievement.

c. **Internal-External locus of control of reinforcement beliefs and deferred gratification**

One of the essential attributes of the achieving personality is its capacity to postpone the enjoyment of presently available pleasures for future, delayed goals and rewards. But in order to do that an individual must feel confident that s/he is capable of bringing off the intended projects. If an individual does not have that self-confidence, why should s/he deny her/himself the pleasure of immediate offerings for some other distant rewards which s/he might never be able to get?

Lefcourt (1982), in commenting upon the possible relationship between Internal-External locus of control beliefs and deferred gratification, has argued that it would be reasonable to assume that an internally orientated individual is more likely, in comparison to an externally orientated individual, to engage in the execution of long-range plans, because planning ahead and working for distant goals is a process which would only seem to be sufferable if the individual believed that s/he was able to determine the results of her/his efforts.

The first investigator who reported on the relationship between the ability to defer gratification and Internal-External locus of control beliefs was Bialer (1961), who employed Bialer's locus of control scale for children (Bialer, 1961) and 89 normal and mentally retarded children, aged 6-14 years, as his sample. The children were asked to choose between the possibility of having an automobile now together with its licence and the knowledge to drive it or of having the automobile a year after together with a million dollars. Also,

they were asked to choose between a single piece of candy now or four pieces on the following day, and between a penny now and ten pennies on the next day. Bialer's results have revealed that internal locus of control of reinforcement was associated with deferred gratification ($p < .001$).

Although the evidence supplied by Bialer is an indication of the relationship between Internal-External locus of control and ability to delay gratification, Lefcourt (1982) has argued that in the Bialer study the children had only to choose between 'now' and 'tomorrow', no effort or persistence at a difficult and frustrating task was required, and the children were certain that, whatever was their choice, they would win the prize eventually without any effort on their behalf. Nevertheless, he admitted that there is a similarity between Bialer's procedures offering a choice between 'now' and 'tomorrow' and the circumstances encountered by a person who is pursuing the attainment of distant goals in that both may be regarded as a test to an individual's ability and willingness to overcome the tensions resulting from the rejection of immediate pleasures.

Mischel, Zeiss and Zeiss (1974) tried to overcome the previously mentioned shortcomings of Bialer's study by attempting to examine the relationship between Internal-External locus of control beliefs and deferred gratification when effort and work were required. In order to assess the Internal-External locus of control beliefs of the preschool children who consisted their sample, they used the Stanford Preschool Internal-External Scale (SPIES) (Mischel et. al., 1974), which, as it is the case with the IAR questionnaire, attempts to assess Internal-External locus of control

beliefs separately for positive and negative events. Mischel, Zeiss and Zeiss extracted their results from various studies conducted at the Stanford laboratories; in each one of those studies preschool children had to choose between small rewards offered early in the task or larger rewards which they could obtain after working for some period of time. The children were also offered the choice to stop at any time and receive a less valuable immediate reward.

The results of those studies have revealed that internal locus of control beliefs for success were positively related to instrumental behaviour for the attainment of larger, delayed rewards ($p < .01$). No such relationship was found when internal locus of control beliefs for failure were considered.

However, internal locus of control beliefs for failure were found to be the determining factor in children's practising behaviour; that is, children who believed that they could control their failures, compared to those who did not have that belief, practiced more when they anticipated losing previously earned prizes.

Using the Bialer locus of control scale for children and Black and White children attending the ninth grade, Zytoskee, Strickland and Watson (1971) found that Black children, compared to White, were more externally orientated and more likely to prefer immediate small reinforcements instead of waiting three weeks for larger reinforcements. But, despite the fact that the existence of external locus of control beliefs was found to be associated with a preference for immediate rewards, no relationship was found between Internal-External locus of control orientation and deferred gratification for the total sample of children.

In a follow-up study, Strickland (1972), instead of using only White experimenters, as it was the case with the Zytoskee et. al. (1971) study, used both White and Black experimenters; she thought that the absence of a relationship between Internal-External locus of control beliefs and deferred gratification might be due to the fact that Black children did not trust the White experimenters to return later with the the promised larger rewards.

Strickland used the Nowicki-Strickland locus of control scale for children (Nowicki and Strickland, 1973) for the assessment of Internal-External locus of control beliefs and 300 Black and White pupils attending the sixth grade who, after they had completed the Internal-External locus of control scale, were offered one record immediately or three records if they could wait for three weeks.

Strickland's results have revealed that, again, Black children, in comparison to White, gave more external scores and they were more likely to choose the smaller, but immediate, reward.

With reference to the Black children, Strickland has found that 33% of them chose the delayed reward offered by the White experimenter and 56% of them chose the delayed reward offered by the Black experimenter. It is apparent that Black children's Internal-External locus of control beliefs were less important than the race of the experimenter in the prediction of their willingness to defer gratification.

With reference to the White children, the results have revealed that 80% of them had opted for the delayed, larger reward regardless of the race of the experimenter. Additionally, the White children who had chosen the delayed reward had given more internal scores on

the Internal-External locus of control scale compared to those who had chosen the smaller, but immediate, reward.

In another study Strickland (1973), using the Nowicki-Strickland locus of control scale for children and a sample of White middle-class children aged 8-10 years, found that internal locus of control orientation was positively related to the choice of delayed, more valuable rewards.

Walls and Smith (1970), using a sample of children attending the second and third grades, have found that children with an internal locus of control belief system, in contrast to those with an external one, had chosen to wait and gain a 7¢ prize instead of gaining an immediate 5¢ prize.

Using a sample of vocational rehabilitation and welfare clients, Walls and Miller (1970) did not find a relationship between internality and deferred gratification, although both variables were related to the amount of education of the clients; that is, the more educated the clients, the more internally orientated they tended to be and the more likely they were to prefer delayed rewards.

d. Internal (effort) and Internal (ability) locus of control of reinforcement beliefs for failures in achievement-related situations and persistence in the face of failure

Weiner (1971, 1979) has created a classification scheme or a taxonomy of causes of success and failure within achievement-related contexts.

According to Weiner, the perceived causes of success and failure are, first, either internal or external to the individual; ability and effort are internal sources of causality, while luck and task difficulty are external sources of causality.

A second dimension of causality is labeled stability, and it defines causes on a stable versus unstable continuum; task difficulty, ability and typical effort are considered relatively permanent and fixed characteristics, while luck and immediate effort may change from one time to the next.

The third dimension of causality categorises causes as controllable versus uncontrollable; ability, task difficulty and luck are uncontrollable causes, while typical and immediate effort are perceived as subject to volitional control.

Although Weiner argues that:

...in achievement-related contexts the causes perceived as most responsible for success and failure are ability, effort, task difficulty and luck. That is, in attempting to explain the prior success or failure at an achievement-related event, the individual assesses his or her level of ability, the amount of effort that was expended, the difficulty of the task, and the magnitude and direction of experienced luck (Weiner, 1979:4),

nevertheless, he admits that these four causes are not the only determinants of success and failure, or even the most salient, in all achievement situations. Other causes such as family, mood, health, teacher bias, attention, fatigue, etc. may be perceived as responsible for success or failure experiences in achievement-related situations.

Weiner's classification of causes into the three dimensions of internality-externality, stability-instability and controllability-uncontrollability is presented in the following table.

	<u>Internal</u>		<u>External</u>	
<u>Controllability</u>	<u>Stable</u>	<u>Unstable</u>	<u>Stable</u>	<u>Unstable</u>
Uncontrollable	Ability	Mood	Task difficulty	Luck
Controllable	Typical effort	Immediate effort	Teacher bias	Unusual help from others

Weiner has argued that expectancy shifts after success and failure are dependent upon the perceived stability of the cause of the prior outcome. Attribution of an outcome to stable factors produces greater typical shifts in expectancy (increments in expectancy for future success after success and decrements in expectancy for future success after failure) than do attributions to unstable causes. That is, if one attains success or failure and if the conditions or causes of that outcome are perceived as remaining unchanged, then success or failure will be anticipated with a greater degree of certainty. But if the conditions or causes are subject to change, then there is some doubt that the prior outcome will be repeated. For example, failure that is attributed to low

ability (internal-stable) or to the difficulty of the task (external-stable) decreases the subjective expectancy for future success more than failure that is attributed to lack of effort (internal-unstable) or bad luck (external-unstable). In a different manner, success attributed to high ability (internal-stable) or the ease of the task (external-stable) increases the subjective expectancy for future success at that task more than does success attributed to exertion of effort (internal-unstable) or good luck (external-unstable).

Before we go any further we must point out certain inadequacies in Weiner's argument. First of all he argues that ability and task difficulty are stable factors but that effort and luck are unstable. Yet people may, on the basis of past experiences outside the current experimental situation, acquire generalised expectancies concerning their ability levels, luckiness and motivation to persist when performing certain tasks. They may also have generalised expectancies about the difficulty of a task on the basis of extensive past experiences with similar tasks. In brief, people may come to believe that they are lazy or hard working or that they are unlucky or lucky. Thus effort and luck can be conceptualised as stable factors if long-term experiences are assessed.

Ability and task difficulty, on the other hand, can be conceptualised as unstable factors if individuals have had little or no experience with similar tasks or situations. Even with some experience on such tasks, ability and task difficulty may still be seen as unstable even if the individual has had extensive, consistent experiences on similar tasks, because s/he may not have had sufficient experience on the current task to integrate those

experiences with the prior ones.

Another weakness in Weiner's argument is that he regards certain external causes as controllable by the individual (e.g. teacher bias, unusual help from others). He himself realises this inadequacy in his argument when he admits:

Some problems with this classification scheme remain unsolved, particularly among the external causes. For example, can an external cause be perceived as controllable?...these questions, as well as the proposed independence of the dimensions, are difficult issues for future thought and research (Weiner, 1979:7).

A third weakness in Weiner's formulation is that he stresses that a subject's categorisation of a cause is based on the factor's subjective meaning to the subject. Although there tends to be general agreement regarding the classification of some causes, there is variation both across individuals and across situations. The subject might consider luck as a stable characteristic of the individual in some cases (s/he is a lucky person) and a variable cause of performance in others (s/he was lucky today). The phenomenal aspect of Weiner's taxonomy is particularly important where children are concerned. Ability would be classified by most adults as an internal, stable and uncontrollable cause. For a young child, whose ability to do tasks changes daily, ability may appear much less stable. Accordingly, while adults who attribute failure to lack of ability generally have low expectancies for future performance, children may continue to hold high expectancies for future success because they expect their ability to change.

Nevertheless, despite the aforementioned drawbacks in Weiner's formulation, there is research evidence, to which we will refer

later in this section, which has partly supported Weiner's argument. This research has been concerned with the different effects attributions of failure to internal-stable (e.g. ability) and external factors, as opposed to internal-unstable (e.g. effort) factors, might have on expectancies for future success.

The development of the perception that one cannot control her/his failures, not only because one believes that they are controlled by external factors, but, also, because one believes s/he lacks the ability to do so, may lead to the development of a phenomenon similar to that described by Seligman, Maier, and Geer (1968) and which has been named by them 'learned helplessness'. Seligman, et. al. have defined 'learned helplessness, as:

the learning or perception of independence between the emitted response of the organism and the presentation and/or withdrawal of aversive events (Seligman et. al., 1968:258)

The occurrence of 'learned helplessness' is determined by the expectancy for future noncontingency between action and outcomes. In the case of children who attribute their failures internally to lack of ability, the development of a phenomenon similar to that of 'learned helplessness' is quite possible; by attributing their failures to their inability to perform the correct response, the children perceive an independence between their actions and the outcomes, as they do in the case where they attribute their failures to some external agents. In either case, they view the situation as being beyond their control. Dweck and Reppucci have commented on that:

It is possible that children who give up in the face of failure in achievement situations are victims of a similar phenomenon: giving up may reflect their perception of independence between what they do and what happens to them. Even though failure may indeed be contingent on their response, they may not see it as such. For example, a child might perceive independence between his response and failure by attributing the outcome to the influence of some external agent; he might perceive independence between his response and outcome by attributing the outcome to his inability to perform the response, whether this is true or not. In either case, he views the situation as being beyond his control. (Dweck and Reppucci, 1973:110)

Following, three studies are presented which have shown explicitly that attributing failure outcomes to lack of ability or external factors, instead of attributing them to lack of effort, results in lack of persistence in the face of failure.

Dweck and Reppucci (1973) employed for their experiment 20 male and 20 female fifth-grade children who were administered the IAR questionnaire, and, one month after the administration, they were given ten successes (soluble block designs) by one adult (success experimenter) and ten failures (insoluble block designs) by another (failure experimenter). After the completion of the training task, children were given again block design problems, the test problems, all of which were soluble; the first set of test problems was administered by the success experimenter and the second by the failure experimenter.

After the administration of the test problems, the subjects were divided into helpless and persistent. Subjects designated as helpless were those who, although they had successfully solved the first set of test problems given by the success experimenter, they were either unable to solve the second set of test problems given by the failure experimenter or they needed considerably more time to

find the solution compared to the amount of time they needed to solve the test problems given by the success experimenter. Improvement in time to solution on the second set of test problems administered by the failure experimenter was considered as an indication of persistence in the face of failure.

In analysing the responses of the helpless and persistent subjects to the IAR questionnaire, the researchers, in order to examine differences between the two groups of subjects in the attribution of responsibility for success and failure outcomes either to the ability variable or to the effort variable, further categorised the internal alternatives of the IAR questionnaire into those which attribute the outcome to the ability of the subject versus those which attribute the outcome to her/his effort. By using this additional scoring distinction the authors were able to subdivide the I+ subscore (success outcomes) into I+e (effort) and I+a (ability), and the I- subscore (failure outcomes) into I-e (effort) and I-a (ability).

The IAR scores given by the helpless and the persistent subjects have revealed that the helpless children, when compared to the persistent children, took significantly less personal responsibility for their success and failure outcomes ($p < .01$). Also, helpless children, as compared to the persistent children, to the extent that they did take responsibility for their successes, tended to attribute them to the presence of ability rather than to the expenditure of effort ($p < .01$). The same was the case with acceptance of responsibility for failures; when the helpless children assumed responsibility for their failures, in contrast to the persistent children, they tended to attribute it to lack of ability rather than to lack of effort ($p < .01$).

According to Dweck and Reppucci, the results of their study indicate that 'learned helplessness' may be an important and useful conceptualisation which could help us to understand the behaviour of certain children who, although they have the ability to succeed in achievement tasks, nevertheless, their performance deteriorates in the face of failure. Their results have revealed that children whose performance deteriorated in the face of failure had different beliefs about the locus of control of reinforcement in achievement situations from the beliefs held by children whose performance did not deteriorate in the face of failure. Helpless children tended to attribute their failures to external factors and to lack of ability rather than to lack of effort, and, by doing so, they revealed a belief in their powerlessness to control the outcomes of events. According to Dweck and Reppucci:

In essence, they are saying to themselves that whether they try or not, the consequence will be the same. Thus, in the sense that they view outcomes as relatively independent of what they do, they are helpless. (Dweck and Reppucci, 1973:115)

Similar to the results obtained by Dweck and Reppucci were the results obtained by Dweck (1975). Subjects in the Dweck's study were 12 children; 5 girls, 3 White and 2 Black, whose age ranged from 10-13 years, and 7 boys, 4 White and 3 Black, whose age ranged from 8-13 years. Those twelve children were identified as 'helpless' by the classroom teacher, the school psychologist and the school principal, independently, because they were characterised by expectancy for failure and deterioration of performance in the face of failure. The experimenters employed, also, 10 persistent children, characterised by their persistence in the face of failure

of difficulty, who were of the same age and of equal ability to the helpless children. The persistent children were employed in order to examine any differences between them and the helpless children in the responses they would give to each one of the following measures: a) the IAR questionnaire, which was scored the same way as in the Dweck and Repucci (1973) study; b) the Test Anxiety Subscale and the Poor Self-Evaluation Subscale of the Test Anxiety Scale for Children (TASC) (Sarason, Davidson, Lighthall, Waite and Ruebush, 1960). The TASC has been used as an indirect measure of the motive to avoid failure and the researchers thought that it might distinguish between the two groups of children; c) a repetition-choice task, which was given to the children in order to examine their tendency to avoid failure and their tendency to strive for success. Two jigsaw puzzles, of approximately the same difficulty and interest, were given to the children who were allowed to complete the first puzzle, but were not allowed to complete the second. After that the children were asked to choose to reconstruct one of the puzzles; children who decided to reconstruct the puzzle they had already successfully completed were thought of as having a tendency to avoid failure, while children who decided to reconstruct the failed puzzle were considered as having a tendency to strive for success.

The results obtained by the administration of the IAR questionnaire have revealed that the children who had been characterised as helpless, in comparison to those who had been characterised as persistent, accepted significantly ($p < .005$) less responsibility for success and failure outcomes. Also, helpless children tended to place significantly ($p < .005$) less emphasis on the role of effort in determining success and failure outcomes than

did the persistent children.

With reference to the results obtained by the administration of the two subscales of the Test Anxiety Scale for Children, helpless children, as compared to persistent children, were significantly ($p < .01$) more anxious, and, also, gave poorer self-evaluations ($p < .025$).

As far as the results to the repetition-choice task were concerned, children characterised as helpless displayed a tendency to avoid failure, while children characterised as persistent displaced a tendency to strive for success; that is, 9 of the 12 helpless children decided, when they were offered the choice, to reconstruct the puzzle they had already completed with success rather than the puzzle they had been interrupted to complete, while only 1 of the persistent children chose to do so ($p < .01$).

The results of the previously mentioned two studies have revealed that children who are characterised as 'learned helpless' believe failure in achievement tasks to be the result of their lack of ability or the result of external factors beyond their control; as a result they are unlikely to persist in their efforts. On the other hand, children who persist in the face of failure tend to regard it as the result of their reduced effort and they are more likely to escalate their effort in an attempt to obtain desired goals.

The results of a study conducted by Andrews and Debus (1978) have supported those of the two previously mentioned studies. These investigators employed 71 female and 87 male children, whose mean ages were 11 years 8 months and 11 years 11 months, respectively.

The children were given the following measures to complete:

The IAR questionnaire, which was scored according to the way it was scored in the two previously mentioned studies.

The Effort Attribution Scale (EAS), which has been patterned on the format of the IAR questionnaire and it consists of five items referring to failure achievement-related situations and five items referring to success achievement-related situations. Each one of the 10 items has two alternatives; one attributing the success or failure outcome to an effort variable and the other to an ability variable.

An instrument with two sides, one of which was labeled 'I succeeded because', and the other was labeled 'I failed because'. The instrument had also four half-discs with the following labels: 'I had the ability'/'I didn't have the ability'; 'the task was easy'/'the task was difficult'; 'it was good luck'/'It was bad luck'; 'I tried hard'/'I didn't try hard enough'.

The subjects could attribute their successes and failures in an achievement task to any of the four variables.

The achievement task employed to elicit children's attributions was a circle design task which required the children to analyse designs into component parts and then synthesise those parts into a whole; success and failure on the task was manipulated by the experimenter.

After the children had made their attributions for their successes and failures on the circle design task, they were tested for persistence on a modified version of Feather's Perceptual Reasoning Test (Feather, 1961, 1963), which required the children to trace over all lines in a diagram without lifting the pen from the

figure or tracing over any line twice. The Perceptual Reasoning Test consisted of three line diagrams, the first of which was insoluble and the other two were soluble.

Persistence measures for each child were derived from the number of trials taken at the first insoluble line diagram before deciding to turn to the next line diagram, and from the total time each child spent from the time s/he started the first insoluble line diagram to the point at which s/he decided to try the next line diagram.

The results revealed that attribution of failure in the circle design task to insufficient effort was positively related to persistence in the Perceptual Reasoning Test, while attribution of failure to lack of ability and task difficulty was negatively related to persistence in the Perceptual Reasoning Test. Attribution of failure to luck was not found to be related to persistence.

Scores on the IAR questionnaire and the Effort Attribution Scale related only weakly with persistence, and with the attributions made for success and failure outcomes on the circle design task.

II. Incidence of Internal-External locus of control of reinforcement beliefs

1. Age differences in Internal-External locus of control of reinforcement beliefs

Crandall, Katkovsky and Crandall (1965), during the construction of the IAR questionnaire, examined age differences in relation to Internal-External locus of control beliefs. As a general tendency, their results indicated that the I total (success and failure combined) scores and I+ (success) and I- (failure) subscores increased only slightly with age.

But a more definitive t-test comparison between each two-grade levels has revealed that, while there was no significant change in I total scores from third grade to fifth, or from sixth grade to twelfth for either of the sexes, some changes in I+ and I- subscale scores reached statistical significance over these years.

The boys decreased their I+ subscale scores between tenth and twelfth grades to a significant degree ($p < .01$), and the girls, although they did not show a significant increase in their I+ subscores, increased their I- subscale scores from third grade to fifth ($p < .01$) and from sixth grade to twelfth ($p < .05$).

The authors proposed two explanations for the boys' decreased tendency for acceptance of responsibility for success from grades tenth to twelfth. Firstly, they attributed the decrease to the uncertainties being provoked to the boys about future success by the imminent graduation and the necessity of having to find a job or be

accepted into college. Another suggested reason was the development of an increased sense of modesty in the older boys, which is not present at earlier stages, which made them respond to the IAR questionnaire in a way indicating that they were not responsible for the successes in their intellectual-academic efforts.

There are two more studies which have employed the IAR questionnaire for the assessment of Internal-External locus of control beliefs which have reported positive relationships between age and the locus of control orientation.

The first of these studies has been conducted by Crandall and Lacey (1972) who used as their sample 28 boys and 22 girls whose age ranged from 6.10 to 12.5 years; it was found that perception of internality was positively related to age, that is, the older the children the more internal responses they gave.

The second study has been carried out by Lifshitz (1973) who, in her attempt to explore the meaning of locus of control among children raised within a specified framework, namely the kibbutz in Israel, has examined sex and age differences in the IAR scores as well; her sample included 183 kibbutz children, 104 boys and 79 girls, aged 9 to 14 years, from the fourth to the eighth grade. With regard to age differences, her hypothesis was that the younger the child, the more external her/his locus of control orientation should be; the results of her study supported the above hypothesis, since a significant age effect was found in each one of the three IAR scores. Responsibility for success increased significantly with age ($p < .05$), as did responsibility for failure ($p < .001$), especially between the ages of 10 and 14; similarly, the I total score increased significantly within the age span 9 to 14 ($p < .001$).

There are four more studies which have checked for age differences in the locus of control orientation and which have employed the Bialer locus of control scale for children (Bialer, 1961) for the assessment of locus of control beliefs; three of these studies, Penk (1969), Milgram (1971) and Bialer (1961) have reported positive correlations between increasing age and internality, while a study conducted by Battle and Rotter (1963) did not find such a correlation.

Penk (1969), in his study of five groups of children 7 to 11 years old, computed significant ($p < .01$) intercorrelations for chronological age, which showed that scores increased with age toward the internal direction.

This progressive sense of personal responsibility as a function of increases in age supported the developmental hypothesis of Penk's study, which was that, associated with increasing mastery, there is a concomitant increment in a child's feelings that events are under her/his control and a decrease in her/his feelings that events are controlled externally.

Milgram (1971) used 80 Black and White children from working- and lower-class homes, 20 each in the first, fourth, seventh and tenth grades, the average age for the four groups being 6.9, 9.9, 13.2 and 15.7 years.

His results showed that the grade effect was highly significant ($p < .001$) for the locus of control scores during the first and the second, after three months, administration of the Bialer locus of control scale.

The authors explained these age-related increments by saying that they are consistent with:

...the expectation that children become increasingly competent in affecting their environment and increasingly aware that their own behavior is instrumental in bringing about desired consequences and averting undesired consequences. (Milgram, 1971:463)

Bialer (1961) has also obtained a relationship between chronological age and locus of control scores ($p < .01$), which, nevertheless, diminished substantially when mental age was partialled out. On the other hand, mental age and locus of control scores remained strongly related ($p < .01$) when chronological age was partialled out.

Lefcourt has commented with reference to the results of Bialer's study:

It may therefore be concluded that chronological age per se is not the most salient aspect of maturation with regard to locus of control. Rather, it is the growth of mental age, the extent of vocabulary development, and usage that becomes associated with a sense of being able to determine the shape of one's life. (Lefcourt, 1976:114)

Alongside the Bialer locus of control scale, Battle and Rotter (1963) administered the Children's Picture Test of Internal-External Control (Battle and Rotter, 1963) for the assessment of the locus of control orientation of 80 children attending the sixth and eighth grades.

The investigators found that the difference in their subjects' age was not a determiner of internal-external scores neither on the Bialer questionnaire nor on the Children's Picture Test of Internal-External Control.

Battle and Rotter's failure to find a relationship between internality and age is probably attributable to the fact that, in their study, subjects were only about two years apart in age.

The Nowicki-Strickland locus of control scale for children (Nowicki and Strickland, 1973) has been used for the assessment of locus of control beliefs in two studies which have reported positive correlations between increasing age and internality.

One of those studies has been carried out by Nowicki and Strickland (1973) whose sample were 1017, mostly Caucasian, elementary- and high-school students ranging from the third through the twelfth grade. The hypothesis the authors made was that scores on the scale would become more internal with increasing age and their prediction was supported for both sexes; students' responses became more internal with increasing age.

The second of the studies, conducted by Tyler and Holsinger (1975), tested the function of age in producing changes in locus of control orientation by using a sample of 207 male and 191 female students from the fourth, seventh, ninth and eleventh grades of an Indian school. Their hypothesis was that older children would be more internal than younger children, and it was strongly supported by the results for both sexes; in general, older subjects were more internal than younger subjects.

Furthermore, most of the studies which have employed the Rotter Internal-External locus of control of reinforcement scale for the measurement of locus of control beliefs have revealed the existence of a positive correlation between age and internal control.

Sara Staats (1974) administered the Rotter Internal-External locus of control scale (Rotter, 1966) to 150 non-academic subjects aged 5-15, 16-25 and 46-60 years. The results indicated a highly significant correlation between age and internal control, since the increase in internal locus of control up to the age of 60 years was

significant ($p < .001$).

A possible interpretation given by the author for this finding was in terms of an increasing understanding by individuals of their effectiveness in securing reinforcements through the age range studied.

A small, but significant ($p < .05$), tendency for older subjects to be more internally orientated was found by Lichtenstein and Keutzer (1967) in a study of 95 male and 118 female individuals ranging in age from 19 to 69 years.

Older subjects were, also, more internally orientated, to a significant degree ($p < .001$), in a study conducted by Strickland and Shaffer (1971); the subjects were 60 males and 54 females whose mean ages were 17, 45 and 60 years.

Lao (1974) administered the Rotter Internal-External locus of control scale to her subjects and she predicted an increase in internality from youth to adulthood (15- to 30-39 years); a stabilised sense of internal control throughout the middle age (30 to 59 years); and a decrease in internality in old age (60 years and older).

Her findings yielded support for the first two hypotheses, but not for the third, although there was a slight tendency for belief in internal control to decrease after 60 years; nevertheless, her findings showed no significant decrease in internality among elderly individuals.

There is one study which has used Rotter's Internal-External locus of control scale and in which correlations between age and Internal-External scores were nonsignificant in the overall sample which consisted of approximately 120 University students from each

one of the following countries: India, Japan, Italy, France, Germany, Canada, USA and Israel. The average age of those students varied from 19.0 to 23.8 years and the study has been carried out by Parsons and Schneider (1974).

Ryckman and Malikiosi (1975) tried to replicate and extend the findings obtained in the previously mentioned Lao's (1974) study. Their sample consisted of 100 college students and an occupational sample of 383 subjects. Seven age groups were formed covering the following age stages: 17-20 years; 30-39 years; 40-49 years; 50-59 years; 60-69 years; 70-79 years. All subjects were administered to fill out Levenson's (Levenson, 1972) locus of control scale.

For the 'Personal Control' component of the Levenson's scale the results indicated that the college students were less internal than all of the older age groups, with the exception of the eldest subjects. Lao's findings of a stabilised sense of internal control in the middle years was replicated, as well as her finding of no decline in internality in old age.

For the 'Powerful Others' component of the scale the only statistically significant finding was that students and subjects aged 40-49 and 70-79 years perceived others as having less control over them than the 50-59 years old. The oldest subjects were the most convinced that they were free of control by powerful others. No other comparisons were statistically significant.

As far as the 'Chance' component of the scale was concerned, that is, the extent to which an individual believes her/his reinforcements occur randomly, the results revealed that people in the 30-39 years old category perceived their environment as more predictable than college students and people in the 20-29, 50-59 and

60-69 years old categories. People belonging to the 40-49 and 70-79 years old groups had the same perception to the people belonging to the 30-39 years old group. The 20-29 and the 50-59 years old perceived their environments as less predictable than the 40-49 years old. Again, it is interesting to note that people in their 70s perceived themselves as living in predictable environments.

The authors of the study proposed a possible explanation for the perception of stability during the 30s and 40s arguing that people belonging to these age groups are more secure in their family lives and careers than they were during their 20s or than they will be after 50.

However, trying to limit the generalisability of their findings, they drew attention to the limitations of their sampling procedures and to the fact that their data came from a sample which was not representative of the national sample; their sample included a disproportionate number of subjects of higher socio-economic background.

However, in favour of the validity of their results is the fact that their findings were similar to those of Lao's (1974) study despite the differences in socio-economic status between the two samples. In both studies it was quite clear that elderly people believed that they had control of their lives and their actions' outcomes in every sphere of their lives. And this finding comes in sharp contrast with the commonly held stereotypes about the old age as being a stage of passivity and helplessness.

A positive relationship between increasing age and internality has been found in a study conducted by Lessing (1969), who used seven items from the Strodbeck's Personal Control Scale

(Strodtbeck, 1958) in order to measure sense of personal control over one's own life. Her subjects were 182 White and 55 Black students attending the eighth grade, and 288 White and 53 Black students attending the eleventh grade; it was found that eleventh graders were significantly ($p < .01$) more internal than the eighth graders on the sense of personal control.

2. Sex differences in Internal-External locus of control of reinforcement beliefs

Buck and Austrin (1971) administered the IAR questionnaire to 50 matched pairs of 8th-grade Afro-American students between the ages of 14 and 16; their subjects, on the basis of their scores on the Iowa Test of Basic Skills, were distributed to two groups, that is, adequate achievers and underachievers.

Their findings revealed that, for the two achievement groups combined, no significant sex differences were found between boys and girls in all three IAR scores. However, when the two groups were considered separately, girls in the group of the adequate achievers were found to be significantly more internal than boys in acceptance of responsibility for failure ($p < .01$), and success and failure combined ($p < .05$); no significant IAR differences were revealed between boys and girls in the group of the underachievers.

In a study conducted by Crandall, Katkovsky and Preston (1962), 20 girls in the first, second and third grades were more prone ($p < .05$) than the 20 boys of equal age to assign responsibility to themselves rather than to others for the successes and failures which eventuated from their intellectual-achievement efforts; the IAR questionnaire was employed for the assessment of Internal-External locus of control beliefs.

Girls were also found to be more internal than the boys in a study conducted by Solomon, Houlihan and Parelus (1969), in which two samples of students were used attending the fourth and the sixth grades and to whom the IAR questionnaire was administered; in the White sample there were 80 boys and 57 girls, while the Black sample consisted of 63 boys and 62 girls.

Their results revealed that, in the combined sample and the White group of students, girls scored significantly ($p < .01$) more internal than boys for acceptance of responsibility for success, and success and failure combined. With reference to the Black sample only a borderline effect ($p < .10$) was revealed for acceptance of responsibility for success and failure combined, with girls scoring more internal than boys.

Crandall, Katkovsky and Crandall (1965) used 923 elementary and high-school students, who attended the third, fourth, fifth, sixth, eighth, tenth and twelfth grades, to whom they administered the IAR questionnaire.

The t-test comparisons revealed that at any grade level from the third to the fifth, and for those three grades combined, girls scored more internal than boys for acceptance of responsibility for success, and success and failure combined. As far as acceptance of responsibility for failure was concerned, boys scored more internal in the third and fourth grades, and in the third, fourth and fifth grades combined, while girls scored more internal in the fifth grade. But none of the above mentioned differences in IAR scores reached significant level.

At any grade level above the sixth, and for the upper grades combined (sixth, eighth, tenth and twelfth), girls gave significantly more internal responses for acceptance of responsibility for success, failure, and success and failure combined. The only case in which girls scored more internal than boys but the difference between their mean scores did not reach statistical significance was for acceptance of responsibility for success in the eighth and tenth grades.

Similar to the lower-grade levels results obtained by Crandall et. al. (1965) were the findings of Crandall and Lacey (1972) who used as their sample 50 elementary school age children, 28 boys and 22 girls, whose age ranged from 6.10 to 12.5 years. The results of the study have revealed that girls scored more internal than boys on acceptance of responsibility for success, failure, and success and failure combined, although the difference between boys' and girls' three IAR scores did not reach statistical significance.

Although all previously mentioned studies have reported differences in mean IAR scores with girls being, in most of the cases, more internal than boys at the elementary and high-school level, there is one study, carried out by Lifshitz (1973), which did not reveal any sex differences in any one of the three IAR scores. Lifshitz administered the IAR questionnaire to 183 kibbutz children aged 9 to 14 years from the fourth to the eighth grade; 104 of those children were boys and 79 girls.

Using a University sample in their study, Massari and Rosenblum (1972) administered a slightly modified version of the IAR questionnaire together with the Rotter Internal-External locus of control scale to 43 female and 90 male students under the age of 25 years. They found that women were more internal than men in acceptance of responsibility for failure ($p < .01$), and acceptance of responsibility for success and failure combined ($p < .05$).

Besides the studies using the IAR questionnaire for the assessment of children's locus of control beliefs, there are a few more studies which have employed other children's locus of control scales in order to answer, among other questions, the question related to sex differences in the locus of control orientation.

Three of those studies employed the Bialer locus of control scale for children (Bialer, 1961) and they did not reveal any sex differences in the children's locus of control orientation.

The first study has been carried out by Penk (1969) who administered the Bialer scale to five groups of children, whose age ranged from 7 to 11 years.

The second study has been conducted by Milgram (1971) who used 80 children, 20 each in the first, fourth, seventh and tenth grades; each grade sample was divided equally into boys and girls and the mean ages for the four grades were 6.9, 9.9, 13.2 and 15.7.

The third study has been conducted by Zytoskee, Strickland and Watson (1971); 145 male and female 9th-grade students aged 14-17 years completed the Bialer locus of control scale for children and no sex differences have been reported.

The Bialer locus of control scale for children, together with the Children's Picture Test of Internal-External control (Battle and Rotter, 1963), was administered by Battle and Rotter (1963) to 80 Black and White sixth- and eighth-grade children; the results indicated that the children's sex was not related to the scores they gave either to the Bialer scale or to the Children's Picture Test of Internal-External control.

Another children's locus of control scale, the Nowicki-Strickland locus of control scale for children (Nowicki and Strickland, 1973), has been employed by Nowicki and Segal (1974) with a sample of 112, 58 male and 54 female, White twelfth-grade suburban high-school students. The results revealed that the mean scores of the male and female groups differed significantly, with males generally scoring in a more external direction than females.

No significant sex differences were reported in another study using the Nowicki-Strickland locus of control scale for children. This study has been carried out by Tyler and Holsinger (1975) who checked for sex differences in their Indian sample. Their subjects were 207 male and 191 female students from the fourth, seventh, ninth and eleventh grades of the reservation school on a rural upper-midwest Chipewa Indian reservation.

The researchers made the hypothesis that Indian girls would be more internally orientated than Indian boys, and based this hypothesis on existing evidence that female Indians advance further in school than males, tend to occupy higher status jobs and enjoy an equally high likelihood of being employed.

The results indicated that, except at the fourth level, Indian males were not more externally orientated than Indian females; although in the predicted direction, the sex difference at the fourth grade level was not significant.

As the researchers have suggested it would be interesting to test this hypothesis with a sample of adult Indians who have had more direct exposure to the emasculating factors to be found in the Indian community.

Seven items from Strodbeck's Personal Control Scale (Strodbeck, 1958) were employed by Lessing (1969) to test, among other things, whether there was any sex difference in the locus of control orientation of 182 White and 55 Black eighth-graders and 288 White and 53 Black eleventh-graders; analyses performed separately for each grade yielded no statistically significant sex differences with regard to locus of control beliefs.

So, as we have seen until now, on the one hand, most of the

studies using the IAR questionnaire and the one of the two studies using the Nowicki-Strickland locus of control scale for children have revealed that girls were more internal in their locus of control orientation than boys, while the employment of the Bialer locus of control scale for children, the Battle and Rotter's Children's Picture Test of Internal-External control, and the Strodbeck's Personal Control Scale did not reveal any sex differences. On the other hand, studies using the Rotter Internal-External locus of control scale (Rotter, 1966) either did not reveal any sex differences in Internal-External locus of control scores or have indicated that women were more external in their locus of control beliefs than men.

Studies which have employed the Rotter Internal-External locus of control scale for adults and have not reported any sex differences in the locus of control orientation of their male and female subjects have been conducted by Gormanous and Lowe (1975) who employed 126 female and 90 male undergraduate students; by Strickland (1965) whose subjects were 52 Black female college students and 106 Black male college students; by Hamsher, Geller and Rotter (1968) who employed 173 college students, 60 males and 113 females; by Hersch and Scheibe (1967) whose subjects were 312 female and 169 male college students.

138 White, middle-class high-school students, 94 females and 44 males, enrolled in an advanced placement course of introductory psychology, were the subjects of a research project carried out by DuCette and Wolk (1973), who did not report any sex differences in their subjects' Internal-External locus of control scores.

Subjects from various age groups were used in the following

three studies. Strickland and Shaffer (1971) used three age groups, that is, adolescents, with a mean age of 17, middle aged adults, with a mean age of around 45, and older persons close to 60; 54 subjects were female and 60 were male. Lichtenstein and Keutzer (1967) employed 95 males and 118 females, aged from 19 to 69, whose mean age was 40.1 years. In both of the above mentioned studies the difference found between the sexes in the Internal-External locus of control scores was not statistically significant. Sara Staats (1974) administered the Rotter Internal-External locus of control scale to 150 persons, 75 male and 75 female, in each of the following age groups; 5-15, 16-25, 46-60. She found that expectancies for external locus of control of reinforcement were increased in the male 16-25 age group; excepting for this 16-25 group, there was a tendency for males to be more internally orientated than females, but this sex difference was not statistically significant.

No sex differences in Internal-External scores were reported by Tseng (1970) who administered the Rotter Internal-External locus of control scale to 95 male and 45 female individuals who were enrolled in vocational training programs in a State vocational rehabilitation centre.

Elderly people were the subjects of two other studies which did not reveal any sex differences in Internal-External locus of control beliefs. The first of these studies has been conducted by Wolk and Kurtz (1975) who administered the Rotter Internal-External locus of control scale to 77 male and female elderly non-institutionalised individuals aged 60 to 85 years. Nine hypothetical problems were used to measure locus of control in the other research project carried out by Felton and Kahana (1974) with the assistance of 124

White institutionalised elderly people, predominantly female (74.2%), who ranged in age from 55 to 97, with a mean age of 79 years.

Although the previously mentioned studies using the Rotter Internal-External locus of control scale did not reveal any sex differences, there are some other studies which have used the same scale and have given supportive evidence to the existence of sex differences in locus of control orientation, with men being more internal than women in their locus of control beliefs.

One of those studies has been conducted by Brannigan and Tolor (1971) who gave the Rotter Internal-External locus of control scale to 82 male and 50 female undergraduate college students; their results revealed that female subjects scored more toward the external direction than did male subjects.

A series of cross-cultural studies, using the Rotter Internal-External locus of control scale, confirmed the existence of greater externality among women in comparison to men.

Parsons, Schneider and Hansen (1970) employed 124 male and 140 female Danish University students, whose mean age was 23.2 with a range of 9 years, and 116 male and 108 female American University students whose average age was 19.0 years. The results of the study revealed that the American female students gave higher, that is more external, mean Internal-External score than did the American male students. Similarly, with the Danish sample, the Danish female students had more external mean Internal-External score than did the Danish male students.

Nonsupervisory labourers in dairy or industrial plants in USA, Mexico and Thailand were the sample in a research project carried

out by Reitz and Croff (1972); the authors found that mean Internal-External scores were more external among females than among males in each of the three countries, but this sex difference was statistically significant only among the American and the Thais.

McGinnies, Nordholm, Ward and Bhanthumnavin (1974) administered the Rotter Internal-External locus of control scale to 1538 subjects, 719 males and 819 females, from Australia, Japan, New Zealand, Sweden and USA; all subjects were University students, except the Swedish sample who were students in an upper secondary school, still living with their parents. The main effect of sex on Internal-External scores was significant ($p < .001$), with females in all countries having more external mean Internal-External scores than males.

This main effect due to sex was as strong in Sweden as in other countries, contrary to what might have been expected, since, in view of the widely held belief, Swedish women are the prominent figures in the female emancipation movement.

The researchers gave some reasons for this sex difference in the locus of control orientation found in the Swedish sample, referring to the young age of the students and to the fact that they were still living with their parents which probably consisted a social reality for them indicating an external control of their lives.

On the other hand, they argued that this finding might reflect a pattern of male dominance which exists in most countries, including Sweden, since they believe that in very few countries, if any, women have the power to be self-determined to the same extent as men.

In a similar kind of cross-cultural study, Parsons and

Schneider (1974) used approximately 120 male and female students from each one of the following Eastern, Western and Middle-Eastern societies: Japan, India, France, Germany, Italy, Canada, USA and Israel; all subjects were University students and their average age varied from 19.0 to 23.8 years.

The Rotter Internal-External locus of control scale was used to measure locus of control orientation, and five different subscales were scored on the basis of their content:

- a. general fate or luck items (items 2, 9, 15, 18, 21, 25, 28)
- b. personal respect items (items 4, 7, 20, 26)
- c. politics items (items 3, 12, 17, 22, 29)
- d. leadership-success items (items 6, 11, 13, 16)
- e. academic items (items 5, 10, 23)

It was found that the subscale differences between sexes were only significant on two of the five content subscales, that is, luck-fate and leadership-success categories; in both cases, female students, in comparison to male students, scored in the more external direction. The sex difference found in the mean Internal-External scores was small, but, nevertheless, consistent across countries and statistically significant ($p < .001$).

The results on the leadership-success subscale should not be unexpected if one was to take into account the difficulties women encounter in their efforts to succeed equality of opportunity in leadership positions.

Parsons and Schneider argued that the belief of McGinnies et. al. (1974) of differences between sexes on the Internal-External score as reflective of a trans-societal belief by females in greater external control needs to be restricted in several aspects.

Contradictory results, with reference to sex differences, have

been reported by Feather (1967) who had two groups of Australian subjects; the first group consisted of 31 male and 53 female undergraduate students whose average age was 17-18 years and who were enrolled in a first-year Psychology course, while the second group was made up by 153 male and 46 female undergraduate students who were taking the same course externally and whose average age was 28-29 years.

Feather's results indicated that in the first group female students scored significantly ($p < .05$) more external than male students, while for the second group this difference was reversed with male students giving significantly ($p < .01$) more external scores than female students.

As we see, the results in Feather's study indicate a clear and sharp decline in an external locus of control belief among female students as one moves from young, first-year undergraduates to a group of females who are approximately ten years older.

According to Feather's opinion, the relatively high external locus of control scores obtained by the young female undergraduates reflect, perhaps, a more dependent role in our culture, especially in late adolescence, with the females being more likely than males to view what happens to them as more dependent upon the external environment and upon the actions of significant others.

The relatively lower external locus of control scores obtained by the second group of female students suggest that these subjects depended less on external happenings and more upon their ability to achieve a number of goals; we should bear in mind that the students of the second group were studying for their degree externally, were seeking an education at a later age, some were married and some had

been involved in teaching for a number of years. It should not be unexpected from those students to display a more internal locus of control orientation than did the students of the first group.

Feather (1968) conducted another study using 46 male and 88 female Australian undergraduate students; on the basis of their scores on the Rotter Internal-External locus of control scale, 12 male and 18 female subjects were designated as external locus of control subjects, while 12 male and 18 female were designated as internal locus of control subjects.

He reported that the mean score for external locus of control males on the Rotter Internal-External scale was significantly ($p < .01$) lower than the mean score for external locus of control females, but the difference in the means for internal control males and internal control females was not statistically significant.

There is another study which has been carried out by Palmore and Luikart (1972), in which internal control orientation was measured by the first-person items in the Jessor scale, known as the Internal-External control of reinforcement scale (Jessor et. al., 1968). This scale was administered to 261 men and 241 women, aged 46-71 years. The authors found that men tended to have more internal control orientation than women ($p < .001$), and, according to their opinion, this difference does fit with the traditional assumptions of our society that men have a more 'active-mastery' approach to life and women have a more 'passive-dependent' approach. Perhaps this difference is not so evident among the younger generation as a result of the growth of women's liberation movement and trends toward greater equality between the sexes.

What seems surprising and worthy of examination in the results

related to sex differences in the locus of control orientation mentioned previously in the chapter is that, when we are dealing with children of the elementary- and high-school age, either no sex differences appear in the locus of control scores or the existing differences are in the form of more internal locus of control scores given by girls.

On the other hand, when we are examining older ages, mainly college and University students, either we do not find any sex differences on the locus of control scores or the majority of the existing differences are in the form of more internal locus of control scores given by men.

How could we explain the fact that girl-pupils appear to be more internally orientated than boy-pupils, while women of older age tend to give more external locus of control scores than men?

One reason to which this happening could be attributed is the content of the scales used to assess internal-external locus of control beliefs. The IAR questionnaire, which taps locus of control beliefs in the intellectual-academic achievement area, offers more tangible and familiar experiences to girl-pupils on which they can base their internal-external locus of control beliefs. Also, girls of young age have not been, as yet, exposed, to a great degree, to the effects of social discrimination against women; their immediate environment is still the school and not the large world 'out there'.

The Rotter Internal-External locus of control scale, on the other hand, taps locus of control beliefs in a wide variety of situations, and, if one takes into account the obstacles women encounter in their lives toward their movement for the acquisition of certain rights, then it is not surprising to find that women tend

to score more external in a locus of control measure which, among others, covers some situations in relation to which women have learned from everyday experience that it is not easy for them to associate themselves with.

3. Race, ethnicity and social class differences in Internal-External locus of control of reinforcement beliefs.

The effect of race upon the Internal-External locus of control beliefs of children has been evidenced in two studies conducted by Pedhazur and Wheeler (1971), and Zytoskee, Strickland and Watson (1971), which have both employed the Bialer locus of control scale for children (Bialer, 1961) in order to assess the children's Internal-External locus of control beliefs. In the first of these studies, Black and Puerto-Rican sixth-grade students scored more externally than the Jewish fifth- and sixth-graders, while, in the second study, a highly significant main effect of race upon the locus of control scores was found, with ninth-grade White students being more internal than the Black students; White and Black students had been matched for low socio-economic status.

Lefcourt and Ladwig (1966) tested Black and White reformatory inmates whose mean age was 21.6 years and who were mostly of lower social class origin; their findings demonstrated that Blacks scored significantly more external on the Rotter Internal-External locus of control scale and on Dean's powerlessness and Normlessness scales (Dean, 1969).

Similar results have been found by Lessing (1969), whose eighth- and eleventh-grade Black students scored significantly less internal on the Strodbeck's Personal Control Scale (Strodbeck, 1958) than their White classmates, even when the comparison was limited to subjects of the same social-class background.

Also, in a study carried out by Scott and Phelan (1969), White individuals were significantly more internal on the Rotter Internal-

External locus of control scale than the Black or Mexican-American subjects, while a slight, but not significant, trend in the direction of increased externality seemed to occur in the Mexican-Americans when they were compared with the Blacks; all subjects in this study were classified as hard-core unemployables.

In the course of a nationwide survey, Coleman et. al. (1966) had several thousands sixth-, ninth- and twelfth-grade pupils respond to three questionnaire items designed to measure their sense of control over their destiny; the Black-American students expressed a significantly lower sense of personal control.

Additionally, Graves (1962), using an adaptation of the Rotter Internal-External locus of control scale in a research project conducted among Anglo, Spanish-American and Indian high-school students, demonstrated that Anglos exhibited stronger feelings of internal locus of control than the non-Anglos, followed by the Spanish-Americans, while Indians were the most external in locus of control beliefs.

In the same line of research, Hsieh, Shybut and Lotsof (1969), using the Rotter Internal-External locus of control scale and high-school students, matched for socio-economic status, found that the Anglo-American students were significantly more internally orientated than the Hong-Kong Chinese, while the American-born Chinese were significantly more internally orientated than the Hong-Kong Chinese and significantly less internally orientated than the Anglo-Americans.

The assumption that middle-class children would be more internally orientated than lower-class children received some support in a study conducted by Gruen and Ottinger (1969) who

compared the scores given by third-grade students coming from working-class and upper middle-class homes on a modification of the Bialer locus of control scale for children; although in both social-class groups there were wide differences among individuals in the number of internal choices they made, nevertheless, a significantly greater proportion of lower-class subjects were more externally orientated compared to middle-class subjects.

The effects of race and social class upon the internal-external locus of control beliefs have been examined in two more studies, one of which has been carried out by Battle and Rotter (1963) who used the Bialer locus of control scale for children (Bialer, 1961) and the Children's Picture Test of Internal-External control (Battle and Rotter, 1963) to assess the locus of control beliefs of sixth- and eighth-grade Black and White children. Lower-class Black children were found to be significantly more external than middle-class Blacks or Whites; generally, middle-class children were more internally orientated than lower-class children, while lower-class Blacks with high I.Q. were more externally orientated than middle-class Whites with lower I.Q.

The other study has been carried out by Shaw and Uhl (1971) who used second-grade children from six schools, three of which were in upper-middle socio-economic level areas and three were in low socio-economic areas, while in each socio-economic area two of the schools were predominantly White and one was predominantly Black. The results revealed that pupils of the low socio-economic groups scored significantly more external on the Bialer locus of control scale for children.

Garcia and Levenson (1975) examined the relationship between

locus of control beliefs and socio-economic status and ethnicity using Levenson's locus of control scale (Levenson, 1972). Their sample consisted of 84 White and 110 Black students, and their results have revealed that students from low-income families had stronger perceptions of control by chance than did wealthier students; the two groups did not differ significantly on the Internal and Powerful Others scales. When controlling for socio-economic status, their results showed that Black students scored significantly more external than Whites on the perceptions of control by Powerful Others and by Chance factors.

Shearer and Moore (1978) used Levenson's locus of control scale and a prisoners' sample. Their results revealed significant racial differences on all three scales; White prisoners had higher expectations for personal control than did hispanic prisoners, and Black and hispanic prisoners had stronger perceptions of control by Powerful Others and by Chance forces than did White prisoners.

Besides the previously mentioned studies, which have employed general locus of control measures, there are three more studies which have used the more specific Intellectual Achievement Responsibility (IAR) questionnaire (Crandall et. al., 1965) as the assessment instrument of Internal-External locus of control beliefs.

One of these studies has been conducted by Katz (1967) who did not find racial differences in locus of control beliefs.

In the second study, carried out by Solomon, Houlihan and Parelus (1969), who used White and Black fourth- and sixth-grade students, race showed no significant effect upon the IAR scores.

In the third study by Crandall, Katkovsky and Crandall (1965) only very slight social class effects were found on the IAR scores

given by elementary and high-school students.

According to Crandall et. al. (1965), it is possible that the IAR questionnaire does not show differences between social class levels and racial groups as far as the Internal-External locus of control scores are concerned just because it contains items which refer and are directly related to school-associated activities and situations where the teachers equally stress to children of all social strata and races the contingency which exists between their achievement efforts and the reinforcements they receive for these efforts, and where all the children are given the opportunity to witness such a contingency.

Of course, this assumption is based upon hypotheses about the behaviour exhibited by the teachers and the classroom environment they create which have not as yet been tested.

C H A P T E R 3

Antecedents and Changes of Internal-External Locus of Control of Reinforcement Beliefs

- I. Antecedents of Internal-External locus of control of reinforcement beliefs
1. Antecedents of Internal-External locus of control of reinforcement beliefs in general

The tremendous amount of research which has been carried out in order to identify the effects Internal-External locus of control of reinforcement beliefs have on human behaviour does imply that the Internal-External locus of control of reinforcement concept has been considered primarily as an independent variable which is predictive of a broad range of attitudinal and behavioural phenomena. But despite the great amount of research for the identification of the effects Internal-External locus of control of reinforcement beliefs have on human behaviour, there has been a considerable lack of research regarding the antecedents of Internal-External locus of control beliefs, and, as a result, relatively little is known about the conditions which may lead to the development of an internal or an external locus of control belief system. This neglect is surprising since such research might facilitate the development of procedures for the modification of maladaptive reinforcement expectancies.

MacDonald (1973) has suggested that factors which can influence Internal-External locus of control of reinforcement acquisition may be classified as episodic or accumulative antecedents.

a. Episodic antecedents

Episodic antecedents are critical short-term events of relatively great impact which, usually, tend to shift the individual toward an external locus of control orientation, since someone, after experiencing an uncontrollable or unavoidable life event may come to question and doubt the fact that s/he is actually in control over her/his destiny; episodic events may be regarded the disappointment after a political election, earthquakes, sudden financial loss, etc.

With reference to the effect episodic events may have on the Internal-External locus of control orientation of individuals, Gorman (1968) found that the mean Internal-External score given by students, who coincidentally were administered the Rotter Internal-External locus of control scale after the announcement of the results of the 1968 Democratic Convention in the United States, was more external than it might have been predicted on the basis of existing University norms; this result could be attributed to the fact that the majority of those students were supporters of a non-elected candidate and had been disappointed by the convention results.

Similarly, McArthur (1970) found that students who were unfavourably affected by the draft lottery, which would determine draft eligibility for the Armed Services, gave slightly more external mean scores than a control group, while no such difference was found in the mean Internal-External scores of the unaffected group of students and the control group.

Theoretically speaking, episodic events might, also, shift the

individual towards a more internal locus of control orientation, although there is no research which has linked 'real world' events to shifts toward internality.

The consequences of the effects due to episodic events with the influence of the passing time tend to faint and, finally, disappear, and people, most likely, return to previously held Internal-External locus of control beliefs; so the practical importance of episodic changes, compared to their theoretical significance, is not large.

Nevertheless, if various episodic events continue to exist, their effects may have enduring impact, and, in that case, they can be named accumulative antecedents.

The continuous exposure to social discrimination, prolonged incapacitating disability, and to certain parental child-rearing practices have been identified as accumulative antecedents which can affect Internal-External locus of control orientation.

b. Accumulative antecedents

i. Social discrimination

In relation to social discrimination, the most usual finding is that, in comparison to White and middle-class people, Black people, other minority groups and members of lower social strata, give average Internal-External scores which are more toward the external end of the scales employed to assess Internal-External locus of control of reinforcement beliefs.

Of course, sometimes, the research findings about the relationship between Internal-External locus of control and ethnicity, and Internal-External locus of control and social class are contradictory and inconclusive, depending upon the reinforcement area being examined and the age of the subjects, (e.g. difference between studies using the general Rotter Internal-External locus of control scale and the more specific IAR questionnaire).

Nevertheless, several studies have successfully predicted greater externality among Black people and other minority groups than among White people, and among lower-class individuals than among middle-class individuals. These data are consistent with the theoretical assumption that those social and ethnic groups whose members have little access to significant power, social mobility, opportunity or material advantages, and who perceive their overall movement in society as being greatly limited by environmental barriers, due to the fact that very often they find obstacles in the way of goal striving and attainment which prevent their efforts to influence their environment, might develop a belief that their own

efforts and personal characteristics will lead to no reinforcement.

Besides the effect the minority ethnic group membership may have on individuals' Internal-External locus of control beliefs, the general cultural orientation of a society may influence the Internal-External locus of control beliefs of individuals as well. For example, Hsieh, Shybut and Lotsof (1969), using subjects matched for socio-economic status, found that Anglo-American students were significantly more internal in their locus of control beliefs than the Hong-Kong Chinese, while the American-born Chinese were significantly more internal than the Hong-Kong Chinese and significantly less internal than the Anglo-Americans. The authors attributed their results not only to the effect of the minority ethnic group membership, but also to the effect the general cultural orientation might have upon the individuals' Internal-External locus of control beliefs. According to their opinion, the American culture, by emphasising the uniqueness, independence and self-reliance of each individual, fosters the development of an 'individual-centered' personality. On the other hand, the 'situation-centered' Chinese personality is associated with a culture where kinship and emphasis on status quo are stressed. In such a culture the individual is inclined to view her/his life as being relatively fixed.

In reviewing the Internal-External locus of control literature, Lefcourt wrote:

In all of the reported ethnic studies, groups whose social position is one of minimal power either by class or race tend to score higher in the external control dimension. Within the racial groupings class interacts so that the double handicap of lower class and 'lower caste' seems to

produce persons with the highest expectancy of external control. Perhaps the apathy and what is often described as lower-class lack of motivation to achieve may be explained as a result of the disbelief that effort pays off. (Lefcourt, 1966:212)

What Lefcourt has pointed out has received, in general, supportive evidence in the studies we have mentioned in the previous chapter, although all those studies are correlational in nature and they do tell us very little about the specific mechanisms which mediate the relationship between Internal-External locus of control reinforcement beliefs and social class, race or ethnic background.

Phares (1976) has suggested that what mediates this relationship could be direct teaching, with the parents, older siblings and peers coaching the young children about the 'true reality', and, also, could be the reality itself which might 'teach' the children how little power they actually possess. Clearly, more extensive research is needed in this area.

Another point which we must pay attention to, and which is apparent in the results mentioned in the previous chapter, is that, in contrast to the studies which use more general scales for the assessment of Internal-External locus of control beliefs, and which do find differences between social class levels and racial groups, the more specific Intellectual Achievement Responsibility (IAR) questionnaire (Crandall, et. al., 1965) does not show meaningful and significant associations with either of these variables.

It is possible that this happens because the more general measures of Internal-External locus of control beliefs sample general social experiences, and do relate, probably, more to the White culture than to the Black or of other minority groups. This being the case, it should not be surprising that Black individuals,

compared to White, score more external scores in areas tapped by these general Internal-External locus of control measures which refer to broad and nonspecific situations in the general environment where there are real differences in the opportunities of members of different races or even different social strata to exert effective control. We must not forget that the more often one has found that important happenings in her/his life have originated from sources that s/he is unable to control, the more likely s/he should be to develop an external locus of control belief system. On the other hand, if one has found the environment responsive to her/his actions a good portion of the time, s/he should be more likely to develop an internal locus of control belief system.

Nevertheless, whether one is internally or externally orientated may depend upon what corner of one's life space is being examined, and we must not forget that general measures of Internal-External locus of control beliefs are subject to low level of prediction when predicting to relatively narrow classes of situations.

ii. Disability

There is almost lack of research on the relationship between Internal-External locus of control beliefs and prolonged incapacitating disability. Land and Vineberg (1965), using the Bialer locus of control scale for children (Bialer, 1961) and blind and sighted children as their subjects, reported that the difference in the mean Internal-External locus of control scores given by the two blind and the one sighted group was found to be significant at the .05 level, while when each blind group was compared with the sighted group the differences were found to be significant at the .01 level.

These differences were in the form of more internal locus of control scores yielded by the group of the sighted children; the authors did not find significant difference between the mean scores given by the two blind groups of children. They explained their expected findings by attributing the more external locus of control scores given by the blind children to a sense of personal helplessness emanating from the difficulties these children encounter in handling their environment.

iii. Parental child-rearing practices

The effects of parental child-rearing practices has been the most well-documented of the three accumulative antecedents of Internal-External locus of control beliefs.

All the relevant studies point to the assumption that there are certain behaviours and attitudes on the part of the parents which, if adopted, could lead to an individual's developing an expectancy that rewards and punishments are dependent and contingent upon one's own actions.

Furthermore, someone could argue that some, if not all, of these parental behaviours and attitudes could be adopted by the school teacher, as well, as a means of fostering an internal locus of control of reinforcement belief system.

It seems that a possible antecedent of beliefs in internal locus of control of reinforcement is the degree to which parents are nurturant, accepting and supportive, especially in the early childhood years, when it is more likely for the child to make errors.

This assumption has been supported by a research project carried out by Nowicki and Segal (1974) with their White twelfth-grade high-school students. Their study supported the relationship between internality and nurturance, since for females internality was associated with greater perceived paternal affection, physical contact, trust and security, and greater perceived maternal physical contact, trust and security. For males internality was associated with greater perceived maternal affection.

Generally, similar results have been supplied by Katkovsky, Crandall and Good (1967), who have used, on the one hand, the Intellectual Achievement Responsibility (IAR) questionnaire for the assessment of children's (6-12 years) Internal-External locus of control beliefs, and, on the other hand, home observations in order to rate maternal, and interviews and the Parent Reaction Questionnaire in order to rate parental behaviour. The Parent Reaction Questionnaire was designed to assess the parent's reported reactions (praise, criticism, neutral reaction) to the child's achievement behaviours in the intellectual, physical skills, mechanical and artistic achievement areas.

Based on their home observations, the investigators reported that an internal locus of control belief system among children was associated with mothers who were more nurturant, supportive, helping, protective, affectionate and approving than they were critical, rejecting, hostile, coercive and punitive. It was also revealed that sons' internal scores were more related, compared to daughters' internal scores, with the above mentioned maternal behaviours, and that children's internal locus of control beliefs for failures were more positively influenced by their mothers' behaviour than there were their internal locus of control beliefs for successes. It seems that the feelings of security provided by the mother through a loving and nonthreatening behaviour are especially necessary for the child in order to be able to accept the responsibility for the negative outcomes s/he receives.

Katkovsky et. al. (1967) also reported that paternal rejection was associated more with girls' external locus of control scores than with the boys', and that the children's internal locus of

control orientation was likely to be fostered when their fathers reacted with positive and encouraging ways rather than with negative reactions to their children's achievement behaviour.

The authors stressed to future investigators of parent-child behaviour the superiority of the data based on actual observations as compared to parental self-report data, which are likely to be influenced by social desirability, memory and defensiveness factors. They themselves found that the maternal behaviour which was directly observed was more highly related to children's IAR scores than were the self-report measures obtained from either parent.

This observation has been supported by a research project carried out by Davis and Phares (1969), in which parents' stated child-rearing attitudes were found to be largely unrelated to their children's Internal-External locus of control beliefs, while this did not happen with the students' reports on parental behaviour.

Their subjects were University students who had scored either extreme internal scores or extreme external scores on the Rotter Internal-External locus of control scale. Davis and Phares (1969) reported that, with reference to students' reports on parental behaviour, students who had scored extreme internal scores recalled their parents as showing more positive involvement and less rejection, hostile control and withdrawal of relations than did students who had scored extreme external scores.

As we have said above, the parents' stated child-rearing attitudes were found to be largely unrelated to the students' Internal-External locus of control beliefs; the only exceptions were that fathers of internally orientated students tended to be more indulgent and less protective than the mothers of internally

orientated students, while fathers of externally orientated students were found to have been less indulgent and more protective than their mothers.

Similar results to those of the beforementioned study were obtained by Shore (1967) who, also, examined parental child-rearing attitudes, and children's reports of parental behaviour and their influence on the children's Internal-External locus of control of reinforcement beliefs.

His subjects were junior high-school students, and his results indicated that children who remembered their parents as being warm and accepting were more internal than those who recalled their parents in the opposite way.

Once more, children's locus of control scores were more related to their reports on parental behaviour than to their parents' stated child-rearing attitudes.

Tolor and Jalowiec (1968) confirmed once again the finding that an external locus of control of reinforcement belief system is related to maternal hostile-rejecting tendencies.

Their subjects were male University students who were asked to respond to a parental attitude research instrument as they thought their mothers would have responded.

From the above mentioned studies it seems likely that a punitive, rejecting, impatient and over-critical parental reaction towards the child might very well evoke a certain degree of anxiety in the children who might espouse an external locus of control belief system as a defence against failures and other aversive events which threaten the child's self-esteem, since it is apparent that an important component of low self-esteem is the view of one's self as ineffectual, powerless and impotent regarding the

achievement of valued goals; when children are confronted with the consequences of their problem-solving behaviour, failure outcomes produce higher levels of external attribution than success outcomes.

In her/his attempt to maintain parental love, some sense of personal integrity and a positive self-concept, it is very likely that the child will attribute her/his failures to external factors and agents beyond her/his control and will deny any personal responsibility.

On the other hand, an accepting, tolerant, supportive and warm parental relationship which encourages the child after her/his failures, creates around the child a secure and safe atmosphere which allows her/him the freedom to explore her/his environment and try again after failure without being afraid of any negative consequences; the child of such a parent, most likely, will develop an internal locus of control belief system, especially in relation to failures, since the security provided by the loving, non-threatening parent is especially necessary for the child in order to be able to 'internalise' the responsibility for the negative reinforcements s/he receives.

Virginia Crandall (1973) theorised about the degree to which a maternal behaviour should be supportive and protective and also about the age limit during which a child should be treated that way. Based on her somewhat surprising findings that maternal 'coolness' and 'criticality' during the child's first ten years was often associated with an internal locus of control belief system in young adulthood, and that independence training was proved to be one of the most reliable correlates of locus of control scores, she stated:

It may be that warm, protective, supportive maternal behaviors are necessary for the assumption of personal responsibility during childhood, but in the long run, militate against internality at maturity. Perhaps internality at later developmental stages is best facilitated by some degree of maternal 'coolness' criticality, and stress, so that offsprings were not allowed to rely on overly indulgent affective relationships with their mothers, but were forced to learn objective cause-effect contingencies, adjust to them, and recognize their own instrumentality in causing those outcomes. (Crandall, 1973:11)

And again:

In childhood, then, when offspring are dependent on parental acceptance, it may be that the assumption of internality, especially for failure, is expedited if the maternal push toward independence is embedded in a warm, supportive maternal-child relationship. At maturity, however, after the offspring no longer need rely on such maternal emotional support, then some previous lack of affectionate behavior and close involvement in childhood seem to be interpreted as part and parcel of a general maternal assist to help them stand on their own feet. (Crandall, 1973:12-13)

It may be that some optimal balance between parental warmth, acceptance and supportiveness, on the one hand, and permission for the child to be self-reliant and independent, on the other, is needed for the development of an internal locus of control belief system in the child.

The suggestion made by Crandall has been supported by the work of Alfred Adler (Ansbacher and Ansbacher, 1958), and Erich Fromm (1956), who have both stressed the significance of a safe, secure and accepting home environment for the children which could help them during their most vulnerable years, but, at the same time, they have, also, emphasised the importance of giving the children opportunities to explore their world and to act upon their environment, so as to cause contingent outcomes and reinforcements

and discover the relationships between acts and outcomes from which beliefs in an internal locus of control belief system may develop.

What Crandall has said is expressed superbly in one of Erich Fromm's writings which clearly distinguishes between arresting and oppressive mother love and mother love which fosters and triggers off the child's independent search in life.

Erich Fromm has said:

In motherly love...the relationship between the two persons involved is one of inequality; the child is helpless and dependent on the mother. In order to grow, it must become more and more independent, until he does not need mother any more. Thus the mother-child relationship is paradoxical and, in a sense, tragic. It requires the most intense love on the mother's side, and yet this very love must help the child to grow away from the mother, and to become fully independent; it is easy for any mother to love her child before this process of separation has begun, but it is the task in which most fail, to love the child and at the same time to let it go, and to want to let it go. (Fromm, 1956:33-34)

The possible danger of too much affectionateness and nurturance has been stressed by one finding reported in the previously mentioned study by Katkovsky, Crandall and Good (1967) who have found that the more affectionate and nurturant the father, the greater was his daughter's belief in external locus of control of reinforcement of her failures in intellectual situations. The opposite was found to happen between mothers and their sons.

The authors explained the relationship between too much nurturance and external locus of control orientation by saying that such fathers, willingly or unwillingly, tend to foster in their daughters an externally orientated way of thinking which, as they think, could act as a defence against possible failures.

The beneficial role of independence training, of a 'push from

the nest', as it has been named by Crandall (1973) in her study, as a means leading to the acquisition of an internal locus of control of reinforcement belief system, has been stressed in a study reported by Chance (1965). After an interview with mothers of a sample of University lab school children using questions from the Parent Attitude Research Instrument (PARI) and questions related to independence training, that is, at what ages mothers expected their children to be able to accomplish several tasks, Chance (1965) reported that mothers who had expectations for early independence training had sons who scored significantly more internal on the Intellectual Achievement Responsibility (IAR) questionnaire; this relationship was found to be insignificant for the female sample.

Other findings reported by Chance (1965) were that the more educated the mothers and the less concern they displayed for controlling their sons, the more internal the scores of the boys on the IAR questionnaire were likely to be. This relationship was found to be insignificant for the girls, and we could say that, for this study, it appears to be a difference between the sexes in the characteristics of the parent-child relationships which influence the development of internal and external locus of control orientation.

The relationship between parental dominating and controlling behaviour and children's disposition toward an external locus of control belief system has also been supported by the research findings of Strodtbeck (1968), Shore (1967), Katkovsky, Crandall and Good (1967), and Tolor and Jalowiec (1968).

Strodtbeck's study (1968) has revealed that fathers who were taking all the decisions on behalf of the whole family tended to

have sons with low feelings of mastery, while Katkovsky et. al. (1967) have found that mothers, who tended to exert control and dominance over their daughters, had daughters who were more likely to believe in external locus of control of reinforcement compared to those whose mothers were not dominant.

Shore (1967), and Tolor and Jalowiec (1968), through their research findings, have shown that children who perceived their parents as exercising psychological and authoritarian control tended to score towards the external direction significantly more than the children who perceived their parents in the opposite terms.

The emergence and development of an external locus of control belief system due to a dominating and controlling parent-child relationship tends to be rather self-evident. It is a logical assumption that parents who tend to direct and control - to a considerable degree - their children's lives, and who are restrictive, are most likely to develop in their children a belief that others rather than they themselves control whatever happens to them. Children of such dominating and over-controlling parents, by not being allowed a relative degree of autonomy, lack the opportunities to try out their own ways of behaviour and see the consequences of those behaviours, since almost all of their actions have been meditated by parental intervention and constant guiding.

As Davis has said:

Parents who consistently dominate decision making in the family would not be expected to produce an internal child.
(Davis, 1969:24)

Rotter (1966) has suggested that, although a lot more work needs to be done in the area of locus of control antecedents, one

obvious antecedent of an internal locus of control belief system would be the parental consistency of discipline and treatment. According to him, it would be expected that unpredictable parents would encourage the development of an external locus of control orientation.

Why should that be so? It is a logical assumption that when a child is under inconsistent and unpredictable environmental demands, and when s/he experiences behavioural inconsistency, on the part of one parent or between the parents, resulting from a lack of agreement regarding standards of behaviour, then s/he is unable to anticipate parental discipline, and, as a result, s/he tends to believe that reinforcements - just like her/his parents' behaviour and discipline - are unpredictable and cannot be controlled. The child who has not been allowed to consistently experience a contingent relationship between her/his behaviour and the consequences of that behaviour could easily develop an external locus of control belief system.

Rotter's suggestion is consistent with Epstein and Komorita's (1971) research findings who have used 120 Black boys aged 10-12 years as their subjects. Their results have revealed that children who perceived their parents' discipline as inconsistent tended to attribute their own success on an experimental task to external agents. The same happened with the boys who viewed their parents' child-rearing attitudes as excessively hostile and controlling; this latter finding is in agreement with research results mentioned previously.

Similar results have been obtained by Davis and Phares (1969) who have reported that children who had scored towards the external

direction on the Rotter Internal-External locus of control scale recalled their parents as exercising inconsistent discipline compared to those children who were internal in their locus of control orientation.

Similar sets of findings have been reported by MacDonald (1971a) and Reimanis (1971), who have revealed that students who recalled their mothers as having predictable standards for their children's behaviour were more internal in their locus of control beliefs, while Levenson (1973) reported that persons who perceived their parents as unpredictable in their discipline were more externally orientated.

Davis (1969) has, also, reported an association between children's external locus of control beliefs and parental inconsistent behaviour. He has, also, commented upon the consequences of a consistent or inconsistant treatment of the child:

Lack of consistency in this regard would increase the likelihood that he will continually seek aid in an attempt to understand his environment, which would, in turn, lead to a belief that he is not the effective agent in controlling reinforcement. In contrast, a clearly structured system of family relationships in which regulations are consistently presented and enforced would allow the child to rely on his own judgements and interpretations of events and consequences. These circumstances would be expected to lead the child to develop a belief that he can, to some extent, predict and control the occurrence of reinforcement. (Davis, 1969:24)

Based on the results of the above mentioned studies we could argue, with some degree of certainty, that parental consistency, in the form of clear-cut information and rules concerning the consequences of a child's behaviour, may constitute a means of helping the child to acquire an internal locus of control belief

system and move away from a belief that events are controlled by chance factors.

The ordinal position in the family is another possible antecedent of Internal-External locus of control beliefs, and research in this area is relatively consistent in showing first-born children to be more internal in their locus of control beliefs than the children who have been born later in the family.

Crandall, Katkovsky and Crandall (1965) tried to explain this happening by saying that first-born children are usually placed in positions of responsibility for household affairs and also in charge of their younger brothers and sisters, so that they have the opportunities to understand how their behaviour influences either their own reinforcements or their family welfare.

On the other hand, they suggested, later-born children, from what they have been told, very often form the impression that the older brother or sister will take care of them, and so they may end up with the assumption that they are not responsible for their own actions and for whatever happens to them.

Apart from those suggestions, someone could argue that the coming of another child in the family is possible to force the first-born child to exhibit responsible behaviour in order to maintain the parental love and approval which s/he thinks is threatened by the new arrival.

There are not many studies related to the effects of birth order on the acquisition of Internal-External locus of control beliefs. From those existing, Crandall, Katkovsky and Crandall (1965) reported that first-born boys and girls attending the sixth through twelfth grades gave more internal scores on the IAR

questionnaire than the later-born children, while this was not true for children attending the third through fifth grades.

MacDonald (1971b), using 476 undergraduate students and the Rotter Internal-External locus of control scale to assess their locus of control orientation, demonstrated that, for two-children families, later-borns tended to hold more external locus of control beliefs than first-borns, and that later-borns were significantly more external than children of one-child families. No significant differences were found in the scores given by first-borns and later-borns in three- to four-children families, and in families having five or more children.

First-born male and female children tended to be slightly more internal than their later-born counterparts in a research project carried out by Chance (1965), while, in contrast, Eisenman and Platt (1968), using a sample of 16 first-born and 16 later-born male college students, have reported that the majority of the first-born students were more externally orientated according to their scores on the Rotter Internal-External locus of control scale.

Nowicki and Roundtree (1971), using 38 female and 49 male twelfth-grade students, found that the more the student moved from being a first-born child the more likely s/he was to hold more external locus of control beliefs if a male, and more internal locus of control beliefs if a female. These results suggest that there may be important familial interactions which, depending on the sex of the child and on when s/he has arrived into the family milieu, determine how much s/he will perceive her/himself in control of reinforcements received for behaviour.

The effects of birth-order on Internal-External locus of

control acquisition are not clear, and we could say that, although on the theoretical level someone could argue about the possible implications of being a first-born or a later-born child, on the practical level a lot more depends on the extent to which parents, teachers and other adults expect from the children responsible behaviour and upon the degree to which children are allowed to witness the consequences of their own behaviour.

Parental locus of control in terms of modelling behaviour would seem to be another important antecedent of Internal-External locus of control beliefs, in the sense that parents might provide a model for the child which might function in such a way as to foster in the child an internal or an external locus of control belief system.

That behavioural model might be in the form of actual parental efforts to control their environments; it might, also, be in the form of parental reinforcement of the child's verbal statements of Internal-External locus of control beliefs or in the form of direct teaching regarding the relation between behaviour and outcomes.

Although it is relatively logical to assume that modelling does influence the acquisition of Internal-External locus of control beliefs, nevertheless, research dealing with the question of parent-child Internal-External locus of control similarity, is, at the moment, very scarce.

Davis and Phares (1969) examined parental Internal-External locus of control beliefs as determinants of their children's Internal-External locus of control beliefs; however, no relationship was found to exist between parental Internal-External locus of control orientation and the Internal-External beliefs of their children, as they were assessed, in both cases, by the Rotter

Internal-External locus of control scale.

In order to avoid the mediating effects of different parental child-rearing practices on the parent-child Internal-External similarity, the authors divided their families into various groups representing different degrees of parent-child Internal-External similarity. Their results revealed that parents who had children with Internal-External locus of control beliefs similar to their own were less disciplinarian and more indulgent than parents who had children with dissimilar Internal-External locus of control beliefs.

The authors suggested that the acquisition by the children of certain beliefs about Internal-External locus of control of reinforcement similar to that of their parents depends on certain dimensions of the parent-child relationship; it remains to future research to identify those dimensions.

2. Impact of the school

Besides the effects of the previously mentioned episodic and accumulative antecedents, the potential effects of the classroom, in terms of the teacher's behaviour and comments, and the educational experiences provided, although have not been studied as such extensively, appear to be important antecedents of Internal-External locus of control beliefs.

a. The classroom teacher

The results of the studies carried out by Dweck and Reppucci (1973), Dweck (1975), and Andrews and Debus (1978), mentioned in Chapter 2, have shown the superiority of internal-effort attributions for success and failure experiences when compared to internal-ability and external attributions.

Failure experiences is a commonly encountered fact in school life. And failure experiences are more likely than success experiences to emit 'why' questions. When pupils fail in a certain task they might ask why they have failed and the attribution they will make might affect their expectancies for future success or failure on similar tasks.

But there are not only the pupils who might make attributions for their failures. Teachers, when they meet with pupils' failures, might, as well, make attributions in the form of various comments to the pupils. And what they might say to their pupils for their failure experiences could have an impact on what the pupils might

think to be the causes of their poor performance. After all, the teacher is one of those important figures in a child's life whose behaviour, verbal or otherwise, is likely to have an impact on the way the child behaves and thinks of her/himself.

If, after a failure experience, the teacher says, for example, to a pupil: 'You can do this when you try', or 'You would have done better if you had put more effort into it', the obvious message to the child is that lack of effort was the cause of her/his failure. Since lack of immediate effort is something internal, unstable and controllable by the child, the attribution of failure to it might serve as a cue to the child to escalate her/his effort in an attempt to do better the next time; it might serve as a cue to do something different or something additional in order to obtain the goal.

If, after a failure experience, the teacher says, for example, to a pupil: 'This is not your best subject, is it?', or 'I think this was too hard for you', the implicit message to the child is that s/he failed because s/he did not have the ability to succeed. Attributing the cause of failure to lack of ability, which is internal, and, also, relatively stable and uncontrollable by the child, might lead the child to believe that there is nothing much s/he could do to improve her/his performance on similar tasks the next time.

Of course, the knowledge of one's own ability and potential to do certain things is not at all a bad thing. The realisation of one's own limitations in the seeking of certain goals is a realistic attitude. Its existence might help in the elimination of constant anxiety and worrying over things one could not possibly achieve. But there is a difference when we are dealing with children, especially

those attending the elementary level of the educational system. These children have just started to 'experiment' with their ability to do certain things and attain various goals, and, by no means, have they reached the point where they could know what they are able to do and what not. They have just started to use their potential for achievement. And failure attributed by the teacher to lack of ability, might serve as a cue for continued failure in the future, since the child might be led to believe that, because s/he lacks the ability, there is nothing much s/he could do to avoid failure in the future, and, as a result, s/he might stop trying.

Just a passing observation. There has lived in the past, and still is living, to a certain extent, the myth that women do not have the ability to succeed in mathematics. And, as educational history shows, the overwhelming majority of graduates from Departments of Mathematics have been men. One just can not help but wonder to what extent 'statements' such as: 'Girls are not good at mathematics' have contributed to women's turning toward the study of other, more 'feminine' subjects.

The attribution of failure experiences by the teacher to external causes which, regardless of being stable or unstable, they continue to be uncontrollable by the children, might lead them to stop trying, since, again, as it is the case with lack of ability, they might feel that what they do and what they get, as a result, does not depend on them.

Of course, we do not suggest that the attribution by the teacher of a certain failure outcome to lack of ability or to external factors will lead to the development of a generalised expectancy that the outcome is not contingent upon the pupil's

behaviour. But repeated failure and repeated attribution of failure to lack of ability or to external factors might lead to the development of such a generalised expectancy.

The role of modelling techniques upon the development of Internal-External locus of control beliefs has been investigated by Marie Oxham (1976) within the classroom context. Because it has been established that the classroom teacher is a significant other who can exert considerable influence upon the child's personality development, it is conceivable that the teacher might exert an important impact upon the pupils' Internal-External locus of control beliefs. If the teacher is externally disposed, s/he may be expected to model this orientation to her/his pupils analogously, while, if the teacher has an internal locus of control belief system, s/he may communicate this orientation to her/his pupils.

The results of Oxham's investigation, who employed American third-grade children taught by female teachers, revealed that, during a post-administration of the IAR questionnaire, all pupils of her sample increased their scores to the IAR questionnaire, that is, they became more internal during the course of the school year, but with the greatest increases occurring among pupils who were assigned to the more internal teachers.

The interesting finding in Oxham's research project was that, although, as it might have been expected, students taught by internally orientated teachers gained more in internality at the end of the school year, as a consequence of their exposure to teachers' internality, the inverse did not happen, since teachers externals did not produce students externals; that is, none of the pupils declined in terms of scores to the IAR questionnaire following their

exposure to teachers with an external locus of control belief system.

Oxham explained the increase in pupils' internality by suggesting that teachers appear to encourage children of both sexes to develop an internal orientation towards their academic efforts, regardless of their personal Internal-External locus of control beliefs. She argues that very often teachers are observed to make statements to the effect that 'if you study, you will pass' etc., in which the obvious explicit message to the child is that behaviour determines consequences. According to her opinion, all teachers appear to be reinforcing an internal locus of control belief system to their students and, perhaps, even the low in internality teachers are communicating a 'do as I say, not as I do' message, which prevents a deterioration to an external locus of control belief system.

Oxham suggested that the occurrence of the greatest increases in internality among those pupils who were assigned to the more internal teachers could mean that teachers who were themselves more internally orientated best communicated the internal orientation to their students; what they were doing and what they were saying were synonymous, and provided a stronger point among their students towards developing an internal locus of control belief system than did the communication 'do as I say, not as I do' message of the externally orientated teachers.

However, intrinsic to the consideration of teacher impact on children's Internal-External locus of control acquisition is the question of whether this impact is differentially received by the children. It is conceivable that the internal message may be

communicated in a different way to children of both sexes; pupils may respond differently to the teacher's messages. For example, if the teacher is a female role model, girls may respond in a different way to her messages on internality than will boys, and a male teacher may exert more influence upon the boys' behaviour than upon the girls'.

Judging from the data on self-concept development, supplied by Marie Oxham (1976), the influence of a particular teacher's sex on the acquisition of Internal-External locus of control orientation could be different for the pupils of the same sex to the teacher sex than for the pupils of the opposite sex.

As we have already mentioned, the third-grade classrooms included in Oxham's investigation were all taught by female teachers. Her findings revealed that, while at the beginning of the school year there were no sex differences on the pupils' self-concept scores, on the post-test analyses highly significant ($p < .001$) differences attributable to sex were observed on the self-concept variable. Over the course of the school year, girls had evidenced an increase in self-concept scores and reported more positive self-feelings, while boys had correspondingly decreased in self-concept scores and their self-feelings deteriorated.

However, Oxham's hypothesis proposing sex differences in post-test internal-external orientation was not supported. She expected that the teacher sex variable, over the course of the school year, would accentuate the sex bias in the girl-pupils' favour who would be more receptive to modelling their internal stance than would the boy pupils. Nevertheless, boys and girls the same, despite the fact that they were taught by female teachers,

became more internal during the course of the school year. According to Oxham's opinion, it would appear that teachers do encourage children to develop an internal control orientation toward their academic efforts and this message is communicated to children of both sexes regardless of the sex of the teacher who is teaching them.

b. Impact of educational experiences

With reference to the potential effects various educational experiences may have on the development of pupils' Internal-External locus of control beliefs, one known study is that conducted by Stephens (1972) who attempted to compare the impact of different early educational experiences on the Internal-External locus of control development of 575 second-grade disadvantaged children. Those different educational experiences included various 'open classroom' programs which have as their primary goal the development of internal locus of control of reinforcement beliefs in the pupils; various 'behaviour modification' orientated programs which, although they do not have the development of an internal locus of control belief system as their chief goal, nevertheless, through the use of reinforcement by the teacher, try to make the child aware of the contingency which exists between her/his behaviour and the reinforcements s/he receives; a third kind of educational experience was a traditional school environment.

Stephens found that 'open classroom' and 'behaviour modification' programs did have a significant impact on the development of children's internal locus of control beliefs, as they were assessed by the Nowicki-Strickland locus of control scale for children (Nowicki and Strickland, 1973), and Stephens-Delys Reinforcement Contingency Interview (Stephens and Delys, 1973)

Although, as we have said again, there is a considerable lack of research concerning the impact of various educational experiences and programs upon the development of Internal-External locus of control beliefs, we could theorise upon such an impact having in

mind what Internal-External locus of control is about.

For educational practices, as well as for any other practices aiming at the development or enhancement of an internal locus of control belief system, the important thing is to give the student the opportunity to see the connection between her/his actions and their effects, that is, to perceive and understand behaviour-outcome contingencies.

How could this be achieved within the classroom or school environment?

We could suggest that classroom situations should be structured in such a way as to consciously give the students the opportunity to have an effective say in the development of rules and procedures, and to reflect, at least to a certain degree, the desires and opinions of the students. Programs roughly classified as 'open education' consciously give the children increasing experience in making decisions regarding themselves and their activities.

However, a significant point must be stressed concerning the above suggestion. If the teacher does decide to move towards this direction, it is essential the influence and power sharing to be genuine; if the teacher was to decide to give the students the right of effective participation in the classroom or school policy, s/he should not try to influence certain decisions taken by the students or the outcomes of those decisions, and s/he should not be unwilling to accept certain propositions made by the students. If s/he does that, it is very likely that s/he will make the students feel frustrated and betrayed, and, at the end, s/he might create to them a belief that they do not have effective control of the classroom.

Another way of enhancing or developing an internal locus of

control belief system in the students is when the teacher reacts to children's performance in the classroom with consistent, but discriminating, behaviour.

We have pointed out previously in the present chapter that parental behavioural consistency is one element contributing to the development of an internal locus of control belief system; we could say the same for behavioural consistency on the part of the teacher. When the teacher responds differently in different occasions to work which appears to the student to be of the same quality, or when the teacher responds with similar responses to work which the student does regard as being of unequal quality, the student might come to believe that her/his work and the outcome of that work are not related, at least as far as the reactions of the teacher are concerned. In the same line of reasoning, we could say that when the teacher does evaluate the work made by a student by making comments which, most of the time, mirror a different kind of evaluation from that made by the student, the student might end up in believing that her/his educational efforts have nothing to do with the kind of reinforcement s/he receives for those efforts.

Discriminating behaviour on the part of the teacher to the students' performance in the classroom does imply that the teacher should help the children, by pointing out explicitly and clearly, to identify the causal relationship between different degrees of effort and different degrees of success; it does imply giving the students reinforcement which reflects even small variations in their work.

It seems that the kind of educational program which could assist the teacher in helping the students to learn the relationship between their behaviour and its outcomes is an individualised class

situation where the educational success or failure of each one of the students is tied to her/his prior performance rather than to the performance of other class members. A non-individualised classroom situation is very likely to promote an external locus of control belief system in the students, since it makes it possible for the intelligent ones to succeed without much effort, and for the dull ones to fail despite their good efforts.

Solomon and Oberlander (1974) recommend the employment of a 'continuous progress system', a framework within which a student can, to some extent, progress at her/his own rate, and a curriculum which emphasises 'independent study' or 'contract work', in which the student takes the major responsibility for the selection of the subject matters s/he wants to pursue and the methods s/he wants to use to pursue them.

Such school policies are in contrast to the policy of 'automatic promotion', which might put a brake to the development of an internal locus of control belief system, since the unsuccessful student might come to believe that whether s/he tries or not has very little to do with school progress, while the student who succeeds might form the impression that little or much effort does not make any difference as far as the acquisition of different reinforcements is concerned.

Also, the individualised classroom environment is in disagreement with a rigid grading-passing school policy, in which, at least the poor, failing students might come to develop an external locus of control belief system, since, despite their honest and best efforts, they have failed.

Of course, for various reasons, it is not always practically

easy or possible for every school to change its institutionalised learning climate and policies and make a turn towards the individualisation of the learning procedures. Nevertheless, it should be advisable for the teachers to try and give, to the best of their ability and freedom of movement in the classroom, opportunities to each particular student which will help her/him to perceive clearly the contingency which exists between her/his educational efforts and the outcomes of those efforts, without making any comparison with the work presented by other classmates.

What the teachers should try to create is a responsive, non-dominative environment in which students' efforts do lead to predictable effects; an environment within which behaviours lead to outcomes clearly, quickly and consistently. The teachers should give the students as much independence as possible, and they should try to be flexible and responsive to children's suggestions.

Because beliefs concerning the Internal-External locus of control of reinforcement appear to have a significant impact upon adults' and children's behaviour, continued research in relation to antecedent conditions, such as parental characteristics, child-rearing practices, and impact of various educational experiences, is clearly needed. It is obvious that until we have obtained a clear understanding of the factors which contribute to the acquisition of Internal-External locus of control beliefs, we will not be able to change such beliefs.

II. Changes in Internal-External locus of control of reinforcement beliefs

Although a great deal more research is needed in the area of Internal-External locus of control antecedents, nevertheless, a certain amount of research has been completed in relation to the agents contributing to the change of Internal-External locus of control beliefs. The fact that perceived Internal-External locus of control orientation is considered by Social Learning Theory an attitude rather than a need or drive does imply that, as a learned behaviour, is capable of being changed. This has been demonstrated by studies which have revealed that one's perception of personal control can be changed and measured over relatively short periods of time; the difficulties lie in isolating the factors that may or may not contribute to this change.

One of the methods which can be employed in order to change Internal-External locus of control beliefs is deliberate systematic intervention or subject manipulation. However, it is possible that such intervention techniques may not always be desirable or possible for certain institutions and structures. In relation to that there have been studies which have shown that change in Internal-External locus of control beliefs can occur without intentional manipulation, and can be attributed to the natural process of aging or to the influence of certain societal events.

The majority of the studies which have been concerned with changes of Internal-External locus of control beliefs have been concerned with how changes toward a more internal locus of control belief system could be brought about. These studies have not dealt

with the issue of how we could change an internal, in terms of lack of ability, locus of control orientation to one which considers lack of effort to be the cause of failure outcomes. So, we are going to discuss these studies on their own terms. However, we will, additionally, refer to studies which have been concerned with changing an internal, in terms of lack of ability, locus of control orientation to an internal, in terms of lack of effort, orientation.

In the present section we will concern ourselves with research done in relation to Internal-External locus of control change within educational settings; also, special reference will be made to studies whose implications are relevant to education.

Research concerned with Internal-External locus of control change within the educational settings is inevitably related to deliberate intervention and subject manipulation, with the final aim, by both faculty and student development staff, to develop special programs and learning environments which could enhance self-direction and increase personal control orientation.

One kind of learning environment tested as a means of helping students to move toward more internality was the enrollment in a personalised system of instruction course. This method was tried out by Johnson and Croft (1975) with encouraging results, since all 138 students of the sample gave more internal scores on the Rotter Internal-External locus of control scale after they had completed the personalised system of instruction course; the mean difference in the scores between the pre- and post-administration of the scale was highly significant.

The personalised system of instruction teaching method is

increasingly used instead of large lecture classes, and it gives the student the opportunity to learn in a pace permitted by her/his abilities, to master a certain amount of material before proceeding to the next unit, and to use study guides to impact critical information.

In such a course the student realises quickly that mastery of material and learning outcomes are more a function of her/his skills, efforts and her/his own performance than are of chance and other external factors, and because s/he is given the opportunity to mediate her/his own reinforcements over a period of time s/he should show a trend toward more internality, since the realisation of the mediation of personal behaviour to outcomes is what characterises an internal locus of control orientation.

Another finding of the Johnson and Croft's research project was that from the four conditions to which the students had been assigned, that is, weekly-, biweekly-, self-monitored and control group, the self-monitored and control groups exhibited more internal post-test scores than the other two groups. It appears likely that the students in the weekly- and biweekly-monitored conditions, due to the fact that their supervisors attempted to influence their performance, did not develop as great a sense of personal control as the students in the control and self-monitored groups.

Although more research is needed in order to prove the importance of the personalised system of instruction teaching method to individual growth and autonomy, the findings of the above cited study suggest that when a person is exposed to a sequence of situations in which a demonstration of her/his control is obvious, changes in generalised expectancies occur in the form of a movement

towards more internality.

The significance and importance of the realisation of control over outcomes and reinforcements for the exhibition of more internal responses has been evidenced by a study conducted by Diamond and Shapiro (1973) through the use of encounter group experiences; the Rotter Internal-External locus of control scale was employed for the assessment of locus of control beliefs.

The researchers made the hypothesis that, since members of a successful encounter group:

are encouraged to take responsibility for their verbal and nonverbal behavior, to try on novel behavior, and to attempt to resolve personal conflicts by focusing primarily on their own feelings and behavior (Diamond and Shapiro, 1973:515),

an encounter group experience would result in significant increases in the subjects' personal control orientation.

Their hypothesis was supported. Comprised, all six experimental groups, made up by graduate students in counselling psychology classes, increased their internality after an 11-week period during which they were meeting; the two control groups did not exhibit such change toward more internality.

However, separately, the change toward more internality was significant for the three experimental groups who had been led by three expert group leaders, while for the other three experimental groups, whose leaders were counselling psychology graduate students supervised by an experienced professional, the change toward more internality did not reach significant level.

The authors of the study explained this difference by suggesting that the experienced leaders themselves were better

models for an internal locus of control belief system.

The implication of the present study for any educational program is that, if we wish to foster a more internal belief of reinforcement to the pupils, we should create a school and/or classroom environment which would be likely to encourage the learning of an internal orientation by allowing the pupils to perceive themselves as having control over their lives.

We can achieve this goal by encouraging the students to take responsibility for their verbal and non-verbal behaviour, without using punishment when they are wrong but rather explaining to them why they have failed, by letting them try out novel behaviours, by encouraging them to attempt to resolve personal conflicts by focusing primarily on their feelings and behaviours, by creating for them, and letting them open to, novel and new experiences, by encouraging them to express spontaneously their feelings and deal with them.

A student may realise the possibility of exerting control over her/his environment by having experience in positions that allow effectiveness. This rationale seems to underly the belief of Chandler (1975) who argued that, if we were to accept that persons who are internally orientated have a greater tendency to master their environment, as various studies seem to suggest (Seeman and Evans, 1962; Seeman, 1963; Davis and Phares, 1967), then it might prove useful and significant to have externally orientated students engaged in success experiences over which they should have some control, hoping that these experiences might help them to espouse a more internal belief system.

Chandler suggested the engagement of low-achieving externally

orientated students as tutors of other low-achieving students as a procedure opposite to the one most commonly used, that is, most tutoring to be done by high achievers.

In relation to Internal-External locus of control, the tutoring process has the advantage of attributing evidence of success to the tutor; also, in order to be effective in her/his teacher-role, the low-achieving externally orientated student-tutor must be able to master the material to be taught.

Actually, Chandler refers to an unpublished pilot-study he conducted in which he used under-achieving externally orientated junior high-school students as tutors of under-achieving second- and third-graders. Those tutors' pre-experimental mean scores on the Rotter Internal-External scale differed from their post-experimental Internal-External means ($p < .05$) and they had been shifted toward more internality.

Although the author suggests not to draw any conclusions from his study because of the lack of a control group, however, we must keep in mind the importance and possible validity of his finding. If we were to give externally orientated under-achieving students the chance to undertake the tutoring of other under-achieving peers; if we were to give those students the opportunity to experience an environment which would offer them control over other students, then, as a result, we might as well give them the chance to experience an increase in personal control, because they would be given tangible, direct evidence that they had increased, by means of successful tutoring, another pupil's academic achievement.

The significance of having experience in positions that allow effectiveness as a means of fostering a more internal locus of

control belief system has been evidenced indirectly by Eisenman (1972) through the use of a verbal conditioning experiment, in which 50 college students, who had been told that the experiment to which they were to participate was under their control, after completing it, gave more internal scores on the Rotter Internal-External locus of control scale in comparison to the scores they gave before the experiment had started, while the 50 students, who were told that the experiment was chance determined and therefore beyond personal control, gave more external scores after its completion than they did at the beginning of the experiment. Students belonging to the control group, who were told that the experiment was neither internally nor chance determined, did not show any significant change in Internal-External locus of control scores.

The implication of this finding to the educational process is that we could increase a student's belief in internal locus of control if we would place her/him in situations in which s/he could prove her/himself effective and ask her/him to perform tasks s/he believed s/he could influence the outcome. This, of course, means that the teacher must be aware of what the student believes about the source of causality of events and s/he must, also, be aware of the student's functioning and ability level, in order to be able to give her/him assignments s/he could achieve and complete.

Otherwise, if the situations the students find themselves in are of such nature as to evoke feelings of not having control over the reinforcements, it is very possible that the students will move toward an external orientation.

A similar, to the above mentioned, kind of manipulation procedure is an attempt to increase students' perceived locus of

control through making feelings of internal control more salient to them.

This method has been used by Pedhazur and Wheeler (1971) who used as their experimental sample 44 Black and Puerto-Rican sixth-grade students, giving half of them to read a short story depicting a situation externally controlled, while the other half of the minority students were given to read the same story, but, in this case, the situation depicted was internally controlled. After this manipulation, the experimental group subjects completed again the Bialer locus of control scale for children (Bialer, 1961), which they had completed first time at the beginning of the experiment scoring more external scores than the sixth-grade Jewish students who comprised the control group. The second administration of the scale demonstrated that the locus of control scores of the children who had read the external control story had not changed significantly; on the other hand, the children who had read the internal control story gave significantly more internal scores compared to those of the first administration.

According to the authors, the educational programs should attempt to make feelings of internal control more salient to minority children, in order to increase their - very often reported - low feelings of personal control.

A good idea might be to give these minority group children, or children considered to be externally controlled, stories to read in which a hero faces everyday situations, such as the children meet in their lives, and in which the hero tries to approach and solve any problems or uncertainties encountered in a way representing internal locus of control beliefs.

The results of two more studies, not directly involved with educational procedures, have supplied support to the assumption that experience in situations of problem confrontation and in positions that allow effectiveness could result in a heightened feeling of internal locus of control.

One of those studies has been carried out by Gottesfeld and Dozier (1966) using as sample two groups of deprived individuals in a ghetto who were trained in community organisation. The first group of community administrators had already been trained and they had been working in the community, for about nine months, as researchers, speakers, teachers and politicians, while the subjects of the other group were still in training.

The Internal-External scores of the two groups on the Rotter Internal-External locus of control scale demonstrated that the first group gave, significantly, more internal scores than the second group of administrators, revealing that the more experience the administrators had within the community program, the more internal were their scores.

Similar to the above mentioned results have been supplied by Harvey (1971) who used as subjects 50 upper-level government officials in administrative positions and the Rotter Internal-External locus of control scale to assess their locus of control beliefs.

The results demonstrated that, although all 50 administrators gave highly internal scores, those who held their positions for 11 or more years were significantly more internal than those who held their positions for 1-5 and 6-10 years, while those who occupied the

administrative positions for 6-10 years scored more internally than those who were in such positions for 1-5 years.

Once again the inference is that the longer a person held an upper-level administrative position, the more internal he became.

The educational implications of the two previously mentioned studies seem to be that if a student has the chance of leadership experience in which s/he perceives her/himself as having power to produce change, and if s/he has the opportunity to learn the skills which will enable her/him to become an effective helper, then s/he might experience an increase in the belief of personal control. To help others is, in a very real sense, being effective, since the helper seeks actively, by means of her/his behaviour and efforts, to influence another person. And because s/he is able to see the results of her/his efforts, s/he might assume responsibility for them.

Chandler's (1975) previously mentioned suggestion is of relevance here.

Another implication of the above reported two studies is that considerable practice in decision making and problem solving, the opportunity to observe the results of one's own decisions, and a general feeling of personal importance derived from a belief that one's own tasks are of significance to others, are some of the factors which may contribute to a shift toward more internality.

Gottesfeld and Dozier (1966) pointed out the importance of Community Action Programs in making the poor members of the community more hopeful and ambitious about what they can do on their own behalf.

Rotter (1966) argued that an individual's Internal-External

locus of control of reinforcement belief system is dependent upon the individual's history of reinforcement. What is more important, in order for the positive and/or negative reinforcement to have any effect on the individual's behaviour, is that the individual must perceive and understand the contingency between her/his behaviour and the positive and/or negative reinforcement s/he receives. Only then s/he will be able to see her/himself as being the responsible agent of any received positive or negative reinforcement, and only under such circumstances s/he might be able to develop an internal locus of control of reinforcement belief system.

The effects of the perception of behavioural contingency of positive and/or negative reinforcement on the Internal-External locus of control beliefs have been demonstrated by two studies, one of which has been conducted by Brecher and Denmark (1972). They demonstrated that 22 female undergraduate students, who had been given negative reinforcement about their examination results without being given the opportunity to discuss or see their results, gave significantly more external scores on the Rotter Internal-External locus of control scale than the 66 students of the control group. Unfortunately, the researchers did not have the pre-examination Internal-External scores of those two groups of students in order to make a comparison with the scores the students gave afterwards.

What happened in the above described study, and what very often happens within schools, is a phenomenon of non-contingent negative reinforcement. In many cases students are reproached for poor academic performance or bad behaviour without being given the opportunity to discuss their actions, to explain why they acted in the way they did, and without being offered alternative ways of

performing or behaving. When the teachers do not explain to the students why they have failed in a particular task and when they don't propose ways which, if adopted, might lead to success, the students may reach the point of believing that success and failure is beyond their sphere of influence.

Brecher and Denmark's (1972) study demonstrated that highly negative reinforcement, given only once in one particular situation, can shift the students towards an external orientation. Furthermore, these external locus of control beliefs regarding one particular situation generalised to other situations, as it was proved from the students' scores on the Rotter Internal-External scale which covers a variety of situations. We may assume that when students find themselves very often in situations of the nature described in Brecher and Denmark's study, they may move even more towards the belief that reinforcements are not contingent upon their behaviour.

The beneficial effects of the perception of behavioural contingency of reinforcement have been supported by a research project carried out by Nowicki and Barnes (1973) who used a program of structured camp experience as a means of shifting towards more internality the locus of control beliefs of 261 predominantly Black inner-city teenage youngsters aged 13 years.

The overall attitude of the program was to emphasise cooperation in the pursuit of diverse goals, such as camp craft, fishing, arts and crafts, canoeing, conservation classes and nature study, to clarify behaviour-consequence relationships and to reinforce socially the campers for each one of their efforts. For example, at the end of each week, actual individual deeds were mentioned during a public meeting, a situation in which the

counsellors sought to make clear the connection between the campers' behaviour and resultant rewards.

The results of the study demonstrated that all students became more internal at the end of each week of camp experience, and that the longer the camp experience, the more internal the students became. The Nowicki-Strickland locus of control scale for children was employed for the assessment of Internal-External locus of control beliefs (Nowicki and Strickland, 1973).

Although the researchers viewed their findings only as suggestive, due to the lack of control groups and of experimental control of procedures in the camp program, nevertheless, the educational implication of their study remains. If we place the students in situations which make clear the connection between their behaviour and the consequent reinforcement, in situations where contingent reinforcement is utilised for good and poor performance and behaviour, then there is a very good possibility that the students will feel more in control of events and more able to see the connection between their behaviour and its results in terms of reinforcement. The more experienced with challenge and contingent reinforcement, the more internal the students are likely to feel.

The use of contingent reinforcement has been stressed by Reimanis (1974), as well, who used one experimental and one control group consisting of children attending the first and third grades, whose internal reinforcement control scores were lowest on the Children's Picture Test of Internal-External Control (Battle and Rotter, 1963) and on teachers' ratings.

For a period of three months, the teachers of the experimental group, through the use of contingent reinforcement with each one of

the children in order to point-out behaviour-effect contingencies to them, gave these children more individual attention with respect to learning about their behaviour consequences and about the consistency of their immediate environment.

In the readministration of the Battle and Rotter Picture Test of Internal-External Control, after a three-month period, during which the five experimental group pupils were meeting in weekly counselling sessions with their teachers, the results revealed that their mean Internal-External scores had increased significantly in internal control, while the ten control group children did not show a significant shift toward more internality.

Furthermore, as it was revealed from counselling records at the end of the experiment, all five experimental group children showed behaviour which would be associated with internal locus of control beliefs contrary to their behaviour at the beginning of the sessions, while in a follow-up, after one year, the teachers reported that the experimental group children tried harder with their studies after the treatment than they did before, although there seemed to be no permanent improvement in academic achievement for these children.

In another two experiments conducted by Reimanis (1974), counselling and achievement motivation training techniques were used, respectively, to strengthen the perception of behaviour-effect contingencies.

In the first of these experiments, one experimental group, consisting of six students, received group, and the other, consisting again of six students, received individual counselling sessions aiming at altering the students' external locus of control

beliefs; all the students, including the 32 consisting the two control groups, were freshmen students selected randomly from the lowest 10% of the student population on the basis of their scores on the Rotter Internal-External locus of control scale.

The counselling sessions employed with the subjects of the two experimental groups were orientated towards strengthening the behaviour-effect contingencies by means of encouraging the students to talk about their problems and themselves, and about their vocational and educational goals; the counsellors raised questions for the subjects about the problems they were experiencing with their goal ambitions, and they tried to replace statements which were reflecting a belief in external locus of control with statements reflecting a belief in internal locus of control of reinforcement.

After a 10-week period, the Rotter Internal-External locus of control scale was readministered to all subjects and the finding was that Internal-External scores had become significantly more internal for both experimental groups following counselling, while the Internal-External score changes were not significant for the two control groups.

More important, the actual behaviour of the subjects of the two experimental groups had changed after the counselling sessions and it became one reflecting acceptance of personal responsibility; that is, towards the end of the sessions, behavioural indications of an internal locus of control belief system, such as taking own apartment, changing study programs, and seeking out instructors to find out where they were standing in a course, were evident.

The other experiment, carried out by Reimanis, employed two

experimental and one control group, all of which were made up by freshmen students. The students belonging to the two experimental groups were enrolled in courses of achievement motivation training, which were designed to help the students interact between themselves, exposed them to several achievement strategies and thoughts, facilitated their career planning, helped them to explore their levels of aspiration and their thoughts about achievement, and, in general, were designed to increase the students' motivation in pursuit of their goals.

The results of the study confirmed once more Reimanis' hypothesis; the mean Internal-External scores of the two experimental groups of students, who had followed the achievement motivation training sessions, shifted towards more internality in a highly significant degree, while the Internal-External scores of the students belonging to the control group showed no significant change.

After the one-to-two month follow-up period, there was a decrease in the Internal-External scores of the students belonging to one of the experimental groups, but not large enough.

28 students who had followed the achievement motivation training sessions were retested after 7 months; for the 8 female students the initial increase in internal locus of control had disappeared, while this did not happen to the 20 male students. Reimanis explained this sex difference by attributing it to a lesser concern with academic achievement among females.

Two more studies, which have also been mentioned previously in the beginning of the present chapter, supplied indirect support to Rotter's (1966) assertion that individual differences in generalised

expectancies for internal versus external locus of control of reinforcement depend upon the individual's history of reinforcement, and that any single event in an individual's reinforcement history could affect this disposition.

These two studies have revealed that there are times when specific contemporary events can alter a person's usual locus of control orientation as it is represented in internal-external scores.

The question is whether the effects of those situational influences upon an individual's perception of causality produce changes which are specific to those situations and signify a shift in situational expectancies, or they do transfer to other situations and signify a basic change in generalised expectancies.

The first of those studies, which presents Internal-External locus of control scores that were obtained shortly after public events which were relevant to control expectancies, has been carried out by Gorman (1968) who administered the Rotter Internal-External locus of control scale to 62 undergraduates one day after the announcement of the results of a Party National Political Convention which had disappointed the students who were supporters of a non-elected candidate.

The mean Internal-External score given by this group of students was - according to the author - more external than it might have been predicted on the basis of existing University norms at that time; it was a rapid temporary shift toward external locus of control beliefs which could be attributed to the students' disappointment caused by the fact that a favoured person was not chosen as the party candidate, and to their disillusionment with the

political process in which they had been defeated.

Because Gorman's finding was due to a coincidental observation, and because there is lack of pre-test Internal-External scores, which could be compared with the scores the students gave after their political disappointment, we should be careful with the interpretation of the results.

A study conducted by McArthur (1970) was more persuasive than Gorman's study, because of the existence of comparison groups.

After a chance administration of the Rotter Internal-External locus of control scale to 23 Yale undergraduates on the day following a lottery that the U.S. Government conducted to determine draft eligibility for the Armed Services, McArthur found that the affected group of students gave slightly more external locus of control scores than a control group of undergraduates, while no such difference was found in the mean Internal-External scores of the unaffected group of students and a control group.

With reference to the affected group of students, the mean Internal-External score of the subjects who, because of the numbers they had drawn, were favourably affected and therefore were relatively more safe from being drafted, was significantly more internal than the mean Internal-External score of the subjects who, because of the numbers they had drawn, were unfavourably affected and therefore were relatively vulnerable to being drafted.

In both the above mentioned studies, individuals who were most negatively reinforced exhibited the greatest generalised expectancy for external locus of control of reinforcement. And, although they had received negative reinforcement in particular, isolated situations, they generalised their external locus of control beliefs

to other situations, as it was proved from their scores on the Rotter Internal-External scale which taps Internal-External locus of control beliefs in a variety of situations.

The implications for the educational practice are rather obvious; too many failures on the part of the students and too many negative reinforcements for their unsuccessful efforts might predispose them toward a belief that their life events are beyond their control.

This, of course, does not mean that the students must or can be reinforced in a positive way all the time or that they are not going to face failure experiences. The educational process is inevitably characterised by successes and failures on the students' part. But positive and negative reinforcements which are seen and understood by the students as occurring in response to their personal behaviour rather than in response to external factors might help them to perceive themselves as more able to determine the reinforcements they receive and might move them away from the impression that the world is unmanageable.

Of course, we do not know, in relation to the two previously mentioned studies, if the shifts noticed toward externality were permanent; the authors did not give such information. However, McArthur (1970) and Gorman (1968) proved that short-term fluctuations may be common, and, perhaps, are distinct from long-term, more permanent shifts. Also, we can conclude that, at a certain time, environmental influences can affect the Internal-External locus of control beliefs of an individual, and that the greater their duration, the greater their influence is going to be.

Since there is research evidence, to which we have already referred in Chapter 2, which has shown that attributing failure experiences to lack of effort, instead of attributing them to lack of ability or external factors, leads to greater persistence in the face of failure, we could assume that teaching children to attribute their failures to lack of effort might help them to persist more in the face of failure.

Although this is a new area of research, nevertheless, there is some research evidence which supports the above mentioned assumption.

Dweck (1975) in her study attempted to find out whether changing the helpless child's perception of the relationship between her/his behaviour and the occurrence of failure would result in a change of her/his maladaptive response to failure.

Dweck tried to change the helpless child's reaction to failure through the employment of two procedures; that is, the Success Only (SO) treatment, and the Attribution Retraining (AR) treatment.

The SO treatment was employed because the literature suggests that greater persistence in the face of failure is facilitated by higher expectancies for success (Tyler, 1958; Battle, 1965; Feather, 1966). The provision of only success experiences and the elimination of errors, especially in the case of children who have difficulties in dealing with failure, is recommended by persons concerned with behaviour modification (Hart and Risley, 1968) and programmed learning (Skinner, 1968) in the belief that errors, not only contribute very little or nothing to learning, but, also, make the learning situation and the learning materials aversive and evoke negative emotions on the part of the child. Thinking alongside those

lines, Dweck made the hypothesis that the provision of only success experiences would assist the helpless child in changing her/his reaction to failure.

The AR treatment was employed as a procedure which, in comparison to the SO treatment, might assist the helpless children to deal more effectively with failure by teaching them to take responsibility for failure and attribute it to lack of effort. Dweck thought that, although errors may have undesirable effects on the performance of helpless children and the provision of only success experiences may motivate them, nevertheless, a success only procedure, by eliminating failure experiences from the learning situation, does not teach the children how to deal with failure which retains its meaning as a cue for continued failure.

Dweck has commented upon the employment of the two different treatments:

The purpose of the study was to determine whether a treatment that altered attributions for failure would alter responses to failure to a greater degree than a commonly advocated procedure that did not alter attributions. The Success Only treatment was expected to raise the child's expectation of success, thereby enabling him to sustain his performance despite failure. It was expected, however, that the Attribution Retraining treatment would prove superior since it provided a new interpretation for failure by teaching the child to attribute it to insufficient effort. (Dweck, 1975:676)

The 12 helpless children identified in the Dweck (1975) study, also previously mentioned in Chapter 2, were randomly assigned to the AR treatment (3 girls and 3 boys) or to the SO treatment (2 girls and 4 boys). The children of the two groups were trained with one of the two training procedures for 25 daily sessions and each subject was given 15 trials in each session; the trials consisted of

solving arithmetic problems. Children belonging to the SO treatment were given such problems they could complete successfully within the time limit on every trial. Children belonging to the AR treatment were given problems which they could complete on 12 or 13 of the 15 trials, but they could not complete on the remaining 2 or 3 trials. On these failure trials, in the course of each session, the experimenter verbally attributed the child's failure to insufficient effort with such comments as: 'That means you should have tried harder.'

All children of the two treatment groups received a mid-training and post-training interpolated failure test after the 13th daily training session and after the end of the 25 daily training sessions. These interpolated failure tests were administered to the children in order to test for the effects of failure on rate and accuracy of performance and were consisting of 25 or 30 problems done in groups of five; two of the five problems consisting one group were beyond the children's ability to solve.

Dweck's results have revealed that children belonging to the AR treatment group were able to handle failure more adaptively in the interpolated failure test situations, as it was evident by the number of correct problems they completed, than were children belonging to the SO treatment group.

The readministration, after the training in the two treatment groups had been completed, of the IAR questionnaire, the Effort versus Ability Failure Attribution Scale, the Test Anxiety Scale for Children, and the repetition-choice task gave the following results.

On the Effort versus Ability Failure Attribution Scale, all the children belonging to the AR treatment group showed a significant

increase ($p < .01$) in the choice of the effort alternatives from pre-training to post-training, while the children belonging to the SO treatment group showed no such increase. The researchers stressed the point that children in the AR treatment group not only changed their reactions to failure in the experimental situation, but, also, altered their attributions for failure in situations which involved mathematics in general, as it was the case with the Effort versus Ability Attribution Scale.

As far as scores on the IAR questionnaire were concerned, the results revealed that they did not change significantly during the readministration as a result of the two different treatments. Dweck explained this by arguing that the IAR questionnaire does not assess only failure attributions related to arithmetic, as it was the case with her study. The IAR questionnaire is a more global measure, and, due to the fact that only a very limited period of time had elapsed between the completion of the training and the readministration of the IAR questionnaire, it was not surprising that scores on the IAR questionnaire had not changed significantly. According to Dweck, children might need more time in order to 'test out' the effectiveness of the new attribution in other settings and to begin to use it more generally.

On the Test Anxiety subscale of the Test Anxiety Scale for Children, (Sarason et. al., 1960) subjects belonging to the AR treatment group showed an insignificant decrease ($p < .10$) in test anxiety, while subjects belonging to the SO treatment group showed a slight increase. However, the two different treatments did not result in a significant difference ($p < .10$) in test anxiety. On the Poor Self-Evaluation subscale of the Test Anxiety Scale for

Children, all subjects of the two different treatments showed non-significant decreases ($p < .10$).

Before the training had started, one child in the AR treatment group and two children in the Success Only treatment group had chosen to reconstruct the failed puzzle rather than the one they had completed with success on the repetition-choice task. After the training had finished, two more children in the AR treatment group tried to reconstruct the puzzle they had previously failed, while none of the children belonging to the SO treatment group chose to do so. However, the change was not statistically significant.

Besides the previously mentioned results, verbal reports of the teachers, who did not know the kind of treatment each one of the children had received, revealed that children who underwent the AR treatment began to work harder and to develop a different attitude towards failure, which was evident in the fact that they persisted more with new material and they tended to ask for help, instead of withdrawing, when they were unable to complete a task.

Commenting upon the better handling of failure by children in the AR treatment group, Dweck said:

While a success only procedure for children is an effective approach for teaching a given body of material, the present findings suggest that it might be a short-sighted approach. The implications for strategies of behavior change or behavior building are rather straightforward. An instructional program for children who have difficulty dealing with failure would do well not to skirt the issue by trying to ensure success or by glossing over failure. Instead it should include procedures for dealing with this problem directly. This is not to suggest that failure should be included in great amounts or that failure per se is desirable, but rather, that errors should be capitalized upon as vehicles for teaching the child how to handle failure. (Dweck, 1975: 684)

In a similar study, Andrews and Debus (1978) attempted to induce effort-orientated attributions through the employment of reinforcement procedures. The subjects they used were 42 boys who least frequently attributed failure to lack of effort on the circle design task in the first part of their study, which has been mentioned in Chapter 2. These boys were randomly assigned to three treatment conditions; that is, a control group, which received no training, a social reinforcement group (SR), and a social reinforcement plus token reinforcement group (AR + TR).

The researchers decided to use the SR procedure because it is a form of reinforcement which can be very easily used by the teachers within the classroom as a means of modifying pupils' attributions.

The use of the SR + TR procedure was decided after taking into consideration research literature suggestions that, when we are dealing with situations in which we do not know which stimuli are reinforcing for individuals, the most effective way to give reinforcement is through the combination of social reinforcement and tokens supported by tangible reinforcers. (Brodén, Hall, Dunlap and Clark, 1970; O'Leary and Becker, 1967)

Subjects of all three treatment groups were given, as their training task, a block design task (to analyse geometric designs into component parts and then synthesise those parts into a whole) which consisted of six blocks of 10 trials; each block consisted of five success and five failure trials. All successes and failures were manipulated by the experimenter. The children were asked to attribute their successes and failures in the block design task to one of the four causal factors (ability, effort, task difficulty, luck) by pressing a button on an attribution box.

For children assigned to the social reinforcement treatment, effort attributions for each one of their successes and failures were contingently reinforced verbally by the experimenter with such comments as 'Good!', 'OK!', 'That's good!', 'Very good (John)!. Attributions of failure and success to any of the other three causal factors elicited a 'Here's your next design' response from the experimenter. When a child did not make effort attributions after four successes, the experimenter would say to him: 'It looked as though you were trying pretty hard that time'. If a child did not make effort attributions after four failures, the experimenter would say: 'Very good (John), we usually fail because we don't try hard enough, don't we?'

For children assigned to the token plus social reinforcement treatment, the experimenter's verbal reinforcement of any effort attribution for success and failure was accompanied by the activation of a light which indicated to the child that he had won a token which, at the end of the session, he could change with tangible reinforcers of his choice.

Immediately and after 7-9 days from the time the training had been completed, children belonging to the three groups were given again to do parallel to the training block design tasks. The results revealed that boys belonging to the SR and to the SR + TR treatment groups exhibited a greater incidence of effort attributions for failure ($p < .01$) and success ($p < .05$) than did boys belonging to the control group. However, the two treatment groups did not differ significantly in their effort attributions.

Children were also given an immediate and a delayed (7-9 days after the completion of the treatment) post-test in the form of a

circle design task and an anagrams task. The circle design task, requiring the use of perceptual-motor skills, is similar to the block design task, and it was employed as a near transfer task in order to examine the generalisation of treatment effects. The anagrams task, requiring the existence of cognitive activities, it was used as a remote transfer task in order to examine the wider generalisation of treatment effects. Children were also given the Perceptual Reasoning Test (Feather, 1961, 1963), as a measure of persistence (this test was also employed as a measure of persistence in the first part of Andrews and Debus's study mentioned in Chapter 2).

The results from the immediate and delayed administration of the circle design task revealed that boys belonging to the SR and SR + TR treatment groups displayed a significantly ($p < .01$) greater incidence of effort attributions for failure than did boys belonging to the control group. Again, no difference existed between the two treatment groups. With reference to effort attributions for success, the results from the immediate administration of the circle design task revealed that boys belonging to the SR and SR + TR treatment groups exhibited significantly ($p < .01$) higher effort attributions for success than did boys assigned to the control group; no difference was found between the two treatment groups. With reference to effort attributions for success, the results from the delayed administration of the circle design task revealed that boys belonging to the SR treatment group displayed significantly ($p < .01$) higher effort attributions for success than did boys belonging to the control group, and boys belonging to the SR + TR treatment group ($p < .05$). No difference was found between the

SR + TR and control groups.

The results from the immediate and delayed administration of the anagrams task have shown that boys belonging to the SR and SR + TR treatment groups attributed their successes and failures to the effort variable to a significantly ($p < .01$) greater degree than did boys belonging to the control group. No difference in the effort attributions made was evident between the two treatment groups.

With reference to the immediate and delayed readministration of the persistence measure, which was the Perceptual Reasoning Test, the results have revealed that subjects of both SR and TR + SR treatment groups displayed significantly ($p < .01$) higher levels of persistence at both readministrations compared with their pre-treatment levels.

No significant change was found on the subscales of the IAR questionnaire when it was readministered immediately after the training.

The immediate readministration of the Effort Attribution Scale revealed that only boys belonging to the SR treatment group attributed their failures to effort to a significantly ($p < .05$) greater degree than did boys belonging to the control group.

Andrews and Debus, in discussing the contributions of their study, argued in favour of the employment of systematic social reinforcement in modifying cognitive attributions and consequent achievement behaviour. Their results suggested that appropriate, achievement-enhancing attributions may be relatively easily established through the employment of systematic social reinforcement which is a direct procedure and could be very easily used by ordinary teachers as an individualised instruction device. The

effectiveness of a procedure using systematic social reinforcement is substantiated if we take into consideration that Andrews and Debus completed the training of their subjects in a short period of time lasting approximately 1 hour.

CHAPTER 4

Overview of the Empirical Work

The present research project has been comprised of two studies. One which has been carried out within schools with the participation of pupils and their teachers, and another which has been carried out within a training college of a University with the participation of trainee-teachers.

There were six issues to be examined in the schools' study, and one issue to be examined in the training college study.

I. The schools' study

The six issues of the schools' study were the following.

1a. The frequencies of the pupils' internal and external responses to the I+ (success) and I- (failure) subscales and I total (success and failure combined) scale of the IAR questionnaire, and the overall mean I+ and I- subscores and I total score given by the pupils of the present sample.

Crandall, Katkovsky and Crandall (1965), using an American sample of 923 elementary and high-school children, have obtained relatively high mean I+, I- subscores and I total scores; high mean scores on the IAR questionnaire indicate more internal locus of control of reinforcement beliefs, since the questionnaire is scored

toward the internal direction.

1b. The correlations between subscores on the I (success) and I- (failure) subscales of the IAR questionnaire.

There is research evidence, to which we have already referred to in Chapter 1, which does suggest that a child's tendency to credit her/himself with control of success outcomes is not necessarily correlated with her/his beliefs about control of failure outcomes; that is, acceptance of responsibility for success experiences does not necessarily mean acceptance of responsibility for failure experiences.

Using the IAR questionnaire, Crandall, et. al. (1965), Lifshitz (1973), Massari and Rosenblum (1972), and Weiner and Kukla (1970) have supplied evidence of variable, but generally low, correlations between I+ and I- subscores.

The above two mentioned issues have been explored with the employment of American samples of children. From a comparative point of view it would be interesting to examine possible similarities or differences in the responses between American and English samples of children.

2. Age differences in Internal-External locus of control of reinforcement beliefs

From a developmental point of view, a necessary and vital requisite for normal development is the acquisition of independent problem-solving techniques and the increasing reliance of children on the instrumentality of their own actions as compared to that of other people in their immediate environment.

One should expect that as children grow older they become more and more capable in causing changes in their environment and more and more acquainted with the fact that their actions have a bearing on behaviour outcomes.

Only a few studies about Internal-External locus of control of reinforcement beliefs have considered age comparisons and some of them have used adult samples and the Rotter Internal-External locus of control scale for the assessment of locus of control beliefs (Sara Staats, 1974; Lichtenstein and Keutzer, 1967; Strickland and Shaffer, 1971; Lao, 1974; Parsons and Schneider, 1974; Ryckman and Malikiosi, 1975).

From the studies which have employed children as their subjects, some have used general scales to assess Internal-External locus of control beliefs. That is, the Bialer locus of control scale for children (Penk, 1969; Milgram, 1971; Bialer, 1961; Battle and Rotter, 1963); the Nowicki-Strickland locus of control scale for children (Nowicki and Strickland, 1973; Tyler and Holsinger, 1975); the Children's Picture Test of Internal-External control together with the Bialer locus of control scale for children (Battle and Rotter, 1963); seven items from the Strodbeck's Personal control

scale (Lessing, 1969)

Only three of the studies reported in the literature have employed the IAR questionnaire to assess Internal-External locus of control beliefs (Crandall, Katkovsky and Crandall, 1965; Crandall and Lacey, 1972; Lifshitz, 1973)

None of the studies which have examined age differences in Internal-External locus of control beliefs has used an English sample of children. From a comparative point of view it would be interesting to know what would be the results of a study using English children.

3. Sex differences in Internal-External locus of control of reinforcement beliefs

The question concerning the relationship between the Internal-External locus of control of reinforcement beliefs and sex variables cannot be answered in a general way of the form that either of the sexes is more internally orientated than the other. The answer to the question should depend upon the structure of the society we examine, upon the present historic period of that society, upon the roles which have been assigned to each one of the sexes, upon the opportunities given to men and women to realise any possible contingencies between their actions and the reinforcements they receive for those actions in various areas, and, mainly upon the specific reinforcement area we are concerned with.

It seems to be unreasonable and in disagreement with the theoretical background of the Internal-External locus of control of reinforcement concept to try to answer this question in an 'either the one sex or the other' manner. It would be more reasonable to, first, find out any locus of control differences between the sexes in a specific reinforcement area, and, then, try to discover the reasons which have contributed to the existence of those differences.

It would, also, be hazardous to generalise what we have found in one reinforcement area to another; to find out, for example, that girls are more internally orientated than boys in the intellectual-academic achievement area does not necessarily mean that they will also be more internally orientated in the area of athletics.

A search of the literature has revealed that a lot of studies

involving the Internal-External locus of control concept either have failed to provide for sex differences or have neglected to report their findings. Those studies in which sex comparisons were considered either have found no significant differences or still others imply differences which deserve further study.

Furthermore, the majority of the studies which have examined sex differences in Internal-External locus of control beliefs have used general Internal-External locus of control scales either for adults or for children.

The general Rotter Internal-External locus of control scale has been used with adult samples (Gormanous and Lowe, 1975; Strickland, 1965; Hamsher, Geller and Rotter, 1968; Hersch and Scheibe, 1967; DuCette and Wolk, 1973; Strickland and Shaffer, 1971; Lichtenstein and Keutzer, 1967; Sara Staats, 1974; Tseng, 1970; Wolk and Kurtz, 1975; Felton and Kahana, 1974; Brannigan and Tolor, 1971; Parsons, Schneider and Hansen, 1970; Reitz and Croff, 1972; McGinnies, Nordholm, Ward and Bhanthumnavin, 1974; Parsons and Schneider, 1974, Feather, 1967; Feather, 1968; Palmore and Luikart, 1972)

From the studies which have used children as their subjects, some have used general Internal-External locus of control scales. That is, the Bialer locus of control scale for children (Penk, 1969; Milgram, 1971; Zytoskee, Strickland and Watson, 1971); the Children's Picture Test of Internal-External control together with the Bialer locus of control scale for children (Battle and Rotter, 1963); the Nowicki-Strickland locus of control scale for children (Nowicki and Segal, 1974; Tyler and Holsinger, 1975); seven items from the Strodtbeck's Personal control scale (Lessing, 1969).

The more specific IAR questionnaire has been used in only a few

studies in order to examine sex differences in Internal-External locus of control beliefs in the intellectual-academic achievement area (Buck and Austrin, 1971; Crandall, Katkovsky and Preston, 1962; Solomon, Houlihan and Parelus, 1969; Crandall, Katkovsky and Crandall, 1965; Crandall and Lacey, 1972; Lifshitz, 1973; Massari and Rosenblum, 1972).

All the studies which have employed the IAR questionnaire and other Internal-External locus of control scales have used, mostly, American samples of children. For comparative reasons we wanted to examine sex differences in Internal-External locus of control beliefs in the intellectual-academic achievement area using an English sample of children.

4. The interactive effect of teachers' sex and pupils' sex on the pupils' Internal-External locus of control reinforcement beliefs

One of the questions the present study addressed itself to was whether the male teacher does influence his boy-pupils more toward the internal orientation than his girl-pupils, and whether the female teacher does influence her girl-pupils more toward the internal orientation than her boy-pupils.

We think that this is an interesting question that it should be addressed to studies concerned with the identification of parameters of teacher impact on the pupils' Internal-External locus of control acquisition, and it becomes particularly significant if one is to take into consideration that, in several countries, education, especially in the primary stage, is undertaken more and more by women teachers, and, so, the educational system tends to become predominantly female with reference to the teaching staff:

However, to the researcher's knowledge, no other research project, besides the one carried out by Marie Oxham (1976) with the employment of American children, has investigated the interactive effect of teachers' sex and pupils' sex on the pupils' Internal-External locus of control beliefs. From that point of view it would be interesting to see what our findings would have to reveal.

5. How accurate would teachers be in assessing their pupils' degree of acceptance of responsibility for school successes and failures

As we have already mentioned in Chapter 2, based on experimental evidence, Internal-External locus of control orientation is regarded as a variable able to influence a wide variety of behaviours, some of which are instrumental to academic achievement.

From that perspective, it would be quite useful for the educational process if the teachers were able to assess accurately their pupils' locus of control of reinforcement beliefs.

Only if the teachers are able to make accurate assessments of their pupils' Internal-External locus of control beliefs they are in a position, through the use of the necessary and advisable techniques, to help those students, who perceive an independence between their actions and outcomes, overcome that stance. As we have already mentioned in Chapter 3, Internal-External locus of control beliefs is a personality variable which can be influenced and changed.

The point of reference and comparison for the accuracy of teachers' assessments were the scores the pupils themselves had scored on the Intellectual Achievement Responsibility (IAR) questionnaire.

6. Teachers' attributions for the strength of educational motivation of their pupils

One of the questions teachers were asked was to make attributions for the strength of educational motivation of each one of their pupils.

Of particular interest was to find out whether the teachers attributed the strength of pupils' motivation to pupils' Internal-External locus of control of reinforcement beliefs. This would be an indication that they were aware of the impact these beliefs have on the achievement behaviour of their pupils.

Of equal interest was to find out which were generally the attributions teachers would make. This would help us with our research with the training-college study.

II. The training college study

The issue to be examined in the training college study was: The relation between teachers' attributions for pupils' failure and teachers' subsequent comments to the pupils.

The findings related to the attributions teachers made for the strength of educational motivation of their pupils revealed that teachers concentrated on attributions referring to factors which are relatively beyond the teachers' power to influence. But teachers, as well, although to a lesser degree, made attributions referring to factors which are relatively within the teachers' power to influence.

The different emphasis teachers have put on various attributions helped us with the question we set out to examine in the training college study. In that study we wanted to examine whether there was a difference in what teachers would say to the pupils as a result of different attributions for pupils' failure in a homework exercise.

If the nature of the teachers' comments to their pupils after failure differed as a result of teachers' different attributions for pupils' failure, it would mean that teachers' attributions for pupils' failure are not only of academic and theoretical interest but they have as well some practical importance for pupils' achievement behaviour.

It seemed to us that it would be of some practical value to try to examine the relationship between teachers' different attributions for pupils' failure and teachers' subsequent behaviour, because it is quite conceivable that the attributions teachers make might not influence their behaviour.

C H A P T E R 5

The Schools' Study

1. Participants

a. Choice of place

The present study has been carried out in one administrative district of a local educational authority. This covers a small University city and neighbouring villages which offer to their inhabitants an occupation mainly in the mining industry.

So, although we did not ask specifically for the parental occupation and the socio-economic status of the pupils, we can say, taking into consideration the nature of the place itself, that all social classes are represented in our pupils' sample, both town and country, and within a compact geographical area.

b. Refusals

Besides the 21 schools, which finally took part in the research project, 13 more schools were approached and asked to participate, but their headmasters refused cooperation on the grounds that either the teachers were unwilling to participate in the study or that the children would be, at the period of the proposed questionnaire administration, busy with other duties and tasks.

Although 13 schools refused to participate in the study,

nevertheless, all types of community remained represented in the sample, and there is no reason to believe that refusing and participating schools would have different effects on the variables we were interested to investigate.

c. The schools

The 21 schools were selected from the official list of the educational authority's primary schools. Selected for inclusion in the research sample were every four consecutive in order on that list schools, while the fifth was left out of this selection.

In Appendix 1 we present a list of the 21 schools which participated in the present research project.

d. The pupils

There were 1292 pupils, 653 boys and 639 girls in the study. The junior third and fourth year classes were chosen to participate in the study, and the pupils ranged in age from 9.8 to 12.5 years, with the majority being 10 and 11 years old.

We started off with pupils attending junior third year classes because past research has shown that at this age children possess internal reinforcement control (McGhee and Crandall, 1968), and because better measuring devices for Internal-External locus of control of reinforcement beliefs exist for this age on than for earlier age stages.

Another reason was because the Intellectual Achievement Responsibility (IAR) questionnaire (Crandall et. al., 1965), which

would be employed in the present study for the assessment of Internal- External locus of control beliefs, is not recommended for use with children below third year, because of the existence of evidence from previous research (Crandall, Katkovsky and Crandall, 1965) that children younger than the third year children were facing difficulties in responding to the IAR questionnaire, mainly because they were unable to keep an IAR item and its two alternatives in mind long enough in order to make meaningful responses.

Based on the previously mentioned existing evidence, we had our doubts and reservations as to whether children younger than those finally decided to be included in our sample would be sufficiently mature to relate to the IAR questionnaire, particularly when the group testing procedure was utilised.

So, it was decided that, if the IAR scores were to be employed and to be employed meaningfully following a group data collection process, it would be best to administer the IAR questionnaire to a sample of children who were already attending the third year.

All the children who participated in the present research project satisfied the following conditions:

Enrollment in State primary junior school classes.

Lack of hearing impairments, since the administration of the questionnaire was to be made orally.

Lack of gross physical impairment.

Lack of any unusual religious background.

The last two conditions should be satisfied because, otherwise, the subjects might give answers coloured either by their personal feelings for their handicap or by their different beliefs in supernatural forces. In both cases the answers they might give, in

all probability, would differ from the answers of the 'normal' children, in the sense that they would mirror the beliefs of children already different from the majority of their fellow pupils who were not under the influence of these variables. And the aspects in which they would differ were important to the nature of the questionnaire concerned.

e. The schools' teachers

The 51 teachers of the classes which had been administered the IAR questionnaire have been included in the present research project; 23 of the teachers were male and 28 female.

2. Instruments

a. For the pupils

While studies on the Internal-External locus of control concept have concentrated largely on adults, and, as a consequence, the majority of the studies related to this concept have used the Rotter Internal-External locus of control scale for adults (Rotter, 1966), nevertheless, there has been a number of successful attempts to develop scales measuring the Internal-External locus of control variable in children, after it became apparent from research findings that the Internal-External locus of control of reinforcement concept has a significant influence on children's behaviour as well.

The number of Internal-External locus of control measures reflects the considerable amount of effort expended by investigators in this area in the hope to produce newer and better devices for measuring Internal-External locus of control beliefs, and it indicates the amount of concern and interest the locus of control or reinforcement concept has produced.

The instrument which has been used in the present study in order to assess children's Internal-External locus of control beliefs has been developed by Crandall, Katkovsky and Crandall (1965), and it is called The Intellectual Achievement Responsibility (IAR) questionnaire. There have been several studies employing the IAR questionnaire, and it is probably, at the present time, the most frequently used measure of Internal-External locus of control beliefs with primary school-age children.

The choice of the IAR questionnaire was made from the following instruments which are at present available for the assessment of children's Internal-External locus of control beliefs.

Bialer's Locus of Control Questionnaire (Bialer, 1961)

Nowicki-Strickland Locus of Control Scale (Nowicki and Strickland, 1973)

Battle and Rotter's Children's Picture Test of Internal-External Control (Battle and Rotter, 1963)

Stanford Preschool Internal-External Scale (SPIES) (Mischel, Zeiss and Zeiss, 1974)

Stephens-Delys Reinforcement Contingency Interview (SDRCI) (Stephens and Delys, 1973)

The Intellectual Achievement Responsibility (IAR) questionnaire is an Internal-External locus of control measure incorporating items from the school academic area, and it is more school orientated than any other children's Internal-External locus of control measure.

The development of a scale focusing specifically on children's Internal-External locus of control beliefs in the intellectual-academic achievement area reflects the considerable interest among researchers in studying the relationship of the Internal-External locus of control variable to school-related tasks.

The IAR questionnaire is a self-report scale consisting of 34 forced-choice 'twin' item pairs which describe common intellectual and academic achievement situations that children experience in everyday life; the 'twin' item pairs differ only as to whether success or failure is described. An example is items 2 and 19. Item 2 says:

'When you do well on a test at school, is it more likely to be

- a) because you studied for it, or
- b) because the test was especially easy?'

Item 19 says:

'When you don't do well on a test at school, is it

- a) because the test was especially hard, or
- b) because you didn't study for it?'

Each one of the 34 items is followed by an internal alternative, stating that the experience described in the item was caused by the child's behaviour, and one external alternative, stating that the experience described in the item occurred because of the behaviour of someone else in the child's immediate environment, such as parents, teacher or peers. The child has to choose between the two alternatives for each item.

The IAR questionnaire provides three scores, that is, two subscale scores and a total score.

The I+ (success) subscale score is consisted of the number of internal alternatives the child endorses for her/his successes in intellectual-academic achievement situations. The I+ (success) subscale measures the child's tendency to hold her/himself responsible for the successes s/he has in intellectual-academic achievement situations. Choice of alternatives (a) in the following statements indicate acceptance of responsibility for school successes.

'When you learn something quickly in school, is it usually

- a) because you paid close attention, or
- b) because the teacher explained it clearly?'

'Suppose you are explaining how to play a game to a friend and he learns quickly. Would that happen more often

- a) because you explained it well, or
- b) because he was able to understand it?'

The I- (failure) subscale score is made up from the number of internal alternatives the child endorses for her/his failures in intellectual-academic achievement situations. The I- (failure) subscale assesses the child's tendency to hold her/himself responsible for the failures s/he has in intellectual-academic achievement situations. Choice of alternatives (b) in the following statements indicate acceptance of responsibility for failures.

When you have trouble understanding something in school, is it usually

- a) because the teacher didn't explain it clearly, or
- b) because you didn't listen carefully?

Suppose you are showing a friend how to play a game and he has trouble with it. Would that happen

- a) because he wasn't able to understand how to play, or
- b) because you couldn't explain it well?

The I total (success and failure combined) scale score, which is the sum of the I+ (success) and I- (failure) subscale scores, provides a general index of internal beliefs for successes and failures in intellectual-academic achievement situations. For example, a child who has accepted responsibility for 6 of success

experiences (I+ (success) subscale score = 6) and for 5 of failure experiences (I- (failure) subscale score = 5) has a total internal score of 11 (I total (success and failure combined) scale score = 11).

The more the higher the score on each of the three scales, the more internal the orientation; therefore, the possible range of scores is from 0 to 34 for the total scale, and 0 to 17 for each one of the two subscales.

The reasons this and not any other of the previously mentioned Internal-External locus of control scales for children was chosen to be administered to the sample of the present study were the following:

First, the purpose of the researcher was to investigate how Internal-External locus of control beliefs operated only in intellectual-academic achievement situations; how the pupils might feel about their good or bad performance, and how they might react to their success and failure outcomes in their school work was one of the questions the researcher wanted to answer.

The IAR questionnaire was the only children's Internal-External locus of control scale whose questions could serve that purpose in relation to the age-group included in the present research project. Unlike the other children's Internal-External locus of control scales mentioned in this chapter, which contain items describing outcomes in a number of reinforcement areas, IAR was designed to assess children's beliefs in Internal-External responsibility for reinforcement exclusively in intellectual-academic achievement tasks and situations.

So, possible greater homogeneity of the Internal-External scores and the researcher's specific goal, which would be best

served by the nature of the IAR items, were two of the reasons for choosing this particular questionnaire.

Another reason for choosing the IAR questionnaire was because of the external environmental forces described in it, which are different from those described in the other scales designed to assess children's Internal-External locus of control beliefs.

While other children's Internal-External locus of control scales attempt to be general across situations and contain a variety of sources and agents to be held accountable for any external control of reinforcement beliefs in the children, such as luck, fate, impersonal social factors, more personal 'significant others', etc., the IAR questionnaire limits the source of external control to those persons who most often come in face-to-face contact with the child, that is, her/his parents, teachers and peers.

A third reason for choosing the IAR questionnaire was related to two questions the present study addressed itself to, namely, differences which might exist between different age groups and between the sexes as far as acceptance of responsibility for success and failure outcomes were concerned.

The IAR questionnaire, by sampling an equal number of positive and negative outcomes, gives the researcher the opportunity to study questions of the above mentioned nature and to benefit from investigating the differential perception of responsibility for positive and negative reinforcement outcomes. The IAR questionnaire was so constructed, as it has already been mentioned earlier, that in addition to an I total (internal or self-) responsibility score, separate subscores can be obtained for beliefs in internal responsibility for success (I+ subscore) and for failure (I- subscore).

Test-retest reliability of the IAR questionnaire

To examine the test-retest reliability of their questionnaire Crandall, Katkovsky and Crandall (1965) administered the IAR questionnaire a second time, after a two-month interval, to 47 children attending the third, fourth and fifth grades. Test-retest correlations were .69 for acceptance of responsibility for success and failure combined, .66 for acceptance of responsibility for success, and .74 for acceptance of responsibility for failure; all correlations were significant at the .001 level.

In another attempt, 70 ninth-grade pupils were given the IAR questionnaire after a two-month interval and the test-retest reliability coefficients for those children were .65 for acceptance of responsibility for success and failure combined, .47 for acceptance of responsibility for success, and .69 for acceptance of responsibility for failure; again all three correlations were significant at the .001 level.

Internal consistency of the IAR questionnaire

With reference to the internal consistency of the IAR questionnaire, because it contains, on the one hand, items sampling beliefs in self-responsibility for success outcomes, and, on the other hand, items sampling beliefs in self-responsibility for failure outcomes, split-half reliabilities were computed separately for the two subscales; that is, responses to the eight even-numbered items of the I+ (success) subscale were correlated with the responses to the nine odd-numbered items of that subscale, and the

nine even-numbered items of the I- (failure) subscale were correlated with the eight odd-numbered items of that subscale.

For a random sample of 130 pupils of the third, fourth and fifth grades, the correlations reported by Crandall et. al. (1965) were .54 for I+ (success) items and .57 for I- (failure) items.

For a similar random sample of older children, the correlations reported were .60 for both I+ items and I- items. Based upon these correlations, Crandall et. al. said that the items within each subscale appear to be somewhat heterogenous, although the brevity of the subscales acts against high split-half reliabilities.

Social desirability

During the construction of the IAR questionnaire, an attempt was made by its creators to word the internal and external alternatives in such a way as to avoid placing any emphasis upon the social desirability of the two responses, since there is always the danger for the subjects, when they answer self-report instruments, to tend to choose those responses which they regard to be more socially desirable and acceptable.

In order to examine the presence or absence of any social desirability effect on their questionnaire, Crandall et. al. (1965) correlated the children's IAR scores with the scores they gave to the Children's Social Desirability (CSD) questionnaire (Crandall, Katkovsky and Crandall, 1965) which measures the tendency with which children pretend in order to make themselves appear socially desirable.

Crandall et. al. (1965) found that from the six correlations between IAR and CSD scores, that is, CSD with I total (success and

failure combined), I+ (success), and I- (failure) for the younger children (third, fourth and fifth grades), and the same correlations for the older children (sixth, eighth, tenth and twelfth grades), only two reached significant levels. That is, for the younger children, I- (failure) subscores were negatively correlated to CSD scores, $r = .26$, $p < .001$, and for the older children I+ subscores were positively associated with CSD responses, $r = .15$, $p < .01$.

Crandall et. al. tend to disregard these two small, but significant, correlations, attributing their significance to the large size of the sample involved. Based on their findings, they argue that social desirability tendencies do not account for much of the variance in IAR responses, and that IAR scores are independent of social desirability tendencies.

Possible disadvantages of the IAR questionnaire

Stephens and Delys (1973), based on a pilot testing they conducted with the IAR questionnaire, argued that, when this questionnaire is administered orally, as it was in the present study, subjects show a significant tendency to repeat the last-read alternative, presumably because of difficulty in remembering the first-read alternative. Since Stephens and Delys refer to preschool children, we can say that the limited reading skill of those children may have contributed to this tendency. In the present study, all children could read well enough, according to their teachers' assessment, and they were, also, given enough time between the oral presentation of each questionnaire item in order to read it themselves and understand its meaning.

Some amendments to the IAR questionnaire

Because the IAR questionnaire was initially designed by its creators for use with American children, a few modifications were considered necessary in the wording of some of the items and some of the alternatives, which, nevertheless, did not change at all the meaning of any of them. These alterations were made by the researcher in order to make the questionnaire more suitable for use with English children, and they were the following:

The statements in the 1st and 22nd 'twin' items: 'if a teacher passes you to the next grade' and 'if a teacher didn't pass you to the next grade', were replaced by the statements: 'if a teacher gave you a good report' and 'if a teacher didn't give you a good report'.

The sentence 'game of checkers' in the 'twin' 7th and 20th items was replaced by the word 'game'.

The word 'stupid' was used instead of the word 'dumb' in the 10th item.

The word 'she' in the alternative (a) of the 16th and 22nd items was replaced by the word 'teacher'.

Instead of the expression 'feeling cranky' in alternative (b) of the 18th and 26th items, the sentences 'to be' and 'they are in a bad mood' were used.

And, finally, the word 'math' in the 'twin' 14th and 28th items was replaced by the word 'mathematics'.

In Appendix 2 we present the Intellectual Achievement Responsibility (IAR) Questionnaire.

b. For the schools' teachers

What was asked to each one of the 51 teachers were two open-ended oral questions.

The first question requested each one of the 51 teachers to comment in writing, upon each particular pupil in her/his class, about the degree to which the pupil would accept responsibility for her/his successes and failures in the school work.

The second question requested each one of the 51 teachers to write attributions for the strength of educational motivation of each one of the pupils in her/his class.

3. Procedure

a. Contact with the schools

For the research program to begin, permission had first to be obtained from the Education Director to approach the schools; this permission was acquired under the condition that the teachers and the headmaster of each particular school would agree to cooperate to the research program.

After that, a letter was sent to the headmasters of the schools chosen to participate in the study, explaining briefly the purpose of the research project and the way in which the study was to be conducted; at the end, their help and cooperation was requested.

This was followed by a telephone call made by the researcher to the headmasters of the schools, and, after that, the researcher visited willing headmasters to show to them and to the classroom teachers concerned the IAR questionnaire, in order for them to approve the nature of the questions going to be asked to the pupils, and explain to the class teachers what would be requested from them to comment upon as part of the research project.

Only then, after a general agreement between the headmaster, the class-teachers and the researcher, the latter did administer the questionnaire to the pupils and asked for the teachers' comments on certain attributes and characteristics of their pupils.

b. Administration of the IAR questionnaire to the pupils

The creators of the IAR questionnaire, based on interviews with

their subjects, argued that some children, in even the third, fourth and fifth grades, were not able to read well enough to take the test in written form. They, therefore, decided that oral presentation of the questionnaire was advisable for children below the sixth grade.

Although that might have been the case only with American children, no risks were taken, and it was decided oral presentation to be the way for the IAR questionnaire administration to all the pupils who consisted the sample of the present study; so, all 34 items were read to the children by the experimenter.

The questionnaires were administered at the end of the school year, that is, end of June and during July, because at that period the children would have a full school session to look back, a fact which would make their responses to the IAR questionnaire more reliable.

The questionnaires were administered in class group sessions, during school hours, and each pupil was given a questionnaire which contained the necessary directions for filling it out.

The pupils were requested to write down, at the top of the questionnaire's first page, their sex and the date of their birth.

A number was given to each one of the pupils out of the class register in order for the researcher to be able to identify each one of the pupils with the comments made for her/him by the teachers, since the teachers, in making their comments, were going to use the same numbers given to each one of the pupils. The children were asked to write down on their questionnaire the numbers given to each one of them. Numbers were employed instead of the names of the pupils, which were not asked, and the researcher made it quite clear to them that there were not right or wrong answers to the questions,

and that there was not going to be any kind of marking to the questionnaires. Children were told that the questionnaire consisted only an instrument to help to understand the way they felt about the questions being asked. The pupils were assured of the confidential and secret nature in which their responses would be treated.

After the above mentioned directions and assurances, the researcher went on to explain to the pupils the way they were going to fill out their questionnaires. It was pointed out to them that it was very important that they should pick the answer 'that best describes, or almost describes, what happens to you or how you feel', and, that being understood, the oral presentation of the questionnaire begun, after the pupils had been asked to interrupt the administration at any time, in case they were in difficulties to understand something about the questions.

When the oral presentation of the questionnaire had finished and the pupils had given their answers, the questionnaires were selected by the researcher who left the classroom thanking the children for their cooperation, which was hearty and wonderful.

c. Administration of the questions to the schools' teachers

Some of the teachers answered their questions the same time their pupils were filling out their questionnaires, that is, during the course of normal classroom duties, but the majority of them preferred to answer some other time because, as they said, they wanted to think better about their answers.

The reason for giving the teachers' questions at the end of the school year was related to considerations about time economy and convenience for the schools, since at the same time we were administering the pupils' questionnaires.

Another reason was because we thought that, the longer the period of teacher-pupil contact, the better the teachers would know their pupils, and the more reliable would be the answers which would be obtained from them. Thus, at the end of the school year, most teachers had known their pupils for at least eight months, and some, who had contact with the children in a previous class, had known them for considerably longer. This relatively long period of contact between the teachers and their pupils would help the teachers to get acquainted well enough with their pupils' characteristics, performance and ways of behaving, and have, as far as possible, a clear picture about their home background and the way they usually reacted to their successes and failures in the school work, so they should be able to give meaningful answers to the researcher's questions.

In writing their comments, the teachers did not give the names of the pupils to the researcher. Instead of the pupils' names, the teachers used the numbers given to each one of the children out of the class register.

4. Findings

The research data were analysed through the Statistical Package for the Social Sciences (SPSS) computer package.

For the Pearson product-moment correlations, Pearson biserial correlations, t-test comparisons, two-way analyses of variance, one-way analyses of variance, and z test we used for the statistical analysis of our data we accepted the .05 level as indicating statistical significance.

a(i) The frequencies of the pupils' internal and external responses to the I+ (success), I- (failure) subscales and I total (success and failure combined) scale of the IAR questionnaire, and the overall mean I+, I- subscores and I total scores given by the pupils of the present sample

With reference to acceptance of responsibility for success, Figure 1 presents the frequencies of internal and external responses endorsed by the pupils. Since the I+ (success) subscale of the IAR questionnaire has 17 items which refer to acceptance of responsibility for success, the highest number of either internal or external responses would be 17, and each possible pattern of response would be a combination of internal responses, ranging from 0-17, and external responses ranging from 0-17.

No. of pupils

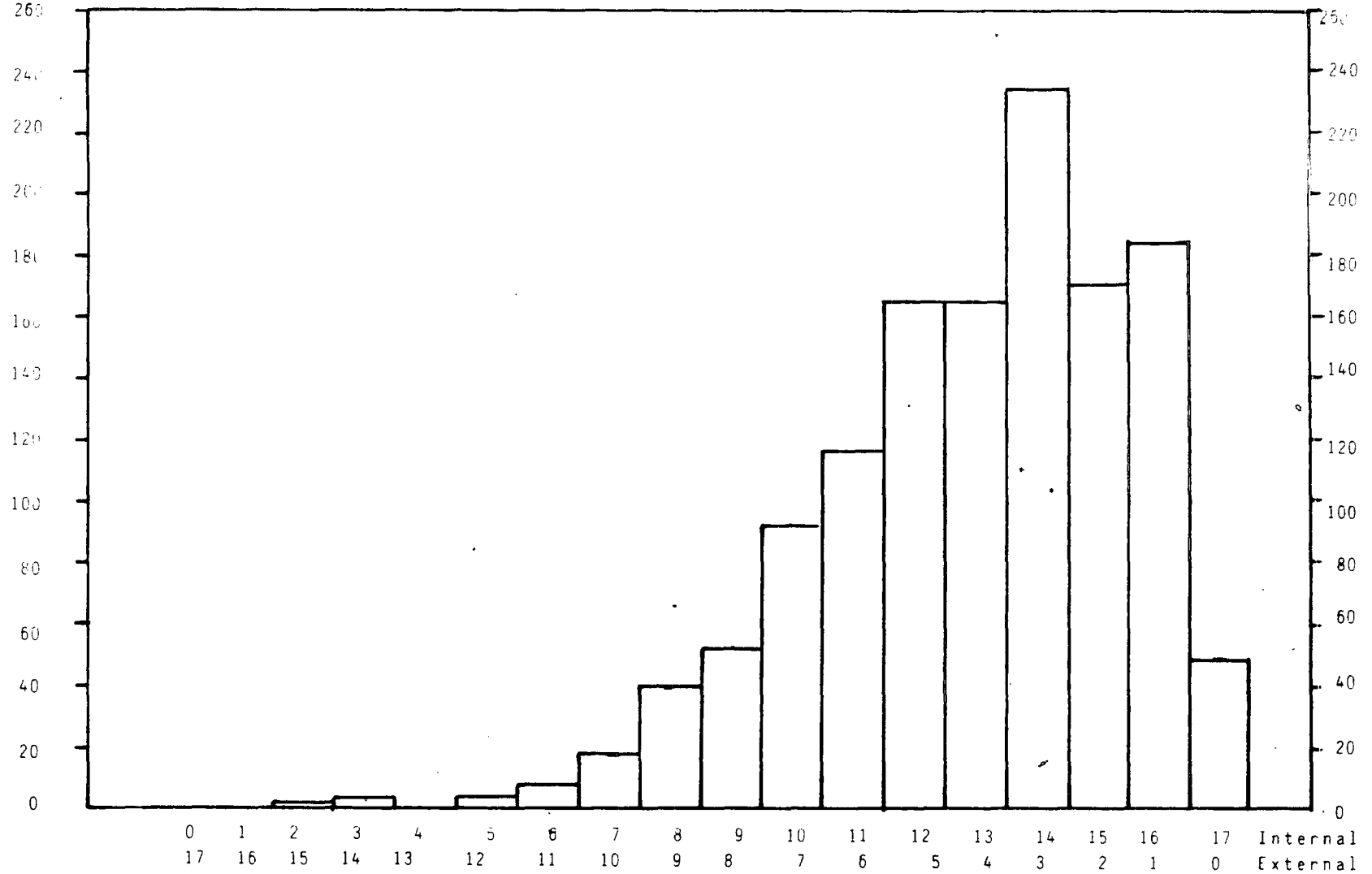


Figure 1 Frequencies of the pupils' internal and external responses to the I+ (success) subscale of the IAR questionnaire.

TABLE 1

Mean, standard deviation and range of I+ (success) subscale scores.

I+ (success) subscale

Mean I+ subscore	S.D.	Range
13.034	2.487	2-17

With reference to acceptance of responsibility for failure, Figure 2 presents the frequencies of internal and external responses endorsed by the pupils. Since the I- (failure) subscale of the IAR questionnaire has 17 items which refer to acceptance of responsibility for failure, the highest number of either internal or external responses would be 17, and each possible pattern of response would be a combination of internal responses, ranging from 0-17, and external responses, ranging from 0-17.

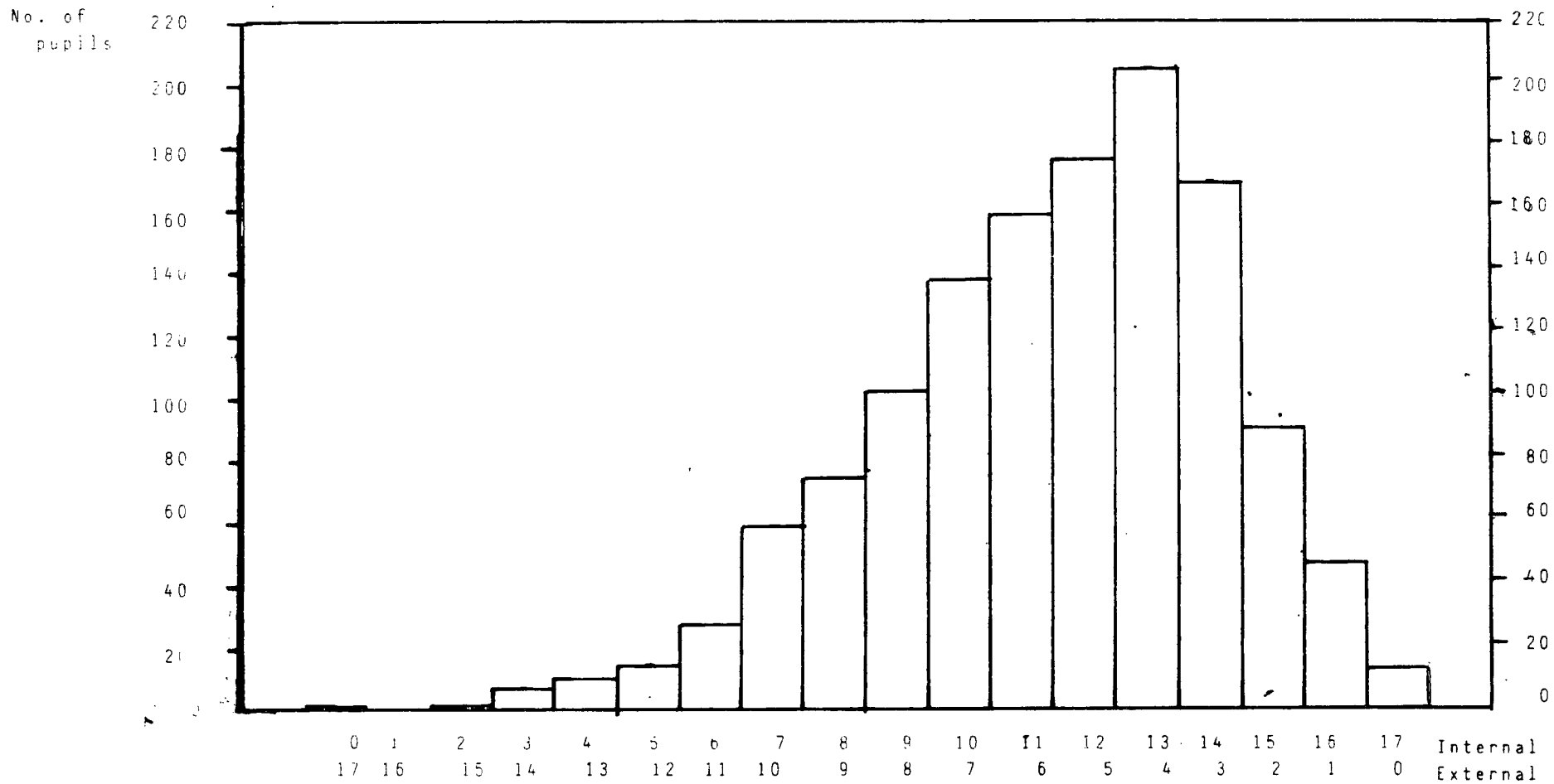


Figure 2 Frequencies of the pupils' internal and external responses to the I- (failure) subscale of the IAR questionnaire.

TABLE 2

Mean, standard deviation and range of I- (failure) subscale scores.

<u>I- (failure) subscale</u>		
Mean I- subscore	S.D.	Range
11.465	2.755	0-17

With reference to acceptance of responsibility for success and failure combined, Figure 3 presents the frequencies of internal and external responses endorsed by the pupils. Since the IAR questionnaire has 34 items which refer to acceptance of responsibility for success and failure combined, the highest number of either internal or external responses would be 34, and each possible pattern of response would be a combination of internal responses, ranging from 0-34, and external responses, ranging from 0-34.

No. of pupils

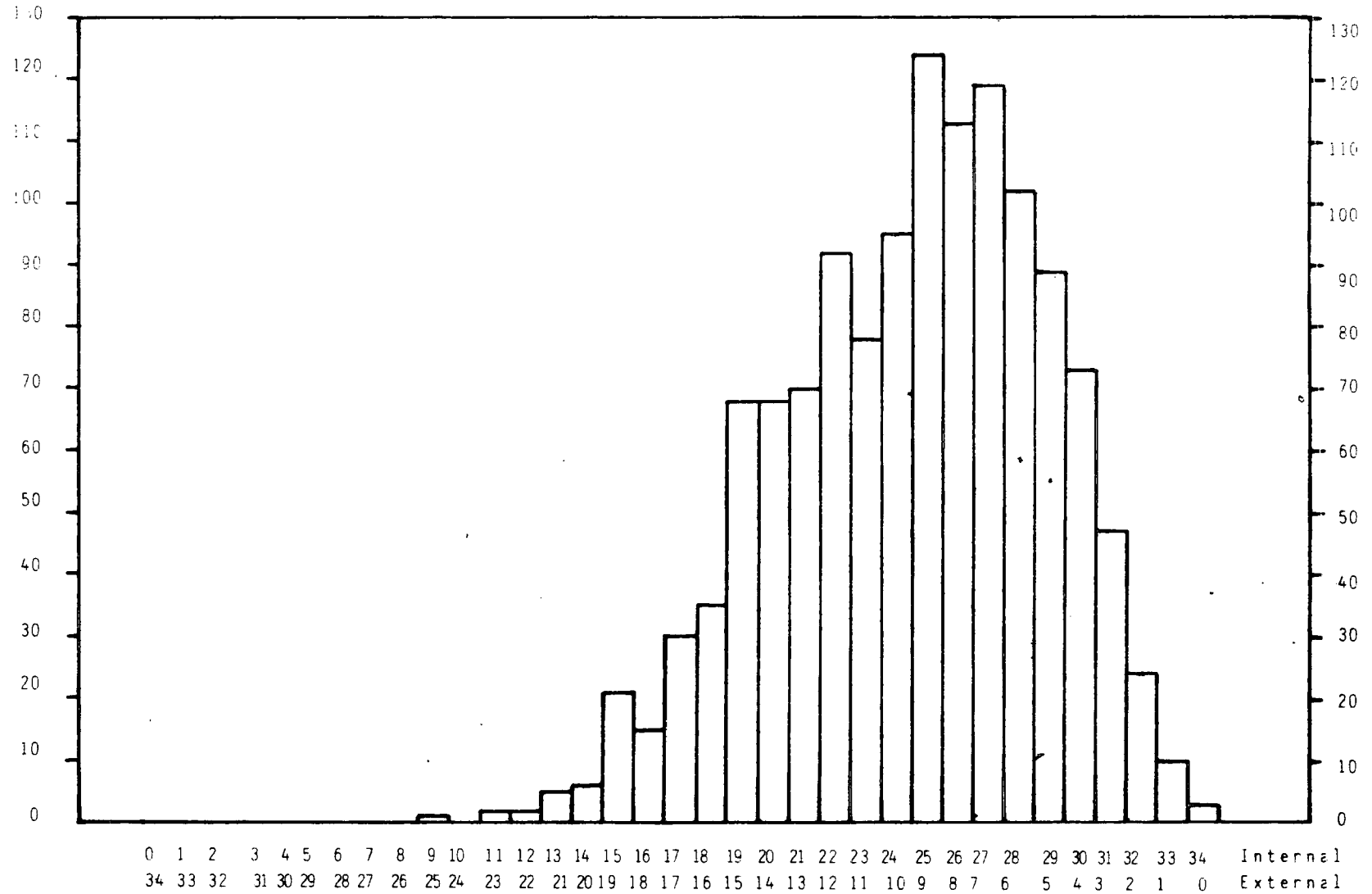


Figure 3 Frequencies of the pupils' internal and external responses to the I total (success and failure combined) scale of the IAR questionnaire.

TABLE 3

Mean, standard deviation and range of I total (success and failure combined) scale scores.

I total (success and failure combined) scale

Mean I total score	S.D.	Range
24.500	4.318	9-34

The previously presented findings revealed that, although the pupils' mean I+ (success), I- (failure) subscores and mean I total (success and failure combined) score were relatively high, a fact which indicates an internal locus of control belief system in the intellectual-academic achievement area, nevertheless, a fair amount of external locus of control beliefs existed among the pupils studied.

This implies that there is a slight problem since, as we have already mentioned in Chapter 2, taken overall, an internal locus of control belief system has been found to be related to greater academic achievement in children. For pupils so young as those who participated in our study to hold, even to no great extent, external locus of control of reinforcement beliefs for school successes and failures is, to a certain degree, worrying. Pupils of that age have not as yet used all their potential for academic achievement, and to develop with the expectation that school success and failure outcomes cannot be determined by their behaviour will not help them much in exerting themselves or in persisting over lengthy time intervals in the pursuit of distant academic goals.

With reference to the pupils' internal scores on the IAR questionnaire, we are not in a position to know whether they attributed their school failures internally to lack of ability rather than to lack of effort. But what we have to remember is that attribution of failure to lack of ability has been shown to be related to lack of persistence in the face of failure.

Of course, there is always the possibility of someone asking: 'Were the children of the present sample actually relatively high scorers or was there something "funny" about the IAR questionnaire

used which "pulled" for internal responses?'

At the present, we do not have any evidence to support such questioning. The evidence about the social desirability of the IAR questionnaire, as we have already discussed previously in the present chapter, indicates either absence of, or very slight, social desirability effects. Also, we do not have any research evidence to indicate that either the order or the structure and the type of the IAR questions 'pull' for internal responses. The only exception to this seems to be the second alternative (because your school work wasn't good enough) to the 22nd item of the questionnaire ('if a teacher didn't give you a good report'). Accidentally, we have noticed that 1289 of the 1292 pupils of our sample have chosen this internal alternative instead of the first one which indicates a belief in external locus of control of reinforcement (because the teacher 'had it in for you'); this alternative was the choice of only three pupils of our sample.

We might attribute this happening to the presence of the teacher in the classroom during the administration of the IAR questionnaire. It is quite possible that, despite assurances given to the pupils concerning the confidential treatment of their responses to the IAR questionnaire, and despite the fact that we did not ask for their names, we did not absolutely convince them for keeping our word.

Except the above mentioned item, we did not notice something else 'peculiar' about the IAR questionnaire upon which someone could base a suggestion that there is something in that questionnaire which 'triggers off' internal responses.

a(ii) Correlations between subscores on the I+ (success) and I- (failure) subscales of the IAR questionnaire

Correlations between subscores on the I+ (success) and I- (failure) subscales of the IAR questionnaire were examined with a series of Pearson biserial correlations. Correlations were computed for each sex separately and for the sexes combined, and for each year separately and for the years combined. Correlations between I+ (success) and I- (failure) subscores given by pupils 12-years old were not computed separately, due to the fact that there were only 4 pupils.,

TABLE 4

Correlations between subscores on the I+ (success) and I- (failure) subscales of the IAR questionnaire

Years	<u>Boys</u>			<u>Girls</u>			<u>Boys and Girls</u>		
	N	r	p	N	r	p	N	r	p
9	37	0.4980	0.002	41	0.3863	0.013	78	0.4370	0.000
10	311	0.2569	0.000	308	0.3983	0.000	619	0.3206	0.000
11	304	0.3710	0.000	287	0.3493	0.000	591	0.3653	0.000
9, 10,									
11, 12	653	0.3262	0.000	639	0.3827	0.000	1292	0.3563	0.000

The above presented correlations between subscores on the I+ (success) and I- (failure) subscales of the IAR questionnaire, although statistically highly significant, nevertheless, they are quite low.

This finding appears to justify the separate scoring of the two IAR subscales. It, also, agrees with the findings obtained by Crandall, Katkovsky and Crandall (1965), Lifshitz (1973), Massari and Rosenblum (1972), and Weiner and Kukla (1970), who, with the employment of American samples of children, have given evidence of variable, but generally low, correlations between I+ (success) and I- (failure) subscores.

b. Age differences in Internal-External locus of control of reinforcement beliefs

The relation between age in months and Internal-External locus of control beliefs was tested with a series of Pearson product-moment correlations. Correlations were computed separately for I+ (success), I- (failure) subscores and I total (success and failure combined) scores, for each sex separately and for the sexes combined.

TABLE 5

Correlations between pupils' age in months and their I+ (success), I- (failure) subscores and I total (success and failure combined) scores

	N	I+ (success) subscores		I- (failure) subscores		I total (success and failure com- bined) scores	
		r	p	r	p	r	p
Boys	653	0.0918	0.019	0.1221	0.002	0.1354	0.001
Girls	639	0.0712	0.072	0.1527	0.000	0.1386	0.000
Boys & Girls	1292	0.0814	0.003	0.1361	0.000	0.1361	0.000

What is apparent from the above presented table is that, in most cases, there was a statistically significant, but tiny,

increase in I+, I- subscores and I total scores with increasing age, which means that the scores tended to become more internal. The only exception was with the I+ (success) subscores given by the girls.

The increase noticed in IAR scores with increasing age appears to support the assumption that, as children witness a growth in their capacity to care for themselves and they become more and more independent and able to influence their surroundings, they become more internal in their locus of control beliefs. It is not, really, age alone that increases the strength of their internal locus of control beliefs, but the accompanying awareness that their behaviour can cause changes in their environment.

The results of the present study appear to agree with those obtained from American samples of children in the studies carried out by Crandall, Katkovsky and Crandall (1965), Crandall and Lacey (1972) and Lifshitz (1973). All three of those studies have employed the IAR questionnaire for the assessment of the children's Internal-External locus of control beliefs.

Also, they appear to agree with results obtained from studies using other Internal-External locus of control measures; namely, the Bialer locus of control scale for children (Bialer, 1961; Penk, 1969; Milgram, 1971) and the Nowicki-Strickland locus of control scale for children (Nowicki and Strickland, 1973; Tyler and Holsinger, 1975).

c. Sex differences in Internal-External locus of control of reinforcement beliefs

Sex differences in Internal-External locus of control beliefs were initially tested with a series of Pearson biserial correlations. Correlations were computed separately for I+ (success), I- (failure) subscores and I total (success and failure combined) scores, for each year separately and for the years combined. Correlations between I+, I- subscores and I total scores given by pupils 12-years old were not computed separately because there were only 4 pupils.

TABLE 6

Correlations between pupils' sex and their I+ (success), I- (failure) subscores and I total (success and failure combined) scores

Years	N	I+ (success) subscores		I- (failure) subscores		I total (success and failure combined) scores	
		r	p	r	p	r	p
9	78	0.0444	0.699	0.0032	0.978	0.0231	0.841
10	619	0.0351	0.383	0.0995	0.013	0.0825	0.040
11	591	0.0715	0.082	0.0975	0.018	0.0995	0.016
9, 10, 11 & 12	1292	0.0475	0.088	0.0881	0.002	0.0809	0.004

The results presented above revealed that the correlation between the sex variable and acceptance of responsibility for success subscores was insignificant for each one of the years and for the years combined.

With reference to the correlation between the sex variable and acceptance of responsibility for failure subscores, our results revealed that it was statistically significant, but very small, in the case of children who were 10- and 11-years old; the same was the case when all the years were considered together.

The correlation between the sex variable and acceptance of responsibility for success and failure scores combined was statistically significant, but again very small, in the case of children who were 10- and 11-years old, and also in the case of all the years considered together.

A series of t-test comparisons was employed in order to examine which of the sexes gave more internal IAR scores. All comparisons were made separately for I+ (success), I- (failure) subscores and I total (success and failure combined) scores, for each year separately and for the years combined. I+, I- subscores and I total scores given by pupils who were 12-years old were not used in any t-test comparison separately because there were only 4 pupils (1 boy and 3 girls).

TABLE 7

T-test comparisons for sex differences in I+ (success), I- (failure) subscores and I total (success and failure combined) scores

Years	N	I+ (success) subscores				I- (failure) subscores				I total (success and failure combined) scores			
		2-tail.				2-tail.				2-tail.			
		t	P	dir.		t	P	dir.		t	P	dir.	
9	78	0.39	0.699	g>b	0.03	0.978	b>g		0.20	0.841	g>b		
10	619	0.87	0.383	g>b	2.48	0.013	g>b		2.06	0.040	g>b		
11	591	1.74	0.082	g>b	2.38	0.018	g>b		2.43	0.016	g>b		
9, 10													
11 & 12	1292	1.71	0.088	g>b	3.18	0.002	g>b		2.91	0.004	g>b		

The above table reveals that there was no statistically significant sex difference in acceptance of responsibility for success subscores for each one of the years and for the years combined.

In relation to acceptance of responsibility for failure subscores, it was found that girls who were 10- and 11-years old gave slightly more internal subscores than did boys of the same ages; the same was the case when the years were considered together. In both cases the difference in the mean I- (failure) subscores was statistically significant.

With reference to acceptance of responsibility of success and

failure scores considered together, it was found that girls who were 10- and 11-years old scored slightly more internal than did boys of the same ages, and the difference between their mean I total scores was statistically significant; our results revealed the same when the years were considered together.

Why did the girls of the present sample accept more responsibility for failures in the intellectual academic-achievement area than did the boys?

One reason which could be suggested seems to be related to the parent-child relationship. We have mentioned in Chapter 3 that, when a parent responds to the child's errors and failures with impatience and rejection, the child might feel threatened, and, in order to preserve a fragile self-concept, s/he might, very likely, attribute her/his failure to agents which s/he regards as being beyond her/his personal control.

On the other hand, a parent who reacts with understanding and encouragement to the child's difficulties and failures in school, might help the child to develop a tendency to accept her/his failures without fear of being rejected.

It would be quite true to say that, even today, a lot of parents do not expect from their daughters the same efficiency and achievement in the intellectual-academic area as they do from their sons. It would also be quite reasonable, and based upon common observation, to say that parents are not to the same degree rejecting and worried with girls' failures in the intellectual-academic achievement area as they are with boys' failures, even in the cases in which they have the same expectations from the girls as they have from the boys.

Despite the fact that a lot of women have got University degrees which qualify them as capable to aspire to certain jobs which, until relatively recently, were thought of as belonging to the vocational sphere of men, most people regard this as a 'happy happening' which, although makes women able to stand on their own feet, is not absolutely necessary for the role women have been chosen to play in society. But for men, success in the academic field, very often constitutes the means towards social and vocational recognition.

So, it is possible that failure on the part of the girls is more acceptable to the parents than is failure on the part of the boys; consequently, girls are not as much threatened as boys by the idea of accepting the failures they encounter in their school lives.

The results obtained in the present study seem to agree with those obtained from American samples of children in the research projects carried out by Buck and Austrin (1971), and Massari and Rosenblum (1972). Both those studies have used the IAR questionnaire for the assessment of Internal-External locus of control beliefs, and both have found that girls were, to a statistically significant degree, more internal than boys with reference to acceptance of responsibility for failure, and success and failure combined.

Furthermore, studies which have used the IAR questionnaire and American samples of children and have found girls to be, to a statistically significant degree, more internal than boys with reference to acceptance of responsibility for success, failure, and success and failure combined, are those conducted by Crandall, Katkovsky and Preston (1962), Crandall, Katkovsky and Crandall (1965), and Solomon, Houlihan and Parelus (1969).

Girls were also found to be more internal than boys in a study conducted by Nowicki and Segal (1974). These researchers have used an American sample of children and the Nowicki-Strickland locus of control scale for children.

Tables 8-19 in Appendix 3 present the descriptive statistics of the t-test comparisons for sex differences in I+ (success), I- (failure) subscores and I total (success and failure combined) scores.

Figures 4-9 in Appendix 4 present the frequencies of the internal and external responses, endorsed by girls and boys separately, to the I+ (success), I- (failure) subscales and I total (success and failure combined) scale of the IAR questionnaire.

d. **The interactive effect of teachers' sex and pupils' sex on the pupils' Internal-External locus of control of reinforcement beliefs**

In order to examine any main and interactive effects of pupils' sex and teachers' sex on the pupils' IAR scores a two-way analysis of variance procedure was employed. Two-way analyses of variance were carried out three times, that is, for I+ (success), I- (failure) subscores and I total (success and failure combined) scores; the independent variables were child sex (boys and girls) and teacher sex (male and female teachers), while the dependent variables were the I+ subscores, I- subscores, and I total scores.

The two-way analysis of variance for I+ (success) subscores revealed one main significant effect of the teacher sex variable on the pupils' I+ (success) subscores ($F = 6.05$, $p = 0.014$). There was no significant main effect due to the child sex variable ($F = 2.91$, $p = 0.088$), and there was no significant joint effect due to the interaction of the child sex and the teacher sex variables ($F = 0.29$, $p = 0.586$).

As far as I- (failure) subscores were concerned, only the main effect of the child sex variable on the pupils' I- subscores was found to be significant ($F = 10$, $p = 0.002$). There was no significant main effect due to the teacher sex variable ($F = 2.92$, $p = 0.088$), and the joint effect of the interaction of the teacher sex and child sex variables was, also, found to be insignificant ($F = 0.28$, $p = 0.594$).

The two-way analysis of variance for I total (success and failure combined) scores yielded two significant main effects; one

due to the child sex variable ($F = 8.50$, $p = 0.004$), and the other due to the teacher sex variable ($F = 6.41$, $p = 0.011$). The joint effect of the interaction of the child sex and teacher sex variables was found to have an insignificant effect on the pupils' I total scores ($F = 0.30$, $p = 0.580$).

So, in all three cases the joint effect of the interaction of the child sex and teacher sex variables on the pupils' I+, I- subscores and I total scores was insignificant. This finding means that the boys of the present sample, in comparison to the girls, did not give more internal I+ (success), I- (failure) subscores and I total (success and failure combined) scores when taught by male teachers, and that the girls, compared to the boys, did not score more internally on the I+ (success), I- (failure) subscales and I total (success and failure combined) scale when taught by female teachers.

The results obtained by the present study are similar to those obtained by Oxham's (1976) investigation which has employed an American sample of children.

e. **How accurate would teachers be in assessing their pupils' degree of acceptance of responsibility for school successes and failures**

The comments teachers made about their pupils' degree of acceptance of responsibility were divided into two separate categories. The first of those categories included groups of comments indicating different degree levels of acceptance of responsibility for success in the intellectual-academic achievement area, while the second contained groups of comments indicating different degree levels of acceptance of responsibility for failure in the intellectual-academic achievement area.

The reason for this division of teachers' comments into two separate categories was decided because, as we will see later, an attempt was going to be made to examine whether the degree of internality for success, as it was revealed in the teachers' comments about their pupils, was related to the pupils' internality, as it was revealed in their I+ (success) subscale scores; and whether the degree of internality for failure, as it was revealed in the teachers' comments about their pupils, was related to the pupils' internality as it was revealed in their I- (failure) subscale scores.

The groups of comments contained within each one of the two categories were classified in an order, according to the degree of acceptance of responsibility indicated, graduating from the group of comments revealing total acceptance of responsibility on the part of the pupils to the group of comments indicating total lack of acceptance of responsibility on the pupils' part.

In order to form the groups of comments belonging to the first category, we concerned ourselves with that part of the teacher statement which was referring to the degree of acceptance of responsibility for success on the pupil's part, and we ignored the part of the teacher statement related to the degree of acceptance of responsibility for failure exhibited by the same pupil.

In forming the groups of comments belonging to the second category, the opposite procedure was followed; that is, we concentrated our attention upon the degree of acceptance of responsibility for failure revealed in each teacher's statement for each one of the pupils and we did not take into consideration the part of the statement which was referring to the degree of acceptance of responsibility for success on the pupil's part.

For example, in dealing with the teacher statement 'does accept responsibility for success, but does not accept responsibility for failure', we took into consideration only the first half of this statement, in order to classify the pupil, to whom it was referring, in one of the groups of the first category, that is, of comments indicating different degrees of acceptance of responsibility for success. But in order to place the same pupil in one of the groups of the second category of comments, revealing various degree levels of acceptance of responsibility for failure, we took into account only the second half of the same statement.

In relation to the category including comments revealing various degree levels of acceptance of responsibility for success, three major groups of comments were formed. Since some of the groups of comments, although in different wording, were revealing the same degree of acceptance of responsibility for success, they were placed

together in one larger group. The same happened with the groups of comments referring to acceptance of responsibility for failure; three major groups of comments were made up.

Following there are the three major groups of comments which indicated different degree levels of acceptance of responsibility for success.

Comments classified in the first group were referring to 767 pupils, 373 boys and 394 girls, and they were the following:

Does accept responsibility for success and failure.

Does accept responsibility for success, but does not accept responsibility for failure.

Does always accept responsibility for success and usually does accept responsibility for failure.

Does accept responsibility for success, but I don't know about acceptance of responsibility for failure.

Comments included in the second group were referring to 55 pupils, 29 boys and 26 girls, and they were the following:

Usually does accept responsibility for success and failure.

Does not readily accept responsibility for success and failure.

Sometimes does accept responsibility for success and failure.

To some extent does accept responsibility for success and failure.

Does not always accept responsibility for success and failure.

Part of the credit for the successes goes to the teacher, but does accept responsibility for failure.

The third group was made up of comments referring to 109 pupils, 61 boys and 48 girls, and they were the following:

Does not accept responsibility for success and failure.

Does not accept responsibility for success, but does accept responsibility for failure.

The comments about acceptance of responsibility for success described in the above mentioned three groups were made in connection to 931 pupils of the sample.

The comments made for 29 pupils were not included in the grouping because of their nature, which made impossible any kind of classification, since the teachers commented upon the degree of acceptance of responsibility for failure on the part of those 29 pupils, but they reported lack of knowledge with reference to acceptance of responsibility for success.

For the rest of the 332 children of the sample no comments were made at all by the teachers, either for acceptance of responsibility for success or failure.

With reference to the category about acceptance of responsibility for failure, again three groups of comments were formed.

Comments included in the first group were referring to 743 pupils, 367 boys and 376 girls, and they were the following:

Does accept responsibility for failure and success.

Does accept responsibility for failure, but does not accept responsibility for success.

Does accept responsibility for failure, but part of the credit for the successes goes to the teacher.

Does accept responsibility for failure, but I don't know about acceptance of responsibility for success.

The second group consisted of comments referring to 65 pupils, 30 boys and 35 girls, and they were the following:

Usually does accept responsibility for failure and success.

Does not readily accept responsibility for failure and success.

Sometimes does accept responsibility for failure and success.

To some extent does accept responsibility for failure and success.

Does not always accept responsibility for failure and success.

Usually does accept responsibility for failure, but does always accept responsibility for success.

Comments included in the third group were referring to 146 pupils, 84 boys and 62 girls, and they were the following:

Does not accept responsibility for failure and success.

Does not accept responsibility for failure, but does accept responsibility for success.

The comments about acceptance of responsibility for failure described in the above mentioned three groups were made in connection to 954 pupils of the sample.

The comments made for 6 pupils have been left out of the grouping since the teachers commented only on acceptance of responsibility for success and reported lack of knowledge about acceptance of responsibility for failure.

No comments, either for acceptance of responsibility for failure or success, were made by the teachers for the rest of the 332 pupils of the sample.

With reference to the placement of the pupils into the three acceptance of responsibility for success groups, in the case of the sexes combined, out of 931 pupils, 876 were placed in the first and third groups, that is 767 and 109 respectively; only 55 pupils were classified in the second group.

Consequently, in the case of the boys, out of 463 pupils, 434 were placed in the first and third groups, 373 and 61 respectively, and only 29 pupils had been placed in the second group. And as far as the girls were concerned, out of 468 pupils, 442 had been classified in the first and third groups, 394 and 48 respectively, while only 26 pupils had been placed in the second group.

In relation to the placement of the pupils into the three acceptance of responsibility for failure groups, a similar pattern to the one emerged in relation to the groups indicating acceptance of responsibility for success was obtained.

Again, the majority of the pupils had been classified by their teachers into the two extreme levels, that is, in the first group, which included pupils considered to accept always responsibility for their failure experiences, and in the third group, which contained pupils who, according to their teachers' judgement, lacked totally such a responsibility.

More specifically, for the sexes combined, 889 pupils, out of 954, had been placed in the first and third groups, 743 and 146 respectively, while only 65 had been placed in the second group.

As a result, in relation to the boys, out of 481 pupils, 451 had been placed into the two extreme levels, 367 in the first and 84 in the third, while the rest of the 30 pupils had been classified in the second group. With reference to the girls, out of 473 pupils, 438 had been classified into the first and third groups, 376 and 62 respectively, while the second group was composed of the rest of the 35 pupils.

The nature of the previously described numerical placement of the pupils in the acceptance of responsibility groups is in itself

quite interesting.

On the one hand, it shows that the teachers tended to regard the overwhelming majority of the pupils in their classrooms as always accepting responsibility for the successes and failures in their intellectual academic-achievement efforts.

On the other hand, the placement of the majority of the pupils into the two extreme and opposite acceptance of responsibility for success and failure levels, shows that the teachers of the classrooms the researcher went into tended to polarise their pupils into those two extreme groups.

A series of one-way analyses of variance was employed in order to find out whether there was any statistically significant difference between the within groups variance and the between groups variance of the I+ (success) and I- (failure) subscores given by pupils classified by their teachers to each one of the three acceptance of responsibility for success and failure groups; one-way analyses of variance were computed for the sexes combined and for each sex separately.

The results have revealed that the difference between the within groups variance and the between groups variance was found to be statistically significant in the case of the I+ (success) subscores given by boys and girls together ($F = 4.23, p = 0.014$), in the case of the I- (failure) subscores given by boys and girls together ($F = 6.40, p = 0.001$), and in the case of the I- (failure) subscores given by boys ($F = 4.22, p = 0.015$).

The difference between the within groups variance and the between groups variance was not found to be statistically significant in the case of the I+ (success) subscores given by boys

($F = 2.71$, $p = 0.067$), in the case of I+ (success) subscores given by girls ($F = 1.23$, $p = 0.292$), and in the case of I- (failure) subscores given by girls ($F = 1.83$, $p = 0.160$).

The above presented results indicate that, in some cases, there was a statistically significant relation between teachers' assessment of their pupils' degree of acceptance of responsibility and pupils' I+ (success) and I- (failure) subscores.

Nevertheless, w^2 calculations revealed that in all cases this relation was extremely small.

In the case of I+ (success) subscores given by boys and girls together $w^2 = 0.002$, in the case of I+ (success) subscores given by boys $w^2 = 0.002$, and in the case of I+ (success) subscores given by girls $w^2 = 0.000$.

In the case of I- (failure) subscores given by boys and girls together $w^2 = 0.003$, in the case of I- (failure) subscores given by boys $w^2 = 0.013$, and in the case of I- (failure) subscores given by girls $w^2 = 0.001$.

So, the results of the w^2 calculations revealed that there was an extremely low agreement between teachers' assessment of their pupils' degree of acceptance of responsibility and pupils' I+ (success) and I- (failure) subscores. This means that the teachers of the present sample were very poor judges of their pupils' degree of acceptance of responsibility.

Tables 20-25 in Appendix 5 present the means, standard deviations, and minimum and maximum of I+ (success) and I- (failure) subscores given by boys and girls, considered together and separately, classified by their teachers to each one of the three acceptance of responsibility for success groups, and to each one of the three acceptance of responsibility for failure groups.

f. Attributions made by the teachers for the strength of educational motivation of their pupils

Each one of the 51 teachers was free to make as many attributions as s/he was aware of, and, while the higher number of attributions made by few teachers for a single pupil was six, the majority of them made one or two.

Many teachers made attributions which were common to those made by other teachers; nevertheless, there were cases in which attributions made were unique to a particular teacher, representing perhaps the teacher's more personal approach to the subject, and also highly individualistic characteristics on the part of the pupil which were considered important for the strength of motivation.

Leaving the teachers free to make as many attributions as they were aware of, ended up in having a large number of interesting attributions to be held accountable for the strength of the pupils' motivation.

After the 51 teachers made, in written form, their attributions for the strength of their pupils' motivation, an inspection of their attributions revealed that there were totally 355 attributions to be held accountable for the pupils' strength of motivation.

In an attempt to reduce this number, we set out to identify those attributions made by the teachers whose meaning was identical to that of some other attributions. For example, attributions such as 'clever', 'intelligent', 'bright', although having different labels, were all used by the teachers to describe the level of intelligence of their pupils. Also, expressions such as 'family insecurity', 'unstable home background', although differing in their

wording, were employed by the teachers to describe an emotionally unfavourable home background for the pupils, and they were considered to be functionally equivalent since they were conveying the same meaning.

After the completion of this first inspection and sorting out of the attributions made by the teachers, we were left with a fewer number of separate groups of attributions from the total of 355 made by the teachers in the first place.

Although this initial inspection and sorting out of the attributions took into consideration all 355 attributions made by the teachers, nevertheless, our final aim was to create categories of attributions which would be psychologically interesting and meaningful, and mutually exclusive; that is, each one of the attributions should be placed in one category only.

The question of the mutual exclusiveness of the categories was the most difficult problem in their formation, since a proportion of the attributions could be classified in a number of different ways. It seemed to us that the best way to overcome, in an effective way, this difficulty was by assigning each one of the attributions to the most appropriate category, and, if necessary, making an adjustment to the definition of the categories.

After many attempts toward the formation of distinctive categories of attributions, which would include all the attributions made by the teachers, finally, we created 9 such categories which were the following:

Attributions referring to ability

This category consisted of attributions which referred to the existence of pupils' ability for learning; for example, attributions included in this category referred to the intelligence of the pupils, their creative ability, their competence for school work in general or within particular subject areas.

It, also, included attributions which referred to pupils' lack of ability for learning. Attributions included in this category were referring to pupils' limited intelligence and competence for school work, and to difficulties encountered by the pupils in coping with school demands in general or in specific subject areas due to their limited ability.

Attributions referring to home background

In this category were contained attributions referring to favourable home circumstances whose existence could positively influence children's motivation. These attributions were not referring to a prosperous economic situation at home, but were rather associated with potential encouragement and parental interest and concern for the child's academic performance; they were also related to the existence of family academic background and parental educational level.

Additionally, this category included attributions which were referring to specific problems and difficulties at home which could affect in a negative way children's motivation. These attributions were referring to unfavourable economic and cultural level of the

family, to parental lack of interest for the child's academic achievement, as well as to handicaps, misfortunes and various difficult circumstances encountered by the families.

Attributions referring to personality

In this category were contained attributions referring to non-cognitive characteristics of the pupils.

Attributions referring to social problems

This category contained attributions referring to behavioural, social and emotional problems of the pupils.

The allocation of attributions to this category presented some problems because, in the beginning, we were not sure as to whether to create a new category or to combine it with the one including attributions referring to the personality of the pupils.

Finally, we decided to make a separate new category taking into consideration that the social problems category would contain attributions not simply referring to personality characteristics of the pupils, but, furthermore, attributions referring to characteristics of the pupils which could create problems to the pupils themselves and other persons coming in contact with them within their social context.

Attributions referring to health and physical appearance

In this category were included attributions referring to health

problems and physical appearance of the pupils.

Attributions referring to effort and concentration

Attributions contained in this category were referring either directly to the amount of effort exhibited by the pupils in doing their school work, or to certain characteristics and attitudes held by the pupils towards school and work which implied existence of effort.

Also, this category consisted of attributions which were referring either directly to lack of effort and concentration on the pupils' part, as far as their school work was concerned, or to certain attitudes on the part of the pupils towards school and work which implied lack of effort.

Attributions referring to teacher influence

Attributions included in this category were referring to the role the teacher is playing in motivating and helping pupils in their school efforts.

Attributions referring to desires, interests and needs

Attributions of this category were referring to the desire of the pupils to do well in the school, either because they were interested, generally, in learning, education, a particular subject, or for more 'practical' reasons, that is, because they had in mind their future welfare and success in life, or because they wanted to

please themselves. Also, in this category were included attributions referring to lack of any interest on the pupils' part for the school work, for learning and education, for academic success and for personal improvement. Additionally, this category included reasons referring to the desire of the pupils to succeed in the academic field either because they wanted to show off their ability, please their parents and teachers and gain their approval, favour and recognition, or because they wanted to avoid any kind of trouble with their teachers and their parents.

Attributions referring to non-academic interests

Reasons included in this category were referring to interests exhibited by the pupils not in relation to school subjects, but to their non-academic interests and skills, mainly athletic.

In Appendix 6 we present the 9 categories of teachers' attributions for the strength of their pupils' educational motivation.

In considering the aforementioned nine different categories, we could say that five of them included attributions referring to factors which are relatively beyond the teachers' power to influence. These five categories included attributions referring to pupils' ability, personality, home background, social problems, and health and physical appearance.

Two of the nine categories included attributions referring to factors which, compared to the previously mentioned ones, are to a

greater degree within the teachers' power to influence. Attributions belonging to these two categories were referring to pupils' effort and concentration, and to teacher influence.

Attributions included in the other two categories, and referring to pupils' desires, interests, needs, and their non-academic interests, were considered as not being directly under the teachers' power to influence, but, on the other hand, the teacher could have an impact on developing and directing them towards educational goals.

After we had classified all the attributions made by the teachers to one of the nine categories, we set out, with a series of multi-response procedures, to examine how many times the teachers made attributions referring to the ability, personality, home background, social problems, and health and physical appearance factors, when these factors were considered together and when they were considered separately. The same procedure was employed with the number of attributions made by the teachers and referring to the effort and concentration, and teacher influence factors, and, also, with the number of attributions made by the teachers and referring to the desires, interests, needs, and non-academic interests factors.

Number of attributions made by male and female teachers considered separately, and by male and female teachers considered together, were examined.

Following there are three tables presenting our results. The number 1292 appearing in the tables is the number of pupils taught by male and female teachers. The number 545 is the number of pupils taught by male teachers, and the number 747 is the number of pupils taught by female teachers.

TABLE 26

Number of times male and female teachers, considered together and separately, made attributions referring to the ability, personality, home background, social problems, and health and physical appearance factors, considered together and separately

	Ability, personality, home background, social problems, health and physical appearance factors	Ability factor	Personality factor	Home background factor	Social problems factor	Home and physical appearance factor
Male and female teachers (1292 pupils)	863 times	291 times	282 times	238 times	34 times	18 times
Male teachers (545 pupils)	454 times	166 times	133 times	120 times	23 times	12 times
Female teachers (747 pupils)	409 times	125 times	149 times	118 times	11 times	6 times

TABLE 27

Number of times male and female teachers, considered together and separately, made attributions referring to the effort and concentration, and teacher influence factors, considered together and separately

	Effort and concentration, and teacher influence factors	Effort and concentration factor	Teacher influence factor
Male and female teachers (1292 pupils)	433 times	397 times	36 times
Male teachers (545 pupils)	218 times	202 times	16 times
Female teachers (747 pupils)	215 times	195 times	20 times

TABLE 28

Number of times male and female teachers, considered together and separately, made attributions referring to the desires, interests, needs, and non-academic interests factors, considered together and separately

	Desires, interests, needs, and non-academic interests factors	Desires, interests, needs factor	Non-academic interests factor
Male and female teachers (1292 pupils)	489 times	465 times	24 times
Male teachers (545 pupils)	197 times	189 times	8 times
Female teachers (747 pupils)	292 times	276 times	16 times

One of the interesting findings with reference to the attributions teachers made for the strength of their pupils' motivation was that they never attributed the strength of motivation directly to the locus of control of reinforcement beliefs of their pupils. Even in the cases where the teachers made attributions referring to the pupils' ability and effort, it was with reference to what the teachers themselves thought of the pupils, in terms of their ability and effort, and not with reference to what the pupils perceived to be the contingency between ability and outcomes, and effort and outcomes. The teachers, for example, never made attributions like: 'S/he is motivated because s/he believes that s/he has the ability to do things' or 'S/he is not motivated because s/he believes that s/he does not have the ability to do things'. Also, they never made attributions like: 'S/he is motivated because s/he believes that effort pays off' or 'S/he is not motivated because s/he believes that effort does not pay off'.

The fact that the teachers did not make attributions referring directly to their pupils' locus of control beliefs, and the fact that they were proved to be relatively poor judges of their pupils' degree of acceptance of responsibility indicate that the teachers of the present sample were not fully aware of the impact pupils' locus of control beliefs may have on their academic achievement.

Another interesting characteristic of the results reported in the previously presented tables is that male and female teachers, considered either together or separately, concentrated more on attributions referring to factors which are relatively beyond their power to influence; that is, they concentrated more on attributions referring to the ability, personality, have background, social

problems, and health and physical appearance factors.

More specifically, attributions referring to these five factors were made, by male and female teachers together, 863 times. Attributions referring to the effort and concentration, and teacher influence factors were made 433 times, while attributions referring to the desires, interests, needs, and non-academic interests factors were made 489 times.

With reference to the attributions made by male and female teachers separately, a similar pattern to the one described previously has emerged; that is, male teachers concentrated more on attributions which are relatively beyond their power to influence, and the same was the case with attributions made by female teachers.

Male teachers made attributions referring to the ability, personality, home background, social problems, and health and physical appearance factors 454 times. Attributions referring to the effort and concentration, and teacher influence factors were made 218 times, while attributions referring to the desires, interests, needs, and non-academic interests factors were made 197 times.

Female teachers made attributions referring to the ability, personality, home background, social problems, and health and physical appearance factors 409 times. Attributions referring to the effort and concentration, and teacher influence factors were made 215 times, and attributions referring to the desires, interests, needs, and non-academic interests factors were made 292 times.

Another finding with reference to our results, which was thought of as interesting and worthy of examination, was that the role of the teacher as a factor which might influence the strength of pupils' motivation was only stressed to an almost insignificant

degree. Teachers attributed the strength of their pupils' motivation to the teacher influence factor only 36 times.

Furthermore, attributions referring to the educational system, in general, and to the individual schools, in particular, were never made.

It seems that, according to the teachers' opinion, all factors which influenced the strength of their pupils' motivation were, to an extremely great extent, external to the teachers and they, obviously, had nothing to do with the ways the pupils were encountered, educated, and treated within their schools, in particular, and by the educational system, in general.

The fact that the teachers absolved themselves almost of any responsibility related to the strength of motivation of their pupils does become particularly interesting since a lot of people, concerned with educational matters, get involved in conversations which point to the teacher as the key figure in the learning process, and the new trend in education is sometimes called 'teacher accountability'.

Of course, it is difficult to find any generalised attitude among teachers regarding the 'teacher accountability' movement, and this may be attributed to the perception that so many other variables interfere with the teachers' sense of control and responsibility in the classroom (e.g. sufficient materials, home background, etc.), that, depending on whether a teacher assumes these needs will be met, s/he may or may not state that s/he believes the movement is basically good, and, furthermore, s/he may or may not accept responsibility for the strength of motivation of

the pupils.

Of course, it is reasonable and fair to the teachers to assume that no single group involved in the educational process should be held totally accountable for students' strength of motivation. Nevertheless, it still remains difficult to explain the refusal of the large majority of the teachers to accept responsibility for either the existence or the lack of motivation of their pupils.

Another finding which appears to be of some interest is that although the teachers were asked, quite clearly, to make attributions for the strength of motivation, sometimes, instead of doing that, they tended to give plain descriptions of the pupils. This tendency was particularly evident in those cases where the pupils had been described by the teachers in terms of their personality characteristics (e.g. aggressive, very mothered, imaginative, etc.).

CHAPTER 6

The training college study

1. Participants

The training college study has been carried out within the School of Education of a University.

The 52 trainee-teachers who participated in the study were studying for the Post Graduate Certificate in Education (PGCE). All trainee-teachers were female.

2. Instruments

The following questionnaire was prepared by the researcher to be administered to each one of the 52 trainee-teachers.

EACH OF THESE PUPILS HAS HANDED IN A POOR HOMEWORK EXERCISE

Pupil 1 could not be bothered to do the work properly

Which of these would be the better thing to say to this pupil?
Tick the better one.

'You would have done better if you had put more effort into it'.

'Did something happen to distract you?'

Pupil 2 did not concentrate

Which would be the better thing to say in this case? Tick the better one.

'This is not your best subject, is it?'

'You can do this when you try'.

Pupil 3 did not work hard enough

Which would be the better thing to say?

'Were you paying enough attention?'

'I think this was too hard for you'.

Pupil 4 comes from a poor home background

Which would be the better thing to say?

'With luck you'll do better next time'.

'You should take more trouble over your work'.

Pupil 5 is not very bright

Which would be the better thing to say?

'This is not your best subject, is it?'

'You can do this when you try'.

Pupil 6 is maladjusted

Which would be the better thing to say?

'Were you paying enough attention?'

'I think this was too hard for you'.

Pupil 7 did not pay attention

Which would be the better thing to say?

'You gave up too easily'.

'You are better at other subjects'.

Pupil 8 did not take enough care

Which would be the better thing to say?

'This is not a very suitable exercise for you'.

'You should have worked harder'.

Pupil 9 did not put enough effort into it

Which would be the better thing to say?

'With luck you'll do better next time'.

'You should take more trouble over your work'.

Pupil 10 is a child with a disturbed personality

Which would be the better thing to say?

'You would have done better if you had put more effort into it'.

'Did something happen to distract you?'

Pupil 11 has uninterested parents

Which of these would be the better thing to say?

'This was not a very suitable exercise for you'.

'You should have worked harder'.

Pupil 12 is rather dull

Which would be the better thing to say?

'You gave up too easily'.

'You are better at other subjects'.

The failure of six of the 12 pupils was attributed to factors which are relatively beyond the teachers' power to influence (e.g. lack of ability, difficult home background, maladjustment). The failure of the other six pupils was attributed to factors which the teachers can influence more easily (e.g. lack of effort, lack of concentration, lack of attention).

The trainee-teachers were requested to choose one of the two alternative comments which were following each one of the failure attributions. One of the comments induced the pupil to think that s/he had failed because of lack of effort and attention, and the other induced the pupil to think that s/he had failed because of lack of ability or because of the influence of external factors.

Having in mind what we have said previously in Chapter 3 about the effects different attributions for failure might have on expectancies, in analysing our results we considered comments referring to lack of effort and lack of attention as more helpful to the pupils than comments referring to lack of ability and to the influence of external factors.

3. Procedure

The questionnaires were administered to the trainee-teachers at the end of two of their lecture sessions. They were told that they were participating in a study of children's motivation. After the trainee-teachers had completed the questionnaires, the study was fully explained and their comments reported to them.

4. Findings

In analysing our results we concentrated on the difference between types of attribution in the number of helpful comments they elicited from the trainee-teachers.

The highest number of helpful comments each one of the 52 trainee-teachers could have chosen to make when the pupils' failure

was attributed to factors which are relatively beyond the teachers' power to influence was 6, since the failure of 6 of the 12 pupils was attributed to such factors.

The same was the case with helpful comments chosen to be made by each one of the 52 trainee-teachers when the pupils' failure was attributed to factors more amenable to influence as far as the teachers are concerned; the highest number of helpful comments each one of the 52 trainee-teachers could have chosen to make was 6, since the failure of 6 of the 12 pupils was attributed to factors which the teachers can more easily influence.

In examining our results we tried to find out whether there were any trainee-teachers who had adopted a certain pattern of more helpful/less helpful comments as a result of attributing the pupils' failure to different factors. It was clearly evident that such a pattern existed, because 44 of the 52 trainee-teachers had chosen to make more helpful and motivating comments when they were induced to believe that pupils' failure was due to factors which are relatively within the teachers' power to influence than when they were induced to believe that pupils' failure was caused by factors which are relatively beyond the teachers' power to influence. The z test of significance of difference of proportion was used to find out whether the difference in the number of teachers who had adopted the pattern of more helpful/less helpful comments as a result of attributing the pupils' failure to different factors was statistically significant; one-tailed p of z ($z \leq -6.04$) was $p = 0.000$, indicating that the difference was highly significant.

What these results indicate is that teachers' attributions for pupils' failures are important since they make a difference on what

the teachers say to their pupils after failure. And the teachers' comments to the pupils about the causes of their failure may have an effect on pupils' attributions for those failures, which, in turn, may influence their expectancies for future success or failure on similar tasks and their persistence behaviour in the face of failure.

Making comments which imply to the pupil that s/he has failed on a certain task because of lack of ability might lead the pupil to believe that s/he will lack the ability to do well in the future, and that belief might inhibit her/him from trying more. Attributing failure to lack of ability might foster the development of the perception that there is independence between the behaviour and the outcome, which might lead to giving up in the face of failure.

The same might be the case with comments which imply to the pupil that s/he has failed because of the influence of external factors. Since a pupil cannot control something which is out of her/himself, the same perception of independence between what s/he does and what happens to her/him might emerge, leading the pupil to a pathetic attitude toward her/his failures.

But there seems to be a difference with comments which imply to the pupil that s/he has failed because of lack of effort. Effort is something which can be augmented, something which the pupil can control and better in the future. Effort attributions for failure imply that there is a relation between behaviour and outcome, and that, if the first changes, it might influence the second. Pupils who are induced to believe that they have failed because of lack of effort might try more next time in order to achieve the desired outcome.

An implication of the previously mentioned finding is that, since, at least the trainee-teachers of our sample, do not seem to be fully aware of the harmful effects certain attributions for failure experiences might have on their pupils, there is a need to make them familiar with the subject. And, furthermore, to make them familiar with the methods they could use in order to help their pupils to make attributions for failure which would help them in their achievement behaviour, a subject we have already discussed in Chapter 3.

As God disposes
man laughs or weeps

Sophocles

C O N C L U S I O N S

I. The schools' study

With reference to the frequencies of the pupils' internal and external responses to the IAR questionnaire and their overall IAR mean scores, the results of the present research project have revealed that a fair amount of externality existed among the pupils studied. And this is slightly worrying, since the pupils who participated in the present study were very young and not yet in a position to know what they are able to accomplish and achieve and what not. For pupils as young as those of our sample to grow up believing, even to no great degree, that factors external to themselves determine school successful and unsuccessful outcomes implies a somewhat passive attitude towards success and failure, which is not going to help them in the pursuit of achievement.

With reference to the pupils' internal responses to the IAR questionnaire we do not know whether the pupils tended to attribute their school failures to lack of ability or to lack of effort. What we have to keep in mind is that attribution of failure outcomes internally to lack of ability rather than to lack of effort is not a

helpful attitude as far as persistence behaviour in the face of failure is concerned.

In cases where the pupils tend to hold unhelpful locus of control of reinforcement beliefs the role of the teacher becomes particularly important. Locus of control beliefs, as we have already mentioned in Chapter 3, can be changed through the employment of various techniques and procedures, and the teacher, through the adoption and use of those techniques and procedures, is one of the persons who could help in bringing about this change, helping pupils who have a rather unhelpful locus of control orientation to give it up and move towards a locus of control orientation which could facilitate the pursuit of achievement.

The results of the present study have also revealed that having an internal locus of control belief system for school success experiences does not imply necessarily an internal locus of control belief system for school failure experiences. This became evident by the low correlations between I+ (success) and I- (failure) subscores. This finding appears to justify those persons who suggested the separate assessment of Internal-External locus of control beliefs for success and failure outcomes.

With regard to age differences in Internal-External locus of control beliefs, it was found that the pupils' IAR scores tended to become slightly higher, that is more internal, with increasing age. This increase in internality was statistically significant, but small. The only exception was with girls' I+ subscore indicating acceptance of responsibility for success.

As far as the sex differences in Internal-External locus of control beliefs were concerned, there were no statistically

significant sex differences with reference to Internal-External locus of control beliefs for school success outcomes. But with regard to Internal-External locus of control beliefs for failure outcomes, girls, in comparison to the boys, gave more internal subscores. Although the difference between boys' and girls' I-(failure) subscores was statistically significant, nevertheless, it was very small.

With regard to the interactive effect of teachers' sex and pupils' sex on the pupils' Internal-External locus of control beliefs, our results have revealed that girls' IAR scores were not more internal than those obtained by the boys when the classroom teachers were female, and that boys, in comparison to the girls, did not give more internal IAR scores when the classroom teachers were male.

Teachers did not prove themselves accurate judges of their pupils' degree of acceptance of responsibility either for school successes or failures.

We have said previously that the teachers could play an important role in helping their pupils to change locus of control beliefs which might impede their school performance and academic achievement. But, in order to be able to do that, teachers must, first of all, be able to identify those pupils who are holding harmful locus of control beliefs. And it seems that the teachers who have participated in the present research project were not accurate when assessing their pupils' Internal-External locus of control orientation.

Of course, it is only fair to the teachers to say that, when one is dealing with personal judgement in relation to such

individual characteristics and tendencies as acceptance of responsibility for success and failure outcomes, one is facing difficulties. Children, very often, are quite reserved in their reactions and in revealing their feelings and beliefs, and it might be difficult for the teachers to trace the children's true feelings and beliefs and make precise judgements which would meet the reality of the actual situation.

On the other hand, the teachers' task does not have to be an easy one. And it might be possible for the teachers, through discussions with children and through observation of their reactions to their success and failure experiences, to find out what they believe about the locus of control of reinforcement of the successes and failures they receive in school.

Teachers' lack of awareness of the importance locus of control beliefs may have on the academic achievement of the pupils was evident in the attributions they were asked to make for the strength of the educational motivation of their pupils.

Our results have revealed that the teachers never referred directly to pupils' beliefs about Internal-External locus of control of reinforcement as a variable influencing the strength of their motivation.

With reference to the other variables to which the teachers attributed their pupils' strength of motivation, it became evident that they concentrated on factors which may be considered as being relatively beyond the teachers' power to influence. Those factors were related to pupils' ability, home background, social problems, personality, and health and physical appearance.

Less often teachers attributed pupils' strength of motivation

to factors which may be regarded as being relatively within the teachers' power to influence. Those factors were related to pupils' effort and concentration, and to the role the teacher may play in motivating the pupils.

One particularly interesting finding with regard to the attributions made by the teachers was that they referred only slightly to the influence they might have on their pupils' strength of motivation.

II. The training college study

The results obtained from the training college study revealed that the attributions teachers make for pupils' failures are not only of theoretical significance but they have practical importance as well, since they influence what the teachers say to their pupils after failure. And what the teachers say to their pupils may have an effect on the pupils' expectancies for future success or failure, and on their persistence in the face of failure.

Furthermore, the results of the training college study have showed that the trainee-teachers who participated in the present study were not fully aware of the harmful effects certain attributions for failure might have on their pupils' expectancies and persistence behaviour.

It seems that there is a need for their training course not only to make them aware of the significance of the subject, but, also, to make them familiar with methods and techniques they could use in order to help those children who tend to perceive an independence between their behaviour and failure outcomes to change that perception into one which might help them to try more in the face of failure.

A P P E N D I X I

List of the 21 schools which participated in the present research project

1. Durham Laurel Avenue County J.M. School,
Laurel Avenue, Sherburn Road Estate, Gilesgate Moor, Durham.
2. Shincliffe C.E. J.M. and I. School,
Shincliffe, Durham.
3. Cornforth Lane County J.M. and I. School,
Cornforth Lane, Coxhoe, Durham.
4. Bowburn County J.M. School,
Bowburn, Durham.
5. Durham St Margaret's C.E. (Cont.) J.M. School,
Crossgate Peth, Durham.
6. Langley Moor County J.M. and I. School,
Brandon Lane, Langley Moor, Durham.
7. Durham St Godric's R.C. J.M. and I. School,
Castle Chare, Framwellgate, Durham.

8. Ushaw Moor County J.M. School,
Temperance Terrace, Ushaw Moor, Durham.
9. Ludworth County J.M. and I. School,
Ludworth, Durham.
10. Durham Finchale County J.M. School,
Canterbury Road, Newton Hall, Durham.
11. Witton Gilbert County J.M. and I. School,
Witton Gilbert, Durham.
12. West Rainton County J.M. School,
Leamside, Houghton-le-Spring.
13. Cassop County J.M. and I. School,
Cassop, Durham.
14. Durham St Hild's C.E. J.M. and I. School,
Renny's Lane, Gilesgate, Durham.
15. Sherburn Hill County J.M. and I. School,
Sherburn Hill, Durham.
16. Durham Gilesgate County J.M. School,
Kepier Lane, Gilesgate, Durham.

17. Waterhouse County J.M. School,
College View, Esh Winning, Durham.
18. Bearpark County J.M. and I. School,
Bearpark, Durham.
19. Durham Gilesgate St. Joseph's R.C. J.M. and I. School,
Mill Lane, Gilesgate, Durham.
20. Kelloe County J.M. and I. School,
Kelloe, Durham.
21. Browney County J.M. and I. School,
Browney, Durham.

A P P E N D I X 2

The Intellectual Achievement Responsibility (IAR) Questionnaire

I am going to ask you some questions. Each question can be answered one way or another way. You are supposed to answer each question the way you really feel and that is the right answer for you. The way you really feel may not be the same as the boy or girl sitting next to you and so your answer may not be the same. You just mark your answer the way you really feel and that will be just fine. I'll read each question very carefully and then I'll read the answers. Your answer will be A or B, but not both. If answer A is how you really feel, circle A. If answer B is how you really feel, then circle B. Only make one circle for each question. Do not circle both A and B on the same question.

1. If a teacher gave you a good report would it probably be
A because the teacher liked you, or
B because of the work you did?

2. When you do well on a test at school, is it more likely to be
A because you studied for it, or
B because the test was especially easy?

3. When you have trouble understanding something in school, is it usually
A because the teacher didn't explain it clearly, or
B because you didn't listen carefully?

4. When you read a story and can't remember much of it, is it usually
A because the story wasn't well written, or
B because you weren't interested in the story?

5. Suppose your parents say you are doing well in school. Is it likely to happen
A because your school work is good, or
B because they are in a good mood?

6. Suppose you did better than usual in a subject at school. Would it probably happen
A because you tried harder, or
B because someone helped you?

7. When you lose at a game, does it usually happen
A because the other player is good at the game, or
B because you don't play well?

8. Suppose a person doesn't think you are very bright or clever.
A can you make him change his mind if you try to, or
B are there some people who will think you're not very bright no matter what you do?

9. If you solve a puzzle quickly, is it
A because it wasn't a very hard puzzle, or
B because you worked on it carefully?
10. If a boy or girl tells you that you are stupid, is it more likely that they say that
A because they are mad at you, or
B because what you did really wasn't very bright?
11. Suppose you study to become a teacher, scientist, or doctor and you fail. Do you think this would happen
A because you didn't work hard enough, or
B because you needed some help and other people didn't give it to you?
12. When you learn something quickly in school, is it usually
A because you paid close attention, or
B because the teacher explained it clearly?
13. If a teacher says to you, 'Your work is fine', is it
A something teachers usually say to encourage pupils, or
B because you did a good job?
14. When you find it hard to solve arithmetic or mathematic problems at school, is it
A because you didn't study well enough before you tried them,
or
B because the teacher gave problems that were too hard?

15. When you forget something you heard in class, is it
A because the teacher didn't explain it very well, or
B because you didn't try very hard to remember?
16. Suppose you weren't sure about the answer to a question your teacher asked you, but your answer turned out to be right. Is it likely to happen
A because the teacher wasn't as particular as usual, or
B because you gave the best answer you could think of?
17. When you have read a story and remembered most of it, is it usually
A because you were interested in the story, or
B because the story was well written?
18. If your parents tell you you're acting silly and not thinking clearly, is it more likely to be
A because of something you did, or
B because they happened to be in a bad mood?
19. When you don't do well on a test at school, is it
A because the test is especially hard, or
B because you didn't study for it?
20. When you win at a game, does it happen
A because you play really well, or
B because the other person doesn't play well?

21. If people think you're bright or clever, is it
A because they happen to like you, or
B because you usually act that way?
22. If a teacher didn't give you a good report, would it probably
be
A because the teacher 'had it in for you', or
B because your school work wasn't good enough?
23. Suppose you don't do as well as usual in a subject at school.
Would this probably happen
A because you weren't as careful as usual, or
B because somebody bothered you and kept you from working?
24. If a boy or girl tells you that you are bright, is it usually
A because you thought up a good idea, or
B because they like you?
25. Suppose you became a famous teacher, scientist or doctor. Do
you think this would happen
A because other people helped you when you needed it, or
B because you worked hard?
26. Suppose your parents say you aren't doing well in your school
work. Is this likely to happen more
A because your work isn't very good, or
B because they are in a bad mood?

27. Suppose you are showing a friend how to play a game and he has trouble with it. Would that happen
- A because he wasn't able to understand how to play, or
 - B because you couldn't explain it well?
28. When you find it easy to solve arithmetic or mathematic problems at school, is it usually
- A because the teacher gave you especially easy problems, or
 - B because you studied well before you tried them?
29. When you remember something you heard in class, is it usually
- A because you tried hard to remember, or
 - B because the teacher explained it well?
30. If you can't solve a puzzle, is it more likely to happen
- A because you are not especially good at solving puzzles, or
 - B because the instructions weren't written clearly enough?
31. If your parents tell you that you are bright or clever, is it more likely
- A because they are feeling good, or
 - B because of something you did?
32. Suppose you are explaining how to play a game to a friend and he learns quickly. Would that happen more often
- A because you explained it well, or
 - B because he was able to understand it?

33. Suppose you're not sure about the answer to a question your teacher asks you and the answer you give turns out to be wrong.

Is it likely to happen

A because the teacher was more particular than usual, or

B because you answered too quickly?

34. If a teacher says to you, 'Try to do better', would it be

A because this is something the teacher might say to get pupils to try harder, or

B because your work wasn't as good as usual.

A P P E N D I X 3

Tables 8-19 present the descriptive statistics of the t-test comparisons for sex differences in I+ (success), I- (failure) subscores and I total (success and failure combined) scores.

Table 8 presents the descriptive statistics of the t-test comparison for sex-differences in I+ (success) subscores of pupils 9-years old

<u>Variable</u>	<u>No. of cases</u>	<u>Mean</u>	<u>S.D.</u>
I+ subscore			
Boys	37	12.4054	2.409
Girls	41	12.6098	2.246

Table 9 presents the descriptive statistics of the t-test comparison for sex differences in I-(failure) subscores of pupils 9-years old

<u>Variable</u>	<u>No. of cases</u>	<u>Mean</u>	<u>S.D.</u>
I- subscore			
Boys	37	11.1622	2.421
Girls	41	11.1463	2.632

Table 10 presents the descriptive statistics of the t-test comparison for sex differences in I total (success and failure combined) scores of pupils 9-years old

<u>Variable</u>	<u>No. of cases</u>	<u>Mean</u>	<u>S.D.</u>
I total score			
Boys	37	23.5676	4.180
Girls	41	23.7561	4.067

Table 11 presents the descriptive statistics of the t-test comparison for sex differences in I+ (success) subscores of pupils 10-years old

<u>Variable</u>	<u>No. of cases</u>	<u>Mean</u>	<u>S.D.</u>
I+ subscore			
Boys	311	12.8424	2.534
Girls	308	13.0162	2.419

Table 12 presents the descriptive statistics of the t-test comparison for sex differences in I- (failure) subscores of pupils 10-years old

<u>Variable</u>	<u>No. of cases</u>	<u>Mean</u>	<u>S.D.</u>
I-subscore			
Boys	311	10.9293	2.768
Girls	308	11.4773	2.720

Table 13 presents the descriptive statistics of the t-test comparison for sex differences in I total (success and failure combined) scores of pupils 10-years old

<u>Variable</u>	<u>No. of cases</u>	<u>Mean</u>	<u>S.D.</u>
I total score			
Boys	311	23.7717	4.206
Girls	308	24.4740	4.297

Table 14 presents the descriptive statistics of the t-test comparison for sex differences in I+ (success) subscores of pupils 11-years old

<u>Variable</u>	<u>No. of cases</u>	<u>Mean</u>	<u>S.D.</u>
I+ subscore			
Boys	304	13.0461	2.606
Girls	287	13.4042	2.385

Table 15 presents the descriptive statistics of the t-test comparison for sex differences in I-(failure) subscores of pupils 11-years old

<u>Variable</u>	<u>No. of cases</u>	<u>Mean</u>	<u>S.D.</u>
I-subscore			
Boys	304	11.5230	2.788
Girls	287	12.0592	2.690

Table 16 presents the descriptive statistics of the t-test comparison for sex differences in I total (success and failure combined) scores of pupils 11-years old

<u>Variable</u>	<u>No. of cases</u>	<u>Mean</u>	<u>S.D.</u>
I total score			
Boys	304	24.5954	4.470
Girls	287	25.4599	4.174

Table 17 presents the descriptive statistics of the t-test comparison for sex differences in I+ (success) subscores of all pupils

<u>Variable</u>	<u>No. of cases</u>	<u>Mean</u>	<u>S.D.</u>
I+ subscore			
Boys	653	12.9173	2.563
Girls	639	13.1534	2.403

Table 18 presents the descriptive statistics of the t-test comparison for sex differences in I- (failure) subscores of all pupils

<u>Variable</u>	<u>No. of cases</u>	<u>Mean</u>	<u>S.D.</u>
I- subscore			
Boys	653	11.2251	2.772
Girls	639	11.7105	2.717

Table 19 presents the descriptive statistics of the t-test comparison for sex differences in I total (success and failure combined) scores of all pupils

<u>Variable</u>	<u>No. of cases</u>	<u>Mean</u>	<u>S.D.</u>
I total score			
Boys	653	24.1547	4.349
Girls	639	24.8529	4.261

A P P E N D I X 4

Figures 4-9 present the frequencies of the internal and external responses, endorsed by girls and boys separately, to the I+ (success), I- (failure) subscales and I total (success and failure combined) scale of the IAR questionnaire.

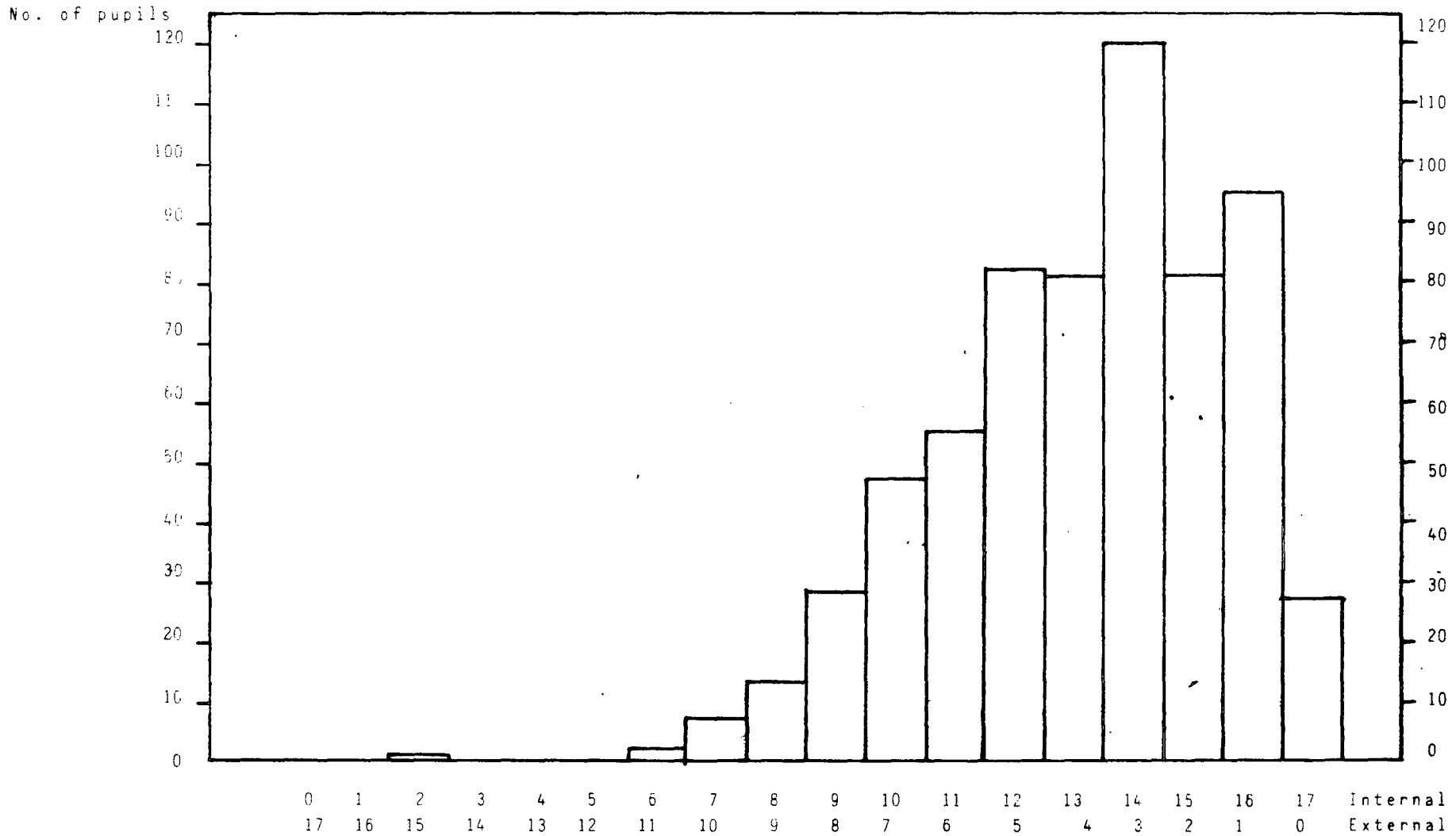


Figure 4 Frequencies of the girls' internal and external responses to the I+ (success) subscale of the IAR questionnaire.

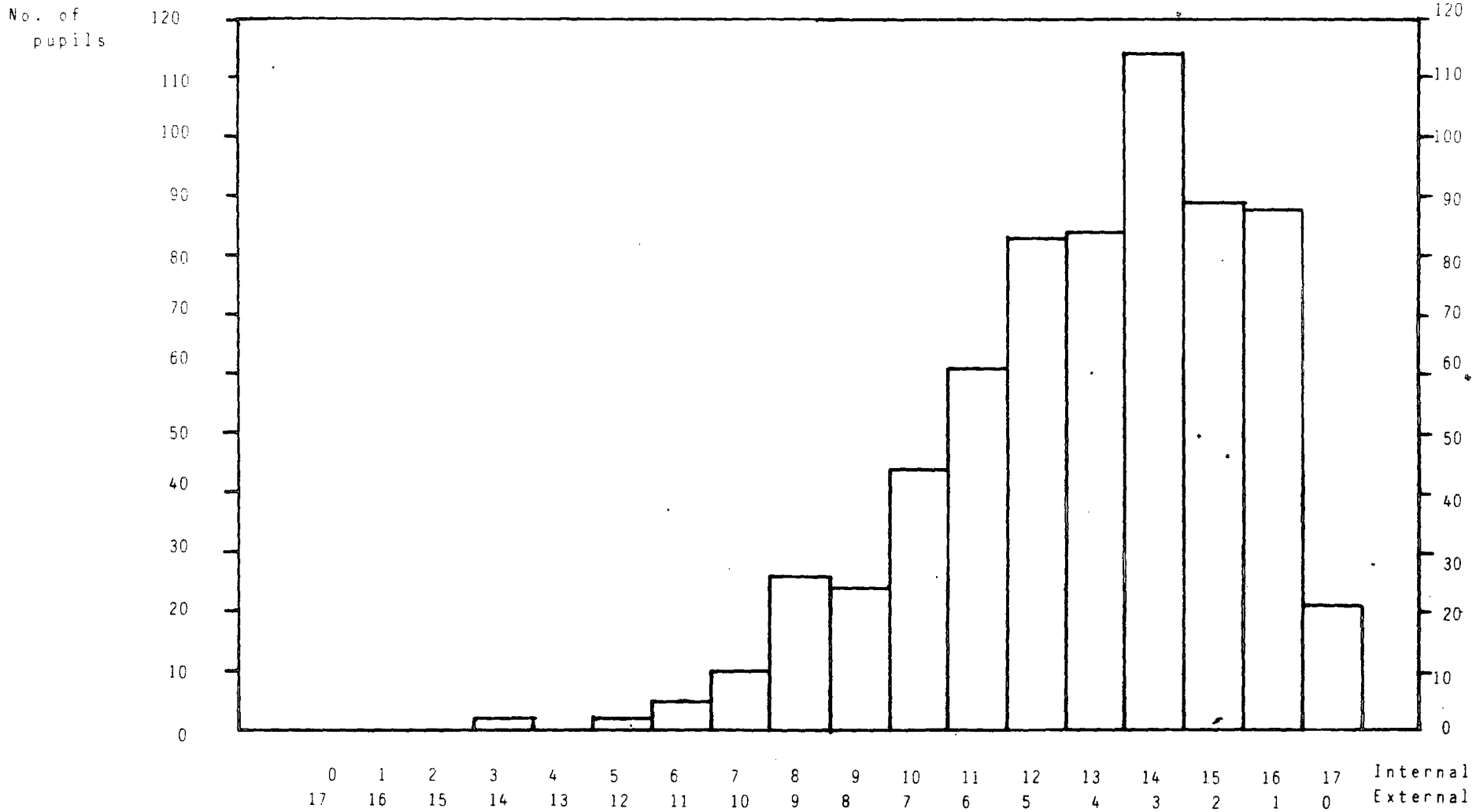


Figure 5 Frequencies of the boys' internal and external responses to the I+ (success) subscale of the IAR questionnaire.

No. of
pupils

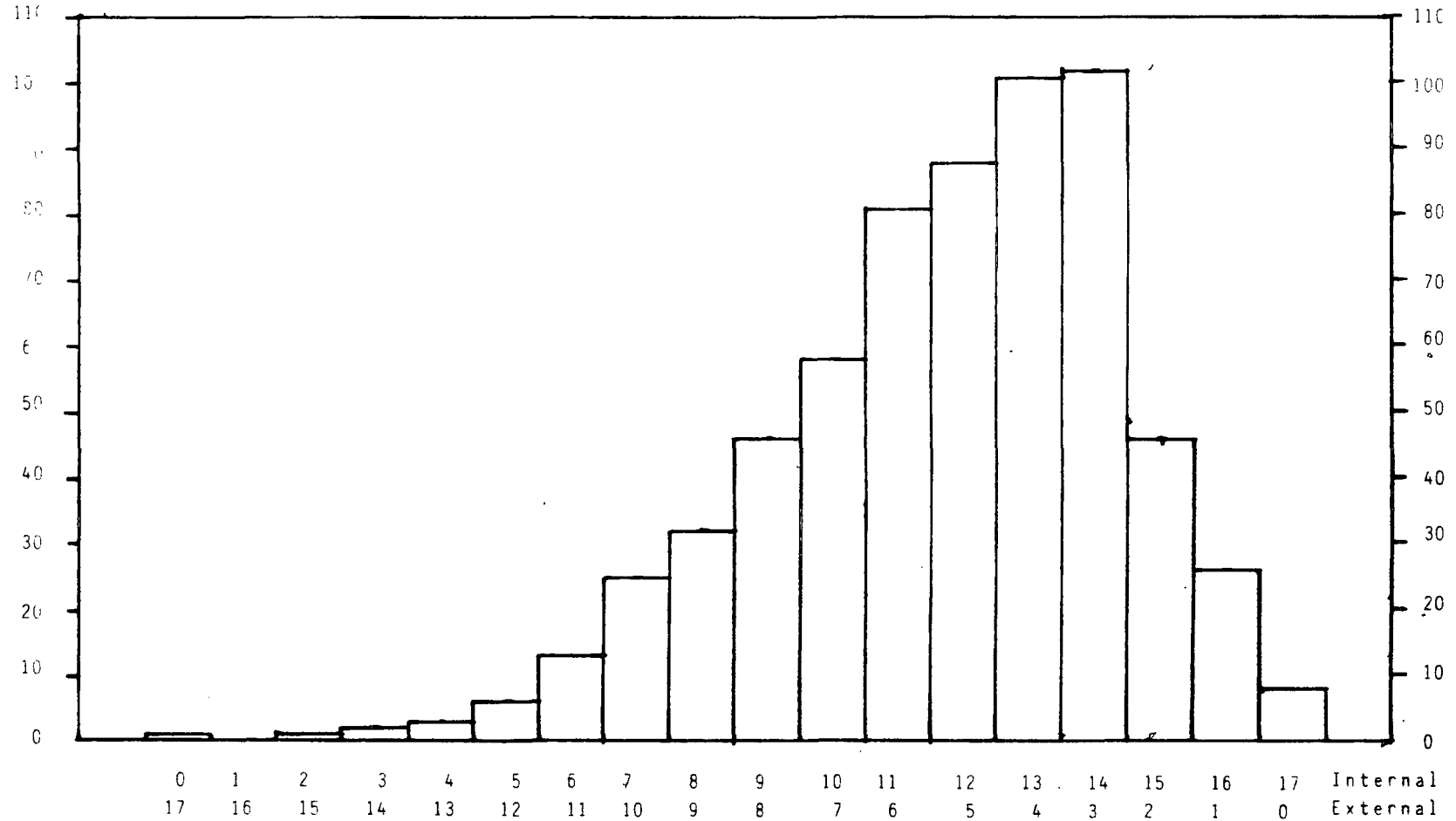


Figure 6

Frequencies of the girls' internal and external responses to the I- (failure) subscale of the IAR questionnaire.

No. of pupils

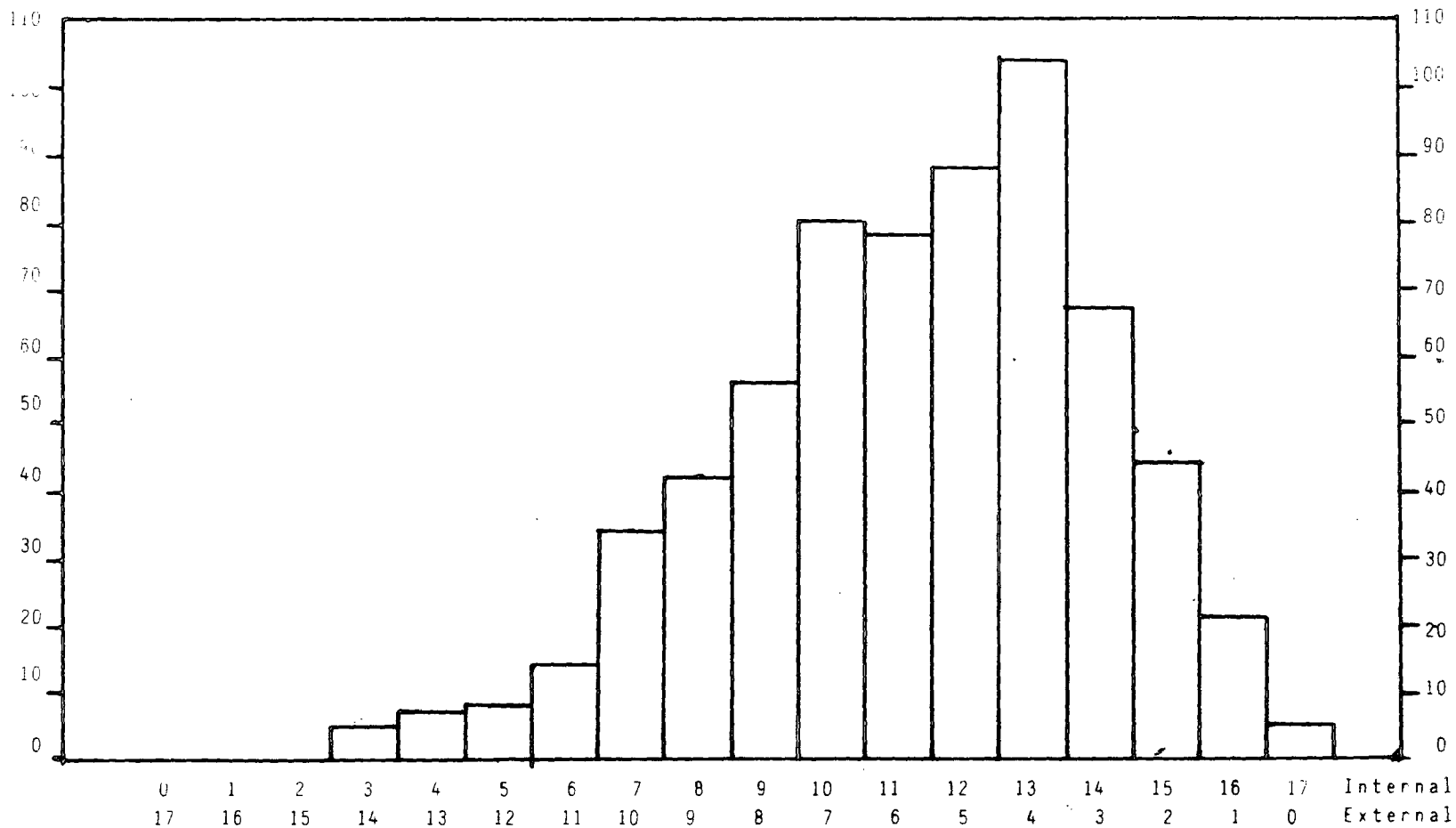


Figure 7

Frequencies of the boys' internal and external responses to the I- (failure) subscale of the IAR questionnaire.

No. of pupils

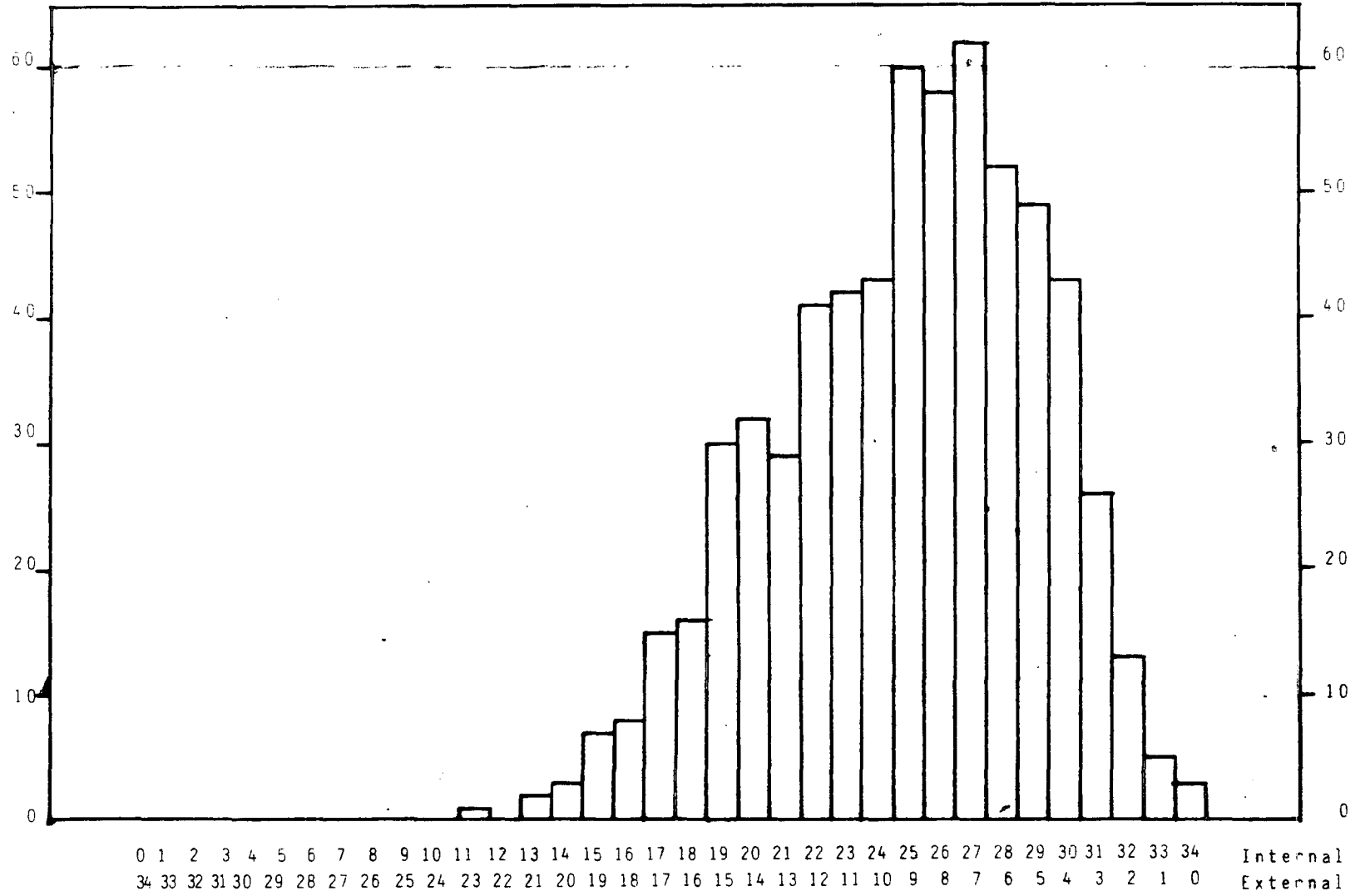


Figure 8 Frequencies of the girls' internal and external responses to the I total (success and failure combined) scale of the IAR questionnaire.

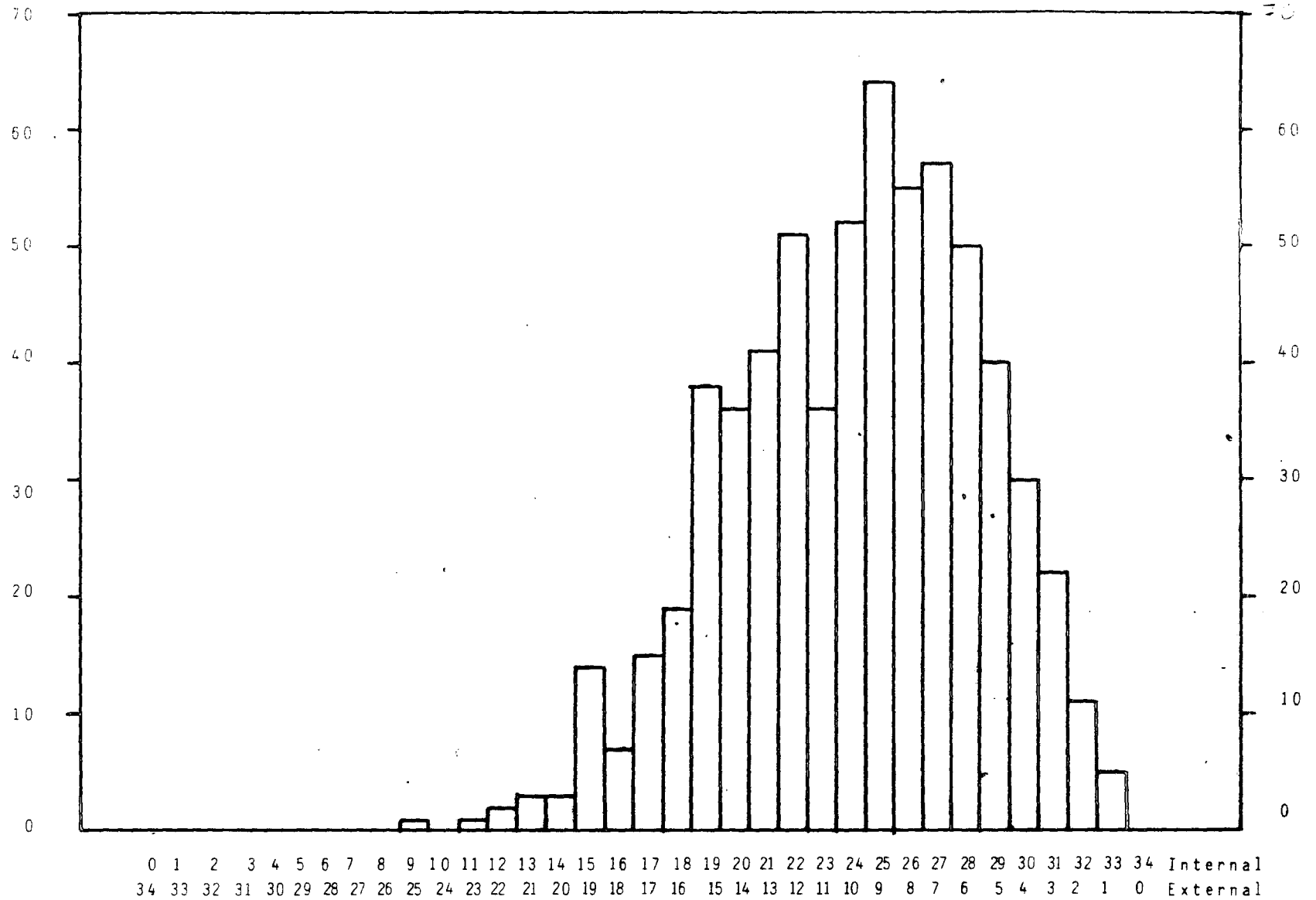


Figure 9 Frequencies of the boys' internal and external responses to the I total (success and failure combined) scale of the IAR questionnaire.

A P P E N D I X 5

Tables 20-25 present the means, standard deviations, and minimum and maximum of I+ (success) and I- (failure) subscores given by boys and girls, considered together and separately, classified by their teachers to each one of the three acceptance of responsibility for success groups, and to each one of the three acceptance of responsibility for failure groups.

Table 20 presents the means, standard deviations, and minimum and maximum of I+ (success) subscores given by boys and girls classified by their teachers to each one of the three acceptance of responsibility for success groups.

	<u>No. of pupils</u>	<u>Mean</u>	<u>S.D.</u>	<u>Minimum</u>	<u>Maximum</u>
Group 1	767	13.1108	2.5041	2.0000	17.0000
Group 2	55	13.1273	2.5752	5.0000	17.0000
Group 3	109	12.3670	2.5227	6.0000	17.0000

Table 21 presents the means, standard deviations, and minimum and maximum of I+ (success) subscores given by boys classified by their teachers to each one of the three acceptance of responsibility for success groups.

	<u>No. of pupils</u>	<u>Mean</u>	<u>S.D.</u>	<u>Minimum</u>	<u>Maximum</u>
Group 1	373	12.9062	2.5578	3.0000	17.0000
Group 2	29	12.8966	2.8201	5.0000	17.0000
Group 3	61	12.0820	2.5318	7.0000	16.0000

Table 22 presents the means, standard deviations, and minimum and maximum of I+ (success) subscores given by girls classified by their teachers to each one of the three acceptance of responsibility for success groups.

	<u>No. of pupils</u>	<u>Mean</u>	<u>S.D.</u>	<u>Minimum</u>	<u>Maximum</u>
Group 1	394	13.3046	2.4398	2.0000	17.0000
Group 2	26	13.3846	2.2992	7.0000	16.0000
Group 3	48	12.7292	2.4903	6.0000	17.0000

Table 23 presents the means, standard deviations, and minimum and maximum of I- (failure) subscores given by boys and girls classified by their teachers to each one of the three acceptance of responsibility for failure groups.

	<u>No. of pupils</u>	<u>Mean</u>	<u>S.D.</u>	<u>Minimum</u>	<u>Maximum</u>
Group 1	743	11.6366	2.7215	2.0000	17.0000
Group 2	65	11.2462	2.5558	4.0000	16.0000
Group 3	146	10.7740	2.7687	3.0000	17.0000

Table 24 presents the means, standard deviations, and minimum and maximum of I- (failure) subscores given by boys classified by their teachers to each one of the three acceptance of responsibility for failure groups.

	<u>No. of pupils</u>	<u>Mean</u>	<u>S.D.</u>	<u>Minimum</u>	<u>Maximum</u>
Group 1	367	11.2861	2.7634	3.0000	17.0000
Group 2	30	11.0333	2.6585	4.0000	16.0000
Group 3	84	10.3214	2.7117	3.0000	16.0000

Table 25 presents the means, standard deviations, and minimum and maximum of I- (failure) subscores given by girls classified by their teachers to each one of the three acceptance of responsibility for failure groups.

	<u>No. of pupils</u>	<u>Mean</u>	<u>S.D.</u>	<u>Minimum</u>	<u>Maximum</u>
Group 1	376	11.9787	2.6391	2.0000	17.0000
Group 2	35	11.4286	2.4886	7.0000	15.0000
Group 3	62	11.3871	2.7482	3.0000	17.0000

A P P E N D I X 6

The 9 categories of teachers' attributions for the strength of their
pupils' educational motivation

Attributions referring to ability

Clever, intelligent, bright

Fair ability

Above average ability

Good academic ability

Good verbally

Quite good in general knowledge

Capable in practical activities

Good artistically

Good in historical work

Creative ability

Limited intelligence, poor intellect, low I.Q.

Poor academic ability

Less than average ability

Has difficulties with many things

Severe retardation academically

Educationally subnormal

Finds the work difficult

Cannot adapt skills acquired to problem work

Poor ability

Weak academically

Slow learner

Slow and dull

Poor reader

Very poor memory

Attributions referring to home background

Broken family

Family insecurity, unstable home background

Difficulties over unstable parental relationship

Difficult home background

Unhappy family background-tragic preschool life

Poor home background (physically)

Poor home background (academically)

Questionable background

Possible wrong home background

Parental lack of interest

Parents expect little

Mother admits child's dull intellect to her own education

Anti-school attitude (particularly mother)

Not encouraged to communicate in the home

Parents have limited ability, semi-literate parents

Father dead

Mother dead

Adopted child

Taken into care by the local council into a home

Deprived child

Home background maternally deprived .

Disruptive brother - follows his example

Her brother and parents in trouble with the police

Family of three children - the other two boys don't seem to

want to achieve

Mother inclined to compare the child with other children

Over shadowed by clever sister

Good parental influence

Good home background

Family academic background

Good home influence although of no academic type

Lots of varied experiences

Aware of the failings and shortcomings of her background

Good parental attitudes

Part-time teaching mother, mother teacher

Both parents teachers

Good home

Clever family

Parental interest

Parental encouragement

Mother concerned, mother keen to help

Father very interested

Contact of parents with teacher

Parents over-conscious for child to do well

Parents wish him to do well, parents keen for him to do well

Over protective parents

Parents fairly young - they do accept him as he is

Her mother does not push the child

Attributions referring to personality

Quiet, quiet in her outlook

Calm

Does not express herself, does not reveal his feelings

Introverted

Withdrawn

Shy

Timid

Extrovert

Dreamer, day-dreamer, absent-minded

Lives in a world of his own

Talkative, chatterbox

Reliable, consistent, serious disposition, solid, dependable,
sensible

Slightly anxious, anxious, worrier

Hyperactive

Nervous child, nerves

Excitable, very easily upset

Happy personality, happy

Easy-going nature, carefree

Fussy over slightest injury

Fussy

She is very prone to moods which make her resentful sometimes
and others not

Dependant

Conformist

No sense of humour

Good sense of humour

Wilful

Emotional child

Genuine

Organiser

Outgoing girl

Honest

Steady

Bustles

Normal child

Insolent

She gets a bit resentful when things are wrong

Clown of the classroom, joker

Quite mature in her outlook, very mature

Giggler

Can be inclined to giddiness on occasion

Well balanced

Stable personality

Old fashioned

Very independent child in the school society

Unstable

Inconsistent

Irresponsible

Always accepts criticism

Cheerful

Imaginative

Determination on the part of the child

Emotionally unstable

Very awkward-complicated child

A very mixed-up child

Not friendly, developing rather an unfriendly attitude

Aggressive

Has a cruel streak toward contemporaries

Personal problems

Now and again gets frustrated, easily disheartened, easily
upset by problems, gets discouraged easily

Responsible attitude with other children

Pleasant child, pleasant personality, lovely child, nice nature

Affable

Popular personality

Very mothered, relies on mother

Relies on elder brother to create interest

Self-possessed, self-reliant, confident, high opinion of self,
full of her own importance

Dislike for authority figures

Likes a comfortable life

Poor self-image, lacks confidence in herself, unsure of
herself, feels inadequate

Attributions referring to social problems

Maladjusted

Anti-social

Mischievous, disciplinary problems, not well behaved

Misbehaves to seek attention

Sometimes behaviour problems at school, sometimes misbehaves

Bully

Social problems with other children, often in conflict with
other children

Gets in trouble outside school

Always in trouble

At times relationships with other children is strained

Too interested in disruption, disruptive

Social maladjustment

She changed three schools because of problems with teachers

Attributions referring to health and physical appearance

Poor eye-sight

Over-weight, weight problems, solid-heavy child

Health problems, medical problems

Attributions referring to effort and concentration

Generally gives best work

Always gives 100%

Works well, good worker, excellent worker

Works reasonably well

Steady worker

Sound worker

Conscientious worker

Does apply herself

Constant application

Lack of application

Works hard

Tries hard

Works to the best of ability

Often works very hard

Usually tries

Keen worker, eager to produce excellent work

Willing worker

Industrious worker, assiduous worker, diligent pupil

Works, does the work

Works hard but not quickly

Works with enthusiasm

Does not try

Small effort

Does not give his best, does not use his ability

Below average effort

Does not work at all

Erratic attitude to work

Lazy at times

Flightily 'opts out' with head-aches

Prefers to draw-illustrate rather than do written work

Does written work required but nothing more

Answers well orally but has refused to do written work

Works slowly but methodically

Rather dilatory

Sleepy, lethargic, indolent

Works very hard at the things she likes

Wants to work

Doing one's best in all things - general attitude to life

Expects to work in school, school is a place for work, works

because he feels he has to

Likes to do what is expected, sense of duty

Tends to rest on his past achievements

Works quite well if he fully applies himself

Can work quite well on occasions

When works hard extremely keen

Rushes all work, works too quickly, urge for speed

Work with little attention paid to detail

A little 'slapdash' in her work

Easy going in her attitude to work

Wants the work done rather than to be right, careless work

Tends to waste a lot of time

Poor ability to concentrate, lapses of concentration

Written work lacks concentration

Easily bored, easily distracted

Attributions referring to teacher influence

Has to be encouraged to ask

Needs encouragement, works well with encouragement

Responds to encouragement

Needs to be helped, needs direction

When helped individually he works well

Tries better in one-to-one situation

Needs pushing from the teacher for results

Has to be forced to do work

Praise and encouragement from teacher

Motivated by teacher only

Responsive to male teacher

Attributions referring to desires, interests and needs

Interested pupil, motivated through interest, interest in work

Keen interest in everything

Interested in learning

He is interested in education

Genuine interest in academic subjects

Not interested in school work

No interest in school, negative attitude towards school

Not interested in education

No interest in learning

Lacks any interest

Desire for knowledge

Desire to please himself, desire to please herself

Desire to succeed

Desire to succeed academically

Desire to improve himself, desire to improve herself

Desire to progress

Desire to do well in life

Desire to do well for the sake of doing well rather than a
motivation brought about by love of knowledge itself

Desire to do well

Desire to be first

Desire to win

Does not care about success, does not seem to care if he
succeeds or not

Indifferent attitude to success and failure

He does not want to improve himself

No motivation to succeed academically
Desire to please
Desire to please others rather than for her own satisfaction
Desire for praise
Desire for approval
Parents and peer approval
Desire to gain favour
Need to be liked
Likes recognition from adults
Was looking to be liked by adults
Loves attention
Likes to show off his ability
Has brother with less ability and likes to show him up
She does not want to be fun of the children
Fear of being reprimanded
Afraid to be offended
Appears to be brightest in the family and very keen to remain
that way
Come in touch with parents
Fulfilling her parents' ambitions
Desire to please parents
Come in touch with teacher
To be on the side of the teacher, to be popular with the
teacher
Come in touch with teachers and parents
Praise or criticism make little difference
Desire to please teacher
Works to avoid trouble

self-interest

Sees relevance of a good education

Cannot see relevance of education

Attributions referring to non-academic interests

Interested in sports rather than academic work
Would rather watch TV or sport-passive occupation
Non-academic interests
Diversity of interests
Games interests
Sport-loving child
Involved in many activities - music - athletics
Durham City-Club swimmer

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